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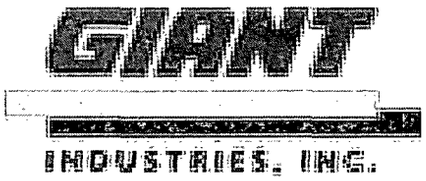
REPORTS

YEAR(S):

2007 - Present

Evaluation of Interim Measures
Bloomfield Refinery



Giant Refining Company
Bloomfield, New Mexico

January 2008

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OCD

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Evaluation of Interim Measures
Bloomfield Refinery

Giant Refining Company
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January 2008

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Section 1
Introduction

JD Consulting, L.P. (JDC) completed an evaluation of the interim measures that Giant Refining Company has implemented near and along the bluff the runs along that northern edge of the Bloomfield Refinery. These interim measures include:

- A slurry wall that extends along the western and northern edge of the refinery and along the top of the bluff above the San Juan River for approximately 2,600 feet;
- A French drain that was constructed beneath the Hammond Ditch in 2002, when the ditch was lined with concrete; and
- Temporary catchment basins to collect ground water discharging from seeps along the face of the bluff.

JDC reviewed water level records and potentiometric surface maps; hydrocarbon thickness measurements and associated maps; available dissolved-phase concentration information; recovery records for the seep catchments (outfall records), recovery wells, and the French drain; and available hydrogeologic information (well logs, cross sections, etc.) for the area along the North Barrier Wall and near the seeps.

The following activities were identified that provide negligible benefit compared to the level of effort being expended and recommendations were developed to improve efficiencies:

- The catchment basins were installed as temporary measures to address the seeps prior to construction of the slurry wall and French drain. Since the installation of the slurry wall, the flow from the seeps has decreased but maintenance and safety issues continue with the catchment basins; and
- Recovery operations are conducted at the collection and observation wells that were installed along the slurry wall. Ground water (and any associated hydrocarbon) is recovered from the wells three times each week but there is little benefit from this activity.

The remaining sections of this report are organized as follows:

- Section 2 provides an evaluation of the potentiometric surface data;
- Section 3 reviews the distribution of light non-aqueous phase liquid (LNAPL);
- Section 4 examines the dissolved-phase concentration data;
- Section 5 contains a review of the recovery operations; and
- Section 6 includes a summary and recommendations.

Graphs of the potentiometric surfaces and LNAPL measurements utilized for the evaluation are included in Appendices A and B. Appendix C contains graphs of benzene concentrations. The data tables, which were taken from previous report submittals and that were utilized for preparation of the graphs and the overall analyses, are included in Appendix D.

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Section 2
Potentiometric Surface Evaluation

An analysis of the potentiometric surface developed from water levels measured in well pairs (e.g., OW 3+85 and CW 3+85), which are located on opposite sides of the slurry wall, and long-term monitoring wells located near and distant to the slurry wall reveals the following observations:

- The slurry wall is acting as an effective hydraulic barrier;
- There is not a continued increase in water levels behind the slurry wall since the wall was installed; and
- The ground water recovery operations at the French drain, which is located on the up-gradient side of the slurry wall, are affecting local hydraulic gradients and reducing flow of ground water around the ends of the slurry wall.

In general, the potentiometric surface measured in collection wells, which are located on the refinery (up-gradient) side of the slurry wall, are approximately three feet higher than the potentiometric surface measured in observation wells located immediately across the slurry wall. Figure 1 shows the location of the site features, including the collection and observation wells and the slurry wall. The differences in the potentiometric surface elevations measured in the collection well and the adjacent down-gradient observation well pairs are also shown on the figure. A number of the observation wells were dry, while adjacent collection wells contained ground water. The difference in the potentiometric surface across the slurry wall decreases towards the east end of the wall, which may be reflective of the potential for ground water flow around the eastern end of the wall, as discussed below. Based on the potentiometric surface measurements, the slurry wall is an effective hydraulic barrier.

Graphs of the potentiometric surface at each of the well pairs along the slurry wall are included in Appendix A. It should be noted that the potentiometric surface measured in most of the wells had a relatively sharp rise in October 2005, but this was due to a resurvey of the well elevations rather than an actual change in the potentiometric surface. The water levels in the collection wells have remained stable since they were installed shortly after the slurry wall was completed. The stable potentiometric surface on the refinery side of the slurry wall indicates that there is no

significant "build up" of water behind the slurry wall that could threaten to breach the wall or increase flow around the ends of the wall.

To further evaluate the effect of the slurry wall across the site, the potentiometric surface in additional monitoring wells was evaluated. These wells were selected based on their up-gradient and cross-gradient locations, and because they were all present before installation of the slurry wall. Three of the wells (MW-20, MW-40, and MW-41) are located within approximately 100 to 500 feet up-gradient of the slurry wall. Monitoring well MW-11 is located approximately 250 feet south of the southern end of the slurry wall and MW-8 is considered to be a background well for the refinery and it is located over 1,000 feet up-gradient of the slurry wall. As shown in the graph in Appendix B, the potentiometric surface in MW-20, which is the closest of the five wells, increased only slightly since the slurry wall was installed in April 2005. From 2003 through 2007, the potentiometric surface increased approximately one foot at MW-8, which is located near the up-gradient (eastern) end of the site, and it also increased at a similar rate at MW-11, which is cross-gradient to the slurry wall. The potentiometric surface increased approximately 1.5 feet at MW-40 and MW-41 during the same time period. The fact that the potentiometric surface increased in a similar manner at various locations across the site, including areas beyond the influence of the slurry wall, further indicates that water is not "building up" behind the slurry wall.

The potentiometric surface behind the slurry wall was also reviewed to determine if there is evidence of significant flow around the slurry wall. The potentiometric surface as measured on two occasions (October 2, 2006 and July 30, 2007) in individual collection wells located behind the slurry wall was plotted and is included in Appendix B. Based on these measurements, there does not appear to be a significant hydraulic gradient toward the end of the slurry wall. There is a slight outward gradient near the far east end of the slurry wall but overall there is a significant inward hydraulic gradient with the lowest measurement at collection well CW 8+10. The distribution of dissolved-phase constituents, which is discussed in Section 4, also indicates that there is not significant flow around the east end of the slurry wall.

A French drain was installed beneath the Hammond Ditch when it was lined with concrete in 2002 and the section of the drain that runs along the slurry wall recovers ground water at a rate of approximately 3.2 gallons per minute (gpm). The stable water level behind the slurry wall indicates that the withdrawal rate from the French drain is comparable to the quantity of ground

water flowing toward the slurry wall from up-gradient locations. In addition, the inward gradient along the length of the slurry wall also demonstrates the effectiveness of the French drain in intercepting ground water flowing from up-gradient locations toward the slurry wall.

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Section 3
Evaluation of LNAPL Accumulations

The light non-aqueous phase liquid (LNAPL) was evaluated to determine its distribution along and near the slurry wall and the change in thickness over time. A review of the data reveals the following:

- There is minimal LNAPL located along the slurry wall, with generally decreasing accumulations since installation of the slurry wall and French drain; and
- LNAPL is currently limited primarily to the observation wells located near the western end of the facility, in the general area of MW-47.

A plot of the measured LNAPL thickness for wells with significant accumulations is included on the graphs in Appendix A. The LNAPL was not plotted for several wells that had sporadic measured LNAPL thicknesses of one or two hundredths of a foot, most of which were not recent. LNAPL measurements immediately after installation of the collection and observation wells indicate that most of the LNAPL was located on the down-gradient side of the slurry wall in the observation wells. Only two collection wells (CW 8+45 & CW 11+15) had persistent LNAPL, but at a minimal thickness of 0.1 ft or less in CW 11+15 and generally less than 0.5 ft. in CW 8+45.

Since the wells were installed in 2005, LNAPL has been removed from the up-gradient side of the slurry wall such that measurable LNAPL is no longer detected in the collection wells. LNAPL was initially present in observation wells extending from the southwest end of the slurry wall (i.e., OW 0+60) to observation well OW 5+50, with an additional area of accumulation at OW 16+60. Over the last two years, recovery operations at the observation wells have successfully removed LNAPL from OW 0+60, OW 5+50, and OW 16+60. Persistent accumulations of LNAPL remain present at only observation wells OW 1+50 and OW 3+85 and the thickness of LNAPL in this area is generally less than 1.0 ft.

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Section 4
Dissolved-Phase Concentration Evaluation

Ground water sample analyses from the observation and collection wells of dissolved-phase constituents were reviewed to determine the effectiveness of the slurry wall and associated recovery operations. The followings observations are made:

- Dissolved-phase concentrations are significantly less in observation wells than in the corresponding collection wells, indicating the slurry wall is effectively controlling migration of chemicals of concern (COCs);
- The concentrations of dissolved-phase COCs are below detection limits or very low and decreasing in ground water samples collected from wells near the ends of the slurry wall, indicating the recovery operations at the French drain and nearby recovery wells are controlling COCs from migrating around the ends of the slurry wall; and
- Numerous collection well locations show decreasing concentrations of COCs behind the slurry wall, suggesting that the recovery operations are reducing concentrations of COCs up-gradient of the slurry wall.

Benzene was selected as the indicator parameter from the list of COCs detected in ground water because it is the most prevalent and toxic of the COCs and generally one of the more mobile COCs. Plots of the concentration of benzene measured from ground water samples collected at the paired observation and collection wells are included in Appendix C. A plot of the most recent benzene concentrations from ground water samples collected at the observation wells is also included in Appendix C. As shown on this plot, benzene was not detected in the eastern most four observation wells (OW 22+00, OW 23+10, OW 23+90, and OW 25+70) and was detected at very low concentrations below the Human Health Standard (0.01 mg/l) at observation well OW 19+50. Based on this plot of benzene concentrations, COCs are not migrating around the ends of the slurry wall. It also demonstrates there is no evidence that COCs are bypassing the slurry wall in this area, although the difference in the potentiometric surface between the collection wells and observation wells is less near the east end of the slurry wall than to the west.

Water samples were recently collected from the seeps, which occur along the bluff near the western portion of the property. The samples were collected on three occasions (October 9, 2007, November 8, 2007, and December 10, 2007) from the seeps, which have an active discharge of ground water. The samples are identified as Outfall #1, Outfall #6, Outfall #7, Outfall #8, and Outfall #9, and their locations are shown on Figure 1. The analytical results are presented in Appendix C. All of the analyses were non-detect for BTEX (benzene, ethylbenzene, toluene, and xylenes) constituents, with one exception. The October sample from Outfall #1 indicated very low concentrations of benzene and xylenes, 0.0029 mg/l and 0.0039 mg/l, respectively. Both subsequent samples from Outfall #1 were non-detect for all BTEX constituents. All of the detected results and non-detect quantitation limits are less than the potentially applicable ground water and surface water quality standards, which are shown on the Analytical Results Summary table for the bluff seeps/outfalls included in Appendix D.

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Section 5
Review of Recovery Operations

There are various types of recovery operations currently being conducted at the Bloomfield Refinery with the goal of restoring ground water quality and preventing discharges of contaminated ground water to surface water. The following evaluation focused on actions being conducted near the slurry wall and the down-gradient seeps and resulted in the following observations/recommendations:

- The French drain and RW-1 are the predominant ground water recovery components in this area;
- Recovery from the collection wells is providing no benefit and recovery from the observation wells is providing marginal benefit; and
- Recovery volumes from the temporary catchment basins are reducing as the seeps are being successfully controlled by the slurry wall and on-going recovery from the seeps is providing no benefit.

Ground water is currently being extracted from the observation and collection wells three times a week via a vacuum truck. An estimated 10 gallons per week (0.001 gpm) are recovered from the 14 observation wells and an estimated 342 gallons per week (0.03 gpm) are recovered from the 15 collection wells. The recovery rate from the French drain, which runs beneath the Hammond ditch along the up-gradient side of the slurry wall, is 3.2 gpm. Pumping from RW-1, which is located near the western end of the slurry wall, averages 3.0 gpm. The recovery rates are summarized in the table below.

Recovery System/Well	Annual Flow Rate (gallons per year)	Flow Rate (gallons per minute)
Observation Wells	520	0.001
Collection Wells	17,800	0.03
Hammond Ditch French Drain	1,681,900	3.2
RW-1	1,576,800	3.0

Obviously, the recovery operations at the French drain and RW-1 are the predominant components and most effective ground water control measures. Recovery from the individual

collection wells, which are located immediately adjacent to the French drain, is providing no benefit. The saturated thickness at observation wells (that are not already dry) is only two feet on average. Recovery from the individual observation wells is providing minimal benefit and should be reduced to passive recovery from wells with measurable LNAPL (e.g., OW 1+50 & OW 3+85). The recovery volumes of water and LNAPL from individual wells should be more accurately recorded.

There are nine catchment basins located in the area of seeps, which are located along the bluff on the south side of the San Juan River. The seeps occur where ground water, which is flowing on top of the Nacimiento Formation, reaches the land surface near the outcrop of the formation. The catchment basins were installed as temporary measures when the seeps were first identified in 2004. The slurry wall was designed and installed in April 2005 as a permanent control measure to prevent further potential discharges of ground water to surface water and the generation of seeps along the bluff.

As discussed above, the slurry wall is an effective hydraulic barrier, as evidenced by numerous observations wells now being dry. The discharge from the seeps has also reduced significantly since installation of the slurry wall. The design of the catchment basins allows the accumulation of rain water in addition to ground water discharge. It appears that rainwater is currently the predominant contribution to water that accumulates in the catchment basins. During 2007, approximately 110,000 gallons of water were pumped from the catchment basins.

As the ground water that is down-gradient of the slurry wall continues to migrate toward the discharge points without significant recharge due to the presence of the slurry wall, the discharge rate from the seeps is anticipated to continue to decrease. It is possible that rainfall that occurs across the land surface that lies down-gradient of slurry wall may infiltrate and continue to provide minimal recharge to the seeps. However, due to the nature of rainfall in the local area (i.e., high rates of short duration) and steep slopes, most rainfall will runoff and not infiltrate to recharge the seeps. Recovery of the small volume of apparently clean water discharging at the seeps is not necessary or beneficial.

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Section 6
Summary of Recommendations

The slurry wall and associated French drain are providing hydraulic control to prevent COCs from migrating down-gradient toward potential discharge locations. These corrective measures have also eliminated most of the ground water flow that was sourcing the seeps along the river bluff. The current recovery operation at the collection wells is not providing any benefit, as the adjacent French drain is much more effective in capturing and removing contaminated ground water on the up-gradient side of the slurry wall. It is also doubtful if the recovery operations at the observation wells are providing significant benefit. The ground water and LNAPL volumes recovered from the observation wells are very low and the fact that several of the wells are dry and the saturated thickness is only two feet on average (where present) makes it impracticable to recover significant volumes from these wells. LNAPL removal could have a minimal benefit in a limited number of the observation wells and should be conducted using passive measures (e.g., an absorbent sock).

Ground water discharge from the seeps along the river bluff has decreased significantly since installation of the slurry wall. It now appears that only seeps #1, #6, #7, #8, and #9 have any actual discharge of ground water as opposed to apparent periodic accumulation of stormwater in the other catchment basins. Analyses of water samples, which discharge from the seeps, indicate that BTEX volatile organic constituents are non-detect. There does not appear to be any benefit from continuing recovery of the small volume of water discharging at the seeps. Recovery operations at the seeps should be discontinued and samples collected at seeps #1, #6, #7, #8, and #9 on a semi-annual basis to monitor for the presence of volatile and semi-volatile constituents of concern.

The following recommendations are offered:

- Measure water levels while recovery wells are in operation to allow an evaluation of the capture zone of the system and again after pumps have been removed and water levels have stabilized;
- Discontinue recovery from the collection wells and recover from only observation wells with LNAPL using passive measures (e.g., absorbent sock);
- Record recovery volumes (LNAPL and ground water);

- Continue to gauge all observation and collection wells on a bi-weekly basis;
- Discontinue recovery of water at the seep catchment basins and implement semi-annual monitoring at seeps #1, #6, #7, #8, and #9 on a semi-annual basis to monitor for the presence of volatile and semi-volatile constituents of concern; and
- Evaluate in-situ treatment technologies to address contamination that remains down-gradient of the slurry wall.

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Figures

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INDUSTRIES, INC.

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FIGURE 1
SITE MAP
GIANT BLOOMFIELD REFINERY

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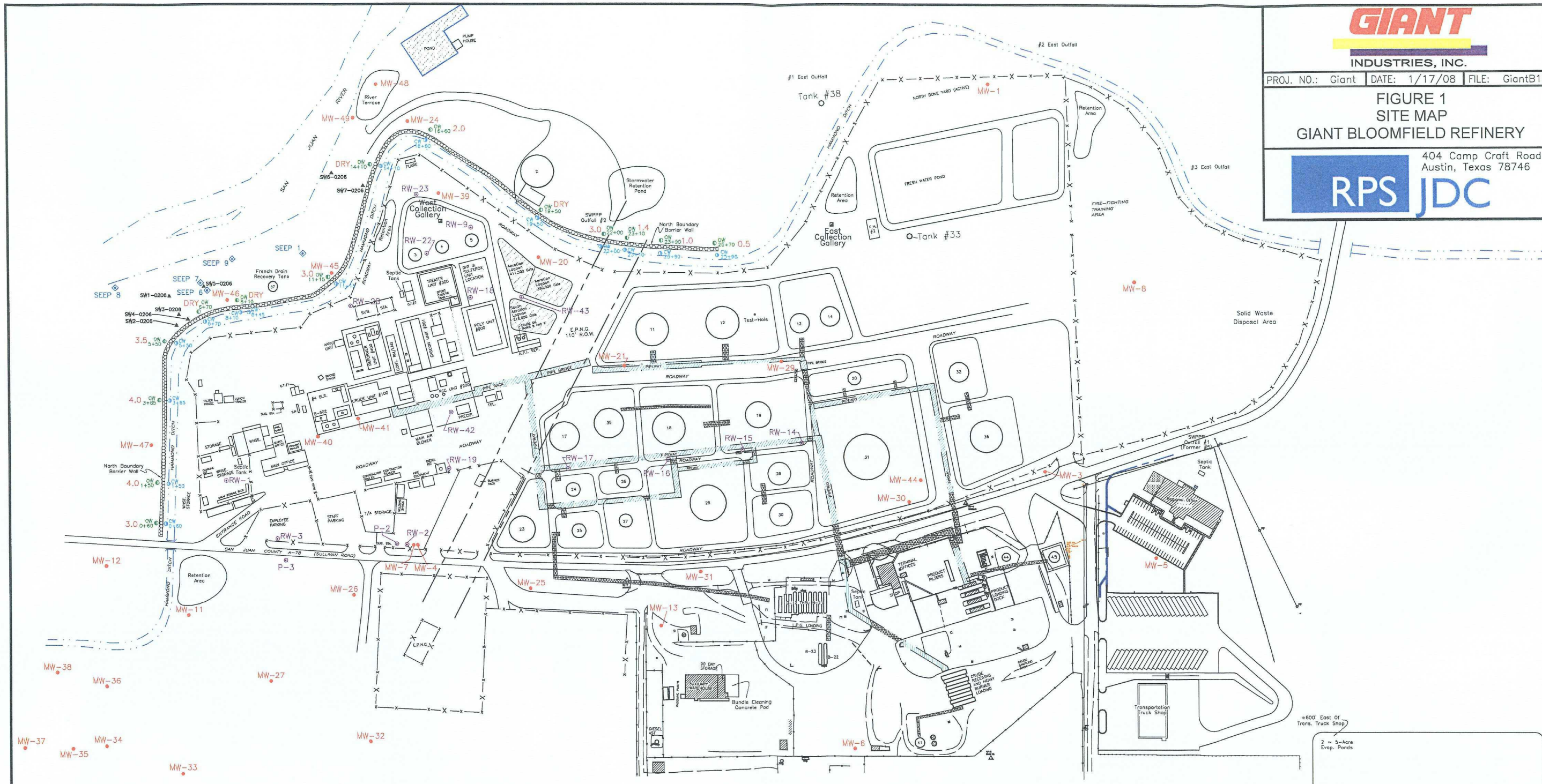

LEGEND

MW-1 ●	MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
RW-1 ⊕	RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
OW 1+50 ◐	OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
CW 1+50 ◍	COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
SW1-0206 ▲	SUMP WELL LOCATION AND IDENTIFICATION NUMBER
P-2	PIEZOMETER IDENTIFICATION
SEEP 1 ◈	SEEP LOCATION
	UNDER GROUND PIPE-WAY
	ABOVE GROUND PIPE-WAY
	SLURRY BARRIER WALL
3.0	DIFFERENCE IN POTENTIOMETRIC SURFACE IN COLLECTION WELLS VS. OBSERVATION WELLS (FT)

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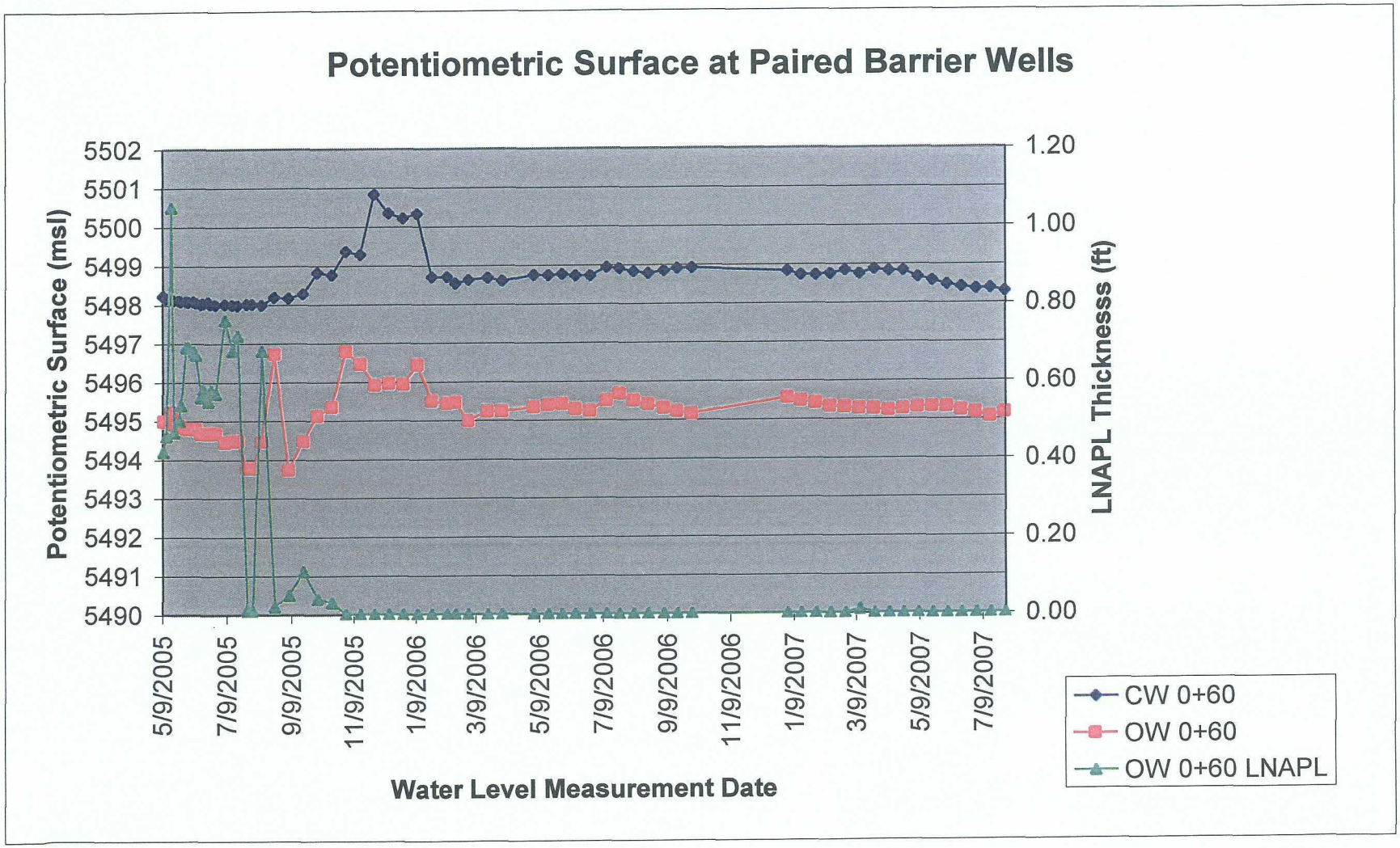
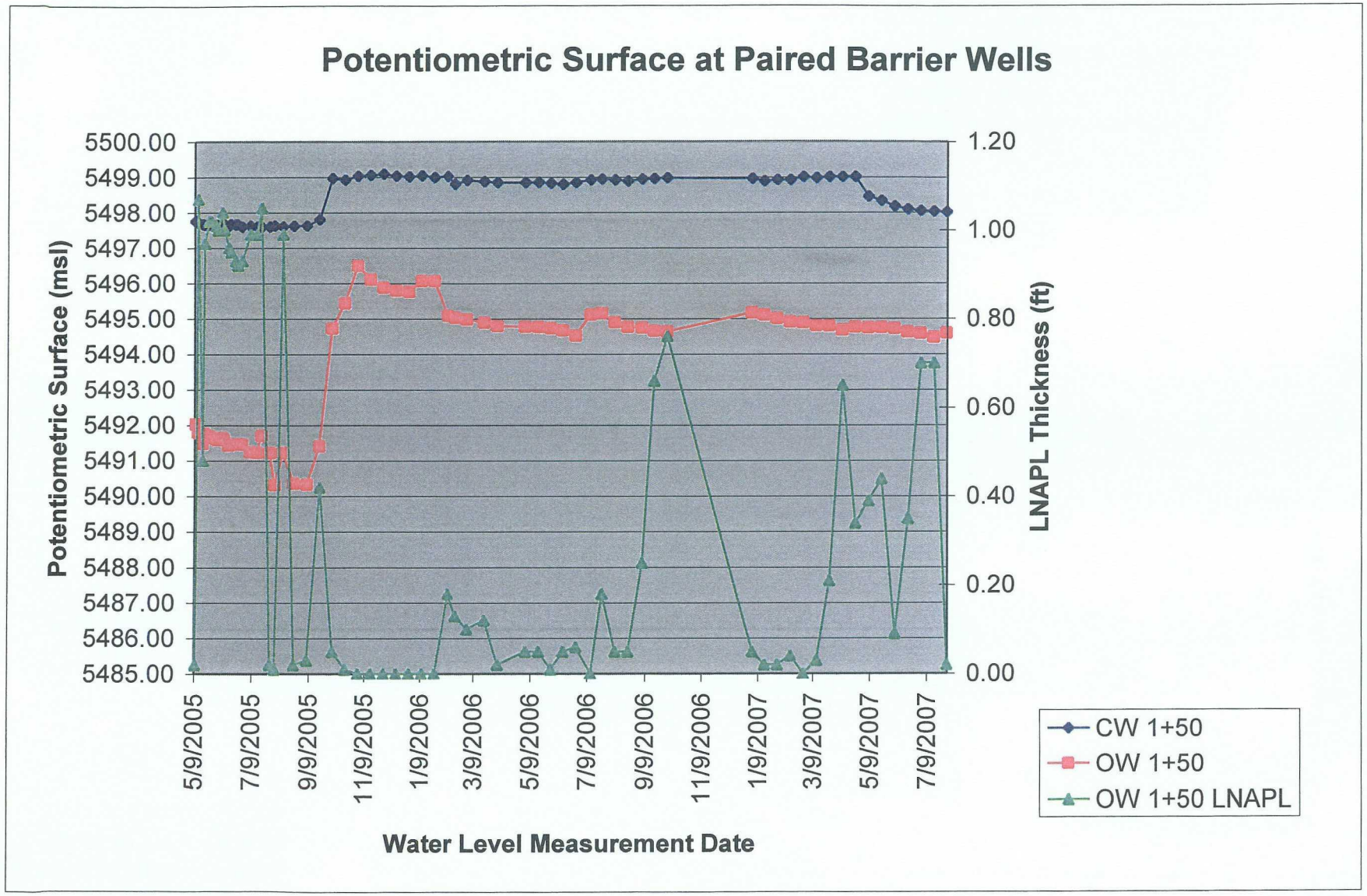
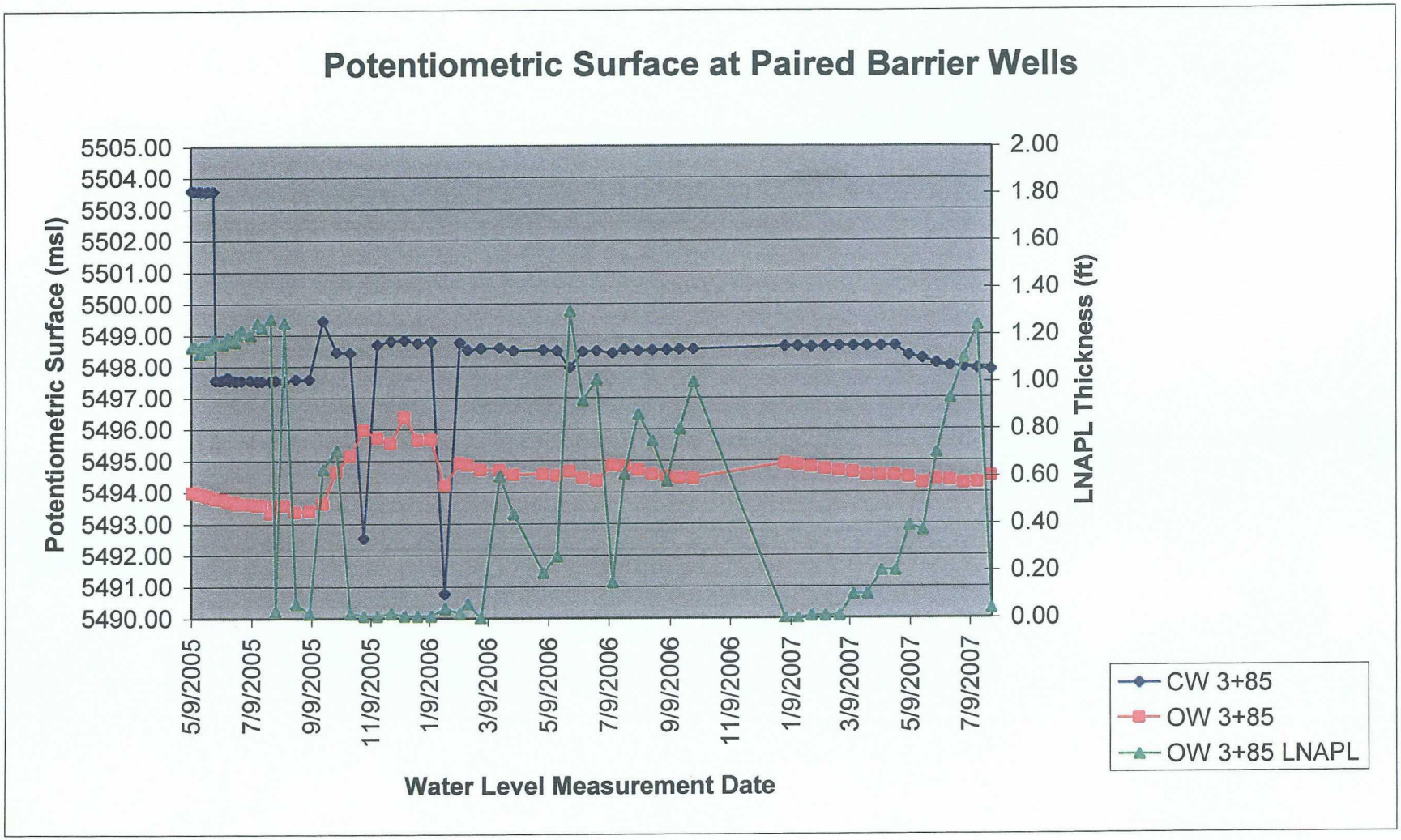
Appendix A

Graphs of Potentiometric Surface at Paired Wells


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5502
5501
5500
5499
5498
5497
5496
5495
5494
5493
5492
5491
5490
LNAPL Thicknesss (ft)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 0+60
OW 0+60
OW 0+60 LNAPL


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
5489.00
5488.00
5487.00
5486.00
5485.00
LNAPL Thickness (ft)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 1+50
OW 1+50
OW 1+50 LNAPL


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5505.00
5504.00
5503.00
5502.00
5501.00
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
LNAPL Thickness (ft)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
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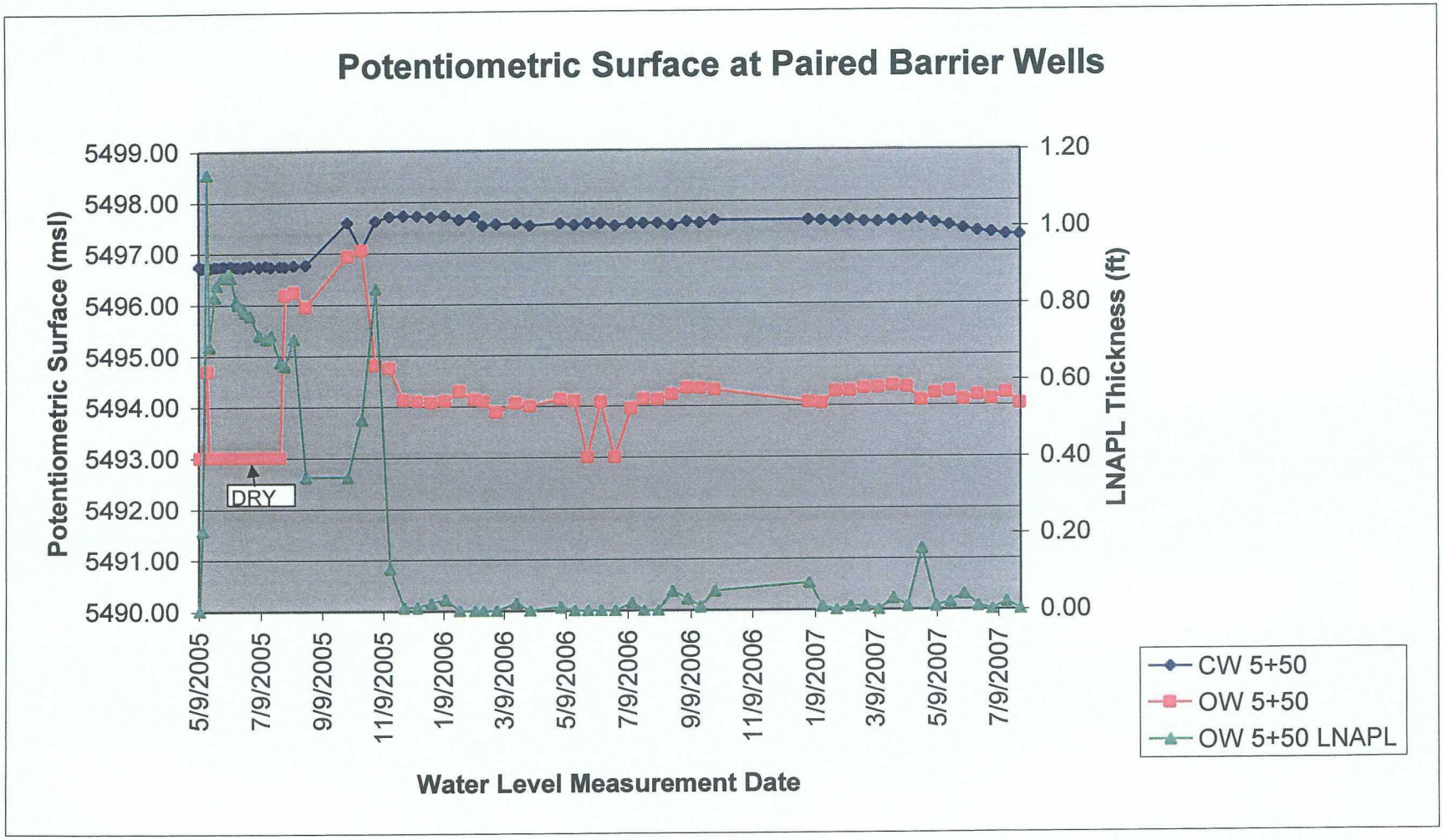
Water Level Measurement Date
CW 3+85
OW 3+85
OW 3+85 LNAPL


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
LNAPL Thickness (ft)
1.20
1.00
0.80
0.60
0.40
0.20
0.00
DRY
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
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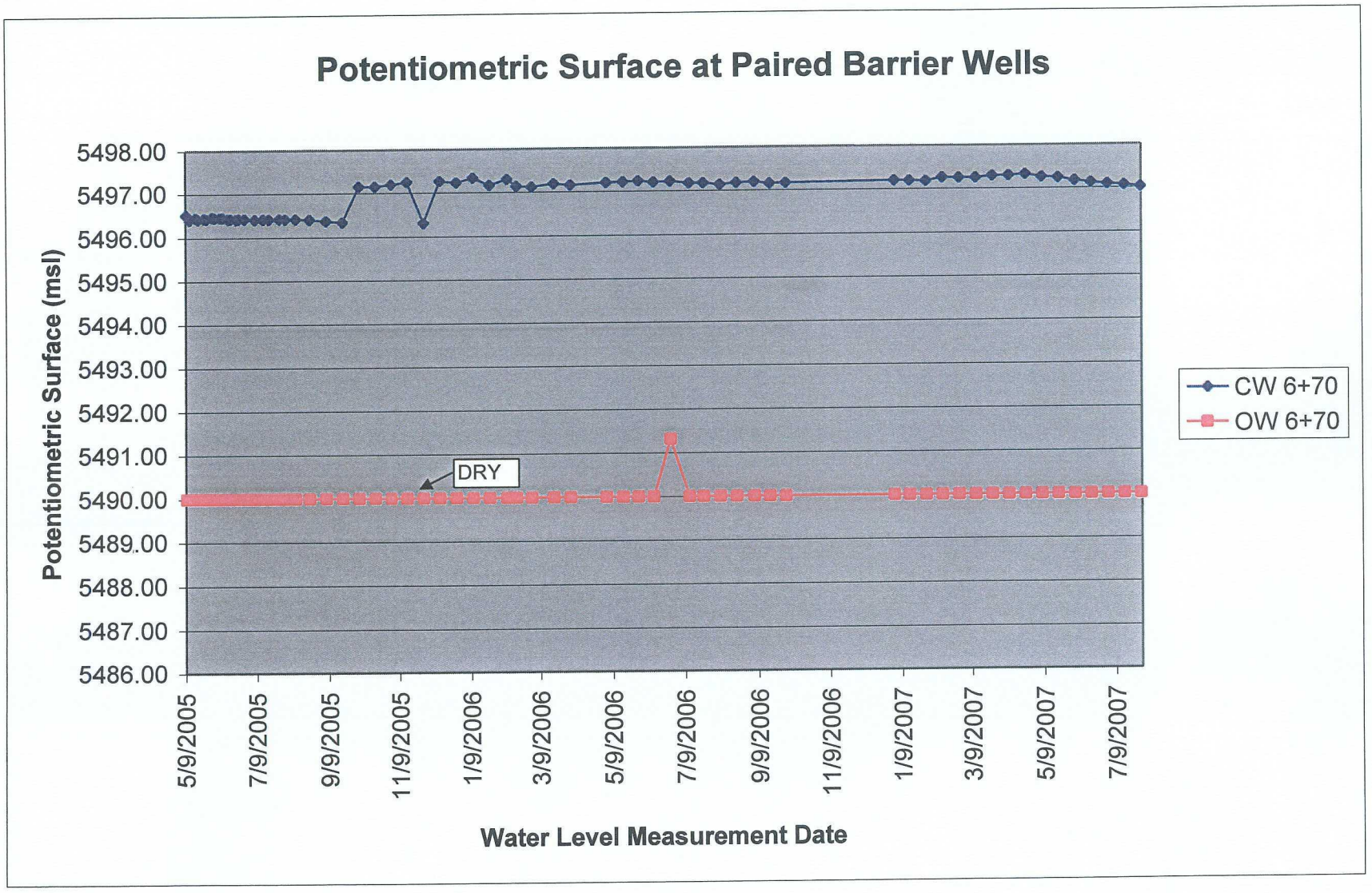
Water Level Measurement Date
CW 5+50
OW 5+50
OW 5+50 LNAPL


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
5489.00
5488.00
5487.00
5486.00
DRY
5/9/2005
7/9/2005
9/9/2005
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7/9/2006
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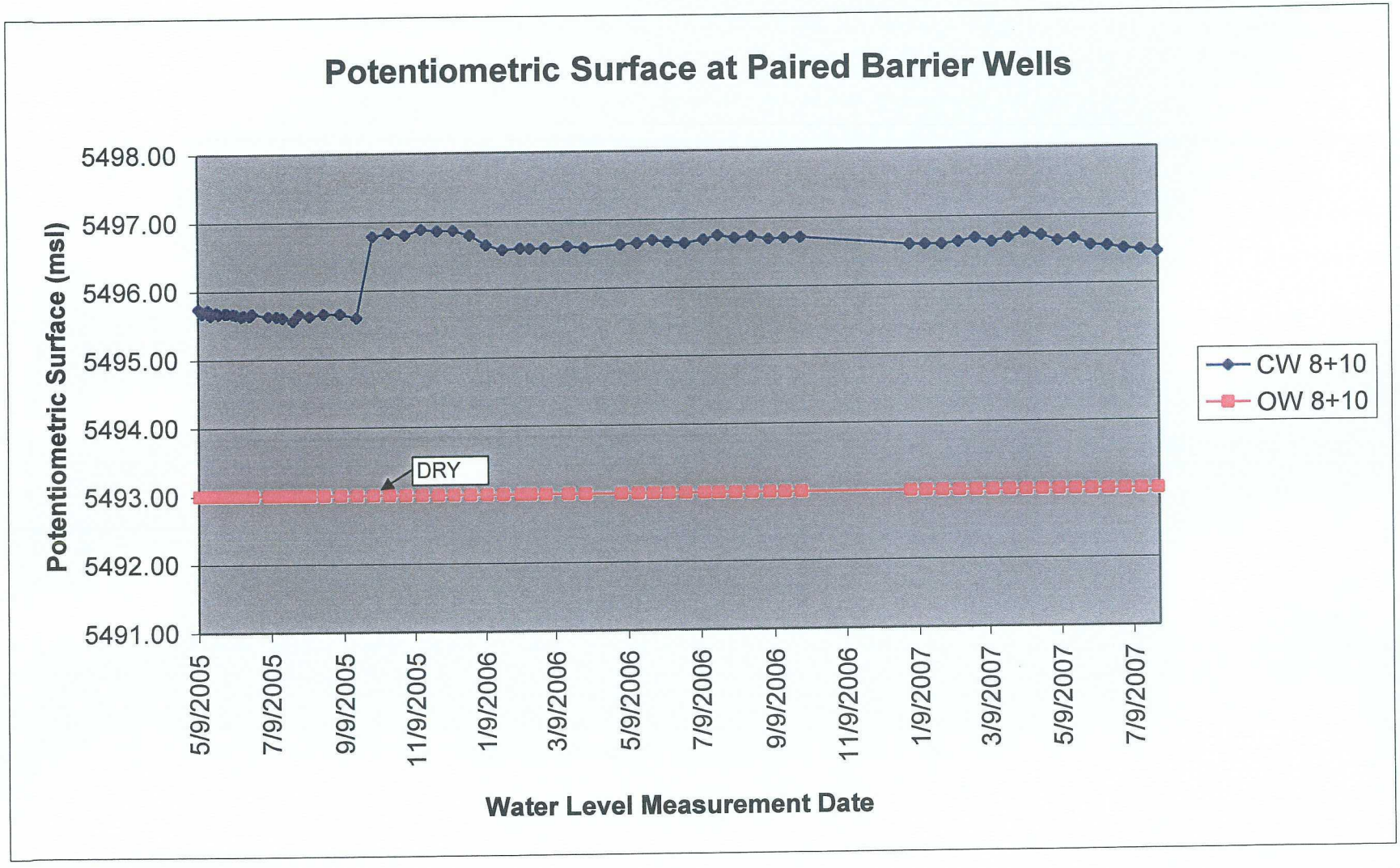
Water Level Measurement Date
CW 6+70
OW 6+70


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
DRY
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
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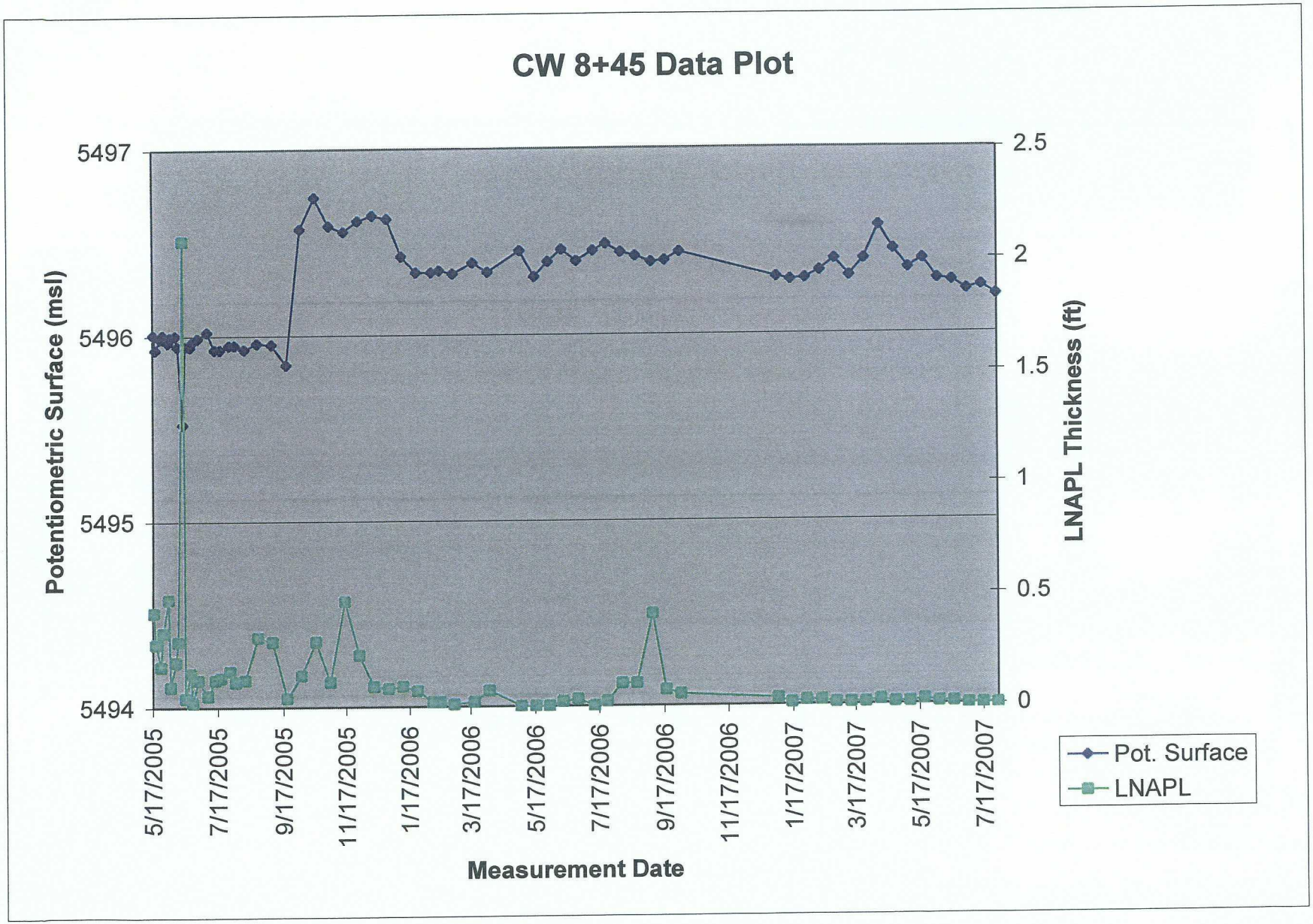
7/9/2007
Water Level Measurement Date
CW 8+10
OW 8+10


CW 8+45 Data Plot
Potentiometric Surface (msl)
5497
5496
5495
5494
LNAPL Thickness (ft)
2.5
2
1.5
1
0.5
0
5/17/2005
7/17/2005
9/17/2005
11/17/2005
1/17/2006
3/17/2006
5/17/2006
7/17/2006
9/17/2006
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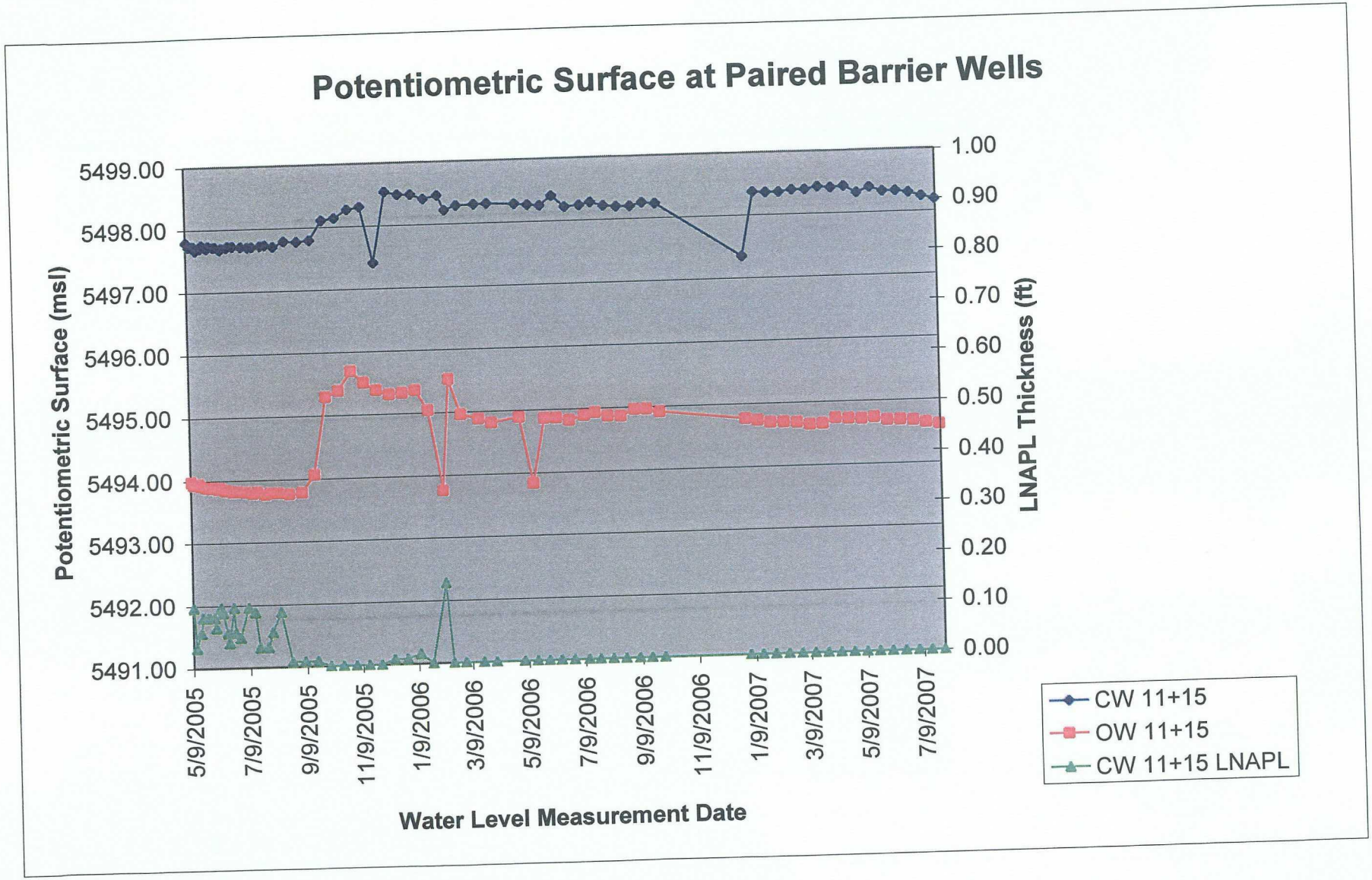
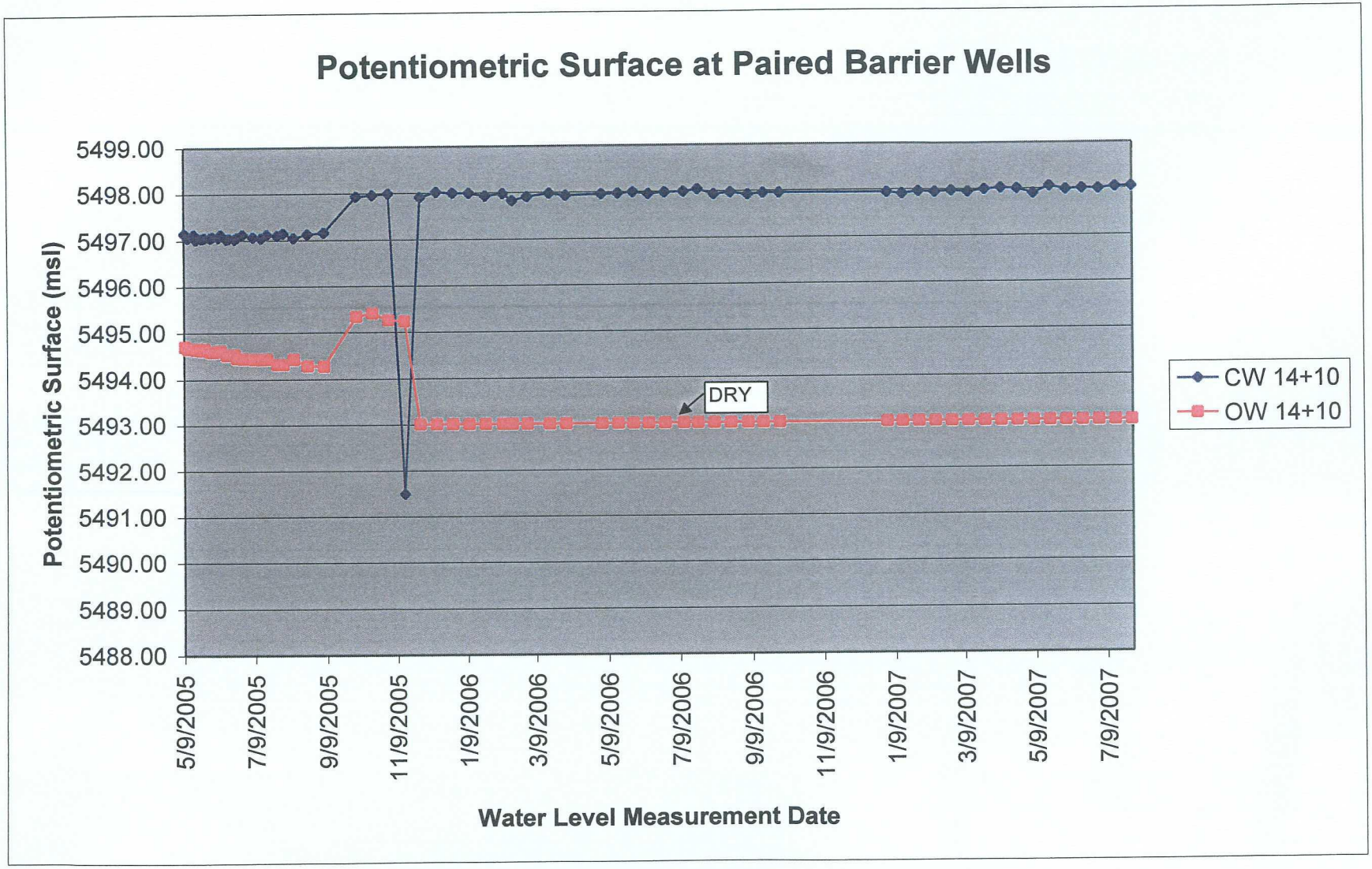
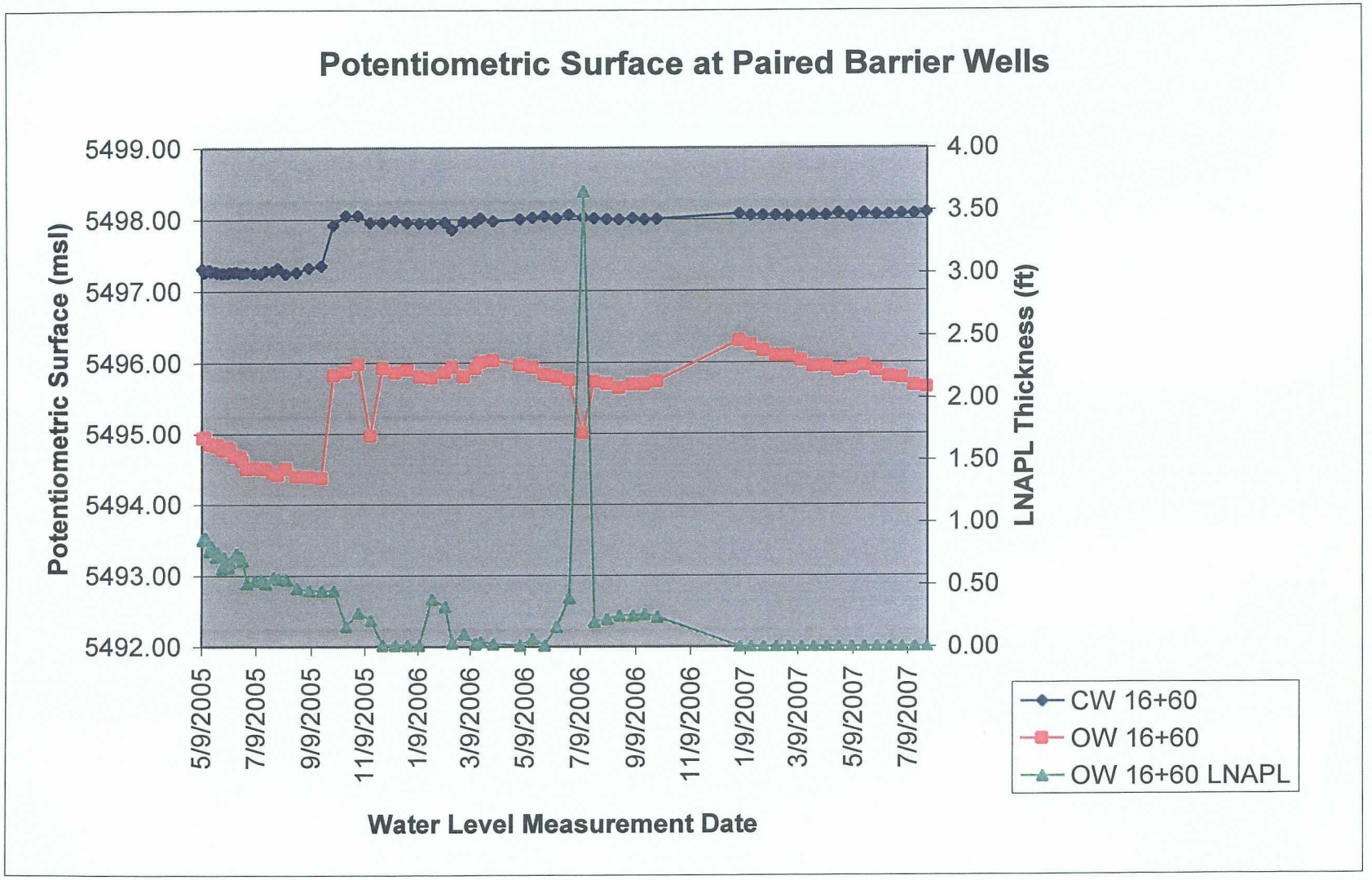
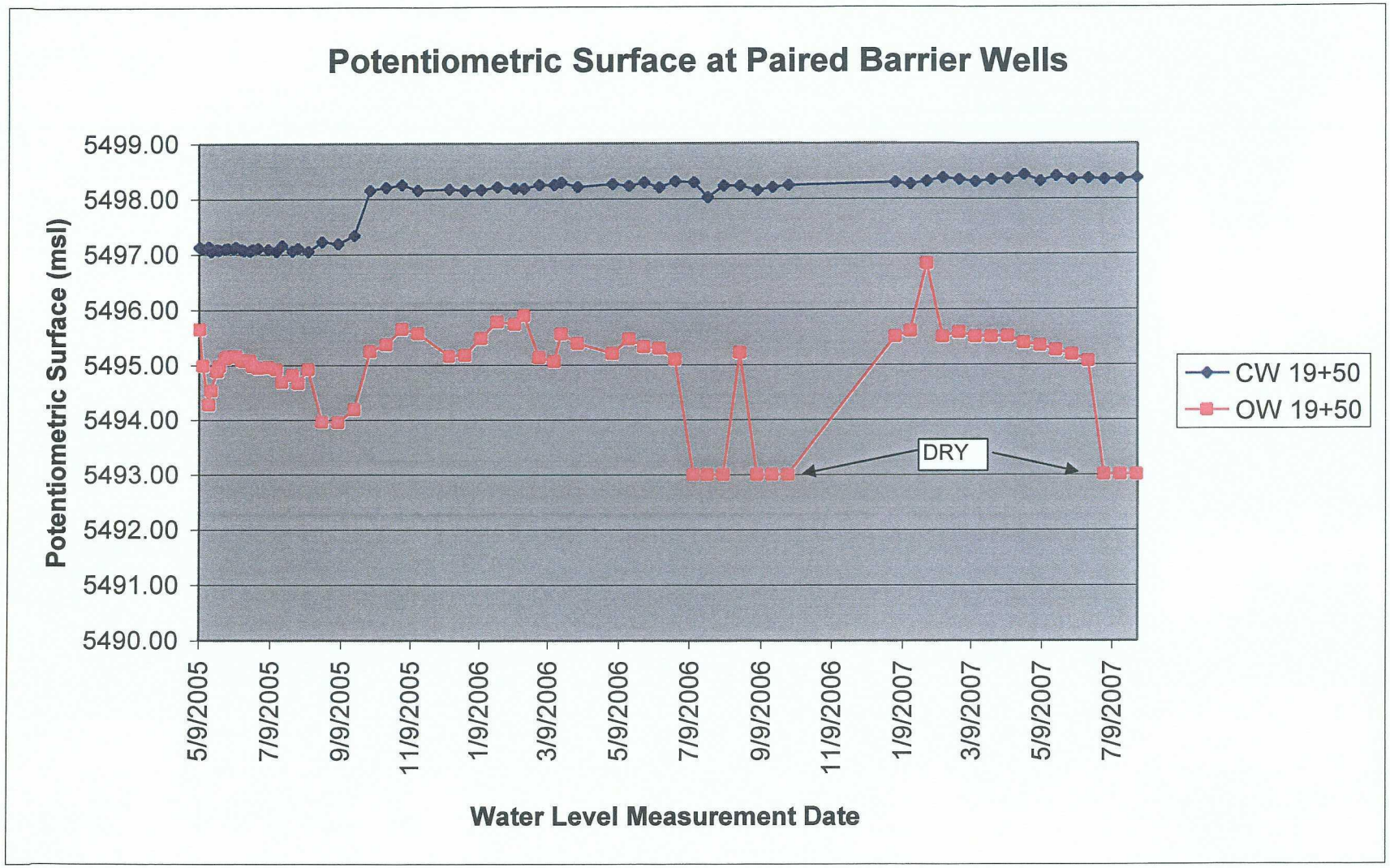
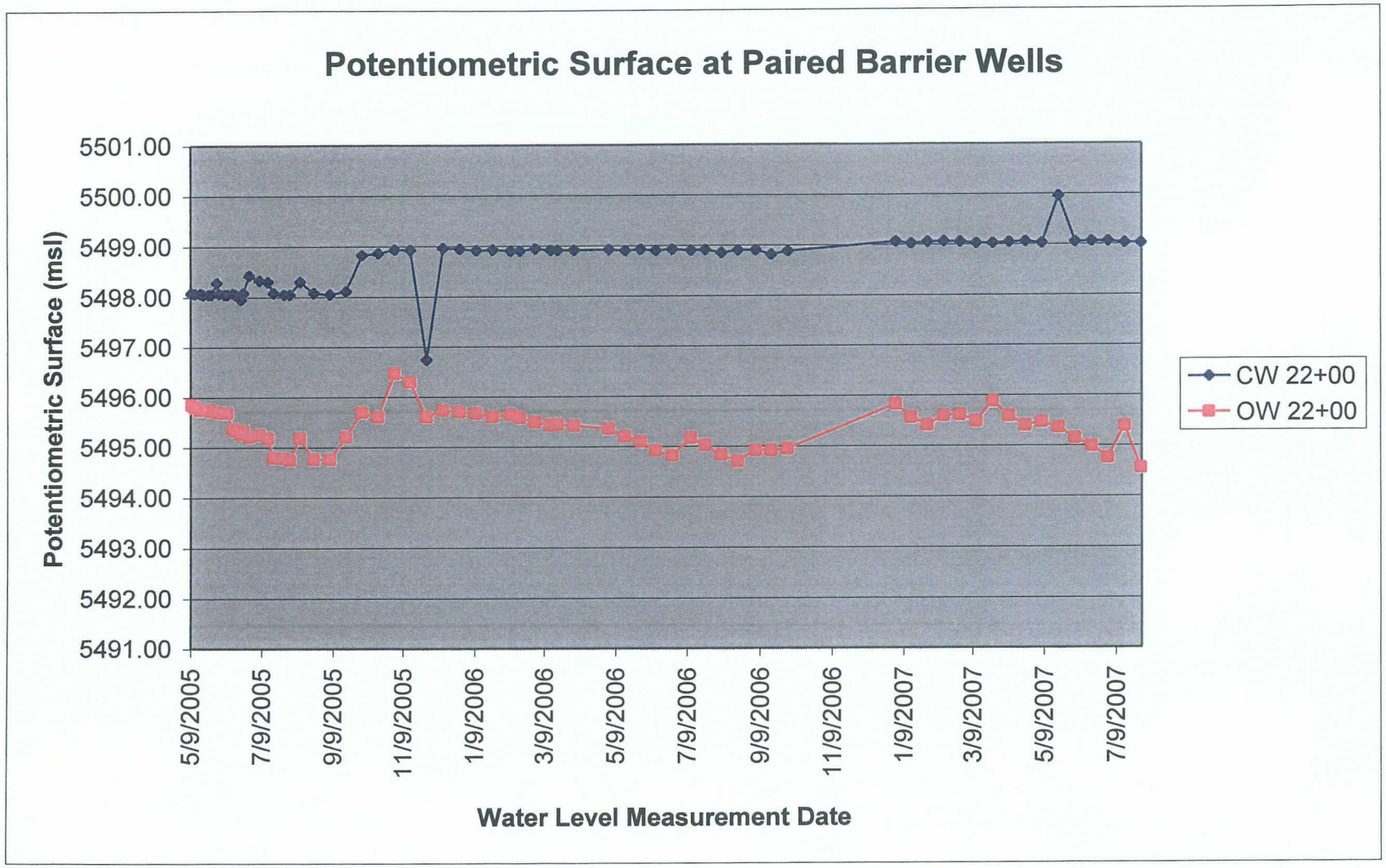
7/17/2007
Measurement Date
Pot. Surface
LNAPL

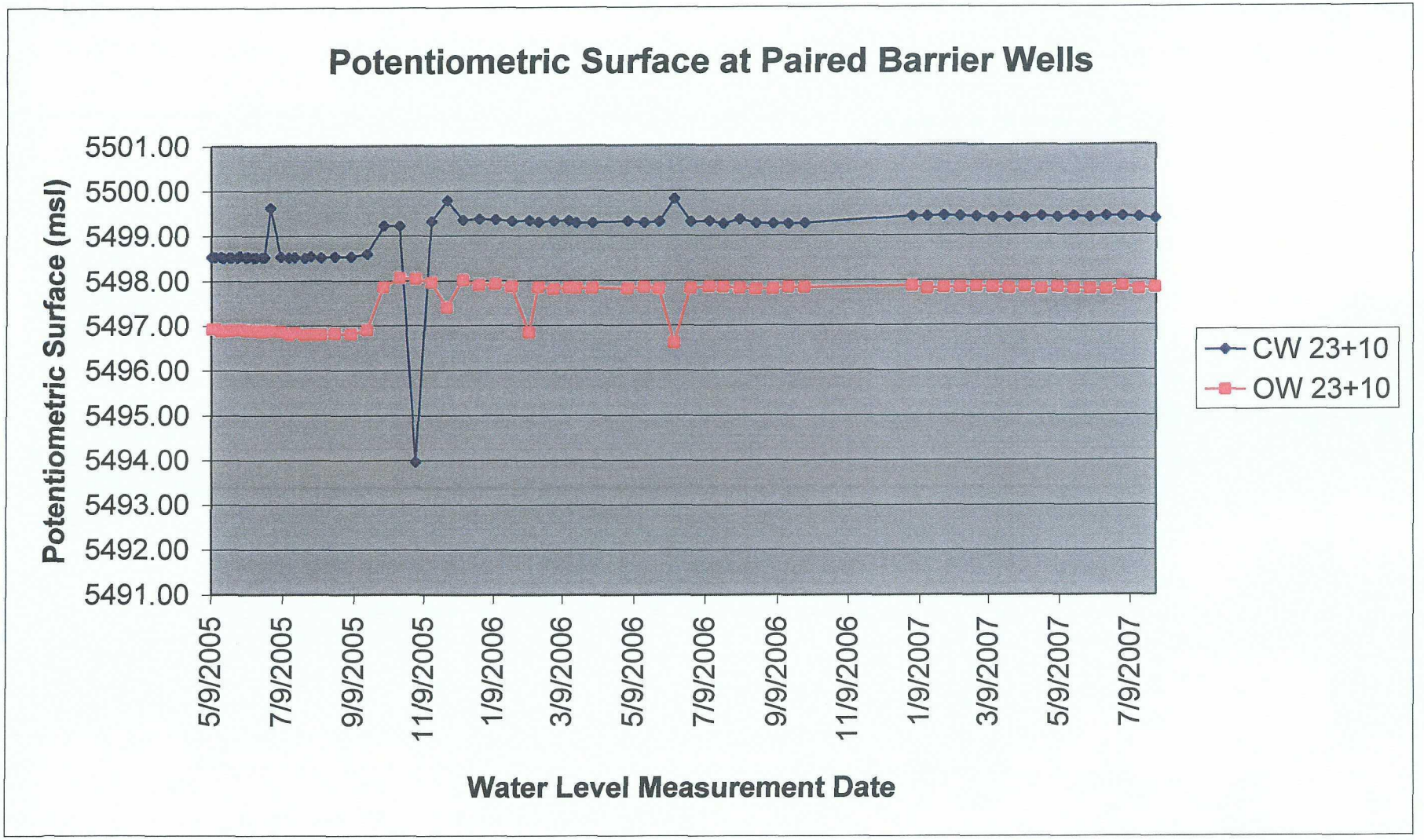

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
LNAPL Thickness (ft)
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 11+15
OW 11+15
CW 11+15 LNAPL

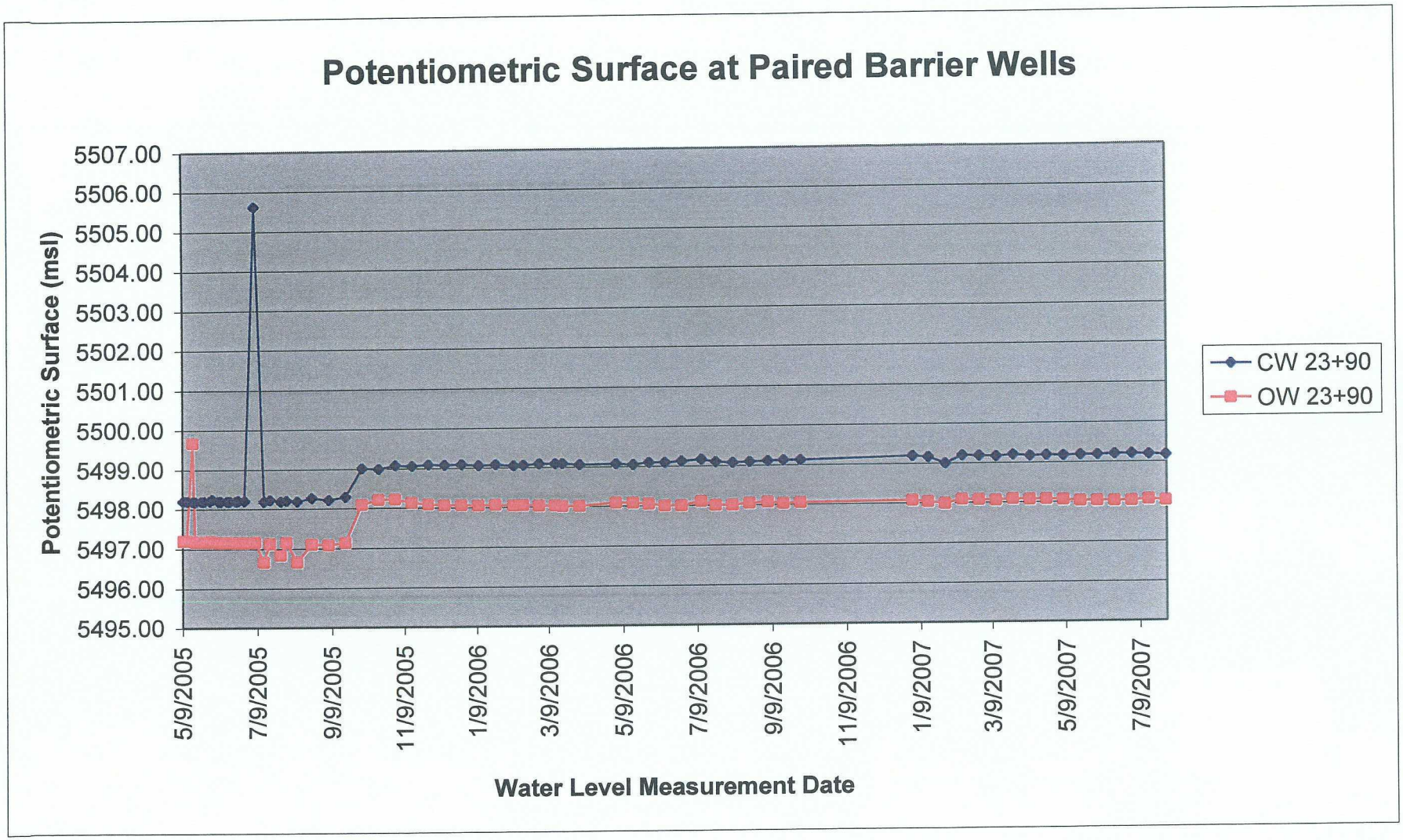

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
5489.00
5488.00
DRY
CW 14+10
OW 14+10
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date

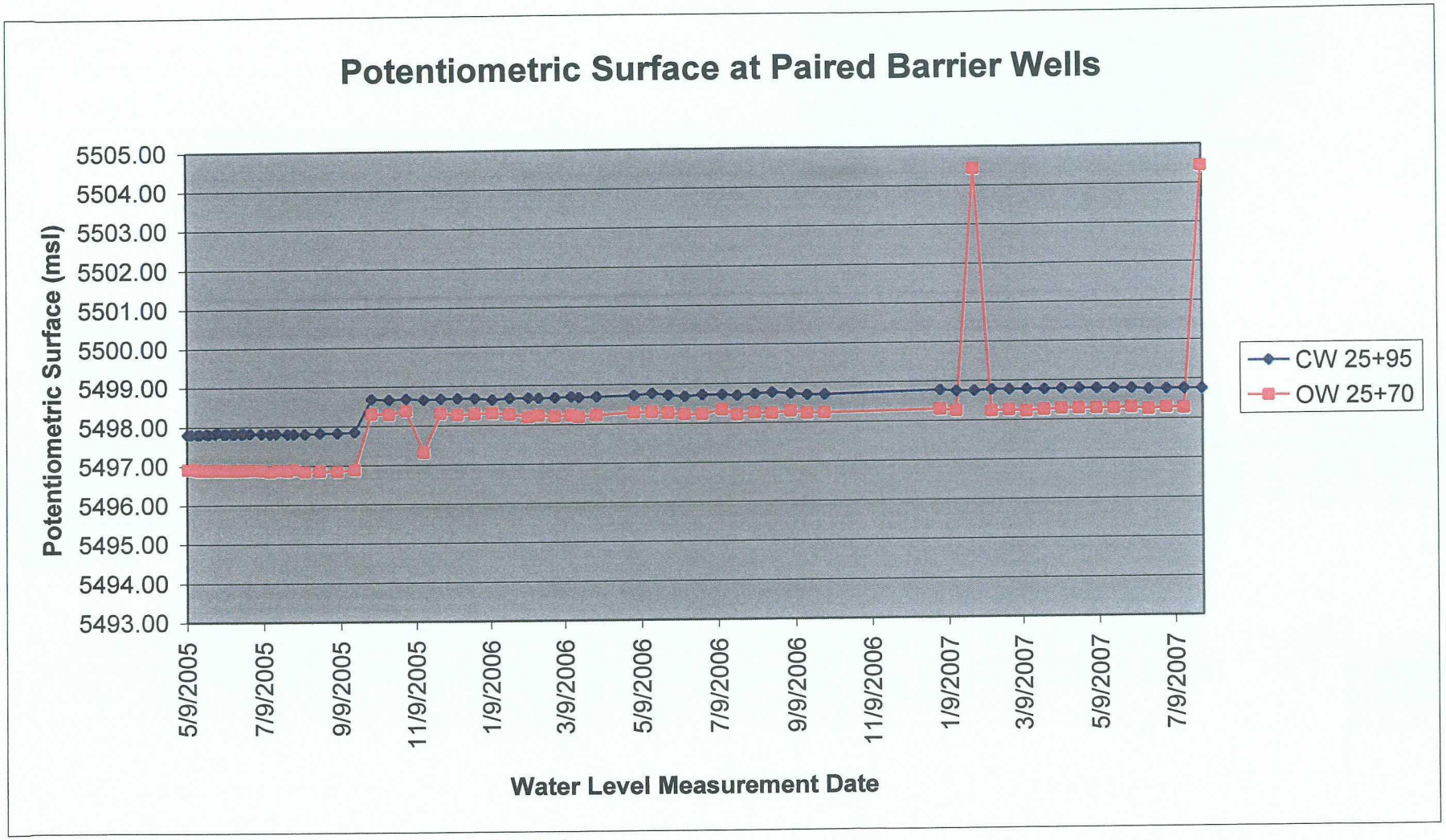

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
LNAPL Thickness (ft)
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 16+60
OW 16+60
OW 16+60 LNAPL

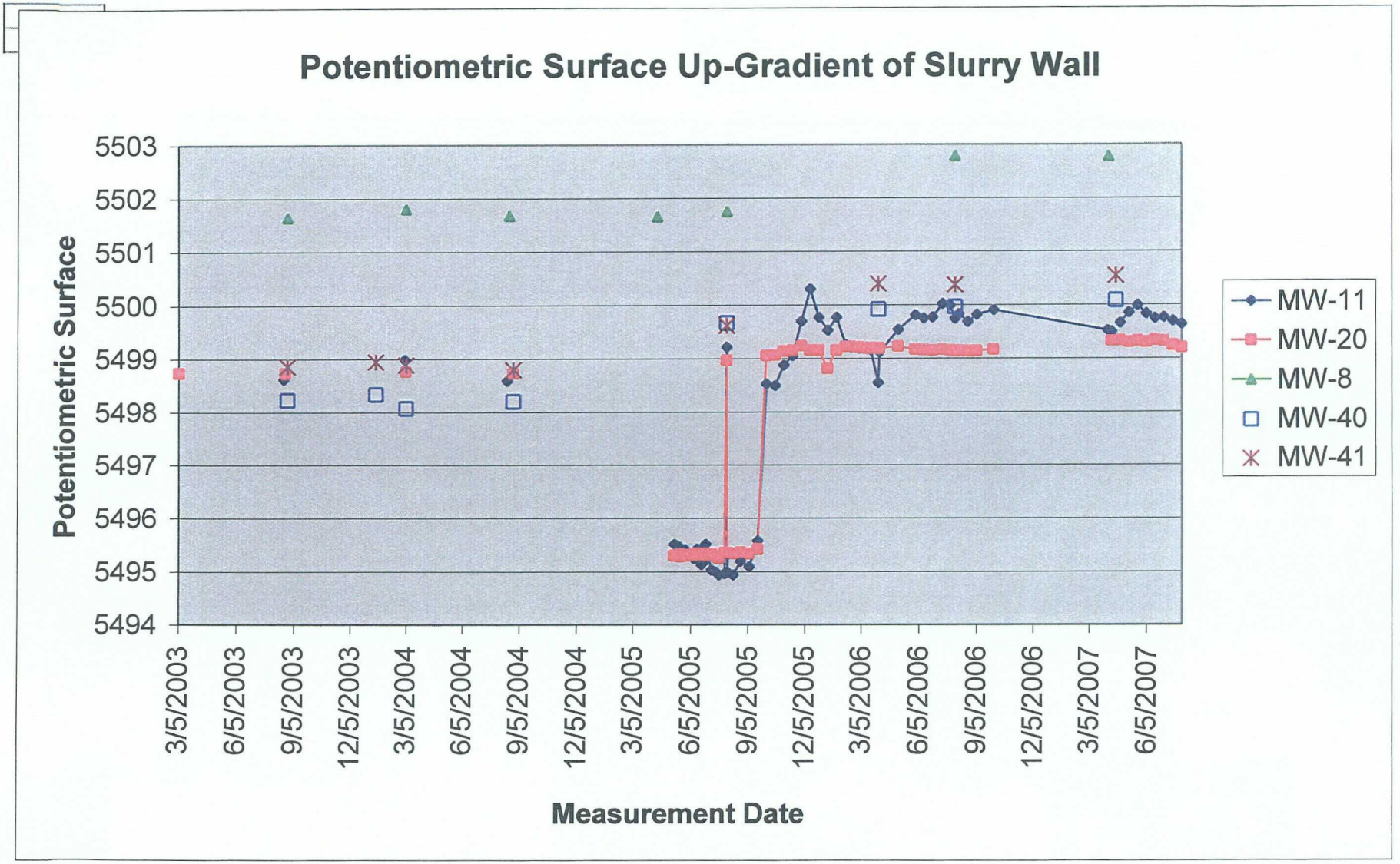

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5490.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 19+50
OW 19+50
DRY


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5501.00
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 22+00
OW 22+00

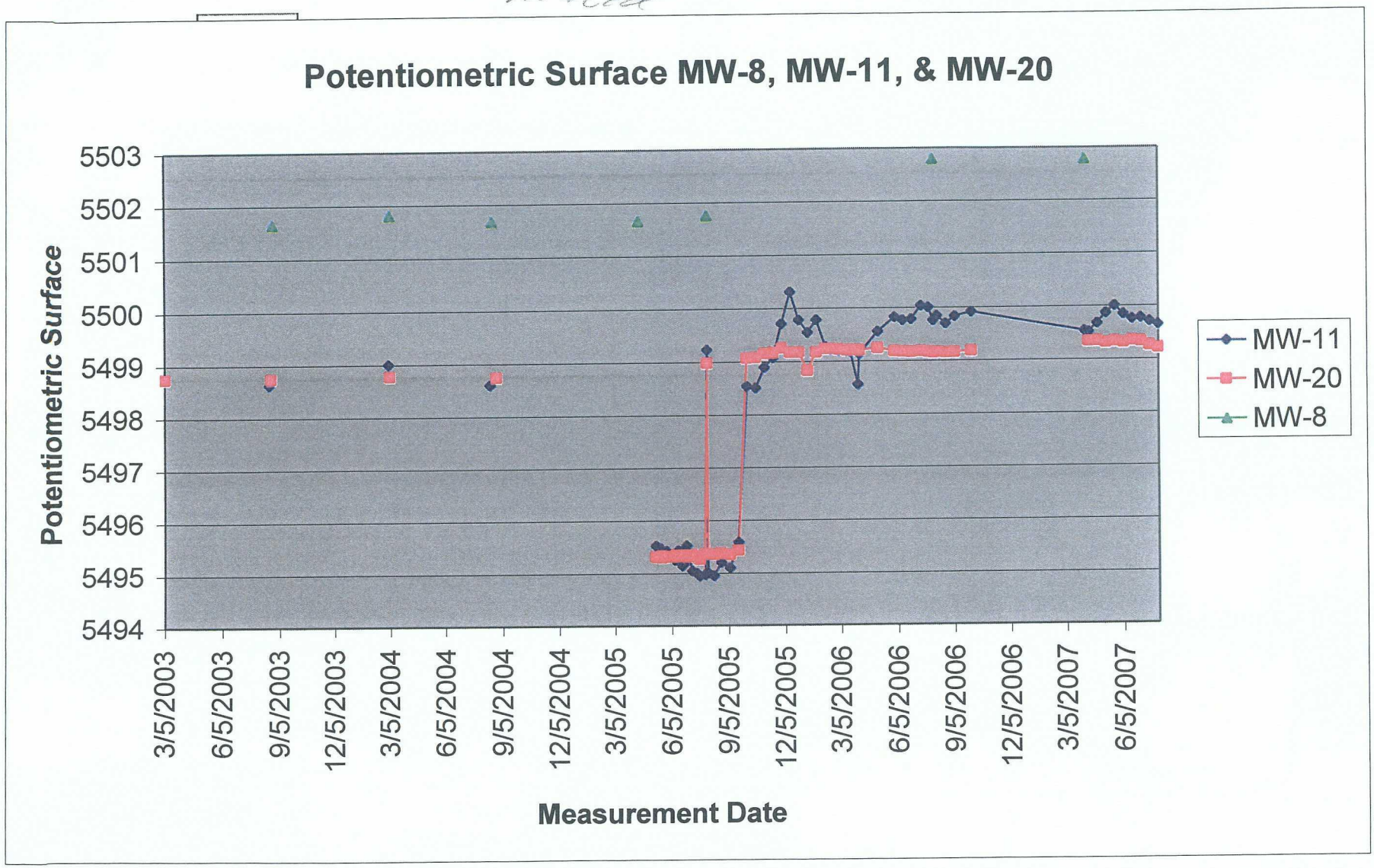

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5501.00
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5492.00
5491.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 23+10
OW 23+10

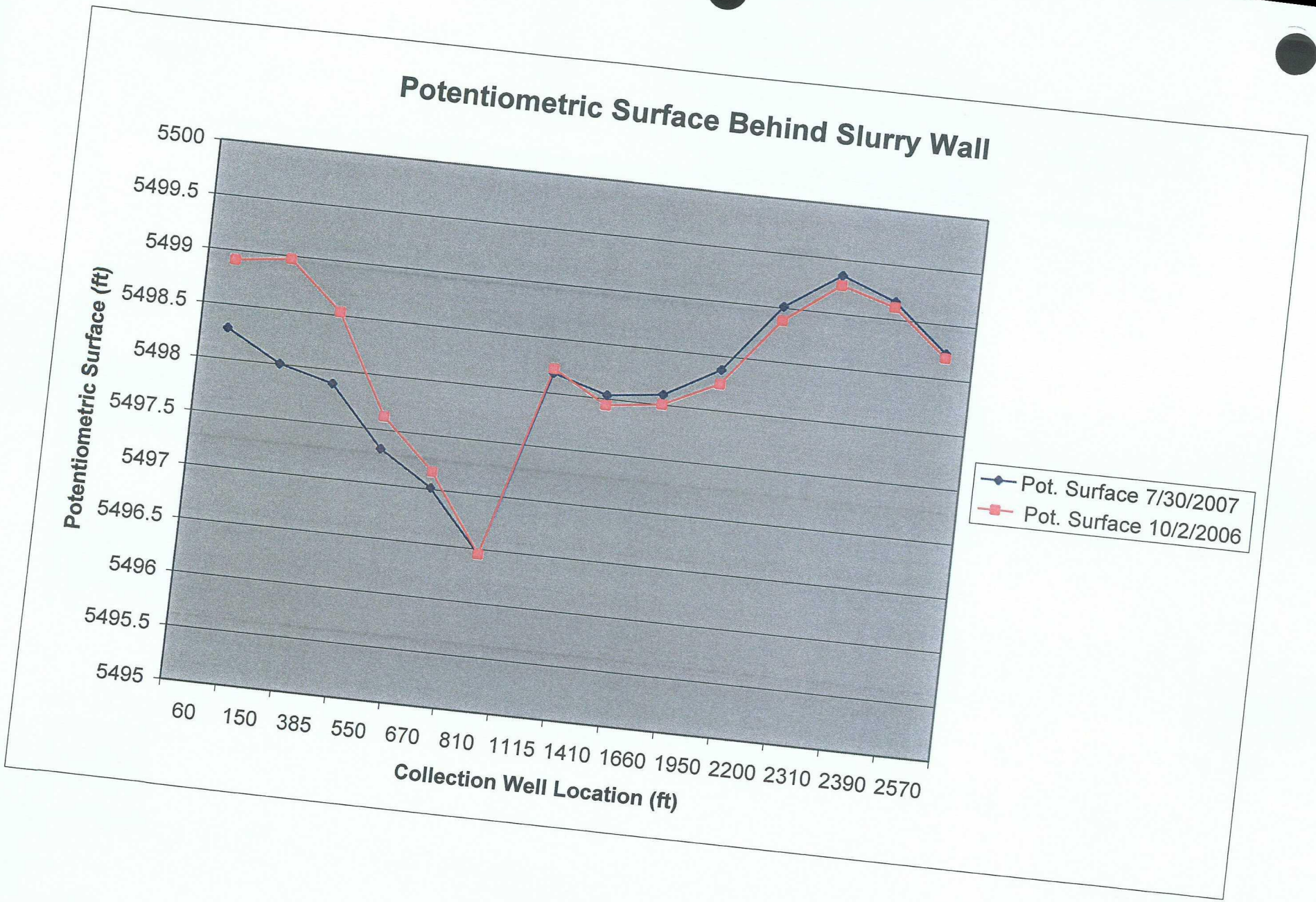

Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5507.00
5506.00
5505.00
5504.00
5503.00
5502.00
5501.00
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 23+90
OW 23+90


Potentiometric Surface at Paired Barrier Wells
Potentiometric Surface (msl)
5505.00
5504.00
5503.00
5502.00
5501.00
5500.00
5499.00
5498.00
5497.00
5496.00
5495.00
5494.00
5493.00
5/9/2005
7/9/2005
9/9/2005
11/9/2005
1/9/2006
3/9/2006
5/9/2006
7/9/2006
9/9/2006
11/9/2006
1/9/2007
3/9/2007
5/9/2007
7/9/2007
Water Level Measurement Date
CW 25+95
OW 25+70


Potentiometric Surface Up-Gradient of Slurry Wall
Potentiometric Surface
5503
5502
5501
5500
5499
5498
5497
5496
5495
5494
3/5/2003
6/5/2003
9/5/2003
12/5/2003
3/5/2004
6/5/2004
9/5/2004
12/5/2004
3/5/2005
6/5/2005
9/5/2005
12/5/2005
3/5/2006
6/5/2006
9/5/2006
12/5/2006
3/5/2007
6/5/2007
Measurement Date
MW-11
MW-20
MW-8
MW-40
MW-41

Replaced


Potentiometric Surface MW-8, MW-11, & MW-20
Potentiometric Surface
5503
5502
5501
5500
5499
5498
5497
5496
5495
5494
3/5/2003
6/5/2003
9/5/2003
12/5/2003
3/5/2004
6/5/2004
9/5/2004
12/5/2004
3/5/2005
6/5/2005
9/5/2005
12/5/2005
3/5/2006
6/5/2006
9/5/2006
12/5/2006
3/5/2007
6/5/2007
Measurement Date
MW-11
MW-20
MW-8


Potentiometric Surface Behind Slurry Wall
Potentiometric Surface (ft)
5500
5499.5
5499
5498.5
5498
5497.5
5497
5496.5
5496
5495.5
5495
60
150
385
550
670
810
1115
1410
1660
1950
2200
2310
2390
2570
Collection Well Location (ft)
Pot. Surface 7/30/2007
Pot. Surface 10/2/2006

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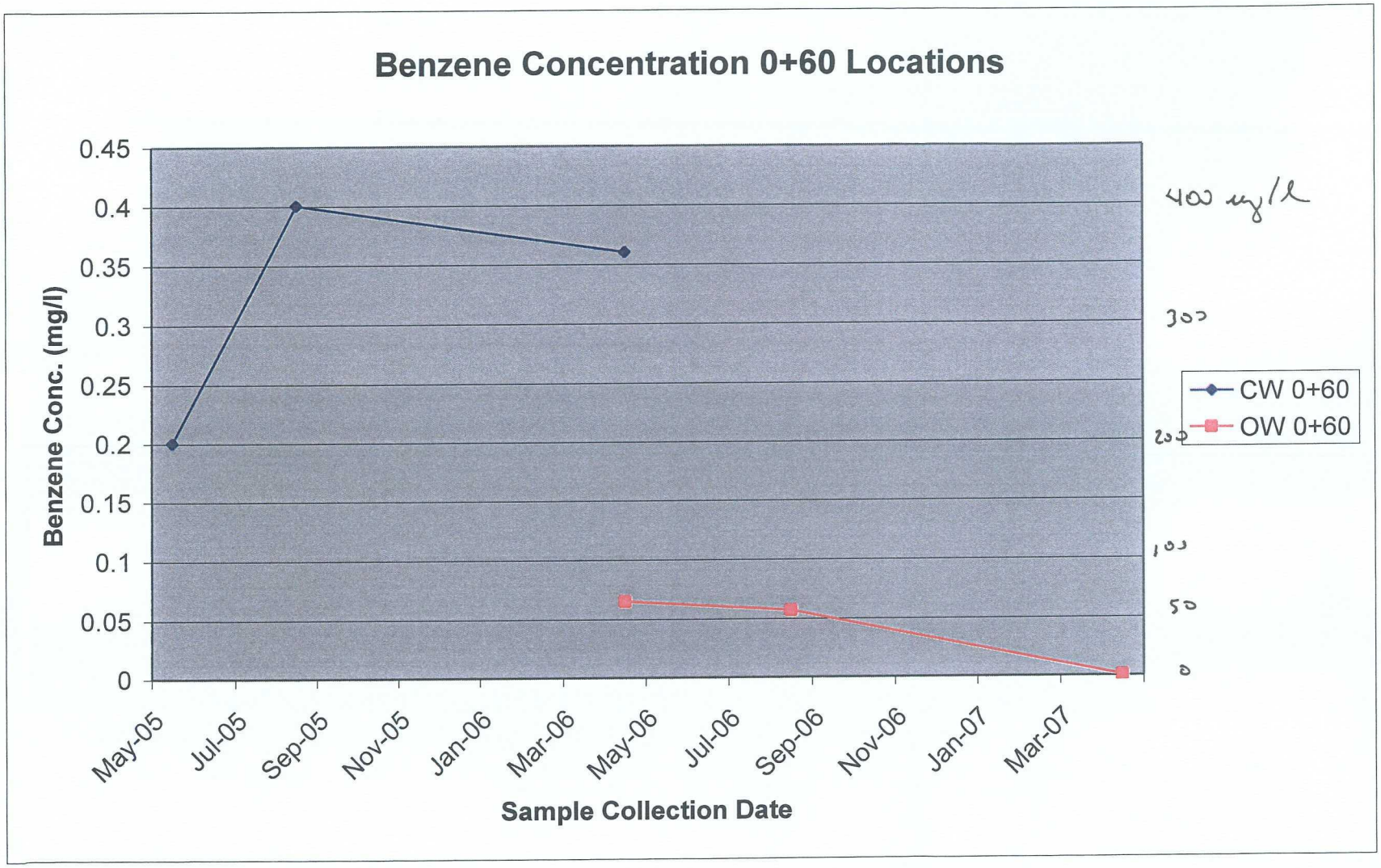
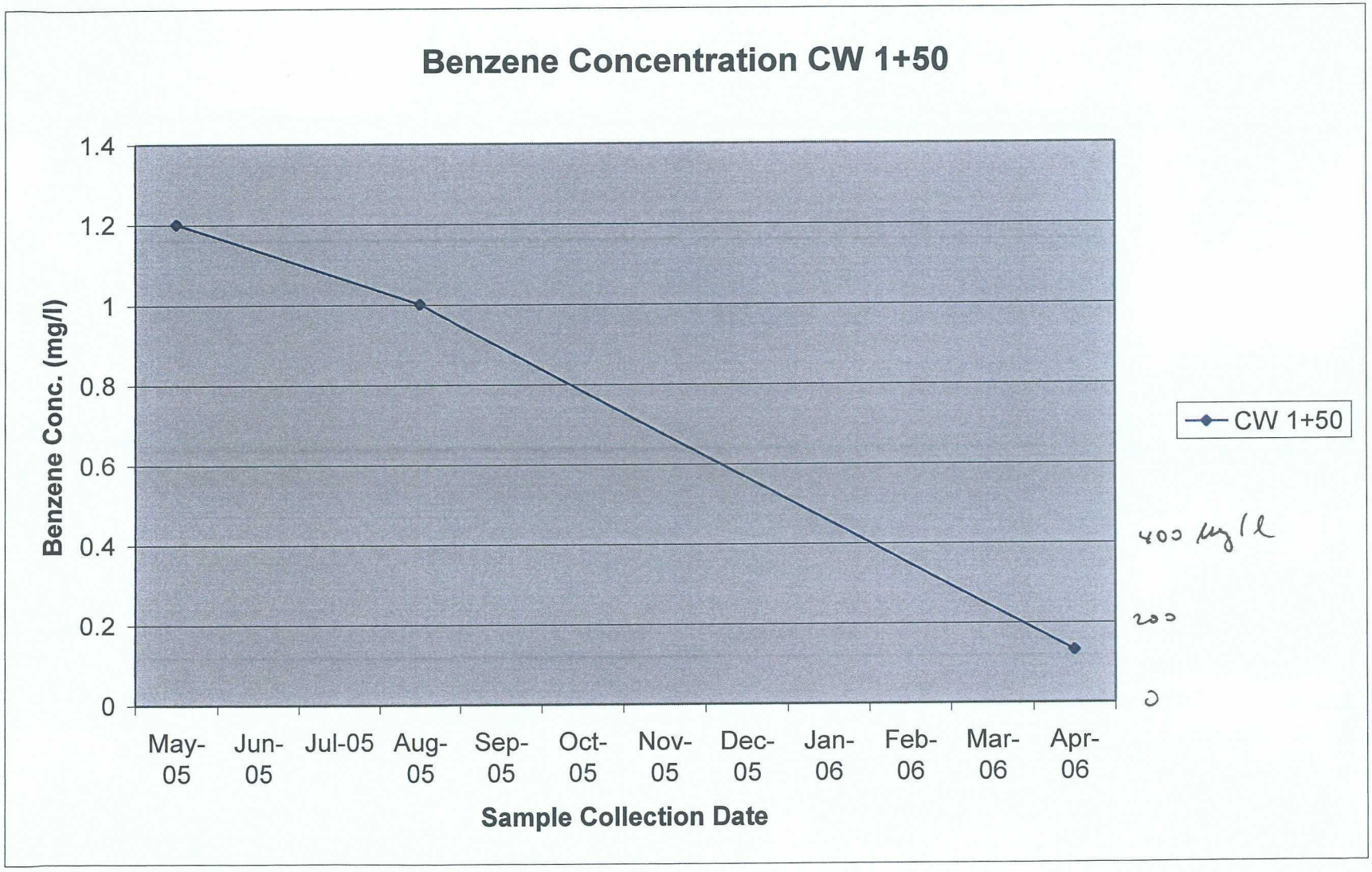
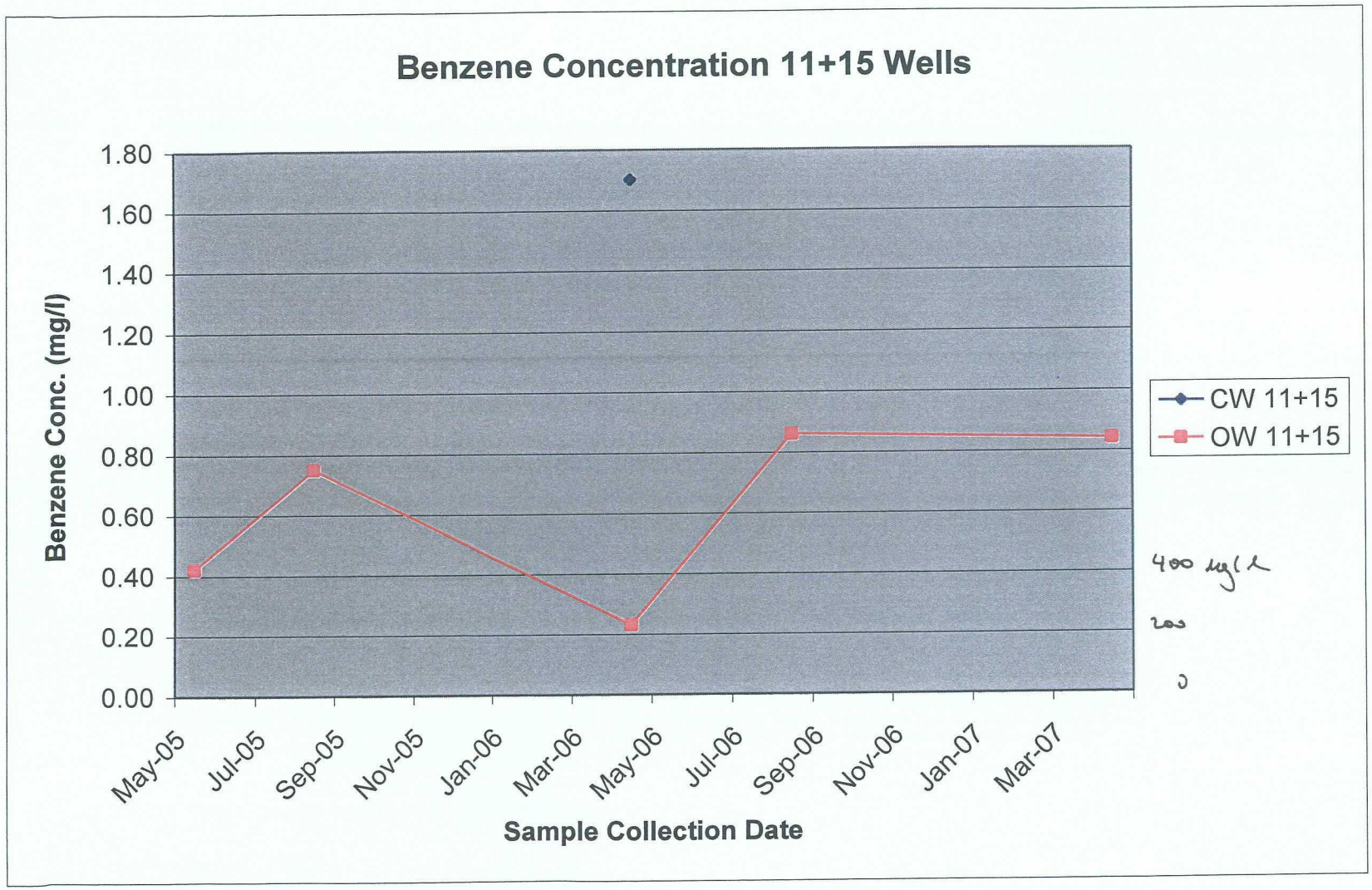
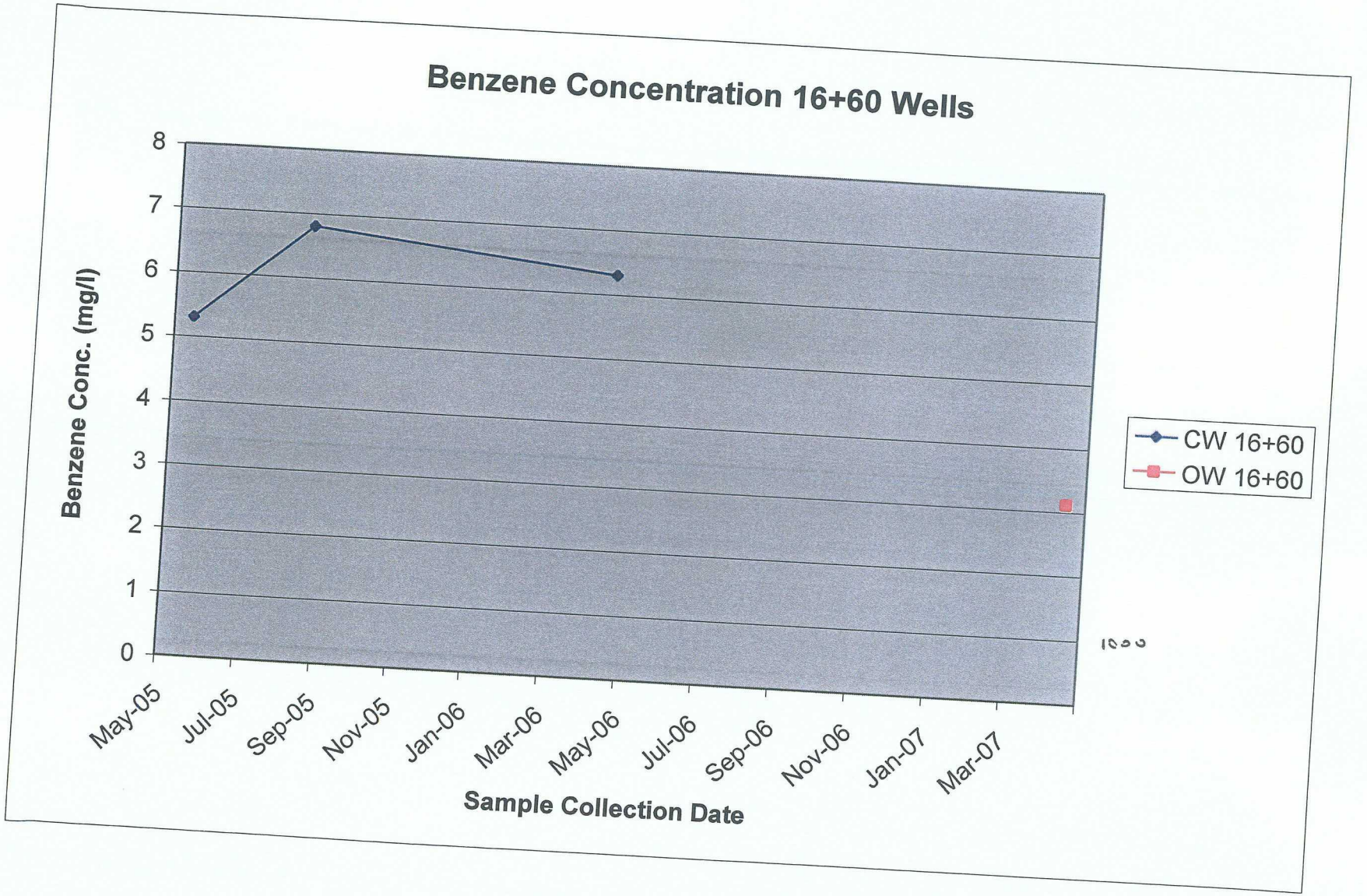
Appendix C

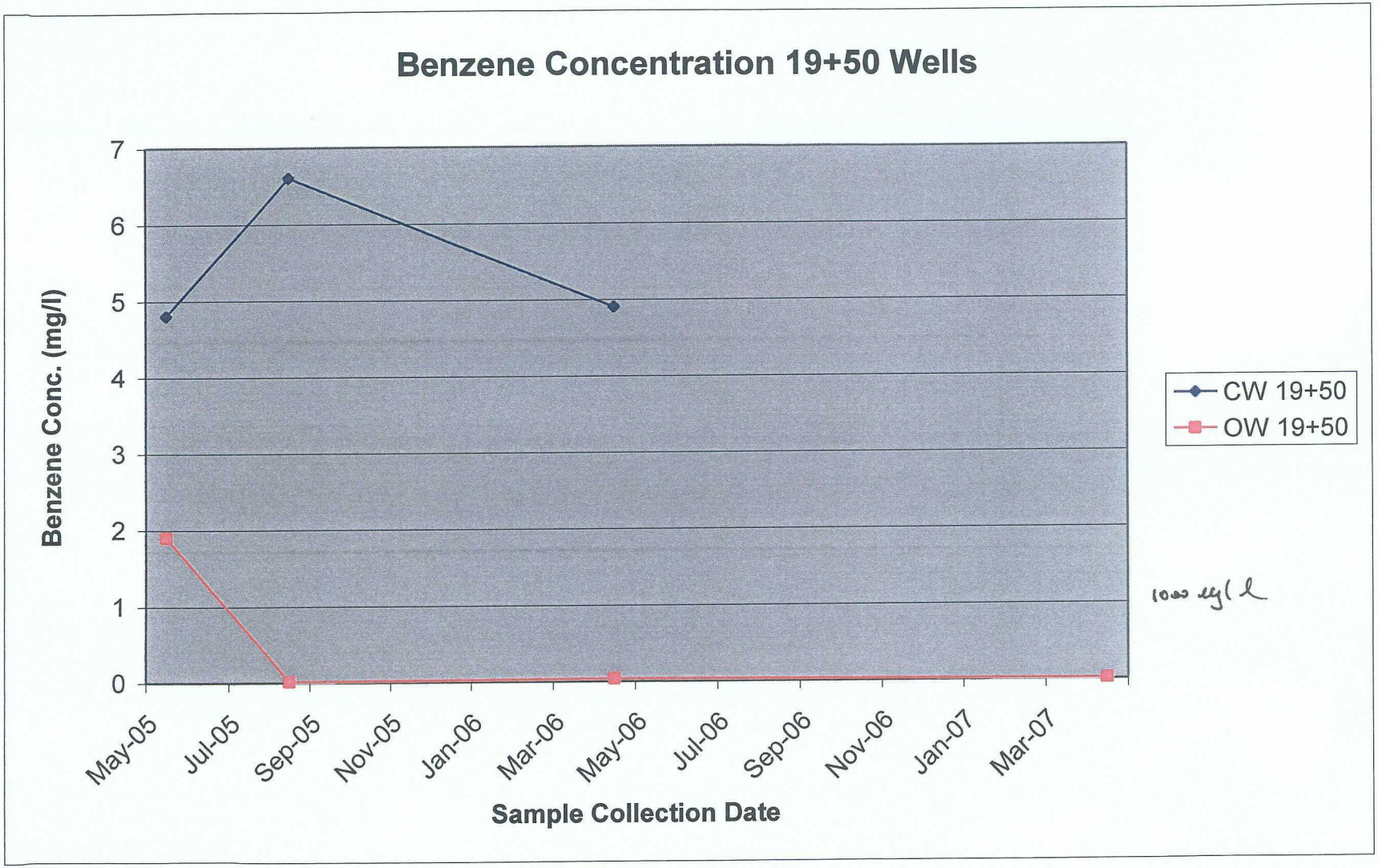
Benzene Concentration Graphs

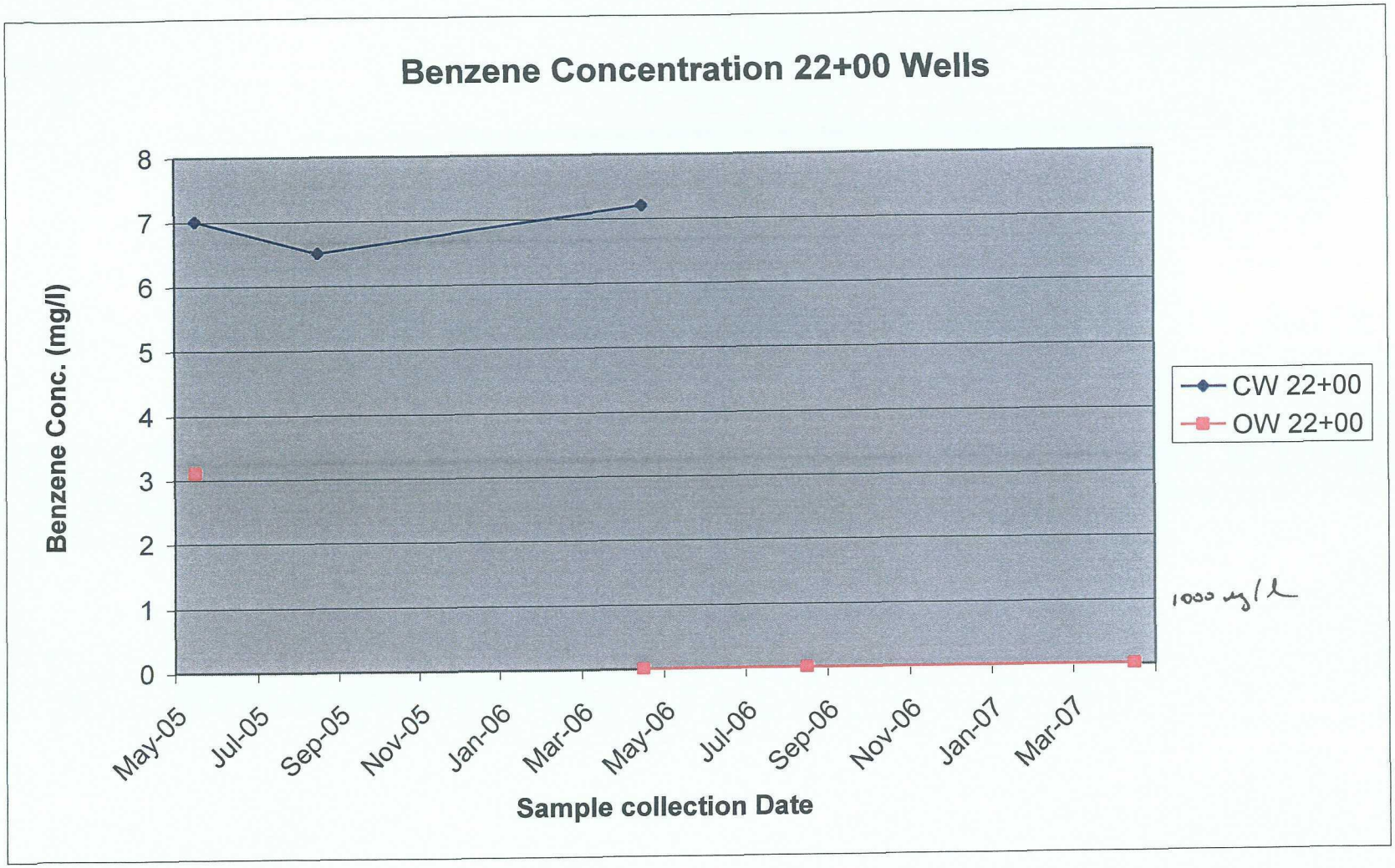

Benzene Concentration 0+60 Locations
Benzene Conc. (mg/l)
0.45
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 0+60
OW 0+60
400 ug/l
300
200
100
50
0

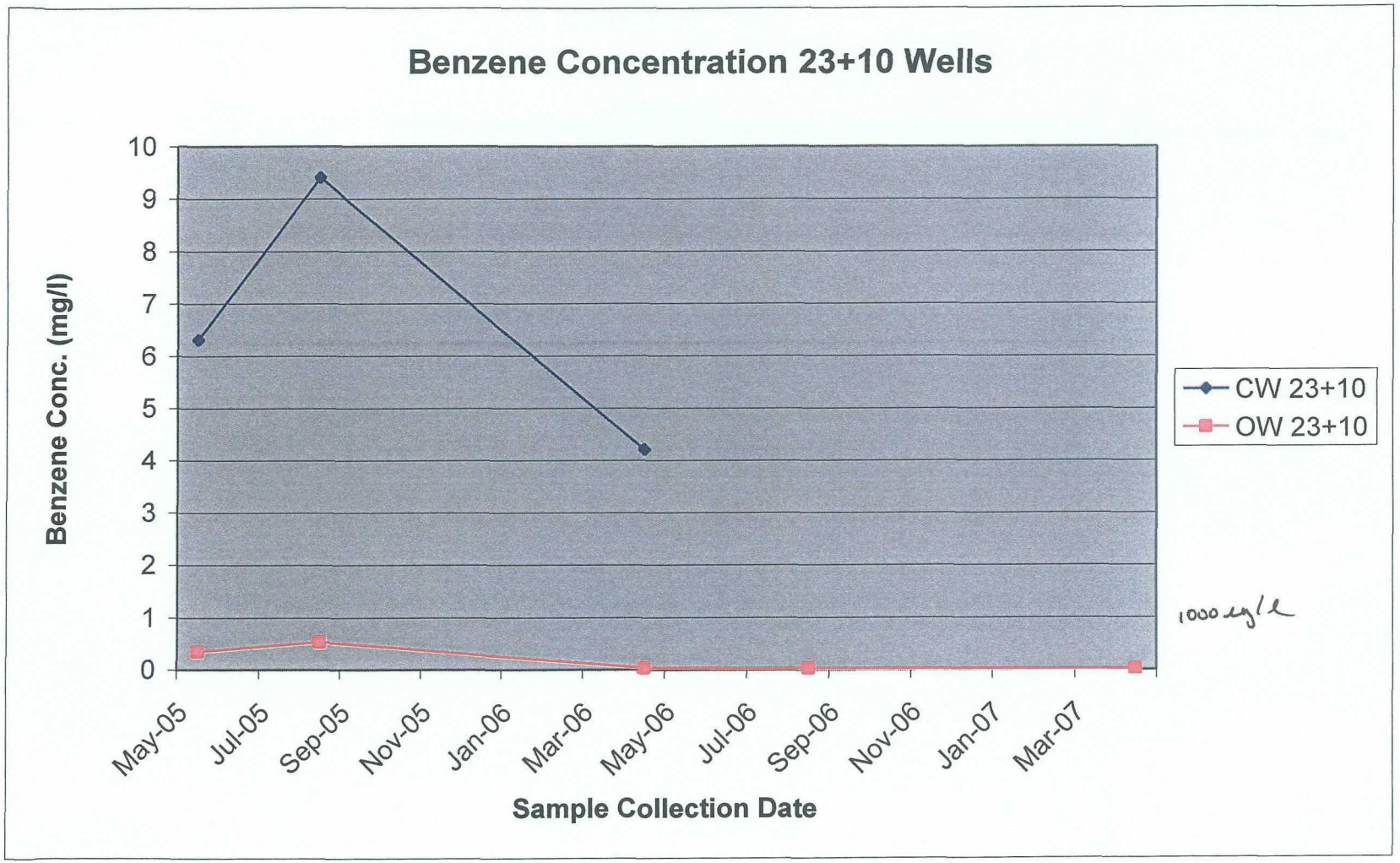

Benzene Concentration CW 1+50
Benzene Conc. (mg/l)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
May-05
Jun-05
Jul-05
Aug-05
Sep-05
Oct-05
Nov-05
Dec-05
Jan-06
Feb-06
Mar-06
Apr-06
Sample Collection Date
CW 1+50
400 µg/l
200
0

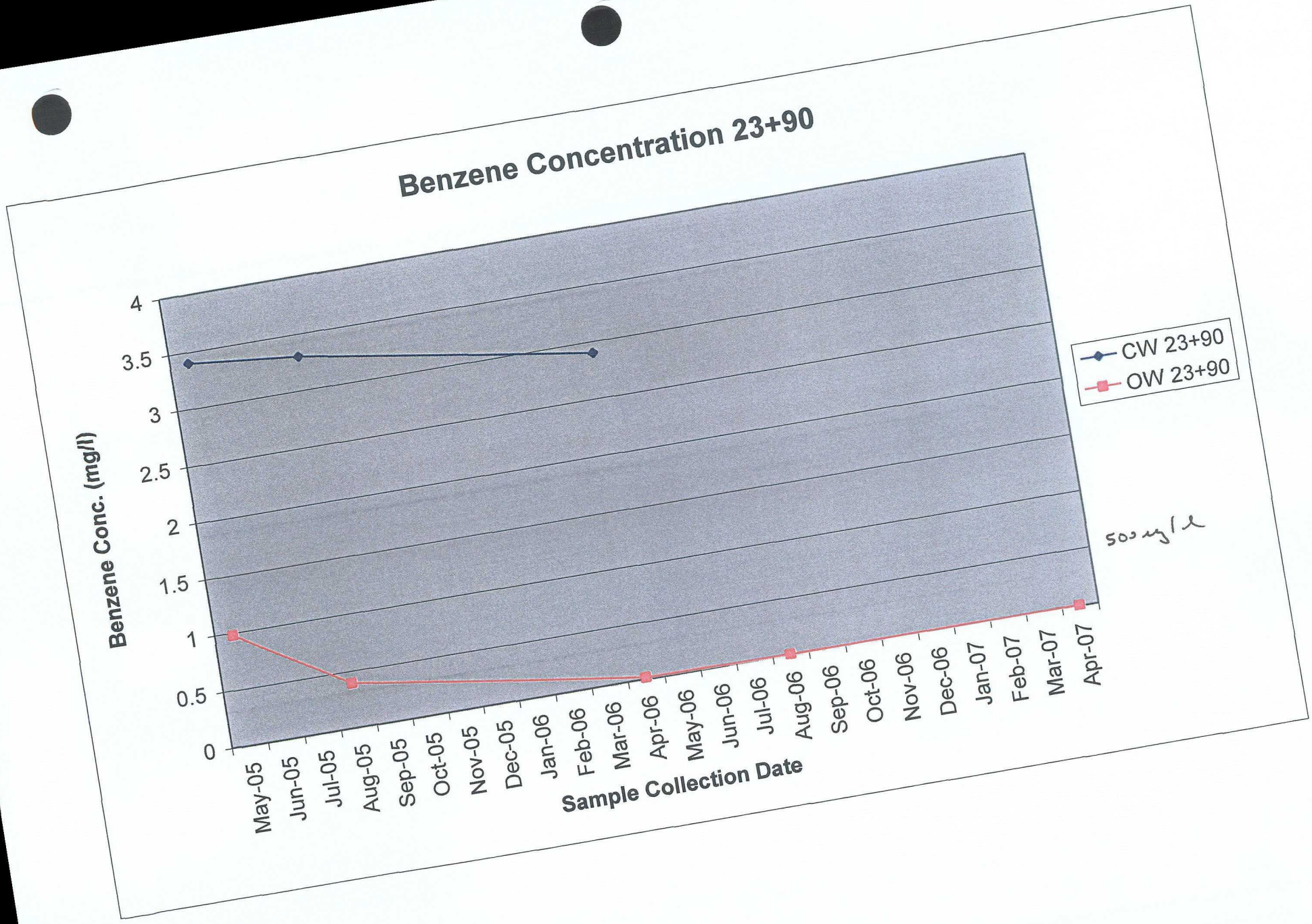

Benzene Concentration 11+15 Wells
Benzene Conc. (mg/l)
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 11+15
OW 11+15
400 ug/l
200
0

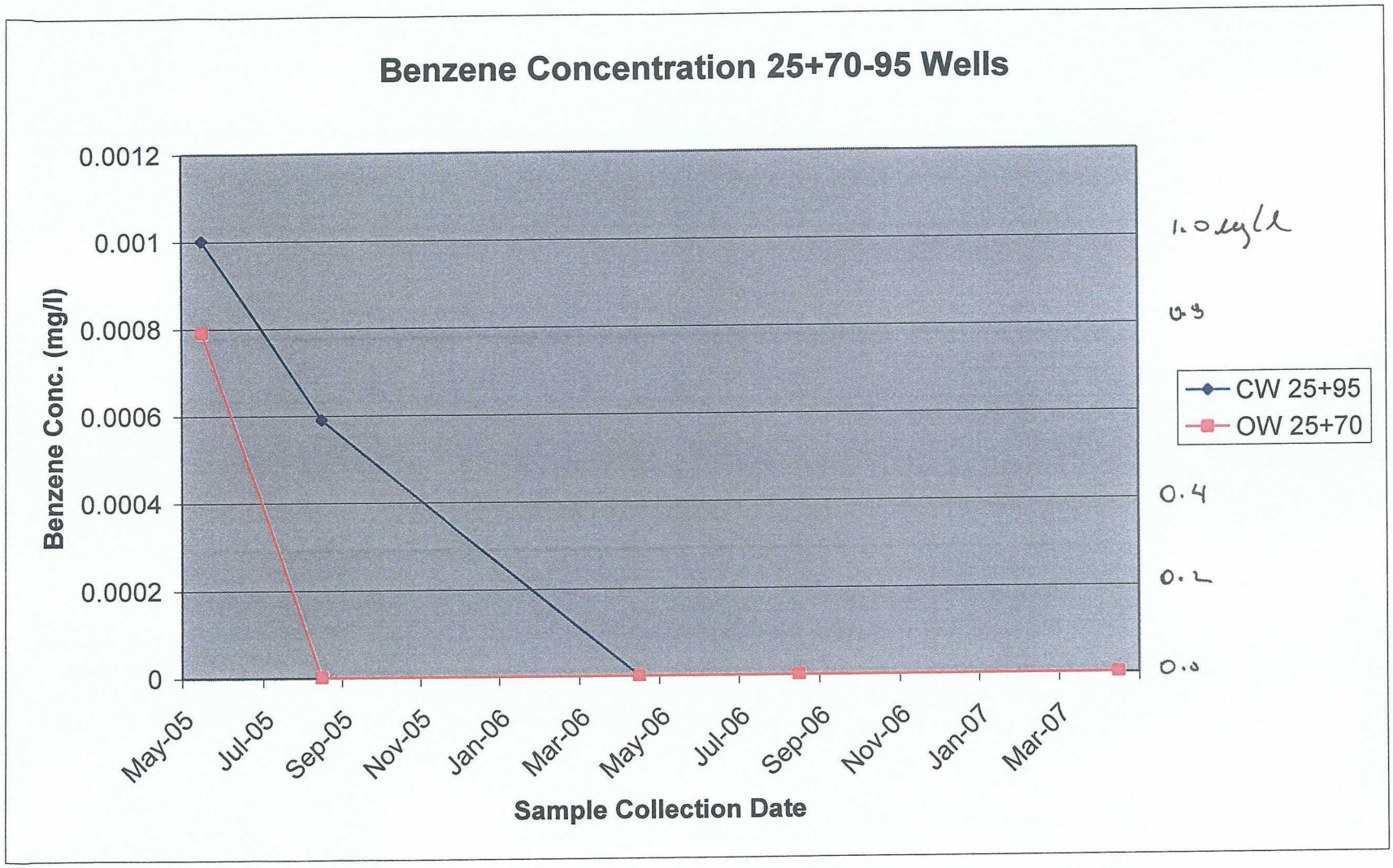

Benzene Concentration 16+60 Wells
Benzene Conc. (mg/l)
8
7
6
5
4
3
2
1
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 16+60
OW 16+60

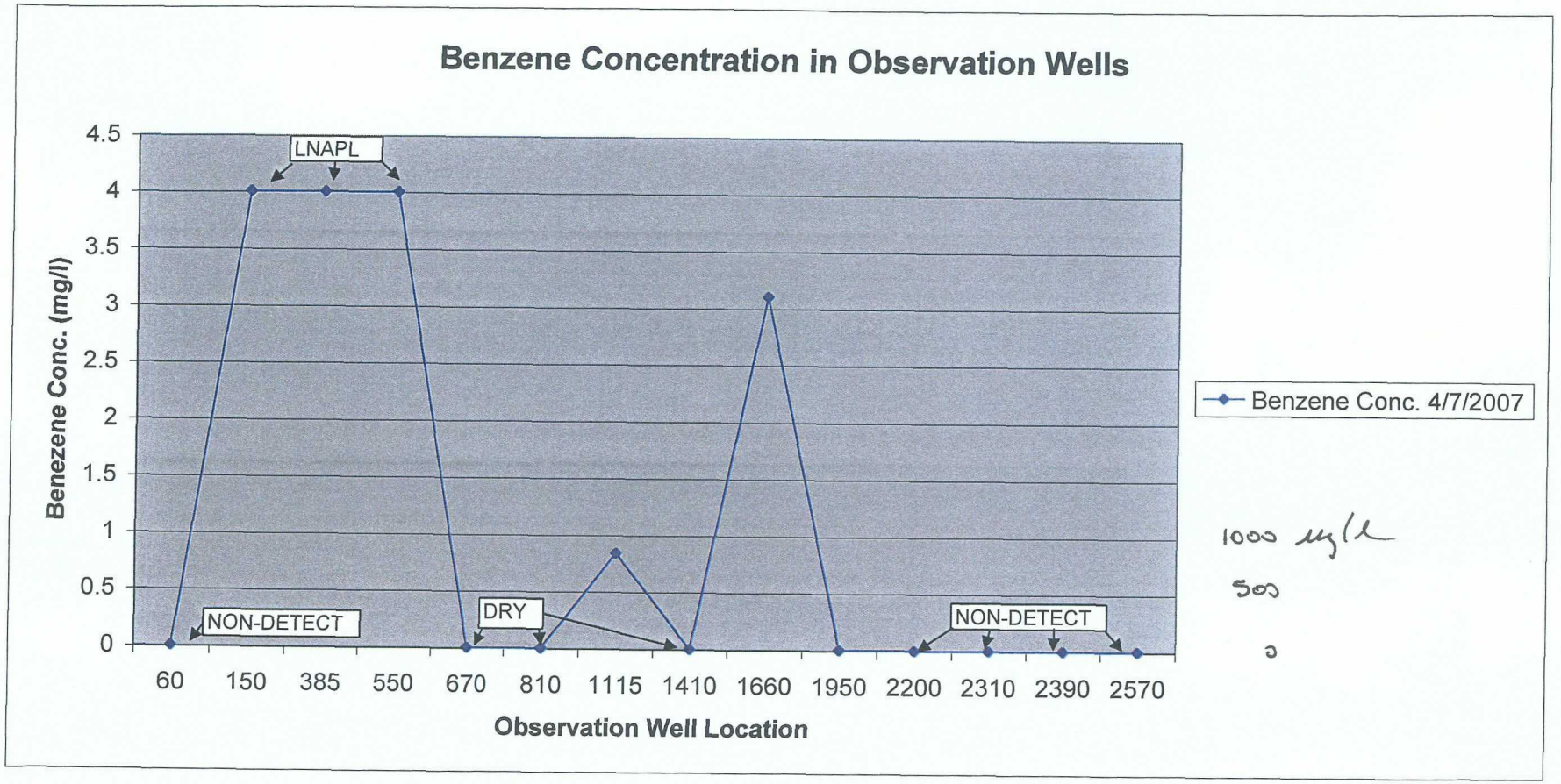

Benzene Concentration 19+50 Wells
Benzene Conc. (mg/l)
7
6
5
4
3
2
1
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 19+50
OW 19+50
1000 ug/l


Benzene Concentration 22+00 Wells
Benzene Conc. (mg/l)
8
7
6
5
4
3
2
1
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample collection Date
CW 22+00
OW 22+00
1000 ug/l


Benzene Concentration 23+10 Wells
Benzene Conc. (mg/l)
10
9
8
7
6
5
4
3
2
1
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 23+10
OW 23+10
1000 ug/l


Benzene Concentration 23+90
Benzene Conc. (mg/l)
4
3.5
3
2.5
2
1.5
1
0.5
0
May-05
Jun-05
Jul-05
Aug-05
Sep-05
Oct-05
Nov-05
Dec-05
Jan-06
Feb-06
Mar-06
Apr-06
May-06
Jun-06
Jul-06
Aug-06
Sep-06
Oct-06
Nov-06
Dec-06
Jan-07
Feb-07
Mar-07
Apr-07
Sample Collection Date
CW 23+90
OW 23+90
500 mg/l


Benzene Concentration 25+70-95 Wells
Benzene Conc. (mg/l)
0.0012
0.001
0.0008
0.0006
0.0004
0.0002
0
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
Sample Collection Date
CW 25+95
OW 25+70
1.0 ug/l
0.8
0.4
0.2
0.0


Benzene Concentration in Observation Wells
Benezene Conc. (mg/l)
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
LNAPL
NON-DETECT
DRY
NON-DETECT
60
150
385
550
670
810
1115
1410
1660
1950
2200
2310
2390
2570
Observation Well Location
Benzene Conc. 4/7/2007
1000 mg/l
500
0

RPS JDC

Appendix D

Data Tables

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 0+60	3/14/2005	5498.62	NPP
CW 0+60	5/9/2005	5498.22	NPP
CW 0+60	5/12/2005	5498.16	NPP
CW 0+60	5/17/2005	5498.14	NPP
CW 0+60	5/19/2005	5498.11	NPP
CW 0+60	5/24/2005	5498.10	NPP
CW 0+60	5/26/2005	5498.08	NPP
CW 0+60	5/31/2005	5498.08	NPP
CW 0+60	6/2/2005	5498.07	NPP
CW 0+60	6/7/2005	5498.08	NPP
CW 0+60	6/9/2005	5498.05	NPP
CW 0+60	6/14/2005	5498.00	NPP
CW 0+60	6/16/2005	5498.02	NPP
CW 0+60	6/21/2005	5498.06	NPP
CW 0+60	6/23/2005	5498.01	NPP
CW 0+60	6/28/2005	5497.99	NPP
CW 0+60	7/7/2005	5498.00	NPP
CW 0+60	7/14/2005	5497.98	NPP
CW 0+60	7/19/2005	5497.97	NPP
CW 0+60	7/28/2005	5498.00	NPP
CW 0+60	8/2/2005	5498.00	NPP
CW 0+60	8/11/2005	5497.98	NPP
CW 0+60	8/23/2005	5498.18	NPP
CW 0+60	9/6/2005	5498.16	NPP
CW 0+60	9/20/2005	5498.27	NPP
CW 0+60	10/4/2005	5498.81	NPP
CW 0+60	10/18/2005	5498.75	NPP
CW 0+60	11/1/2005	5499.36	NPP
CW 0+60	11/15/2005	5499.28	NPP
CW 0+60	11/29/2005	5500.82	NPP
CW 0+60	12/13/2005	5500.34	NPP
CW 0+60	12/27/2005	5500.21	NPP
CW 0+60	1/10/2006	5500.32	NPP
CW 0+60	1/24/2006	5498.69	NPP
CW 0+60	2/8/2006	5498.69	NPP
CW 0+60	2/16/2006	5498.53	NPP
CW 0+60	3/1/2006	5498.62	NPP
CW 0+60	3/20/2006	5498.67	NPP
CW 0+60	4/3/2006	5498.59	NPP
CW 0+60	5/3/2006	5498.74	NPP
CW 0+60	5/17/2006	5498.73	NPP
CW 0+60	5/30/2006	5498.76	NPP
CW 0+60	6/12/2006	5498.72	NPP
CW 0+60	6/26/2006	5498.72	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 0+60	7/12/2006	5498.93	NPP
CW 0+60	7/24/2006	5498.90	NPP
CW 0+60	8/7/2006	5498.82	NPP
CW 0+60	8/21/2006	5498.77	NPP
CW 0+60	9/5/2006	5498.84	NPP
CW 0+60	9/18/2006	5498.90	NPP
CW 0+60	10/2/2006	5498.91	NPP
CW 1+50	3/14/2005	5498.89	NPP
CW 1+50	5/9/2005	5497.75	NPP
CW 1+50	5/12/2005	5497.70	NPP
CW 1+50	5/17/2005	5497.66	NPP
CW 1+50	5/19/2005	5497.64	NPP
CW 1+50	5/24/2005	5497.64	NPP
CW 1+50	5/26/2005	5497.63	NPP
CW 1+50	5/31/2005	5497.61	NPP
CW 1+50	6/2/2005	5497.64	NPP
CW 1+50	6/7/2005	5497.63	NPP
CW 1+50	6/9/2005	5497.65	NPP
CW 1+50	6/14/2005	5497.61	NPP
CW 1+50	6/16/2005	5497.66	NPP
CW 1+50	6/21/2005	5497.65	NPP
CW 1+50	6/23/2005	5497.65	NPP
CW 1+50	6/28/2005	5497.59	NPP
CW 1+50	7/7/2005	5497.61	NPP
CW 1+50	7/14/2005	5497.59	NPP
CW 1+50	7/19/2005	5497.58	NPP
CW 1+50	7/28/2005	5497.59	NPP
CW 1+50	8/2/2005	5497.62	NPP
CW 1+50	8/11/2005	5497.59	NPP
CW 1+50	8/23/2005	5497.61	NPP
CW 1+50	9/6/2005	5497.62	NPP
CW 1+50	9/20/2005	5497.79	NPP
CW 1+50	10/4/2005	5498.96	NPP
CW 1+50	10/18/2005	5498.92	NPP
CW 1+50	11/1/2005	5499.02	NPP
CW 1+50	11/15/2005	5499.05	NPP
CW 1+50	11/29/2005	5499.09	0.02
CW 1+50	12/13/2005	5499.03	NPP
CW 1+50	12/27/2005	5499.01	0.02
CW 1+50	1/10/2006	5499.04	0.01
CW 1+50	1/24/2006	5498.99	NPP
CW 1+50	2/8/2006	5499.02	0.11
CW 1+50	2/16/2006	5498.80	NPP
CW 1+50	3/1/2006	5498.90	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 1+50	3/20/2006	5498.87	NPP
CW 1+50	4/3/2006	5498.84	NPP
CW 1+50	5/3/2006	5498.84	NPP
CW 1+50	5/17/2006	5498.85	NPP
CW 1+50	5/30/2006	5498.82	NPP
CW 1+50	6/12/2006	5498.79	NPP
CW 1+50	6/26/2006	5498.84	NPP
CW 1+50	7/12/2006	5498.92	NPP
CW 1+50	7/24/2006	5498.94	NPP
CW 1+50	8/7/2006	5498.92	NPP
CW 1+50	8/21/2006	5498.88	NPP
CW 1+50	9/5/2006	5498.94	NPP
CW 1+50	9/18/2006	5498.95	NPP
CW 1+50	10/2/2006	5498.97	NPP
CW 3+85	3/14/2005	5498.58	NPP
CW 3+85	5/9/2005	5503.57	7.41
CW 3+85	5/12/2005	5503.55	7.51
CW 3+85	5/17/2005	5503.55	7.48
CW 3+85	5/19/2005	5503.55	7.52
CW 3+85	5/24/2005	5503.54	7.56
CW 3+85	5/26/2005	5503.55	7.52
CW 3+85	5/31/2005	5503.55	7.52
CW 3+85	6/2/2005	5497.55	NPP
CW 3+85	6/7/2005	5497.54	NPP
CW 3+85	6/9/2005	5497.56	NPP
CW 3+85	6/14/2005	5497.64	NPP
CW 3+85	6/16/2005	5497.53	NPP
CW 3+85	6/21/2005	5497.53	NPP
CW 3+85	6/23/2005	5497.52	NPP
CW 3+85	6/28/2005	5497.53	NPP
CW 3+85	7/7/2005	5497.54	NPP
CW 3+85	7/14/2005	5497.52	NPP
CW 3+85	7/19/2005	5497.52	NPP
CW 3+85	7/28/2005	5497.52	NPP
CW 3+85	8/2/2005	5497.54	NPP
CW 3+85	8/11/2005	5497.52	NPP
CW 3+85	8/23/2005	5497.57	NPP
CW 3+85	9/6/2005	5497.57	NPP
CW 3+85	9/20/2005	5499.44	NPP
CW 3+85	10/4/2005	5498.44	NPP
CW 3+85	10/18/2005	5498.42	NPP
CW 3+85	11/1/2005	5492.52	0.01
CW 3+85	11/15/2005	5498.68	NPP
CW 3+85	11/29/2005	5498.80	0.02

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
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Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 3+85	12/13/2005	5498.82	0.02
CW 3+85	12/27/2005	5498.73	0.02
CW 3+85	1/10/2006	5498.78	0.02
CW 3+85	1/24/2006	5490.76	0.04
CW 3+85	2/8/2006	5498.74	0.19
CW 3+85	2/16/2006	5498.51	NPP
CW 3+85	3/1/2006	5498.56	NPP
CW 3+85	3/20/2006	5498.58	NPP
CW 3+85	4/3/2006	5498.48	NPP
CW 3+85	5/3/2006	5498.51	NPP
CW 3+85	5/17/2006	5498.48	NPP
CW 3+85	5/30/2006	5497.94	NPP
CW 3+85	6/12/2006	5498.46	NPP
CW 3+85	6/26/2006	5498.48	NPP
CW 3+85	7/12/2006	5498.41	NPP
CW 3+85	7/24/2006	5498.52	NPP
CW 3+85	8/7/2006	5498.48	NPP
CW 3+85	8/21/2006	5498.50	NPP
CW 3+85	9/5/2006	5498.51	NPP
CW 3+85	9/18/2006	5498.52	NPP
CW 3+85	10/2/2006	5498.53	NPP
CW 5+50	3/14/2005	5497.60	NPP
CW 5+50	5/9/2005	5496.74	NPP
CW 5+50	5/12/2005	5496.71	NPP
CW 5+50	5/17/2005	5496.74	NPP
CW 5+50	5/19/2005	5496.71	NPP
CW 5+50	5/24/2005	5496.73	NPP
CW 5+50	5/26/2005	5496.73	NPP
CW 5+50	5/31/2005	5496.73	NPP
CW 5+50	6/2/2005	5496.74	NPP
CW 5+50	6/7/2005	5496.73	NPP
CW 5+50	6/9/2005	5496.75	NPP
CW 5+50	6/14/2005	5496.73	NPP
CW 5+50	6/16/2005	5496.73	NPP
CW 5+50	6/21/2005	5496.72	NPP
CW 5+50	6/23/2005	5496.75	0.01
CW 5+50	6/28/2005	5496.76	0.01
CW 5+50	7/7/2005	5496.73	NPP
CW 5+50	7/14/2005	5496.76	0.02
CW 5+50	7/19/2005	5496.73	NPP
CW 5+50	7/28/2005	5496.74	NPP
CW 5+50	8/2/2005	5496.74	0.01
CW 5+50	8/11/2005	5496.76	0.02
CW 5+50	8/23/2005	5496.77	0.01

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 5+50	9/6/2005	5496.76	0.01
CW 5+50	9/20/2005	5496.74	NPP
CW 5+50	10/4/2005	5497.59	NPP
CW 5+50	10/18/2005	5497.06	NPP
CW 5+50	11/1/2005	5497.62	NPP
CW 5+50	11/15/2005	5497.71	NPP
CW 5+50	11/29/2005	5497.73	0.02
CW 5+50	12/13/2005	5497.72	NPP
CW 5+50	12/27/2005	5497.70	0.01
CW 5+50	1/10/2006	5497.73	0.01
CW 5+50	1/24/2006	5497.64	NPP
CW 5+50	2/8/2006	5497.71	0.11
CW 5+50	2/16/2006	5497.53	NPP
CW 5+50	3/1/2006	5497.56	NPP
CW 5+50	3/20/2006	5497.57	NPP
CW 5+50	4/3/2006	5497.53	NPP
CW 5+50	5/3/2006	5497.57	NPP
CW 5+50	5/17/2006	5497.54	NPP
CW 5+50	5/30/2006	5497.57	NPP
CW 5+50	6/12/2006	5497.57	NPP
CW 5+50	6/26/2006	5497.52	NPP
CW 5+50	7/12/2006	5497.57	NPP
CW 5+50	7/24/2006	5497.57	NPP
CW 5+50	8/7/2006	5497.57	NPP
CW 5+50	8/21/2006	5497.53	NPP
CW 5+50	9/5/2006	5497.60	NPP
CW 5+50	9/18/2006	5497.57	NPP
CW 5+50	10/2/2006	5497.62	NPP
CW 6+70	3/14/2005	5497.13	NPP
CW 6+70	5/9/2005	5496.51	NPP
CW 6+70	5/12/2005	5496.40	NPP
CW 6+70	5/17/2005	5496.45	NPP
CW 6+70	5/19/2005	5496.41	NPP
CW 6+70	5/24/2005	5496.43	NPP
CW 6+70	5/26/2005	5496.42	NPP
CW 6+70	5/31/2005	5496.46	NPP
CW 6+70	6/2/2005	5496.44	NPP
CW 6+70	6/7/2005	5496.45	NPP
CW 6+70	6/9/2005	5496.45	NPP
CW 6+70	6/14/2005	5496.41	NPP
CW 6+70	6/16/2005	5496.42	0.01
CW 6+70	6/21/2005	5496.41	0.01
CW 6+70	6/23/2005	5496.42	0.01
CW 6+70	6/28/2005	5496.42	0.01

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 6+70	7/7/2005	5496.40	NPP
CW 6+70	7/14/2005	5496.41	0.01
CW 6+70	7/19/2005	5496.41	0.01
CW 6+70	7/28/2005	5496.41	NPP
CW 6+70	8/2/2005	5496.41	0.01
CW 6+70	8/11/2005	5496.41	0.01
CW 6+70	8/23/2005	5496.40	0.02
CW 6+70	9/6/2005	5496.36	NPP
CW 6+70	9/20/2005	5496.33	NPP
CW 6+70	10/4/2005	5497.14	NPP
CW 6+70	10/18/2005	5497.14	NPP
CW 6+70	11/1/2005	5497.19	NPP
CW 6+70	11/15/2005	5497.24	NPP
CW 6+70	11/29/2005	5496.30	0.05
CW 6+70	12/13/2005	5497.26	0.01
CW 6+70	12/27/2005	5497.23	0.02
CW 6+70	1/10/2006	5497.33	0.02
CW 6+70	1/24/2006	5497.16	NPP
CW 6+70	2/8/2006	5497.29	0.18
CW 6+70	2/16/2006	5497.13	NPP
CW 6+70	3/1/2006	5497.11	NPP
CW 6+70	3/20/2006	5497.18	NPP
CW 6+70	4/3/2006	5497.15	NPP
CW 6+70	5/3/2006	5497.20	NPP
CW 6+70	5/17/2006	5497.21	NPP
CW 6+70	5/30/2006	5497.23	NPP
CW 6+70	6/12/2006	5497.20	NPP
CW 6+70	6/26/2006	5497.22	NPP
CW 6+70	7/12/2006	5497.17	NPP
CW 6+70	7/24/2006	5497.17	NPP
CW 6+70	8/7/2006	5497.13	NPP
CW 6+70	8/21/2006	5497.17	NPP
CW 6+70	9/5/2006	5497.19	NPP
CW 6+70	9/18/2006	5497.15	NPP
CW 6+70	10/2/2006	5497.16	NPP
CW 8+10	3/14/2005	5496.59	NPP
CW 8+10	5/9/2005	5495.74	NPP
CW 8+10	5/12/2005	5495.67	NPP
CW 8+10	5/17/2005	5495.72	NPP
CW 8+10	5/19/2005	5495.64	NPP
CW 8+10	5/24/2005	5495.68	NPP
CW 8+10	5/26/2005	5495.66	NPP
CW 8+10	5/31/2005	5495.67	NPP
CW 8+10	6/2/2005	5495.67	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 8+10	6/7/2005	5495.66	NPP
CW 8+10	6/9/2005	5495.65	NPP
CW 8+10	6/14/2005	5495.62	NPP
CW 8+10	6/16/2005	5495.64	0.01
CW 8+10	6/21/2005	5495.63	0.01
CW 8+10	6/23/2005	5495.66	0.01
CW 8+10	7/7/2005	5495.62	NPP
CW 8+10	7/14/2005	5495.62	0.01
CW 8+10	7/19/2005	5495.60	NPP
CW 8+10	7/28/2005	5495.55	NPP
CW 8+10	8/2/2005	5495.65	0.01
CW 8+10	8/11/2005	5495.62	0.01
CW 8+10	8/23/2005	5495.65	NPP
CW 8+10	9/6/2005	5495.65	NPP
CW 8+10	9/20/2005	5495.59	NPP
CW 8+10	10/4/2005	5496.78	NPP
CW 8+10	10/18/2005	5496.83	NPP
CW 8+10	11/1/2005	5496.80	NPP
CW 8+10	11/15/2005	5496.88	NPP
CW 8+10	11/29/2005	5496.86	0.02
CW 8+10	12/13/2005	5496.86	0.01
CW 8+10	12/27/2005	5496.79	0.01
CW 8+10	1/10/2006	5496.64	NPP
CW 8+10	1/24/2006	5496.57	NPP
CW 8+10	2/8/2006	5496.59	NPP
CW 8+10	2/16/2006	5496.58	NPP
CW 8+10	3/1/2006	5496.59	NPP
CW 8+10	3/20/2006	5496.61	NPP
CW 8+10	4/3/2006	5496.59	NPP
CW 8+10	5/3/2006	5496.63	NPP
CW 8+10	5/17/2006	5496.65	NPP
CW 8+10	5/30/2006	5496.69	NPP
CW 8+10	6/12/2006	5496.66	NPP
CW 8+10	6/26/2006	5496.64	NPP
CW 8+10	7/12/2006	5496.69	NPP
CW 8+10	7/24/2006	5496.75	NPP
CW 8+10	8/7/2006	5496.71	NPP
CW 8+10	8/21/2006	5496.73	NPP
CW 8+10	9/5/2006	5496.69	NPP
CW 8+10	9/18/2006	5496.70	NPP
CW 8+10	10/2/2006	5496.71	NPP
CW 8+45	3/14/2005	5496.29	0.12
CW 8+45	5/9/2005	5496.03	0.46
CW 8+45	5/12/2005	5495.96	0.20

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 8+45	5/17/2005	5496.01	0.42
CW 8+45	5/19/2005	5495.92	0.28
CW 8+45	5/24/2005	5495.98	0.18
CW 8+45	5/26/2005	5496.00	0.33
CW 8+45	5/31/2005	5495.96	0.48
CW 8+45	6/2/2005	5495.99	0.09
CW 8+45	6/7/2005	5496.00	0.20
CW 8+45	6/9/2005	5495.94	0.29
CW 8+45	6/14/2005	5495.52	2.09
CW 8+45	6/16/2005	5495.94	0.04
CW 8+45	6/21/2005	5495.94	0.15
CW 8+45	6/23/2005	5495.97	0.02
CW 8+45	6/28/2005	5495.99	0.12
CW 8+45	7/7/2005	5496.02	0.05
CW 8+45	7/14/2005	5495.93	0.12
CW 8+45	7/19/2005	5495.92	0.13
CW 8+45	7/28/2005	5495.95	0.16
CW 8+45	8/2/2005	5495.95	0.11
CW 8+45	8/11/2005	5495.93	0.12
CW 8+45	8/23/2005	5495.96	0.31
CW 8+45	9/6/2005	5495.95	0.29
CW 8+45	9/20/2005	5495.84	0.04
CW 8+45	10/4/2005	5496.57	0.14
CW 8+45	10/18/2005	5496.74	0.29
CW 8+45	11/1/2005	5496.59	0.11
CW 8+45	11/15/2005	5496.56	0.47
CW 8+45	11/29/2005	5496.61	0.23
CW 8+45	12/13/2005	5496.64	0.09
CW 8+45	12/27/2005	5496.62	0.08
CW 8+45	1/10/2006	5496.42	0.09
CW 8+45	1/24/2006	5496.34	0.07
CW 8+45	2/8/2006	5496.34	0.02
CW 8+45	2/16/2006	5496.35	0.02
CW 8+45	3/1/2006	5496.33	0.01
CW 8+45	3/20/2006	5496.39	0.02
CW 8+45	4/3/2006	5496.34	0.07
CW 8+45	5/3/2006	5496.45	NPP
CW 8+45	5/17/2006	5496.31	NPP
CW 8+45	5/30/2006	5496.39	NPP
CW 8+45	6/12/2006	5496.46	0.02
CW 8+45	6/26/2006	5496.39	0.03
CW 8+45	7/12/2006	5496.45	NPP
CW 8+45	7/24/2006	5496.49	0.02
CW 8+45	8/7/2006	5496.44	0.10

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 8+45	8/21/2006	5496.42	0.10
CW 8+45	9/5/2006	5496.39	0.41
CW 8+45	9/18/2006	5496.40	0.07
CW 8+45	10/2/2006	5496.44	0.05
CW 11+15	3/14/2005	5498.31	NPP
CW 11+15	5/9/2005	5497.79	0.12
CW 11+15	5/12/2005	5497.72	0.04
CW 11+15	5/17/2005	5497.73	0.07
CW 11+15	5/19/2005	5497.66	0.10
CW 11+15	5/24/2005	5497.69	0.10
CW 11+15	5/26/2005	5497.74	0.10
CW 11+15	5/31/2005	5497.69	0.10
CW 11+15	6/2/2005	5497.72	0.08
CW 11+15	6/7/2005	5497.71	0.12
CW 11+15	6/9/2005	5497.71	0.11
CW 11+15	6/14/2005	5497.67	0.07
CW 11+15	6/16/2005	5497.69	0.05
CW 11+15	6/21/2005	5497.70	0.12
CW 11+15	6/23/2005	5497.72	0.07
CW 11+15	6/28/2005	5497.72	0.06
CW 11+15	7/7/2005	5497.71	0.12
CW 11+15	7/14/2005	5497.70	0.11
CW 11+15	7/19/2005	547.70	0.04
CW 11+15	7/28/2005	5497.71	0.04
CW 11+15	8/2/2005	5497.73	0.07
CW 11+15	8/11/2005	5497.70	0.11
CW 11+15	8/23/2005	5497.78	0.01
CW 11+15	9/6/2005	5497.77	0.01
CW 11+15	9/20/2005	5497.79	0.01
CW 11+15	10/4/2005	5498.10	NPP
CW 11+15	10/18/2005	5498.13	NPP
CW 11+15	11/1/2005	5498.26	NPP
CW 11+15	11/15/2005	5498.30	NPP
CW 11+15	11/29/2005	5497.40	NPP
CW 11+15	12/13/2005	5498.53	0.01
CW 11+15	12/27/2005	5498.48	0.01
CW 11+15	1/10/2006	5498.48	0.02
CW 11+15	1/24/2006	5498.40	NPP
CW 11+15	2/8/2006	5498.45	0.16
CW 11+15	2/16/2006	5498.21	NPP
CW 11+15	3/1/2006	5498.28	NPP
CW 11+15	3/20/2006	5498.29	NPP
CW 11+15	4/3/2006	5498.30	NPP
CW 11+15	5/3/2006	5498.28	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 11+15	5/17/2006	5498.26	NPP
CW 11+15	5/30/2006	5498.24	NPP
CW 11+15	6/12/2006	5498.39	NPP
CW 11+15	6/26/2006	5498.21	NPP
CW 11+15	7/12/2006	5498.23	NPP
CW 11+15	7/24/2006	5498.27	NPP
CW 11+15	8/7/2006	5498.21	NPP
CW 11+15	8/21/2006	5498.19	NPP
CW 11+15	9/5/2006	5498.19	NPP
CW 11+15	9/18/2006	5498.24	NPP
CW 11+15	10/2/2006	5498.22	NPP
CW 14+10	3/14/2005	5497.93	NPP
CW 14+10	5/9/2005	5497.14	NPP
CW 14+10	5/12/2005	5497.05	NPP
CW 14+10	5/17/2005	5497.12	NPP
CW 14+10	5/19/2005	5497.01	NPP
CW 14+10	5/24/2005	5497.03	NPP
CW 14+10	5/26/2005	5497.05	NPP
CW 14+10	5/31/2005	5497.05	NPP
CW 14+10	6/2/2005	5497.07	NPP
CW 14+10	6/7/2005	5497.06	NPP
CW 14+10	6/9/2005	5497.11	NPP
CW 14+10	6/14/2005	5497.02	NPP
CW 14+10	6/16/2005	5497.03	NPP
CW 14+10	6/21/2005	5497.02	NPP
CW 14+10	6/23/2005	5497.05	0.01
CW 14+10	6/28/2005	5497.11	NPP
CW 14+10	7/7/2005	5497.06	0.01
CW 14+10	7/14/2005	5497.04	0.01
CW 14+10	7/19/2005	5497.11	NPP
CW 14+10	7/28/2005	5497.09	NPP
CW 14+10	8/2/2005	5497.14	0.01
CW 14+10	8/11/2005	5497.04	0.01
CW 14+10	8/23/2005	5497.12	NPP
CW 14+10	9/6/2005	5497.15	NPP
CW 14+10	9/20/2005	5497.07	NPP
CW 14+10	10/4/2005	5497.92	NPP
CW 14+10	10/18/2005	5497.95	NPP
CW 14+10	11/1/2005	5497.98	NPP
CW 14+10	11/15/2005	5491.48	NPP
CW 14+10	11/29/2005	5497.90	0.01
CW 14+10	12/13/2005	5498.01	0.02
CW 14+10	12/27/2005	5497.99	0.01
CW 14+10	1/10/2006	5497.98	0.04

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 14+10	1/24/2006	5497.92	NPP
CW 14+10	2/8/2006	5497.97	0.11
CW 14+10	2/16/2006	5497.82	NPP
CW 14+10	3/1/2006	5497.90	NPP
CW 14+10	3/20/2006	5497.97	NPP
CW 14+10	4/3/2006	5497.92	NPP
CW 14+10	5/3/2006	5497.95	NPP
CW 14+10	5/17/2006	5497.96	NPP
CW 14+10	5/30/2006	5497.98	NPP
CW 14+10	6/12/2006	5497.94	NPP
CW 14+10	6/26/2006	5497.97	NPP
CW 14+10	7/12/2006	5497.98	NPP
CW 14+10	7/24/2006	5498.03	NPP
CW 14+10	8/7/2006	5497.92	NPP
CW 14+10	8/21/2006	5497.96	NPP
CW 14+10	9/5/2006	5497.91	NPP
CW 14+10	9/18/2006	5497.94	NPP
CW 14+10	10/2/2006	5497.94	NPP
CW 16+60	5/9/2005	5497.31	NPP
CW 16+60	5/12/2005	5497.26	NPP
CW 16+60	5/17/2005	5497.30	NPP
CW 16+60	5/19/2005	5497.27	NPP
CW 16+60	5/24/2005	5497.27	NPP
CW 16+60	5/26/2005	5497.26	NPP
CW 16+60	5/31/2005	5497.25	NPP
CW 16+60	6/2/2005	5497.25	NPP
CW 16+60	6/7/2005	5497.25	NPP
CW 16+60	6/9/2005	5497.26	NPP
CW 16+60	6/14/2005	5497.26	0.01
CW 16+60	6/16/2005	5497.27	0.01
CW 16+60	6/21/2005	5497.25	NPP
CW 16+60	6/23/2005	5497.25	0.01
CW 16+60	6/28/2005	5497.26	0.01
CW 16+60	7/7/2005	5497.25	0.01
CW 16+60	7/14/2005	5497.24	0.01
CW 16+60	7/19/2005	5497.28	0.01
CW 16+60	7/28/2005	5497.28	0.02
CW 16+60	8/2/2005	5497.32	0.01
CW 16+60	8/11/2005	5497.24	0.01
CW 16+60	8/23/2005	5497.26	NPP
CW 16+60	9/6/2005	5497.32	NPP
CW 16+60	9/20/2005	5497.35	NPP
CW 16+60	10/4/2005	5497.92	NPP
CW 16+60	10/18/2005	5498.05	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
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Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 16+60	11/1/2005	5498.05	NPP
CW 16+60	11/15/2005	5497.95	NPP
CW 16+60	11/29/2005	5497.95	NPP
CW 16+60	12/13/2005	5497.98	NPP
CW 16+60	12/27/2005	5497.95	NPP
CW 16+60	1/10/2006	5497.94	NPP
CW 16+60	1/24/2006	5497.94	NPP
CW 16+60	2/8/2006	5497.95	NPP
CW 16+60	2/16/2006	5497.85	NPP
CW 16+60	3/1/2006	5497.96	NPP
CW 16+60	3/14/2006	5497.96	NPP
CW 16+60	3/20/2006	5498.01	NPP
CW 16+60	4/3/2006	5497.97	NPP
CW 16+60	5/3/2006	5498.00	NPP
CW 16+60	5/17/2006	5498.02	NPP
CW 16+60	5/30/2006	5498.04	NPP
CW 16+60	6/12/2006	5498.01	NPP
CW 16+60	6/26/2006	5498.06	NPP
CW 16+60	7/12/2006	5498.02	NPP
CW 16+60	7/24/2006	5498.01	NPP
CW 16+60	8/7/2006	5498.00	NPP
CW 16+60	8/21/2006	5497.99	NPP
CW 16+60	9/5/2006	5498.01	NPP
CW 16+60	9/18/2006	5497.99	NPP
CW 16+60	10/2/2006	5498.00	NPP
CW 19+50	5/9/2005	5497.12	NPP
CW 19+50	5/12/2005	5497.09	NPP
CW 19+50	5/17/2005	5497.13	NPP
CW 19+50	5/19/2005	5497.04	NPP
CW 19+50	5/24/2005	5497.08	NPP
CW 19+50	5/26/2005	5497.07	NPP
CW 19+50	5/31/2005	5497.09	NPP
CW 19+50	6/2/2005	5497.10	NPP
CW 19+50	6/7/2005	5497.09	NPP
CW 19+50	6/9/2005	5497.12	NPP
CW 19+50	6/14/2005	5497.08	NPP
CW 19+50	6/16/2005	5497.06	NPP
CW 19+50	6/21/2005	5497.05	NPP
CW 19+50	6/23/2005	5497.08	NPP
CW 19+50	6/28/2005	5497.10	NPP
CW 19+50	7/7/2005	5497.08	NPP
CW 19+50	7/14/2005	5497.04	NPP
CW 19+50	7/19/2005	5497.15	NPP
CW 19+50	7/28/2005	5497.05	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 19+50	8/2/2005	5497.10	NPP
CW 19+50	8/11/2005	5497.04	NPP
CW 19+50	8/23/2005	5497.22	NPP
CW 19+50	9/6/2005	5497.18	NPP
CW 19+50	9/20/2005	5497.33	NPP
CW 19+50	10/4/2005	5498.15	NPP
CW 19+50	10/18/2005	54998.20	NPP
CW 19+50	11/1/2005	5498.25	NPP
CW 19+50	11/15/2005	5498.15	NPP
CW 19+50	12/13/2005	5498.17	0.02
CW 19+50	12/27/2005	54998.15	NPP
CW 19+50	1/10/2006	5498.16	NPP
CW 19+50	1/24/2006	54998.21	NPP
CW 19+50	2/8/2006	5498.18	NPP
CW 19+50	2/16/2006	54998.18	NPP
CW 19+50	3/1/2006	5498.25	NPP
CW 19+50	3/14/2006	5498.25	NPP
CW 19+50	3/20/2006	5498.29	NPP
CW 19+50	4/3/2006	5498.21	NPP
CW 19+50	5/3/2006	5498.26	NPP
CW 19+50	5/17/2006	5498.23	NPP
CW 19+50	5/30/2006	5498.29	NPP
CW 19+50	6/12/2006	5498.20	NPP
CW 19+50	6/26/2006	5498.31	NPP
CW 19+50	7/12/2006	5498.29	NPP
CW 19+50	7/24/2006	5498.02	NPP
CW 19+50	8/7/2006	5498.23	NPP
CW 19+50	8/21/2006	5498.23	NPP
CW 19+50	9/5/2006	5498.15	NPP
CW 19+50	9/18/2006	5498.20	NPP
CW 19+50	10/2/2006	5498.24	NPP
CW 22+00	5/9/2005	5498.07	NPP
CW 22+00	5/12/2005	5498.06	NPP
CW 22+00	5/17/2005	5498.06	NPP
CW 22+00	5/19/2005	5498.04	NPP
CW 22+00	5/24/2005	5498.04	NPP
CW 22+00	5/26/2005	5498.04	NPP
CW 22+00	5/31/2005	5498.27	NPP
CW 22+00	6/2/2005	5498.06	NPP
CW 22+00	6/7/2005	5498.04	NPP
CW 22+00	6/9/2005	5498.04	NPP
CW 22+00	6/14/2005	5498.06	NPP
CW 22+00	6/16/2005	5498.04	NPP
CW 22+00	6/21/2005	5497.94	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 22+00	6/23/2005	5498.07	0.01
CW 22+00	6/28/2005	5498.42	0.10
CW 22+00	7/7/2005	5498.32	0.10
CW 22+00	7/14/2005	5498.29	0.09
CW 22+00	7/19/2005	5498.07	NPP
CW 22+00	7/28/2005	5498.04	NPP
CW 22+00	8/2/2005	5498.04	NPP
CW 22+00	8/11/2005	5498.29	0.09
CW 22+00	8/23/2005	5498.07	NPP
CW 22+00	9/6/2005	5498.04	NPP
CW 22+00	9/20/2005	5498.10	NPP
CW 22+00	10/4/2005	5498.82	NPP
CW 22+00	10/18/2005	5498.86	NPP
CW 22+00	11/1/2005	5498.93	NPP
CW 22+00	11/15/2005	5498.92	NPP
CW 22+00	11/29/2005	5496.73	0.02
CW 22+00	12/13/2005	5498.96	0.01
CW 22+00	12/27/2005	5498.94	0.01
CW 22+00	1/10/2006	5498.91	NPP
CW 22+00	1/24/2006	5498.92	NPP
CW 22+00	2/8/2006	5498.90	NPP
CW 22+00	2/16/2006	5498.90	NPP
CW 22+00	3/1/2006	5498.94	NPP
CW 22+00	3/14/2006	5498.91	NPP
CW 22+00	3/20/2006	5498.91	NPP
CW 22+00	4/3/2006	5498.91	NPP
CW 22+00	5/3/2006	5498.92	NPP
CW 22+00	5/17/2006	5498.90	NPP
CW 22+00	5/30/2006	5498.92	NPP
CW 22+00	6/12/2006	5498.90	NPP
CW 22+00	6/26/2006	5498.92	NPP
CW 22+00	7/12/2006	5498.90	NPP
CW 22+00	7/24/2006	5498.91	NPP
CW 22+00	8/7/2006	5498.85	NPP
CW 22+00	8/21/2006	5498.90	NPP
CW 22+00	9/5/2006	5498.90	NPP
CW 22+00	9/18/2006	5498.81	NPP
CW 22+00	10/2/2006	5498.88	NPP
CW 23+10	5/9/2005	5498.53	NPP
CW 23+10	5/12/2005	5498.53	NPP
CW 23+10	5/17/2005	5498.53	NPP
CW 23+10	5/19/2005	5498.50	NPP
CW 23+10	5/24/2005	5498.52	NPP
CW 23+10	5/26/2005	5498.51	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 23+10	5/31/2005	5498.51	NPP
CW 23+10	6/2/2005	5498.54	NPP
CW 23+10	6/7/2005	5498.52	NPP
CW 23+10	6/9/2005	5498.53	NPP
CW 23+10	6/14/2005	5498.51	NPP
CW 23+10	6/16/2005	5498.51	NPP
CW 23+10	6/21/2005	5498.52	NPP
CW 23+10	6/23/2005	5498.52	NPP
CW 23+10	6/28/2005	5499.62	NPP
CW 23+10	7/7/2005	5498.53	NPP
CW 23+10	7/14/2005	5498.51	NPP
CW 23+10	7/19/2005	5498.52	NPP
CW 23+10	7/28/2005	5498.50	NPP
CW 23+10	8/2/2005	5498.54	NPP
CW 23+10	8/11/2005	5498.51	NPP
CW 23+10	8/23/2005	5498.53	NPP
CW 23+10	9/6/2005	5498.53	NPP
CW 23+10	9/20/2005	5498.59	NPP
CW 23+10	10/4/2005	5499.22	NPP
CW 23+10	10/18/2005	5499.21	NPP
CW 23+10	11/1/2005	5493.96	0.01
CW 23+10	11/15/2005	5499.31	NPP
CW 23+10	11/29/2005	5499.78	NPP
CW 23+10	12/13/2005	5499.34	NPP
CW 23+10	12/27/2005	5499.36	NPP
CW 23+10	1/10/2006	5499.35	NPP
CW 23+10	1/24/2006	5499.31	NPP
CW 23+10	2/8/2006	5499.33	NPP
CW 23+10	2/16/2006	5499.29	NPP
CW 23+10	3/1/2006	5499.32	NPP
CW 23+10	3/14/2006	5499.33	NPP
CW 23+10	3/20/2006	5499.28	NPP
CW 23+10	4/3/2006	5499.28	NPP
CW 23+10	5/3/2006	5499.31	NPP
CW 23+10	5/17/2006	5499.28	NPP
CW 23+10	5/30/2006	5499.30	NPP
CW 23+10	6/12/2006	5499.81	NPP
CW 23+10	6/26/2006	5499.29	0.23
CW 23+10	7/12/2006	5499.31	0.05
CW 23+10	7/24/2006	5499.25	NPP
CW 23+10	8/7/2006	5499.35	NPP
CW 23+10	8/21/2006	5499.26	NPP
CW 23+10	9/5/2006	5499.25	NPP
CW 23+10	9/18/2006	5499.25	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 23+10	10/2/2006	5499.26	NPP
CW 23+90	5/9/2005	5498.19	NPP
CW 23+90	5/12/2005	5498.19	NPP
CW 23+90	5/17/2005	5498.18	NPP
CW 23+90	5/19/2005	5498.17	NPP
CW 23+90	5/24/2005	5498.18	NPP
CW 23+90	5/26/2005	5498.18	NPP
CW 23+90	5/31/2005	5498.19	NPP
CW 23+90	6/2/2005	5498.23	NPP
CW 23+90	6/7/2005	5498.18	NPP
CW 23+90	6/9/2005	5498.18	NPP
CW 23+90	6/14/2005	5498.18	NPP
CW 23+90	6/16/2005	5498.18	NPP
CW 23+90	6/21/2005	5498.18	NPP
CW 23+90	6/23/2005	5498.19	NPP
CW 23+90	6/28/2005	5498.19	NPP
CW 23+90	7/7/2005	5505.60	9.28
CW 23+90	7/14/2005	5498.17	NPP
CW 23+90	7/19/2005	5498.21	NPP
CW 23+90	7/28/2005	5498.17	NPP
CW 23+90	8/2/2005	5498.19	NPP
CW 23+90	8/11/2005	5498.17	NPP
CW 23+90	8/23/2005	5498.25	NPP
CW 23+90	9/6/2005	5498.20	NPP
CW 23+90	9/20/2005	5498.28	NPP
CW 23+90	10/4/2005	5499.00	NPP
CW 23+90	10/18/2005	5498.98	NPP
CW 23+90	11/1/2005	5499.07	NPP
CW 23+90	11/15/2005	5499.05	NPP
CW 23+90	11/29/2005	5499.08	NPP
CW 23+90	12/13/2005	5499.07	NPP
CW 23+90	12/27/2005	5499.08	NPP
CW 23+90	1/10/2006	5499.05	NPP
CW 23+90	1/24/2006	5499.07	NPP
CW 23+90	2/8/2006	5499.04	NPP
CW 23+90	2/16/2006	5499.05	NPP
CW 23+90	3/1/2006	5499.08	NPP
CW 23+90	3/14/2006	5499.08	NPP
CW 23+90	3/20/2006	5499.08	NPP
CW 23+90	4/3/2006	5499.05	NPP
CW 23+90	5/3/2006	5499.06	NPP
CW 23+90	5/17/2006	5499.04	NPP
CW 23+90	5/30/2006	5499.09	NPP
CW 23+90	6/12/2006	5499.08	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 23+90	6/26/2006	5499.11	NPP
CW 23+90	7/12/2006	5499.15	NPP
CW 23+90	7/24/2006	5499.09	NPP
CW 23+90	8/7/2006	5499.06	NPP
CW 23+90	8/21/2006	5499.08	NPP
CW 23+90	9/5/2006	5499.10	NPP
CW 23+90	9/18/2006	5499.11	NPP
CW 23+90	10/2/2006	5499.11	NPP
CW 25+95	5/9/2005	5497.79	NPP
CW 25+95	5/12/2005	5497.79	NPP
CW 25+95	5/17/2005	5497.79	NPP
CW 25+95	5/19/2005	5497.79	NPP
CW 25+95	5/24/2005	5497.80	NPP
CW 25+95	5/26/2005	5497.79	NPP
CW 25+95	5/31/2005	5497.80	NPP
CW 25+95	6/2/2005	5497.84	NPP
CW 25+95	6/7/2005	5497.80	NPP
CW 25+95	6/9/2005	5497.80	NPP
CW 25+95	6/14/2005	5497.80	NPP
CW 25+95	6/16/2005	5497.80	NPP
CW 25+95	6/21/2005	5497.80	NPP
CW 25+95	6/23/2005	5497.81	NPP
CW 25+95	6/28/2005	5497.81	NPP
CW 25+95	7/7/2005	5497.80	NPP
CW 25+95	7/14/2005	5497.79	NPP
CW 25+95	7/19/2005	5497.80	NPP
CW 25+95	7/28/2005	5497.79	NPP
CW 25+95	8/2/2005	5497.79	NPP
CW 25+95	8/11/2005	5497.79	NPP
CW 25+95	8/23/2005	5497.81	NPP
CW 25+95	9/6/2005	5497.81	NPP
CW 25+95	9/20/2005	5497.83	NPP
CW 25+95	10/4/2005	5498.67	NPP
CW 25+95	10/18/2005	5498.65	NPP
CW 25+95	11/1/2005	5498.67	NPP
CW 25+95	11/15/2005	5498.64	NPP
CW 25+95	11/29/2005	5498.66	NPP
CW 25+95	12/13/2005	5498.67	NPP
CW 25+95	12/27/2005	5498.67	NPP
CW 25+95	1/10/2006	5498.63	NPP
CW 25+95	1/24/2006	5498.66	NPP
CW 25+95	2/8/2006	5498.67	NPP
CW 25+95	2/16/2006	5498.66	NPP
CW 25+95	3/1/2006	5498.67	NPP

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
CW 25+95	3/14/2006	5498.69	NPP
CW 25+95	3/20/2006	5498.67	NPP
CW 25+95	4/3/2006	5498.68	NPP
CW 25+95	5/3/2006	5498.71	NPP
CW 25+95	5/17/2006	5498.75	NPP
CW 25+95	5/30/2006	5498.71	NPP
CW 25+95	6/12/2006	5498.67	NPP
CW 25+95	6/26/2006	5498.71	NPP
CW 25+95	7/12/2006	5498.71	NPP
CW 25+95	7/24/2006	5498.68	NPP
CW 25+95	8/7/2006	5498.72	NPP
CW 25+95	8/21/2006	5498.75	NPP
CW 25+95	9/5/2006	5498.72	NPP
CW 25+95	9/18/2006	5498.69	NPP
CW 25+95	10/2/2006	5498.69	NPP
OW 0+60	5/9/2005	5495.00	0.42
OW 0+60	5/12/2005	5494.97	0.46
OW 0+60	5/17/2005	5495.22	1.05
OW 0+60	5/19/2005	5494.91	0.47
OW 0+60	5/24/2005	5494.87	0.50
OW 0+60	5/26/2005	5494.84	0.54
OW 0+60	5/31/2005	5494.80	0.69
OW 0+60	6/2/2005	5494.78	0.69
OW 0+60	6/7/2005	5494.80	0.68
OW 0+60	6/9/2005	5494.78	0.67
OW 0+60	6/14/2005	5494.65	0.56
OW 0+60	6/16/2005	5494.66	0.58
OW 0+60	6/21/2005	5494.65	0.55
OW 0+60	6/23/2005	5494.67	0.58
OW 0+60	6/28/2005	5494.66	0.57
OW 0+60	7/7/2005	5494.43	0.76
OW 0+60	7/14/2005	5494.45	0.68
OW 0+60	7/19/2005	5494.47	0.72
OW 0+60	7/28/2005	5493.77	0.01
OW 0+60	8/2/2005	5493.77	0.01
OW 0+60	8/11/2005	5494.45	0.68
OW 0+60	8/23/2005	5496.72	0.02
OW 0+60	9/6/2005	5493.73	0.05
OW 0+60	9/20/2005	5494.47	0.11
OW 0+60	10/4/2005	5495.11	0.04
OW 0+60	10/18/2005	5495.34	0.03
OW 0+60	11/1/2005	5496.78	NPP
OW 0+60	11/15/2005	5496.45	NPP
OW 0+60	11/29/2005	5495.91	NPP

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OW 0+60	12/13/2005	5495.96	NPP
OW 0+60	12/27/2005	5495.93	NPP
OW 0+60	1/10/2006	5496.43	NPP
OW 0+60	1/24/2006	5495.49	NPP
OW 0+60	2/8/2006	5495.43	NPP
OW 0+60	2/16/2006	5495.46	NPP
OW 0+60	3/1/2006	5494.99	NPP
OW 0+60	3/14/2006	5495.29	NPP
OW 0+60	3/20/2006	5495.23	NPP
OW 0+60	4/3/2006	5495.23	NPP
OW 0+60	5/3/2006	5495.33	NPP
OW 0+60	5/17/2006	5495.39	NPP
OW 0+60	5/30/2006	5495.41	NPP
OW 0+60	6/12/2006	5495.28	NPP
OW 0+60	6/26/2006	5495.23	NPP
OW 0+60	7/12/2006	5495.50	NPP
OW 0+60	7/24/2006	5495.67	NPP
OW 0+60	8/7/2006	5495.49	NPP
OW 0+60	8/21/2006	5495.39	NPP
OW 0+60	9/5/2006	5495.30	NPP
OW 0+60	9/18/2006	5495.21	NPP
OW 0+60	10/2/2006	5495.15	NPP
OW 1+50	5/9/2005	5492.03	0.02
OW 1+50	5/12/2005	5491.79	1.07
OW 1+50	5/17/2005	5491.47	0.48
OW 1+50	5/19/2005	5491.75	0.97
OW 1+50	5/24/2005	5491.69	1.02
OW 1+50	5/26/2005	5491.66	1.02
OW 1+50	5/31/2005	5491.61	1.01
OW 1+50	6/2/2005	5491.59	1.00
OW 1+50	6/7/2005	5491.64	1.04
OW 1+50	6/9/2005	5491.58	1.00
OW 1+50	6/14/2005	5491.43	0.96
OW 1+50	6/16/2005	5491.47	0.95
OW 1+50	6/21/2005	5491.46	0.93
OW 1+50	6/23/2005	5491.47	0.92
OW 1+50	6/28/2005	5491.45	0.93
OW 1+50	7/7/2005	5491.24	0.99
OW 1+50	7/14/2005	5491.22	0.99
OW 1+50	7/19/2005	5491.71	1.05
OW 1+50	7/28/2005	5491.22	0.02
OW 1+50	8/2/2005	5490.32	0.01
OW 1+50	8/11/2005	5491.22	0.99
OW 1+50	8/23/2005	5490.36	0.02

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 1+50	9/6/2005	5490.33	0.03
OW 1+50	9/20/2005	5491.41	0.42
OW 1+50	10/4/2005	5494.72	0.05
OW 1+50	10/18/2005	5495.43	0.01
OW 1+50	11/1/2005	5496.49	NPP
OW 1+50	11/15/2005	5496.10	NPP
OW 1+50	11/29/2005	5495.87	NPP
OW 1+50	12/13/2005	5495.79	NPP
OW 1+50	12/27/2005	5495.75	NPP
OW 1+50	1/10/2006	5496.06	NPP
OW 1+50	1/24/2006	5496.06	NPP
OW 1+50	2/8/2006	5495.08	0.18
OW 1+50	2/16/2006	5495.02	0.13
OW 1+50	3/1/2006	5494.98	0.10
OW 1+50	3/14/2006	5494.88	0.07
OW 1+50	3/20/2006	5494.89	0.12
OW 1+50	4/3/2006	5494.79	0.02
OW 1+50	5/3/2006	5494.77	0.05
OW 1+50	5/17/2006	5494.76	0.05
OW 1+50	5/30/2006	5494.73	0.01
OW 1+50	6/12/2006	5494.66	0.05
OW 1+50	6/26/2006	5494.52	0.06
OW 1+50	7/12/2006	5495.11	NPP
OW 1+50	7/24/2006	5495.14	0.18
OW 1+50	8/7/2006	5494.89	0.05
OW 1+50	8/21/2006	5494.76	0.05
OW 1+50	9/5/2006	5494.74	0.25
OW 1+50	9/18/2006	5494.65	0.66
OW 1+50	10/2/2006	5494.63	0.76
OW 3+85	5/9/2005	5493.99	1.15
OW 3+85	5/12/2005	5493.99	1.15
OW 3+85	5/17/2005	5493.93	1.12
OW 3+85	5/19/2005	5493.91	1.15
OW 3+85	5/24/2005	5493.87	1.15
OW 3+85	5/26/2005	5493.84	1.14
OW 3+85	5/31/2005	5493.80	1.18
OW 3+85	6/2/2005	5493.78	1.16
OW 3+85	6/7/2005	5493.77	1.16
OW 3+85	6/9/2005	5493.76	1.16
OW 3+85	6/14/2005	5493.69	1.19
OW 3+85	6/16/2005	5493.68	1.18
OW 3+85	6/21/2005	5493.69	1.17
OW 3+85	6/23/2005	5493.61	1.20
OW 3+85	6/28/2005	5493.62	1.22

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Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 3+85	7/7/2005	5493.61	1.20
OW 3+85	7/14/2005	5493.57	1.25
OW 3+85	7/19/2005	5493.58	1.23
OW 3+85	7/28/2005	5493.32	1.27
OW 3+85	8/2/2005	5493.56	0.03
OW 3+85	8/11/2005	5493.57	1.25
OW 3+85	8/23/2005	5493.36	0.06
OW 3+85	9/6/2005	5493.39	0.02
OW 3+85	9/20/2005	5493.62	0.63
OW 3+85	10/4/2005	5494.64	0.71
OW 3+85	10/18/2005	5495.15	0.02
OW 3+85	11/1/2005	5495.96	0.01
OW 3+85	11/15/2005	5495.71	0.01
OW 3+85	11/29/2005	5495.54	0.02
OW 3+85	12/13/2005	5496.37	0.01
OW 3+85	12/27/2005	5495.64	0.01
OW 3+85	1/10/2006	5495.67	0.01
OW 3+85	1/24/2006	5494.20	0.04
OW 3+85	2/8/2006	5494.91	0.02
OW 3+85	2/16/2006	5494.85	0.06
OW 3+85	3/1/2006	5494.70	NPP
OW 3+85	3/14/2006	5494.71	0.28
OW 3+85	3/20/2006	5494.68	0.60
OW 3+85	4/3/2006	5494.54	0.44
OW 3+85	5/3/2006	5494.56	0.19
OW 3+85	5/17/2006	5494.51	0.26
OW 3+85	5/30/2006	5494.65	1.30
OW 3+85	6/12/2006	5494.44	0.92
OW 3+85	6/26/2006	5494.36	1.01
OW 3+85	7/12/2006	5494.84	0.15
OW 3+85	7/24/2006	5494.81	0.61
OW 3+85	8/7/2006	5494.69	0.86
OW 3+85	8/21/2006	5494.55	0.75
OW 3+85	9/5/2006	5494.48	0.58
OW 3+85	9/18/2006	5494.44	0.80
OW 3+85	10/2/2006	5494.42	1.00
OW 5+50	5/9/2005	NWP	NPP
OW 5+50	5/12/2005	NWP	0.21
OW 5+50	5/17/2005	5494.69	1.14
OW 5+50	5/19/2005	NWP	0.69
OW 5+50	5/24/2005	NWP	0.82
OW 5+50	5/26/2005	NWP	0.85
OW 5+50	5/31/2005	NWP	0.87
OW 5+50	6/2/2005	NWP	0.87

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OW 5+50	6/7/2005	NWP	0.88
OW 5+50	6/9/2005	NWP	0.87
OW 5+50	6/14/2005	NWP	0.81
OW 5+50	6/16/2005	NWP	0.8
OW 5+50	6/21/2005	NWP	0.79
OW 5+50	6/23/2005	NWP	0.78
OW 5+50	6/28/2005	NWP	0.77
OW 5+50	7/7/2005	NWP	0.72
OW 5+50	7/14/2005	NWP	0.71
OW 5+50	7/19/2005	NWP	0.72
OW 5+50	7/28/2005	NWP	0.65
OW 5+50	8/2/2005	5496.18	0.64
OW 5+50	8/11/2005	5496.24	0.71
OW 5+50	8/23/2005	5495.95	0.35
OW 5+50	10/4/2005	5496.93	0.35
OW 5+50	10/18/2005	5497.05	0.5
OW 5+50	11/1/2005	5494.80	0.84
OW 5+50	11/15/2005	5494.75	0.11
OW 5+50	11/29/2005	5494.12	0.01
OW 5+50	12/13/2005	5494.10	0.01
OW 5+50	12/27/2005	5494.08	0.02
OW 5+50	1/10/2006	5494.10	0.03
OW 5+50	1/24/2006	5494.29	NPP
OW 5+50	2/8/2006	5494.13	NPP
OW 5+50	2/16/2006	5494.10	NPP
OW 5+50	3/1/2006	5493.88	NPP
OW 5+50	3/14/2006	5493.99	NPP
OW 5+50	3/20/2006	5494.06	0.02
OW 5+50	4/3/2006	5494.00	NPP
OW 5+50	5/3/2006	5494.14	0.01
OW 5+50	5/17/2006	5494.10	NPP
OW 5+50	5/30/2006	NWP	NPP
OW 5+50	6/12/2006	5494.08	NPP
OW 5+50	6/26/2006	NWP	NPP
OW 5+50	7/12/2006	5493.95	0.02
OW 5+50	7/24/2006	5494.13	NPP
OW 5+50	8/7/2006	5494.12	NPP
OW 5+50	8/21/2006	5494.22	0.05
OW 5+50	9/5/2006	5494.34	0.03
OW 5+50	9/18/2006	5494.34	0.01
OW 5+50	10/2/2006	5494.31	0.05
OW 6+70	5/9/2005	NWP	NPP
OW 6+70	5/12/2005	NWP	NPP
OW 6+70	5/17/2005	NWP	NPP

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OW 6+70	5/19/2005	NWP	NPP
OW 6+70	5/24/2005	NWP	NPP
OW 6+70	5/26/2005	NWP	NPP
OW 6+70	5/31/2005	NWP	NPP
OW 6+70	6/2/2005	NWP	NPP
OW 6+70	6/7/2005	NWP	NPP
OW 6+70	6/9/2005	NWP	NPP
OW 6+70	6/14/2005	NWP	NPP
OW 6+70	6/16/2005	NWP	NPP
OW 6+70	6/21/2005	NWP	NPP
OW 6+70	6/23/2005	NWP	NPP
OW 6+70	6/28/2005	NWP	NPP
OW 6+70	7/7/2005	NWP	NPP
OW 6+70	7/14/2005	NWP	NPP
OW 6+70	7/19/2005	NWP	NPP
OW 6+70	7/28/2005	NWP	NPP
OW 6+70	8/2/2005	NWP	NPP
OW 6+70	8/11/2005	NWP	NPP
OW 6+70	8/23/2005	NWP	NPP
OW 6+70	9/6/2005	NWP	NPP
OW 6+70	9/20/2005	NWP	NPP
OW 6+70	10/4/2005	NWP	NPP
OW 6+70	10/18/2005	NWP	NPP
OW 6+70	11/1/2005	NWP	NPP
OW 6+70	11/15/2005	NWP	NPP
OW 6+70	11/29/2005	NWP	NPP
OW 6+70	12/13/2005	NWP	NPP
OW 6+70	12/27/2005	NWP	NPP
OW 6+70	1/10/2006	NWP	NPP
OW 6+70	1/24/2006	NWP	NPP
OW 6+70	2/8/2006	NWP	NPP
OW 6+70	2/16/2006	NWP	NPP
OW 6+70	3/1/2006	NWP	NPP
OW 6+70	3/14/2006	NWP	NPP
OW 6+70	3/20/2006	NWP	NPP
OW 6+70	4/3/2006	NWP	NPP
OW 6+70	5/3/2006	NWP	NPP
OW 6+70	5/17/2006	NWP	NPP
OW 6+70	5/30/2006	NWP	NPP
OW 6+70	6/12/2006	NWP	NPP
OW 6+70	6/26/2006	5491.31	NPP
OW 6+70	7/12/2006	NWP	NPP
OW 6+70	7/24/2006	NWP	NPP
OW 6+70	8/7/2006	NWP	NPP

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OW 6+70	8/21/2006	NWP	NPP
OW 6+70	9/5/2006	NWP	NPP
OW 6+70	9/18/2006	NWP	NPP
OW 6+70	10/2/2006	NWP	NPP
OW 8+10	5/9/2005	NWP	NPP
OW 8+10	5/12/2005	NWP	NPP
OW 8+10	5/17/2005	NWP	NPP
OW 8+10	5/19/2005	NWP	NPP
OW 8+10	5/24/2005	NWP	NPP
OW 8+10	5/26/2005	NWP	NPP
OW 8+10	5/31/2005	NWP	NPP
OW 8+10	6/2/2005	NWP	NPP
OW 8+10	6/7/2005	NWP	NPP
OW 8+10	6/9/2005	NWP	NPP
OW 8+10	6/14/2005	NWP	NPP
OW 8+10	6/16/2005	NWP	NPP
OW 8+10	6/21/2005	NWP	NPP
OW 8+10	6/23/2005	NWP	NPP
OW 8+10	6/28/2005	NWP	NPP
OW 8+10	7/7/2005	NWP	NPP
OW 8+10	7/14/2005	NWP	NPP
OW 8+10	7/19/2005	NWP	NPP
OW 8+10	7/28/2005	NWP	NPP
OW 8+10	8/2/2005	NWP	NPP
OW 8+10	8/11/2005	NWP	NPP
OW 8+10	8/23/2005	NWP	NPP
OW 8+10	9/6/2005	NWP	NPP
OW 8+10	9/20/2005	NWP	NPP
OW 8+10	10/4/2005	NWP	NPP
OW 8+10	10/18/2005	NWP	NPP
OW 8+10	11/1/2005	NWP	NPP
OW 8+10	11/15/2005	NWP	NPP
OW 8+10	11/29/2005	NWP	NPP
OW 8+10	12/13/2005	NWP	NPP
OW 8+10	12/27/2005	NWP	NPP
OW 8+10	1/10/2006	NWP	NPP
OW 8+10	1/24/2006	NWP	NPP
OW 8+10	2/8/2006	NWP	NPP
OW 8+10	2/16/2006	NWP	NPP
OW 8+10	3/1/2006	NWP	NPP
OW 8+10	3/14/2006	NWP	NPP
OW 8+10	3/20/2006	NWP	NPP
OW 8+10	4/3/2006	NWP	NPP
OW 8+10	5/3/2006	NWP	NPP

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OW 8+10	5/17/2006	NWP	NPP
OW 8+10	5/30/2006	NWP	NPP
OW 8+10	6/12/2006	NWP	NPP
OW 8+10	6/26/2006	NWP	NPP
OW 8+10	7/12/2006	NWP	NPP
OW 8+10	7/24/2006	NWP	NPP
OW 8+10	8/7/2006	NWP	NPP
OW 8+10	8/21/2006	NWP	NPP
OW 8+10	9/5/2006	NWP	NPP
OW 8+10	9/18/2006	NWP	NPP
OW 8+10	10/2/2006	NWP	NPP
OW 11+15	5/9/2005	5493.98	NPP
OW 11+15	5/12/2005	5493.93	NPP
OW 11+15	5/17/2005	5493.94	NPP
OW 11+15	5/19/2005	5493.91	NPP
OW 11+15	5/24/2005	5493.89	NPP
OW 11+15	5/26/2005	5493.88	NPP
OW 11+15	5/31/2005	5493.87	NPP
OW 11+15	6/2/2005	5493.88	NPP
OW 11+15	6/7/2005	5493.86	NPP
OW 11+15	6/9/2005	5493.87	NPP
OW 11+15	6/14/2005	5493.84	NPP
OW 11+15	6/16/2005	5493.83	NPP
OW 11+15	6/21/2005	5493.82	NPP
OW 11+15	6/23/2005	5493.81	NPP
OW 11+15	6/28/2005	5493.81	NPP
OW 11+15	7/7/2005	5493.80	NPP
OW 11+15	7/14/2005	5493.78	NPP
OW 11+15	7/19/2005	5493.80	NPP
OW 11+15	7/28/2005	5493.76	NPP
OW 11+15	8/2/2005	5493.78	NPP
OW 11+15	8/11/2005	5493.78	NPP
OW 11+15	8/23/2005	5493.76	NPP
OW 11+15	9/6/2005	5493.78	NPP
OW 11+15	9/20/2005	5494.06	0.01
OW 11+15	10/4/2005	5495.29	NPP
OW 11+15	10/18/2005	5495.38	NPP
OW 11+15	11/1/2005	5495.69	NPP
OW 11+15	11/15/2005	5495.50	NPP
OW 11+15	11/29/2005	5495.38	0.01
OW 11+15	12/13/2005	5495.31	0.02
OW 11+15	12/27/2005	5495.32	0.03
OW 11+15	1/10/2006	5495.36	0.01
OW 11+15	1/24/2006	5495.04	NPP

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OW 11+15	2/8/2006	5493.75	NPP
OW 11+15	2/16/2006	5495.52	NPP
OW 11+15	3/1/2006	5494.96	0.02
OW 11+15	3/14/2006	5494.86	NPP
OW 11+15	3/20/2006	5494.88	NPP
OW 11+15	4/3/2006	5494.81	NPP
OW 11+15	5/3/2006	5494.89	0.01
OW 11+15	5/17/2006	5493.83	NPP
OW 11+15	5/30/2006	5494.86	NPP
OW 11+15	6/12/2006	5494.86	NPP
OW 11+15	6/26/2006	5494.82	NPP
OW 11+15	7/12/2006	5494.89	NPP
OW 11+15	7/24/2006	5494.93	NPP
OW 11+15	8/7/2006	5494.87	NPP
OW 11+15	8/21/2006	5494.86	NPP
OW 11+15	9/5/2006	5494.96	NPP
OW 11+15	9/18/2006	5494.96	NPP
OW 11+15	10/2/2006	5494.91	NPP
OW 14+10	5/9/2005	5494.70	NPP
OW 14+10	5/12/2005	5494.65	NPP
OW 14+10	5/17/2005	5494.65	NPP
OW 14+10	5/19/2005	5494.63	NPP
OW 14+10	5/24/2005	5494.62	NPP
OW 14+10	5/26/2005	5494.65	NPP
OW 14+10	5/31/2005	5494.59	0.01
OW 14+10	6/2/2005	5494.58	0.01
OW 14+10	6/7/2005	5494.59	0.01
OW 14+10	6/9/2005	5494.61	0.01
OW 14+10	6/14/2005	5494.51	0.03
OW 14+10	6/16/2005	5494.51	0.03
OW 14+10	6/21/2005	5494.52	0.04
OW 14+10	6/23/2005	5494.44	0.04
OW 14+10	6/28/2005	5494.43	0.09
OW 14+10	7/7/2005	5494.42	0.08
OW 14+10	7/14/2005	5494.42	0.07
OW 14+10	7/19/2005	5494.42	0.05
OW 14+10	7/28/2005	5494.31	0.20
OW 14+10	8/2/2005	5494.31	0.30
OW 14+10	8/11/2005	5494.42	0.07
OW 14+10	8/23/2005	5494.28	0.22
OW 14+10	9/6/2005	5494.27	0.22
OW 14+10	10/4/2005	5495.34	0.02
OW 14+10	10/18/2005	5495.40	0.03
OW 14+10	11/1/2005	5495.26	NPP

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OW 14+10	11/15/2005	5495.23	NPP
OW 14+10	11/29/2005	NWP	NPP
OW 14+10	12/13/2005	NWP	NPP
OW 14+10	12/27/2005	NWP	NPP
OW 14+10	1/10/2006	NWP	NPP
OW 14+10	1/24/2006	NWP	NPP
OW 14+10	2/8/2006	NWP	NPP
OW 14+10	2/16/2006	NWP	NPP
OW 14+10	3/1/2006	NWP	NPP
OW 14+10	3/14/2006	NWP	NPP
OW 14+10	3/20/2006	NWP	NPP
OW 14+10	4/3/2006	NWP	NPP
OW 14+10	5/3/2006	NWP	NPP
OW 14+10	5/17/2006	NWP	NPP
OW 14+10	5/30/2006	NWP	NPP
OW 14+10	6/12/2006	NWP	NPP
OW 14+10	6/26/2006	NWP	NPP
OW 14+10	7/12/2006	NWP	NPP
OW 14+10	7/24/2006	NWP	NPP
OW 14+10	8/7/2006	NWP	NPP
OW 14+10	8/21/2006	NWP	NPP
OW 14+10	9/5/2006	NWP	NPP
OW 14+10	9/18/2006	NWP	NPP
OW 14+10	10/2/2006	NWP	NPP
OW 16+60	5/9/2005	5494.94	0.86
OW 16+60	5/12/2005	5494.95	0.88
OW 16+60	5/17/2005	5494.86	0.77
OW 16+60	5/19/2005	5494.85	0.81
OW 16+60	5/24/2005	5494.83	0.72
OW 16+60	5/26/2005	5494.85	0.76
OW 16+60	5/31/2005	5494.79	0.63
OW 16+60	6/2/2005	5494.77	0.72
OW 16+60	6/7/2005	5494.80	0.64
OW 16+60	6/9/2005	5494.77	0.68
OW 16+60	6/14/2005	5494.67	0.73
OW 16+60	6/16/2005	5494.68	0.75
OW 16+60	6/21/2005	5494.67	0.72
OW 16+60	6/23/2005	5494.61	0.69
OW 16+60	6/28/2005	5494.50	0.51
OW 16+60	7/7/2005	5494.51	0.53
OW 16+60	7/14/2005	5494.50	0.54
OW 16+60	7/19/2005	5494.50	0.51
OW 16+60	7/28/2005	5494.45	0.56
OW 16+60	8/2/2005	5494.42	0.55

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OW 16+60	8/11/2005	5494.50	0.54
OW 16+60	8/23/2005	5494.40	0.47
OW 16+60	9/6/2005	5494.39	0.45
OW 16+60	9/20/2005	5494.37	0.45
OW 16+60	10/4/2005	5495.82	0.45
OW 16+60	10/18/2005	5495.87	0.16
OW 16+60	11/1/2005	5495.98	0.27
OW 16+60	11/15/2005	5494.97	0.21
OW 16+60	11/29/2005	5495.92	0.01
OW 16+60	12/13/2005	5495.86	0.01
OW 16+60	12/27/2005	5495.90	0.01
OW 16+60	1/10/2006	5495.80	0.01
OW 16+60	1/24/2006	5495.78	0.38
OW 16+60	2/8/2006	5495.86	0.32
OW 16+60	2/16/2006	5495.93	0.03
OW 16+60	3/1/2006	5495.80	0.10
OW 16+60	3/14/2006	5495.92	0.02
OW 16+60	3/20/2006	5496.00	0.04
OW 16+60	4/3/2006	5496.03	0.02
OW 16+60	5/3/2006	5495.97	0.01
OW 16+60	5/17/2006	5495.93	0.06
OW 16+60	5/30/2006	5495.83	0.01
OW 16+60	6/12/2006	5495.80	0.16
OW 16+60	6/26/2006	5495.75	0.39
OW 16+60	7/12/2006	5495.01	3.65
OW 16+60	7/24/2006	5495.73	0.20
OW 16+60	8/7/2006	5495.70	0.22
OW 16+60	8/21/2006	5495.64	0.25
OW 16+60	9/5/2006	5495.69	0.25
OW 16+60	9/18/2006	5495.69	0.26
OW 16+60	10/2/2006	5495.73	0.24
OW 19+50	5/9/2005	5495.64	NPP
OW 19+50	5/12/2005	5494.98	NPP
OW 19+50	5/17/2005	5494.27	NPP
OW 19+50	5/19/2005	5494.53	NPP
OW 19+50	5/24/2005	5494.88	NPP
OW 19+50	5/26/2005	5494.97	NPP
OW 19+50	5/31/2005	5495.11	NPP
OW 19+50	6/2/2005	5495.14	NPP
OW 19+50	6/7/2005	5495.15	NPP
OW 19+50	6/9/2005	5495.14	NPP
OW 19+50	6/14/2005	5495.08	NPP
OW 19+50	6/16/2005	5495.06	NPP
OW 19+50	6/21/2005	5495.07	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 19+50	6/23/2005	5494.97	NPP
OW 19+50	6/28/2005	5494.94	NPP
OW 19+50	7/7/2005	5494.95	NPP
OW 19+50	7/14/2005	5494.91	NPP
OW 19+50	7/19/2005	5494.68	NPP
OW 19+50	7/28/2005	5494.81	NPP
OW 19+50	8/2/2005	5494.66	NPP
OW 19+50	8/11/2005	5494.91	NPP
OW 19+50	8/23/2005	5493.96	NPP
OW 19+50	9/6/2005	5493.95	NPP
OW 19+50	9/20/2005	5494.18	NPP
OW 19+50	10/4/2005	5495.24	NPP
OW 19+50	10/18/2005	5495.36	NPP
OW 19+50	11/1/2005	5495.64	NPP
OW 19+50	11/15/2005	5495.56	NPP
OW 19+50	12/13/2005	5495.15	NPP
OW 19+50	12/27/2005	5495.17	NPP
OW 19+50	1/10/2006	5495.47	NPP
OW 19+50	1/24/2006	5495.77	NPP
OW 19+50	2/8/2006	5495.73	NPP
OW 19+50	2/16/2006	5495.89	NPP
OW 19+50	3/1/2006	5495.12	NPP
OW 19+50	3/14/2006	5495.05	NPP
OW 19+50	3/20/2006	5495.55	NPP
OW 19+50	4/3/2006	5495.38	NPP
OW 19+50	5/3/2006	5495.20	0.01
OW 19+50	5/17/2006	5495.46	NPP
OW 19+50	5/30/2006	5495.32	NPP
OW 19+50	6/12/2006	5495.29	NPP
OW 19+50	6/26/2006	5495.09	NPP
OW 19+50	7/12/2006	NWP	NPP
OW 19+50	7/24/2006	NWP	NPP
OW 19+50	8/7/2006	NWP	NPP
OW 19+50	8/21/2006	5495.21	0.20
OW 19+50	9/5/2006	NWP	NPP
OW 19+50	9/18/2006	NWP	NPP
OW 19+50	10/2/2006	NWP	NPP
OW 22+00	5/9/2005	5495.85	NPP
OW 22+00	5/12/2005	5495.80	NPP
OW 22+00	5/17/2005	5495.74	NPP
OW 22+00	5/19/2005	5495.75	NPP
OW 22+00	5/24/2005	5495.74	NPP
OW 22+00	5/26/2005	5495.72	NPP
OW 22+00	5/31/2005	5495.70	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 22+00	6/2/2005	5495.69	NPP
OW 22+00	6/7/2005	5495.68	NPP
OW 22+00	6/9/2005	5495.68	NPP
OW 22+00	6/14/2005	5495.36	NPP
OW 22+00	6/16/2005	5495.33	NPP
OW 22+00	6/21/2005	5495.27	NPP
OW 22+00	6/23/2005	5495.33	NPP
OW 22+00	6/28/2005	5495.21	NPP
OW 22+00	7/7/2005	5495.25	NPP
OW 22+00	7/14/2005	5495.18	NPP
OW 22+00	7/19/2005	5494.79	NPP
OW 22+00	7/28/2005	5494.78	NPP
OW 22+00	8/2/2005	5494.75	NPP
OW 22+00	8/11/2005	5495.18	NPP
OW 22+00	8/23/2005	5494.76	NPP
OW 22+00	9/6/2005	5494.76	NPP
OW 22+00	9/20/2005	5495.20	0.10
OW 22+00	10/4/2005	5495.69	NPP
OW 22+00	10/18/2005	5495.60	NPP
OW 22+00	11/1/2005	5496.46	NPP
OW 22+00	11/15/2005	5496.29	0.01
OW 22+00	11/29/2005	5495.60	0.02
OW 22+00	12/13/2005	5495.73	0.02
OW 22+00	12/27/2005	5495.69	0.03
OW 22+00	1/10/2006	5495.67	0.02
OW 22+00	1/24/2006	5495.60	NPP
OW 22+00	2/8/2006	5495.64	0.15
OW 22+00	2/16/2006	5495.58	NPP
OW 22+00	3/1/2006	5495.49	NPP
OW 22+00	3/14/2006	5495.43	NPP
OW 22+00	3/20/2006	5495.44	NPP
OW 22+00	4/3/2006	5495.42	NPP
OW 22+00	5/3/2006	5495.36	0.02
OW 22+00	5/17/2006	5495.20	NPP
OW 22+00	5/30/2006	5495.10	NPP
OW 22+00	6/12/2006	5494.92	NPP
OW 22+00	6/26/2006	5494.82	NPP
OW 22+00	7/12/2006	5495.17	NPP
OW 22+00	7/24/2006	5495.02	NPP
OW 22+00	8/7/2006	5494.83	NPP
OW 22+00	8/21/2006	5494.70	NPP
OW 22+00	9/5/2006	5494.92	NPP
OW 22+00	9/18/2006	5494.92	NPP
OW 22+00	10/2/2006	5494.95	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 23+10	5/9/2005	5496.93	NPP
OW 23+10	5/12/2005	5496.93	NPP
OW 23+10	5/17/2005	5496.88	NPP
OW 23+10	5/19/2005	5496.89	NPP
OW 23+10	5/24/2005	5496.89	NPP
OW 23+10	5/26/2005	5496.90	NPP
OW 23+10	5/31/2005	5496.90	NPP
OW 23+10	6/2/2005	5496.90	NPP
OW 23+10	6/7/2005	5496.89	NPP
OW 23+10	6/9/2005	5496.88	NPP
OW 23+10	6/14/2005	5496.87	NPP
OW 23+10	6/16/2005	5496.88	NPP
OW 23+10	6/21/2005	5496.85	NPP
OW 23+10	6/23/2005	5496.88	NPP
OW 23+10	6/28/2005	5496.87	NPP
OW 23+10	7/7/2005	5496.86	NPP
OW 23+10	7/14/2005	5496.81	NPP
OW 23+10	7/19/2005	5496.85	NPP
OW 23+10	7/28/2005	5496.80	NPP
OW 23+10	8/2/2005	5496.81	NPP
OW 23+10	8/11/2005	5496.81	NPP
OW 23+10	8/23/2005	5496.82	NPP
OW 23+10	9/6/2005	5496.81	NPP
OW 23+10	9/20/2005	5496.90	NPP
OW 23+10	10/4/2005	5497.86	NPP
OW 23+10	10/18/2005	5498.06	NPP
OW 23+10	11/1/2005	5498.04	0.01
OW 23+10	11/15/2005	5497.95	NPP
OW 23+10	11/29/2005	5497.39	NPP
OW 23+10	12/13/2005	5498.00	NPP
OW 23+10	12/27/2005	5497.91	0.01
OW 23+10	1/10/2006	5497.93	NPP
OW 23+10	1/24/2006	5497.87	NPP
OW 23+10	2/8/2006	5496.84	NPP
OW 23+10	2/16/2006	5497.85	NPP
OW 23+10	3/1/2006	5497.81	NPP
OW 23+10	3/14/2006	5497.84	NPP
OW 23+10	3/20/2006	5497.83	NPP
OW 23+10	4/3/2006	5497.83	NPP
OW 23+10	5/3/2006	5497.81	NPP
OW 23+10	5/17/2006	5497.84	NPP
OW 23+10	5/30/2006	5497.83	NPP
OW 23+10	6/12/2006	5496.62	NPP
OW 23+10	6/26/2006	5497.83	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 23+10	7/12/2006	5497.86	0.10
OW 23+10	7/24/2006	5497.85	0.05
OW 23+10	8/7/2006	5497.83	0.02
OW 23+10	8/21/2006	5497.80	NPP
OW 23+10	9/5/2006	5497.81	NPP
OW 23+10	9/18/2006	5497.84	0.01
OW 23+10	10/2/2006	5497.83	NPP
OW 23+90	5/9/2005	5497.19	NPP
OW 23+90	5/12/2005	5497.19	NPP
OW 23+90	5/17/2005	5499.66	NPP
OW 23+90	5/19/2005	5497.16	NPP
OW 23+90	5/24/2005	5497.16	NPP
OW 23+90	5/26/2005	5497.16	NPP
OW 23+90	5/31/2005	5497.17	NPP
OW 23+90	6/2/2005	5497.16	NPP
OW 23+90	6/7/2005	5497.15	NPP
OW 23+90	6/9/2005	5497.15	NPP
OW 23+90	6/14/2005	5497.15	NPP
OW 23+90	6/16/2005	5497.15	NPP
OW 23+90	6/21/2005	5497.14	NPP
OW 23+90	6/23/2005	5497.14	NPP
OW 23+90	6/28/2005	5497.14	NPP
OW 23+90	7/7/2005	5497.15	NPP
OW 23+90	7/14/2005	5496.65	NPP
OW 23+90	7/19/2005	5497.11	NPP
OW 23+90	7/28/2005	5496.83	NPP
OW 23+90	8/2/2005	5497.14	NPP
OW 23+90	8/11/2005	5496.65	NPP
OW 23+90	8/23/2005	5497.09	NPP
OW 23+90	9/6/2005	5497.07	NPP
OW 23+90	9/20/2005	5497.13	NPP
OW 23+90	10/4/2005	5498.08	NPP
OW 23+90	10/18/2005	5498.20	NPP
OW 23+90	11/1/2005	5498.21	NPP
OW 23+90	11/15/2005	5498.12	NPP
OW 23+90	11/29/2005	5498.08	NPP
OW 23+90	12/13/2005	5498.05	NPP
OW 23+90	12/27/2005	5498.05	NPP
OW 23+90	1/10/2006	5498.04	NPP
OW 23+90	1/24/2006	5498.05	NPP
OW 23+90	2/8/2006	5498.03	NPP
OW 23+90	2/16/2006	5498.04	NPP
OW 23+90	3/1/2006	5498.02	NPP
OW 23+90	3/14/2006	5498.02	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 23+90	3/20/2006	5498.00	NPP
OW 23+90	4/3/2006	5498.00	NPP
OW 23+90	5/3/2006	5498.08	0.02
OW 23+90	5/17/2006	5498.07	NPP
OW 23+90	5/30/2006	5498.04	NPP
OW 23+90	6/12/2006	5497.99	NPP
OW 23+90	6/26/2006	5497.99	NPP
OW 23+90	7/12/2006	5498.09	NPP
OW 23+90	7/24/2006	5497.99	NPP
OW 23+90	8/7/2006	5497.99	NPP
OW 23+90	8/21/2006	5498.03	NPP
OW 23+90	9/5/2006	5498.06	NPP
OW 23+90	9/18/2006	5498.02	NPP
OW 23+90	10/2/2006	5498.03	NPP
OW 25+70	5/9/2005	5496.90	NPP
OW 25+70	5/12/2005	5496.90	NPP
OW 25+70	5/17/2005	5496.88	NPP
OW 25+70	5/19/2005	5496.87	NPP
OW 25+70	5/24/2005	5496.87	NPP
OW 25+70	5/26/2005	5496.87	NPP
OW 25+70	5/31/2005	5496.87	NPP
OW 25+70	6/2/2005	5496.88	NPP
OW 25+70	6/7/2005	5496.87	NPP
OW 25+70	6/9/2005	5496.86	NPP
OW 25+70	6/14/2005	5496.86	NPP
OW 25+70	6/16/2005	5496.86	NPP
OW 25+70	6/21/2005	5496.87	NPP
OW 25+70	6/23/2005	5496.86	NPP
OW 25+70	6/28/2005	5496.87	NPP
OW 25+70	7/7/2005	5496.86	NPP
OW 25+70	7/14/2005	5496.83	NPP
OW 25+70	7/19/2005	5496.86	NPP
OW 25+70	7/28/2005	5496.85	NPP
OW 25+70	8/2/2005	5496.88	NPP
OW 25+70	8/11/2005	5496.83	NPP
OW 25+70	8/23/2005	5496.84	NPP
OW 25+70	9/6/2005	5496.83	NPP
OW 25+70	9/20/2005	5496.87	NPP
OW 25+70	10/4/2005	5498.29	NPP
OW 25+70	10/18/2005	5498.27	NPP
OW 25+70	11/1/2005	5498.36	NPP
OW 25+70	11/15/2005	5497.30	NPP
OW 25+70	11/29/2005	5498.29	NPP
OW 25+70	12/13/2005	5498.25	NPP

Groundwater Elevation and Separate Phase Hydrocarbon Thickness Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

Well ID	Date	Corrected Groundwater Elevation (ft amsl)	Separate Phase Hydrocarbon Thickness (ft)
OW 25+70	12/27/2005	5498.27	NPP
OW 25+70	1/10/2006	5498.29	NPP
OW 25+70	1/24/2006	5498.25	NPP
OW 25+70	2/8/2006	5498.18	NPP
OW 25+70	2/16/2006	5498.22	NPP
OW 25+70	3/1/2006	5498.19	NPP
OW 25+70	3/14/2006	5498.21	NPP
OW 25+70	3/20/2006	5498.17	NPP
OW 25+70	4/3/2006	5498.21	NPP
OW 25+70	5/3/2006	5498.27	NPP
OW 25+70	5/17/2006	5498.28	NPP
OW 25+70	5/30/2006	5498.25	NPP
OW 25+70	6/12/2006	5498.21	NPP
OW 25+70	6/26/2006	5498.21	NPP
OW 25+70	7/12/2006	5498.32	NPP
OW 25+70	7/24/2006	5498.19	NPP
OW 25+70	8/7/2006	5498.24	NPP
OW 25+70	8/21/2006	5498.22	NPP
OW 25+70	9/5/2006	5498.27	NPP
OW 25+70	9/18/2006	5498.21	NPP
OW 25+70	10/2/2006	5498.22	NPP

Notes:
ft = feet
amsl = above mean level
NWP = No Water Present
NPP = No Product Present
CW = Collection Well
OW = Observation Well

Collection Well Fluids Monitoring January 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	1/2/2007	5506.68	14.09	NPP	7.86	5498.82	NPP
	1/15/2007	5506.68	14.09	NPP	7.96	5498.72	NPP
	1/29/2007	5506.68	14.09	NPP	7.97	5498.71	NPP
CW 1+50	1/2/2007	5505.13	13.74	NPP	6.18	5498.95	NPP
	1/15/2007	5505.13	13.74	NPP	6.25	5498.88	NPP
	1/29/2007	5505.13	13.74	NPP	6.21	5498.92	NPP
CW 3+85	1/2/2007	5503.87	13.11	NPP	5.26	5498.61	NPP
	1/15/2007	5503.87	13.11	NPP	5.25	5498.62	NPP
	1/29/2007	5503.87	13.11	NPP	5.27	5498.60	NPP
CW 5+50	1/2/2007	5503.76	12.27	NPP	6.14	5497.62	NPP
	1/15/2007	5503.76	12.27	NPP	6.15	5497.61	NPP
	1/29/2007	5503.76	12.27	NPP	6.18	5497.58	NPP
CW 6+70	1/2/2007	5503.84	11.45	NPP	6.65	5497.19	NPP
	1/15/2007	5503.84	11.45	NPP	6.66	5497.18	NPP
	1/29/2007	5503.84	11.45	NPP	6.67	5497.17	NPP
CW 8+10	1/2/2007	5504.02	11.63	NPP	7.43	5496.59	NPP
	1/15/2007	5504.02	11.63	NPP	7.43	5496.59	NPP
	1/29/2007	5504.02	11.63	NPP	7.43	5496.59	NPP
CW 8+45	1/2/2007	5503.80	12.6	7.49	7.52	5496.30	0.03
	1/15/2007	5503.80	12.6	7.51	7.52	5496.29	0.01
	1/29/2007	5503.80	12.6	7.50	7.52	5496.30	0.02
CW 11+15	1/2/2007	5503.95	12.27	NPP	6.61	5497.34	NPP
	1/15/2007	5503.95	12.27	NPP	5.59	5498.36	NPP
	1/29/2007	5503.95	12.27	NPP	5.60	5498.35	NPP
CW 14+10	1/2/2007	5504.39	13.05	NPP	6.46	5497.93	NPP
	1/15/2007	5504.39	13.05	NPP	6.49	5497.90	NPP
	1/29/2007	5504.39	13.05	NPP	6.44	5497.95	NPP
CW 16+60	1/2/2007	5504.32	12.86	NPP	6.25	5498.07	NPP
	1/15/2007	5504.32	12.86	NPP	6.27	5498.05	NPP
	1/29/2007	5504.32	12.86	NPP	6.27	5498.05	NPP
CW 19+50	1/2/2007	5504.52	9.99	6.23	6.24	5498.29	0.01
	1/15/2007	5504.52	9.99	NPP	6.26	5498.26	NPP
	1/29/2007	5504.52	9.99	NPP	6.21	5498.31	NPP
CW 22+00	1/2/2007	5508.04	12.34	8.98	8.99	5499.06	0.01
	1/15/2007	5508.04	12.34	NPP	9.02	5499.02	NPP
	1/29/2007	5508.04	12.34	NPP	8.99	5499.05	NPP
CW 23+10	1/2/2007	5510.04	14.65	NPP	10.63	5499.41	NPP
	1/15/2007	5510.04	14.65	NPP	10.63	5499.41	NPP
	1/29/2007	5510.04	14.65	NPP	10.61	5499.43	NPP
CW 23+90	1/2/2007	5507.32	11.72	NPP	8.14	5499.18	NPP
	1/15/2007	5507.32	11.72	NPP	8.17	5499.15	NPP
	1/29/2007	5507.32	11.72	NPP	8.33	5498.99	NPP
CW 25+95	1/2/2007	5505.90	12.25	7.13	7.14	5498.77	0.01
	1/15/2007	5505.90	12.25	NPP	7.16	5498.74	NPP
	1/29/2007	5505.90	12.25	NPP	7.16	5498.74	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring January 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	1/2/2007	5506.62	12.26	NPP	11.07	5495.55	NPP
	1/15/2007	5506.62	12.26	NPP	11.15	5495.47	NPP
	1/29/2007	5506.62	12.26	NPP	11.21	5495.41	NPP
OW 1+50	1/2/2007	5508.03	14.36	12.86	12.91	5495.16	0.05
	1/15/2007	5508.03	14.36	12.93	12.95	5495.10	0.02
	1/29/2007	5508.03	14.36	13.03	13.05	5495.00	0.02
OW 3+85	1/2/2007	5507.31	15.06	NPP	12.41	5494.90	NPP
	1/15/2007	5507.31	15.06	NPP	12.46	5494.85	NPP
	1/29/2007	5507.31	15.06	12.52	12.53	5494.79	0.01
OW 5+50	1/2/2007	5507.59	13.67	13.52	13.59	5494.06	0.07
	1/15/2007	5507.59	13.67	13.55	13.56	5494.04	0.01
	1/29/2007	5507.59	13.67	NPP	13.32	5494.27	NPP
OW 6+70	1/2/2007	5504.78	14.67	NPP	DRY		NPP
	1/15/2007	5504.78	14.67	NPP	DRY		NPP
	1/29/2007	5504.78	14.67	NPP	DRY		
OW 8+10	1/2/2007	5506.53	15.99	NPP	DRY		NPP
	1/15/2007	5506.53	15.99	NPP	DRY		NPP
	1/29/2007	5506.53	15.99	NPP	DRY		
OW 11+ 15	1/2/2007	5506.70	16.59	NPP	11.94	5494.76	NPP
	1/15/2007	5506.70	16.59	NPP	11.97	5494.73	NPP
	1/29/2007	5506.70	16.59	NPP	12.01	5494.69	NPP
OW 14+ 10	1/2/2007	5508.14	12.96	NPP	DRY		NPP
	1/15/2007	5508.14	12.96	NPP	DRY		NPP
	1/29/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	1/2/2007	5508.43	15.21	NPP	12.13	5496.30	NPP
	1/15/2007	5508.43	15.21	NPP	12.19	5496.24	NPP
	1/29/2007	5508.43	15.21	NPP	12.27	5496.16	NPP
OW 19+ 50	1/2/2007	5508.03	13.00	NPP	12.53	5495.50	NPP
	1/15/2007	5508.03	13.00	NPP	12.43	5495.60	NPP
	1/29/2007	5508.03	13.00	NPP	11.21	5496.82	NPP
OW 22+ 00	1/2/2007	5506.91	14.16	NPP	11.09	5495.82	NPP
	1/15/2007	5506.91	14.16	11.35	11.36	5495.56	0.01
	1/29/2007	5506.91	14.16	NPP	11.50	5495.41	NPP
OW 23+ 10	1/2/2007	5514.12	18.34	16.25	16.26	5497.87	0.01
	1/15/2007	5514.12	18.34	NPP	16.31	5497.81	NPP
	1/29/2007	5514.12	18.34	NPP	16.29	5497.83	NPP
OW 23+ 90	1/2/2007	5515.18	18.01	NPP	17.12	5498.06	NPP
	1/15/2007	5515.18	18.01	NPP	17.16	5498.02	NPP
	1/29/2007	5515.18	18.01	NPP	17.21	5497.97	NPP
OW 25+ 70	1/2/2007	5509.00	13.98	10.73	10.74	5498.27	0.01
	1/15/2007	5509.00	13.98	NPP	10.77	5498.23	NPP
	1/29/2007	5515.18	13.98	NPP	10.77	5504.41	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring February 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	2/12/2007	5506.68	14.09	NPP	7.94	5498.74	NPP
	2/26/2007	5506.68	14.09	NPP	7.85	5498.83	NPP
		5506.68	14.09	NPP			NPP
CW 1+50	2/12/2007	5505.13	13.74	NPP	6.21	5498.92	NPP
	2/26/2007	5505.13	13.74	NPP	6.13	5499.00	NPP
		5505.13	13.74	NPP			NPP
CW 3+85	2/12/2007	5503.87	13.11	NPP	5.26	5498.61	NPP
	2/26/2007	5503.87	13.11	NPP	5.24	5498.63	NPP
		5503.87	13.11	NPP			NPP
CW 5+50	2/12/2007	5503.76	12.27	NPP	6.14	5497.62	NPP
	2/26/2007	5503.76	12.27	NPP	6.17	5497.59	NPP
		5503.76	12.27	NPP			NPP
CW 6+70	2/12/2007	5503.84	11.45	NPP	6.59	5497.25	NPP
	2/26/2007	5503.84	11.45	NPP	6.60	5497.24	NPP
		5503.84	11.45	NPP			NPP
CW 8+10	2/12/2007	5504.02	11.63	NPP	7.40	5496.62	NPP
	2/26/2007	5504.02	11.63	NPP	7.35	5496.67	NPP
		5504.02	11.63	NPP			NPP
CW 8+45	2/12/2007	5503.80	12.6	7.46	7.48	5496.34	0.02
	2/26/2007	5503.80	12.6	7.40	7.41	5496.40	0.01
		5503.80	12.6				0.00
CW 11+15	2/12/2007	5503.95	12.27	NPP	5.60	5498.35	NPP
	2/26/2007	5503.95	12.27	NPP	5.57	5498.38	NPP
		5503.95	12.27	NPP			NPP
CW 14+10	2/12/2007	5504.39	13.05	NPP	6.46	5497.93	NPP
	2/26/2007	5504.39	13.05	NPP	6.43	5497.96	NPP
		5504.39	13.05	NPP			NPP
CW 16+60	2/12/2007	5504.32	12.86	NPP	6.27	5498.05	NPP
	2/26/2007	5504.32	12.86	NPP	6.28	5498.04	NPP
		5504.32	12.86	NPP			NPP
CW 19+50	2/12/2007	5504.52	9.99	NPP	6.15	5498.37	NPP
	2/26/2007	5504.52	9.99	NPP	6.18	5498.34	NPP
		5504.52	9.99	NPP			NPP
CW 22+00	2/12/2007	5508.04	12.34	NPP	8.98	5499.06	NPP
	1/15/2007	5508.04	12.34	NPP	8.99	5499.05	NPP
		5508.04	12.34	NPP			NPP
CW 23+10	2/12/2007	5510.04	14.65	NPP	10.63	5499.41	NPP
	2/26/2007	5510.04	14.65	NPP	10.64	5499.40	NPP
		5510.04	14.65	NPP			NPP
CW 23+90	2/12/2007	5507.32	11.72	NPP	8.14	5499.18	NPP
	2/26/2007	5507.32	11.72	NPP	8.15	5499.17	NPP
		5507.32	11.72	NPP			NPP
CW 25+95	2/12/2007	5505.90	12.25	7.13	7.14	5498.77	0.01
	2/26/2007	5505.90	12.25	NPP	7.14	5498.76	NPP
		5505.90	12.25	NPP			NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring February 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	2/12/2007	5506.62	12.26	NPP	11.3	5495.32	NPP
	2/26/2007	5506.62	12.26	NPP	11.32	5495.30	NPP
OW 1+50	2/12/2007	5508.03	14.36	13.12	13.16	5494.90	0.04
	2/26/2007	5508.03	14.36	NPP	13.15	5494.88	NPP
OW 3+85	2/12/2007	5507.31	15.06	12.59	12.60	5494.72	0.01
	2/26/2007	5507.31	15.06	12.64	12.65	5494.67	0.01
OW 5+50	2/12/2007	5507.59	13.67	13.31	13.32	5494.28	0.01
	2/26/2007	5507.59	13.67	13.26	13.27	5494.33	0.01
OW 6+70	2/12/2007	5504.78	14.67	NPP	DRY		NPP
	2/26/2007	5504.78	14.67	NPP	DRY		NPP
OW 8+10	2/12/2007	5506.53	15.99	NPP	DRY		NPP
	2/26/2007	5506.53	15.99	NPP	DRY		NPP
OW 11+ 15	2/12/2007	5506.70	16.59	NPP	12.01	5494.69	NPP
	2/26/2007	5506.70	16.59	NPP	12.02	5494.68	NPP
OW 14+ 10	2/12/2007	5508.14	12.96	NPP	DRY		NPP
	2/26/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	2/12/2007	5508.43	15.21	NPP	12.34	5496.09	NPP
	2/26/2007	5508.43	15.21	NPP	12.34	5496.09	NPP
OW 19+ 50	2/12/2007	5508.03	13.00	NPP	12.54	5495.49	NPP
	2/26/2007	5508.03	13.00	NPP	12.46	5495.57	NPP
OW 22+ 00	2/12/2007	5506.91	14.16	NPP	11.32	5495.59	NPP
	2/26/2007	5506.91	14.16	11.35	11.13	5495.60	-0.22
OW 23+ 10	2/12/2007	5514.12	18.34	NPP	16.29	5497.83	NPP
	2/26/2007	5514.12	18.34	NPP	16.27	5497.85	NPP
OW 23+ 90	2/12/2007	5515.18	18.01	NPP	17.11	5498.07	NPP
		5515.18	18.01	NPP	17.12	5498.06	NPP
OW 25+ 70	2/12/2007	5509.00	13.98	NPP	10.79	5498.21	NPP
	2/26/2007	5509.00	13.98	NPP	10.77	5498.23	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring March 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	3/12/2007	5506.68	14.09	NPP	7.94	5498.74	NPP
	3/26/2007	5506.68	14.09	NPP	7.82	5498.86	NPP
CW 1+50	3/12/2007	5505.13	13.74	NPP	6.16	5498.97	NPP
	3/26/2007	5505.13	13.74	NPP	6.13	5499.00	NPP
CW 3+85	3/12/2007	5503.87	13.11	NPP	5.24	5498.63	NPP
	3/26/2007	5503.87	13.11	NPP	5.24	5498.63	NPP
CW 5+50	3/12/2007	5503.76	12.27	NPP	6.18	5497.58	NPP
	3/26/2007	5503.76	12.27	NPP	6.16	5497.60	NPP
CW 6+70	3/12/2007	5503.84	11.45	NPP	6.60	5497.24	NPP
	3/26/2007	5503.84	11.45	NPP	6.56	5497.28	NPP
CW 8+10	3/12/2007	5504.02	11.63	NPP	7.41	5496.61	NPP
	3/26/2007	5504.02	11.63	NPP	7.35	5496.67	NPP
CW 8+45	3/12/2007	5503.80	12.6	7.49	7.5	5496.31	0.01
	3/26/2007	5503.80	12.6	7.40	7.41	5496.40	0.01
CW 11+ 15	3/12/2007	5503.95	12.27	NPP	5.57	5498.38	NPP
	3/26/2007	5503.95	12.27	NPP	5.53	5498.42	NPP
CW 14+ 10	3/12/2007	5504.39	13.05	NPP	6.46	5497.93	NPP
	3/26/2007	5504.39	13.05	NPP	6.41	5497.98	NPP
CW 16+ 60	3/12/2007	5504.32	12.86	NPP	6.29	5498.03	NPP
	3/26/2007	5504.32	12.86	NPP	6.27	5498.05	NPP
CW 19+ 50	3/12/2007	5504.52	9.99	NPP	6.22	5498.30	NPP
	3/26/2007	5504.52	9.99	NPP	6.18	5498.34	NPP
CW 22+ 00	3/12/2007	5508.04	12.34	NPP	9.02	5499.02	NPP
	3/26/2007	5508.04	12.34	NPP	9.02	5499.02	NPP
CW 23+ 10	3/12/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
	3/26/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
CW 23+ 90	3/12/2007	5507.32	11.72	NPP	8.17	5499.15	NPP
	3/26/2007	5507.32	11.72	NPP	8.13	5499.19	NPP
CW 25+ 95	3/12/2007	5505.90	12.25	7.13	7.15	5498.77	0.02
	3/26/2007	5505.90	12.25	NPP	7.14	5498.76	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring March 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	3/12/2007	5506.62	12.26	11.35	11.36	5495.27	0.01
	3/26/2007	5506.62	12.26	NPP	11.36	5495.26	NPP
OW 1+50	3/12/2007	5508.03	14.36	13.23	13.26	5494.79	0.03
	3/26/2007	5508.03	14.36	13.20	13.41	5494.79	0.21
OW 3+85	3/12/2007	5507.31	15.06	12.68	12.78	5494.61	0.10
	3/26/2007	5507.31	15.06	12.77	12.87	5494.52	0.10
OW 5+50	3/12/2007	5507.59	13.67	NPP	13.25	5494.34	NPP
	3/26/2007	5507.59	13.67	13.21	13.24	5494.37	0.03
OW 6+70	3/12/2007	5504.78	14.67	NPP	DRY		NPP
	3/26/2007	5504.78	14.67	NPP	DRY		NPP
OW 8+10	3/12/2007	5506.53	15.99	NPP	DRY		NPP
	3/26/2007	5506.53	15.99	NPP	DRY		NPP
OW 11+ 15	3/12/2007	5506.70	16.59	NPP	12.06	5494.64	NPP
	3/26/2007	5506.70	16.59	NPP	12.05	5494.65	NPP
OW 14+ 10	3/12/2007	5508.14	12.96	NPP	DRY		NPP
	3/26/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	3/12/2007	5508.43	15.21	NPP	12.41	5496.02	NPP
	3/26/2007	5508.43	15.21	NPP	12.49	5495.94	NPP
OW 19+ 50	3/12/2007	5508.03	13.00	NPP	12.54	5495.49	NPP
	3/26/2007	5508.03	13.00	NPP	12.54	5495.49	NPP
OW 22+ 00	3/12/2007	5506.91	14.16	NPP	11.43	5495.48	NPP
	3/26/2007	5506.91	14.16	NPP	11.04	5495.87	NPP
OW 23+ 10	3/12/2007	5514.12	18.34	NPP	16.29	5497.83	NPP
	3/26/2007	5514.12	18.34	NPP	16.31	5497.81	NPP
OW 23+ 90	3/12/2007	5515.18	18.01	NPP	17.14	5498.04	NPP
	3/26/2007	5515.18	18.01	NPP	17.11	5498.07	NPP
OW 25+ 70	3/12/2007	5509.00	13.98	NPP	10.80	5498.20	NPP
	3/26/2007	5509.00	13.98	NPP	10.77	5498.23	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring April 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	4/9/2007	5506.68	14.09	NPP	7.87	5498.81	NPP
	4/23/2007	5506.68	14.09	NPP	7.86	5498.82	NPP
CW 1+50	4/9/2007	5505.13	13.74	NPP	6.13	5499.00	NPP
	4/23/2007	5505.13	13.74	NPP	6.13	5499.00	NPP
CW 3+85	4/9/2007	5503.87	13.11	NPP	5.24	5498.63	NPP
	4/23/2007	5503.87	13.11	NPP	5.23	5498.64	NPP
CW 5+50	4/9/2007	5503.76	12.27	NPP	6.16	5497.60	NPP
	4/23/2007	5503.76	12.27	NPP	6.13	5497.63	NPP
CW 6+70	4/9/2007	5503.84	11.45	NPP	6.55	5497.29	NPP
	4/23/2007	5503.84	11.45	NPP	6.53	5497.31	NPP
CW 8+10	4/9/2007	5504.02	11.63	NPP	7.28	5496.74	NPP
	4/23/2007	5504.02	11.63	NPP	7.32	5496.70	NPP
CW 8+45	4/9/2007	5503.80	12.6	7.22	7.24	5496.58	0.02
	4/23/2007	5503.80	12.6	7.35	7.36	5496.45	0.01
CW 11+ 15	4/9/2007	5503.95	12.27	NPP	5.55	5498.40	NPP
	4/23/2007	5503.95	12.27	NPP	5.53	5498.42	NPP
CW 14+ 10	4/9/2007	5504.39	13.05	NPP	6.38	5498.01	NPP
	4/23/2007	5504.39	13.05	NPP	6.40	5497.99	NPP
CW 16+ 60	4/9/2007	5504.32	12.86	NPP	6.27	5498.05	NPP
	4/23/2007	5504.32	12.86	NPP	6.24	5498.08	NPP
CW 19+ 50	4/9/2007	5504.52	9.99	NPP	6.16	5498.36	NPP
	4/23/2007	5504.52	9.99	NPP	6.09	5498.43	NPP
CW 22+ 00	4/9/2007	5508.04	12.34	NPP	9.00	5499.04	NPP
	4/23/2007	5508.04	12.34	NPP	8.99	5499.05	NPP
CW 23+ 10	4/9/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
	4/23/2007	5510.04	14.65	10.63	10.64	5499.41	0.01
CW 23+ 90	4/9/2007	5507.32	11.72	NPP	8.16	5499.16	NPP
	4/23/2007	5507.32	11.72	NPP	8.15	5499.17	NPP
CW 25+ 95	4/9/2007	5505.90	12.25	7.13	7.14	5498.77	0.01
	4/23/2007	5505.90	12.25	NPP	7.13	5498.77	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring April 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	4/9/2007	5506.62	12.26	NPP	11.4	5495.22	NPP
	4/23/2007	5506.62	12.26	NPP	11.36	5495.26	NPP
OW 1+50	4/9/2007	5508.03	14.36	13.23	13.88	5494.67	0.65
	4/23/2007	5508.03	14.36	13.21	13.55	5494.75	0.34
OW 3+85	4/9/2007	5507.31	15.06	12.75	12.95	5494.52	0.20
	4/23/2007	5507.31	15.06	12.75	12.95	5494.52	0.20
OW 5+50	4/9/2007	5507.59	13.67	13.24	13.25	5494.35	0.01
	4/23/2007	5507.59	13.67	13.47	13.63	5494.09	0.16
OW 6+70	4/9/2007	5504.78	14.67	NPP	DRY		NPP
	4/23/2007	5504.78	14.67	NPP	DRY		NPP
OW 8+10	4/9/2007	5506.53	15.99	NPP	DRY		NPP
	4/23/2007	5506.53	15.99	NPP	DRY		NPP
OW 11+ 15	4/9/2007	5506.70	16.59	NPP	11.97	5494.73	NPP
	4/23/2007	5506.70	16.59	NPP	11.98	5494.72	NPP
OW 14+ 10	4/9/2007	5508.14	12.96	NPP	DRY		NPP
	4/23/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	4/9/2007	5508.43	15.21	NPP	12.49	5495.94	NPP
	4/23/2007	5508.43	15.21	NPP	12.55	5495.88	NPP
OW 19+ 50	4/9/2007	5508.03	13.00	NPP	12.53	5495.50	NPP
	4/23/2007	5508.03	13.00	NPP	12.65	5495.38	NPP
OW 22+ 00	4/9/2007	5506.91	14.16	NPP	11.33	5495.58	NPP
	4/23/2007	5506.91	14.16	NPP	11.52	5495.39	NPP
OW 23+ 10	4/9/2007	5514.12	18.34	NPP	16.28	5497.84	NPP
	4/23/2007	5514.12	18.34	NPP	16.32	5497.80	NPP
OW 23+ 90	4/9/2007	5515.18	18.01	NPP	17.13	5498.05	NPP
	4/23/2007	5515.18	18.01	NPP	17.12	5498.06	NPP
OW 25+ 70	4/9/2007	5509.00	13.98	NPP	10.74	5498.26	NPP
	4/23/2007	5509.00	13.98	NPP	10.74	5498.26	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring May 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	5/7/2007	5506.68	14.09	NPP	8.03	5498.65	NPP
	5/21/2007	5506.68	14.09	NPP	8.11	5498.57	NPP
CW 1+50	5/7/2007	5505.13	13.74	NPP	6.69	5498.44	NPP
	5/21/2007	5505.13	13.74	NPP	6.81	5498.32	NPP
CW 3+85	5/7/2007	5503.87	13.11	NPP	5.54	5498.33	NPP
	5/21/2007	5503.87	13.11	NPP	5.64	5498.23	NPP
CW 5+50	5/7/2007	5503.76	12.27	NPP	6.2	5497.56	NPP
	5/21/2007	5503.76	12.27	NPP	6.25	5497.51	NPP
CW 6+70	5/7/2007	5503.84	11.45	NPP	6.59	5497.25	NPP
	5/21/2007	5503.84	11.45	NPP	6.61	5497.23	NPP
CW 8+10	5/7/2007	5504.02	11.63	NPP	7.40	5496.62	NPP
	5/21/2007	5504.02	11.63	NPP	7.37	5496.65	NPP
CW 8+45	5/7/2007	5503.80	12.6	7.45	7.46	5496.35	0.01
	5/21/2007	5503.80	12.6	7.40	7.42	5496.40	0.02
CW 11+ 15	5/7/2007	5503.95	12.27	NPP	5.64	5498.31	NPP
	5/21/2007	5503.95	12.27	NPP	5.56	5498.39	NPP
CW 14+ 10	5/7/2007	5504.39	13.05	NPP	6.50	5497.89	NPP
	5/21/2007	5504.39	13.05	NPP	6.35	5498.04	NPP
CW 16+ 60	5/7/2007	5504.32	12.86	NPP	6.29	5498.03	NPP
	5/21/2007	5504.32	12.86	NPP	6.24	5498.08	NPP
CW 19+ 50	5/7/2007	5504.52	9.99	NPP	6.21	5498.31	NPP
	5/21/2007	5504.52	9.99	NPP	6.12	5498.40	NPP
CW 22+ 00	5/7/2007	5508.04	12.34	NPP	9.02	5499.02	NPP
	5/21/2007	5508.04	12.34	NPP	8.09	5499.95	NPP
CW 23+ 10	5/7/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
	5/21/2007	5510.04	14.65	10.63	10.66	5499.40	0.03
CW 23+ 90	5/7/2007	5507.32	11.72	NPP	8.16	5499.16	NPP
	5/21/2007	5507.32	11.72	NPP	8.15	5499.17	NPP
CW 25+ 95	5/7/2007	5505.90	12.25	7.13	7.14	5498.77	0.01
	5/21/2007	5505.90	12.25	NPP	7.14	5498.76	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring MAY 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	5/7/2007	5506.62	12.26	NPP	11.32	5495.30	NPP
	5/21/2007	5506.62	12.26	NPP	11.3	5495.32	NPP
OW 1+50	5/7/2007	5508.03	14.36	13.22	13.61	5494.73	0.39
	5/21/2007	5508.03	14.36	13.20	13.64	5494.74	0.44
OW 3+85	5/7/2007	5507.31	15.06	12.78	13.17	5494.45	0.39
	5/21/2007	5507.31	15.06	12.96	13.33	5494.28	0.37
OW 5+50	5/7/2007	5507.59	13.67	13.36	13.37	5494.23	0.01
	5/21/2007	5507.59	13.67	13.32	13.34	5494.27	0.02
OW 6+70	5/7/2007	5504.78	14.67	NPP	DRY		NPP
	5/21/2007	5504.78	14.67	NPP	DRY		NPP
OW 8+10	5/7/2007	5506.53	15.99	NPP	DRY		NPP
	5/21/2007	5506.53	15.99	NPP	DRY		NPP
OW 11+ 15	5/7/2007	5506.70	16.59	NPP	11.99	5494.71	NPP
	5/21/2007	5506.70	16.59	NPP	11.97	5494.73	NPP
OW 14+ 10	5/7/2007	5508.14	12.96	NPP	DRY		NPP
	5/21/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	5/7/2007	5508.43	15.21	NPP	12.52	5495.91	NPP
	5/21/2007	5508.43	15.21	NPP	12.48	5495.95	NPP
OW 19+ 50	5/7/2007	5508.03	13.00	NPP	12.7	5495.33	NPP
	5/21/2007	5508.03	13.00	NPP	12.78	5495.25	NPP
OW 22+ 00	5/7/2007	5506.91	14.16	NPP	11.45	5495.46	NPP
	5/21/2007	5506.91	14.16	NPP	11.56	5495.35	NPP
OW 23+ 10	5/7/2007	5514.12	18.34	NPP	16.29	5497.83	NPP
	5/21/2007	5514.12	18.34	NPP	16.32	5497.80	NPP
OW 23+ 90	5/7/2007	5515.18	18.01	NPP	17.14	5498.04	NPP
	5/21/2007	5515.18	18.01	NPP	17.17	5498.01	NPP
OW 25+ 70	5/7/2007	5509.00	13.98	NPP	10.74	5498.26	NPP
	5/21/2007	5509.00	13.98	NPP	10.75	5498.25	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring June 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	6/4/2007	5506.68	14.09	NPP	8.22	5498.46	NPP
	6/18/2007	5506.68	14.09	NPP	8.28	5498.40	NPP
CW 1+50	6/4/2007	5505.13	13.74	NPP	6.97	5498.16	NPP
	6/18/2007	5505.13	13.74	NPP	7.05	5498.08	NPP
CW 3+85	6/4/2007	5503.87	13.11	NPP	5.79	5498.08	NPP
	6/18/2007	5503.87	13.11	NPP	5.88	5497.99	NPP
CW 5+50	6/4/2007	5503.76	12.27	NPP	6.31	5497.45	NPP
	6/18/2007	5503.76	12.27	NPP	6.36	5497.40	NPP
CW 6+70	6/4/2007	5503.84	11.45	NPP	6.68	5497.16	NPP
	6/18/2007	5503.84	11.45	NPP	6.73	5497.11	NPP
CW 8+10	6/4/2007	5504.02	11.63	NPP	7.47	5496.55	NPP
	6/18/2007	5504.02	11.63	NPP	7.48	5496.54	NPP
CW 8+45	6/4/2007	5503.80	12.6	7.51	7.52	5496.29	0.01
	6/18/2007	5503.80	12.6	7.52	7.53	5496.28	0.01
CW 11+15	6/4/2007	5503.95	12.27	NPP	5.63	5498.32	NPP
	6/18/2007	5503.95	12.27	NPP	5.63	5498.32	NPP
CW 14+10	6/4/2007	5504.39	13.05	NPP	6.42	5497.97	NPP
	6/18/2007	5504.39	13.05	NPP	6.40	5497.99	NPP
CW 16+60	6/4/2007	5504.32	12.86	NPP	6.26	5498.06	NPP
	6/18/2007	5504.32	12.86	NPP	6.26	5498.06	NPP
CW 19+50	6/4/2007	5504.52	9.99	NPP	6.18	5498.34	NPP
	6/18/2007	5504.52	9.99	NPP	6.16	5498.36	NPP
CW 22+00	6/4/2007	5508.04	12.34	NPP	9.00	5499.04	NPP
	6/18/2007	5508.04	12.34	NPP	8.99	5499.05	NPP
CW 23+10	6/4/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
	6/18/2007	5510.04	14.65	10.63	10.64	5499.41	0.01
CW 23+90	6/4/2007	5507.32	11.72	NPP	8.15	5499.17	NPP
	6/18/2007	5507.32	11.72	NPP	8.14	5499.18	NPP
CW 25+95	6/4/2007	5505.90	12.25	NPP	7.14	5498.76	NPP
	6/18/2007	5505.90	12.25	NPP	7.17	5498.73	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring JUNE 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	6/4/2007	5506.62	12.26	NPP	11.31	5495.31	NPP
	6/18/2007	5506.62	12.26	NPP	11.4	5495.22	NPP
OW 1+50	6/4/2007	5508.03	14.36	13.30	13.39	5494.71	0.09
	6/18/2007	5508.03	14.36	13.35	13.70	5494.61	0.35
OW 3+85	6/4/2007	5507.31	15.06	12.77	13.47	5494.40	0.70
	6/18/2007	5507.31	15.06	12.77	13.70	5494.35	0.93
OW 5+50	6/4/2007	5507.59	13.67	13.48	13.52	5494.10	0.04
	6/18/2007	5507.59	13.67	13.40	13.41	5494.19	0.01
OW 6+70	6/4/2007	5504.78	14.67	NPP	DRY		NPP
	6/18/2007	5504.78	14.67	NPP	DRY		NPP
OW 8+10	6/4/2007	5506.53	15.99	NPP	DRY		NPP
	6/18/2007	5506.53	15.99	NPP	DRY		NPP
OW 11+ 15	6/4/2007	5506.70	16.59	NPP	12.02	5494.68	NPP
	6/18/2007	5506.70	16.59	NPP	12.02	5494.68	NPP
OW 14+ 10	6/4/2007	5508.14	12.96	NPP	DRY		NPP
	6/18/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	6/4/2007	5508.43	15.21	NPP	12.55	5495.88	NPP
	6/18/2007	5508.43	15.21	NPP	12.63	5495.80	NPP
OW 19+ 50	6/4/2007	5508.03	13.00	NPP	12.86	5495.17	NPP
	6/18/2007	5508.03	13.00	NPP	12.98	5495.05	NPP
OW 22+ 00	6/4/2007	5506.91	14.16	NPP	11.77	5495.14	NPP
	6/18/2007	5506.91	14.16	NPP	11.93	5494.98	NPP
OW 23+ 10	6/4/2007	5514.12	18.34	NPP	16.33	5497.79	NPP
	6/18/2007	5514.12	18.34	NPP	16.34	5497.78	NPP
OW 23+ 90	6/4/2007	5515.18	18.01	NPP	17.17	5498.01	NPP
	6/18/2007	5515.18	18.01	NPP	17.18	5498.00	NPP
OW 25+ 70	6/4/2007	5509.00	13.98	NPP	10.73	5498.27	NPP
	6/18/2007	5509.00	13.98	NPP	10.78	5498.22	NPP

NPP = No Product Present NWP = No Water Present

Collection Well Fluids Monitoring July 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
CW 0+60	7/2/2007	5506.68	14.09	NPP	8.33	5498.35	NPP
	7/16/2007	5506.68	14.09	NPP	8.32	5498.36	NPP
	7/30/2007	5506.68	14.09	NPP	8.4	5498.28	NPP
CW 1+50	7/2/2007	5505.13	13.74	NPP	7.09	5498.04	NPP
	7/16/2007	5505.13	13.74	NPP	7.11	5498.02	NPP
	7/30/2007	5505.13	13.74	NPP	7.13	5498.00	NPP
CW 3+85	7/2/2007	5503.87	13.11	NPP	5.92	5497.95	NPP
	7/16/2007	5503.87	13.11	NPP	5.97	5497.90	NPP
	7/30/2007	5503.87	13.11	NPP	6.00	5497.87	NPP
CW 5+50	7/2/2007	5503.76	12.27	NPP	6.39	5497.37	NPP
	7/16/2007	5503.76	12.27	NPP	6.43	5497.33	NPP
	7/30/2007	5503.76	12.27	NPP	6.44	5497.32	NPP
CW 6+70	7/2/2007	5503.84	11.45	NPP	6.76	5497.08	NPP
	7/16/2007	5503.84	11.45	NPP	6.79	5497.05	NPP
	7/30/2007	5503.84	11.45	NPP	6.83	5497.01	NPP
CW 8+10	7/2/2007	5504.02	11.63	NPP	7.52	5496.50	NPP
	7/16/2007	5504.02	11.63	NPP	7.54	5496.48	NPP
	7/30/2007	5504.02	11.63	NPP	7.57	5496.45	NPP
CW 8+45	7/2/2007	5503.80	12.6	NPP	7.57	5496.23	NPP
	7/16/2007	5503.80	12.6	NPP	7.55	5496.25	NPP
	7/30/2007	5503.80	12.6	NPP	7.6	5496.20	NPP
CW 11+15	7/2/2007	5503.95	12.27	NPP	5.66	5498.29	NPP
	7/16/2007	5503.95	12.27	NPP	5.72	5498.23	NPP
	7/30/2007	5503.95	12.27	NPP	5.77	5498.18	NPP
CW 14+10	7/2/2007	5504.39	13.05	NPP	6.41	5497.98	NPP
	7/16/2007	5504.39	13.05	NPP	6.37	5498.02	NPP
	7/30/2007	5504.39	13.05	NPP	6.36	5498.03	NPP
CW 16+60	7/2/2007	5504.32	12.86	NPP	6.25	5498.07	NPP
	7/16/2007	5504.32	12.86	NPP	6.25	5498.07	NPP
	7/30/2007	5504.32	12.86	NPP	6.23	5498.09	NPP
CW 19+50	7/2/2007	5504.52	9.99	NPP	6.18	5498.34	NPP
	7/16/2007	5504.52	9.99	NPP	6.17	5498.35	NPP
	7/30/2007	5504.52	9.99	NPP	6.15	5498.37	NPP
CW 22+00	7/2/2007	5508.04	12.34	NPP	8.99	5499.05	NPP
	7/16/2007	5508.04	12.34	NPP	9.02	5499.02	NPP
	7/30/2007	5508.04	12.34	NPP	9.03	5499.01	NPP
CW 23+10	7/2/2007	5510.04	14.65	NPP	10.64	5499.40	NPP
	7/16/2007	5510.04	14.65	NPP	10.66	5499.38	NPP
	7/30/2007	5510.04	14.65	NPP	10.69	5499.35	NPP
CW 23+90	7/2/2007	5507.32	11.72	NPP	8.13	5499.19	NPP
	7/16/2007	5507.32	11.72	NPP	8.15	5499.17	NPP
	7/30/2007	5507.32	11.72	NPP	8.16	5499.16	NPP
CW 25+95	7/2/2007	5505.90	12.25	NPP	7.16	5498.74	NPP
	7/16/2007	5505.90	12.25	NPP	7.16	5498.74	NPP
	7/30/2007	5505.90	12.25	NPP	7.17	5498.73	NPP

NPP = No Product Present NWP = No Water Present

Observation Well Fluids Monitoring July 2007

Well ID	Date	Measuring Point Elevation	Total Well Depth	Depth To Product (DTP)	Depth To Water (DTW)	Corrected Groundwater Elevation	Separate Phase Hydrocarbon Thickness
OW 0+60	7/2/2007	5506.62	12.26	NPP	11.46	5495.16	NPP
	7/16/2007	5506.62	12.26	NPP	11.57	5495.05	NPP
	7/30/2007	5506.62	12.26	NPP	11.46	5495.16	NPP
OW 1+50	7/2/2007	5508.03	14.36	13.32	14.02	5494.57	0.70
	7/16/2007	5508.03	14.36	13.43	14.13	5494.46	0.70
	7/30/2007	5508.03	14.36	13.45	13.47	5494.58	0.02
OW 3+85	7/2/2007	5507.31	15.06	12.83	13.93	5494.26	1.10
	7/16/2007	5507.31	15.06	12.78	14.02	5494.28	1.24
	7/30/2007	5507.31	15.06	12.81	12.85	5494.49	0.04
OW 5+50	7/2/2007	5507.59	13.67	13.52	13.33	5494.11	-0.19
	7/16/2007	5507.59	13.67	13.35	13.37	5494.24	0.02
	7/30/2007	5507.59	13.67	NPP	13.57	5494.02	NPP
OW 6+70	7/2/2007	5504.78	14.67	NPP	DRY		NPP
	7/16/2007	5504.78	14.67	NPP	DRY		NPP
	7/30/2007	5504.78	14.67	NPP	DRY		
OW 8+10	7/2/2007	5506.53	15.99	NPP	DRY		NPP
	7/16/2007	5506.53	15.99	NPP	DRY		NPP
	7/30/2007	5506.53	15.99	NPP	DRY		
OW 11+ 15	7/2/2007	5506.70	16.59	NPP	12.03	5494.67	NPP
	7/16/2007	5506.70	16.59	NPP	12.07	5494.63	NPP
	7/30/2007	5506.70	16.59	NPP	12.10	5494.60	NPP
OW 14+ 10	7/2/2007	5508.14	12.96	NPP	DRY		NPP
	7/16/2007	5508.14	12.96	NPP	DRY		NPP
	7/30/2007	5508.14	12.96	NPP	DRY		NPP
OW 16+ 60	7/2/2007	5508.43	15.21	NPP	12.65	5495.78	NPP
	7/16/2007	5508.43	15.21	NPP	12.76	5495.67	NPP
	7/30/2007	5508.43	15.21	NPP	12.78	5495.65	NPP
OW 19+ 50	7/2/2007	5508.03	13.00	NPP	DRY		NPP
	7/16/2007	5508.03	13.00	NPP	DRY		NPP
	7/30/2007	5508.03	13.00	NPP	DRY		NPP
OW 22+ 00	7/2/2007	5506.91	14.16	NPP	12.16	5494.75	NPP
	7/16/2007	5506.91	14.16	11.35	12.26	5495.38	0.91
	7/30/2007	5506.91	14.16	NPP	12.36	5494.55	NPP
OW 23+ 10	7/2/2007	5514.12	18.34	16.25	16.32	5497.86	0.07
	7/16/2007	5514.12	18.34	NPP	16.34	5497.78	NPP
	7/30/2007	5514.12	18.34	NPP	16.30	5497.82	NPP
OW 23+ 90	7/2/2007	5515.18	18.01	NPP	17.18	5498.00	NPP
	7/16/2007	5515.18	18.01	NPP	17.15	5498.03	NPP
	7/30/2007	5515.18	18.01	NPP	17.18	5498.00	NPP
OW 25+ 70	7/2/2007	5509.00	13.98	NPP	10.74	5498.26	NPP
	7/16/2007	5509.00	13.98	NPP	10.76	5498.24	NPP
	7/30/2007	5515.18	13.98	NPP	10.76	5504.42	NPP

NPP = No Product Present NWP = No Water Present

Volatile Organic Analytical Result Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

		Parameters					
		Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)
WQCC 20NMAC 6.2.3103 (mg/L):		0.01	0.75	0.75	0.62	NE	NE
Well ID:	Date Sampled:						
CW 0+60	4/6/2006	0.360	0.015	0.480	0.160	<0.025	NA
	8/5/2005	0.400	<0.005	0.800	0.350	NA	NA
	5/5/2005	0.200	0.032	0.180	1.000	NA	NA
CW 1+50	4/6/2006	0.130	0.024	0.120	1.700	<0.050	NA
	8/5/2005	1.000	<0.02	0.200	1.800	NA	NA
	5/5/2005	1.200	0.041	0.240	2.300	NA	NA
CW 3+85	4/6/2006	0.0120	0.0120	0.0200	0.2200	<0.012	NA
	8/5/2005	0.0045	<0.002	0.0075	0.036	NA	NA
	5/5/2005	0.035	0.022	0.020	0.250	NA	NA
CW 5+50	4/6/2006	0.044	<0.010	0.012	0.15	0.087	NA
	5/5/2005	0.2	0.011	0.064	0.24	NA	NA
CW 6+70	4/6/2006	0.019	<0.002	<0.002	<0.006	0.11	NA
	5/5/2005	0.0027	<0.005	<0.005	0.0013	NA	NA
CW 8+10	4/6/2006	0.17	<0.005	0.01	0.11	0.09	NA
	8/5/2005	0.18	<0.005	0.01	0.21	NA	NA
	5/5/2005	0.43	<0.025	0.05	0.66	NA	NA
CW 11+15	4/6/2006	1.70	<0.020	0.024	0.380	1.200	NA
CW 14+10	4/6/2006	8.80	<0.100	1.10	<0.300	1.20	NA
	8/5/2005	6.00	<0.100	1.20	0.24	NA	NA
	5/5/2005	9.80	<0.025	2.10	1.30	NA	NA
CW 16+60	4/6/2006	6.30	<0.100	3.10	6.30	7.60	NA
	8/5/2005	6.80	0.065	3.10	7.10	NA	NA
	5/5/2005	5.30	0.075	3.80	7.30	NA	NA
CW 19+50	4/6/2006	4.90	<0.001	1.30	2.60	80.00	NA
	8/5/2005	6.60	<0.05	2.80	4.30	NA	NA
	5/5/2005	4.80	0.021	1.70	5.10	NA	NA
CW 22+00	4/6/2006	7.20	<0.001	<0.001	<0.003	6.70	NA
	8/5/2005	6.50	<0.10	<0.10	0.15	NA	NA
	5/5/2005	7.00	0.090	0.10	0.20	NA	NA
CW 23+10	4/6/2006	4.20	<0.010	<0.010	1.1	2.9	NA
	8/5/2005	9.40	0.015	0.42	0.36	NA	NA
	5/5/2005	6.30	0.076	0.19	0.35	NA	NA
CW 23+90	4/6/2006	2.90	<0.100	0.11	<0.300	0.94	NA
	8/5/2005	3.30	<0.05	0.17	0.33	NA	NA
	5/5/2005	3.40	0.035	0.17	0.40	NA	NA
CW 25+95	4/6/2006	<0.001	<0.001	<0.001	<0.003	0.0054	NA
	8/5/2005	0.00059	<0.0005	<0.0005	<0.0005	NA	NA
	5/5/2005	0.001	<0.0005	<0.0005	<0.0005	NA	NA

Volatile Organic Analytical Result Summary - North Boundary Barrier
Facility-Wide Groundwater Monitoring Plan
Bloomfield Refinery - Bloomfield, New Mexico

		Parameters					
		Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)
WQCC 20NMAC 6.2.3103 (mg/L):		0.01	0.75	0.75	0.62	NE	NE
Well ID:	Date Sampled:						
OW 0+60	4/7/2007	<.01	0.058	0.097	0.15	<.025	NA
	8/21/2006	0.057	0.12	0.31	1.2	<0.025	34
	4/6/2006	0.065	0.033	0.34	1.6	<0.025	110
OW 5+50	4/6/2006	0.015	0.014	0.089	9.7	<0.0025	130
OW 11+15	4/7/2007	0.84	<.02	<.02	<.04	2	NA
	8/21/2006	0.86	<0.020	0.026	0.096	1.8	16
	4/6/2006	0.23	<0.020	<0.020	<0.060	1.6	15
	8/5/2005	0.75	<0.01	0.12	0.27	NA	NA
	5/5/2005	0.42	<0.025	0.14	0.52	NA	NA
OW 14+10	5/5/2005	10.00	<0.0005	3.90	3.20	NA	NA
OW 16+60	4/7/2007	3.1	<.05	2.0	7.2	9.0	NA
OW 19+50	4/7/2007	0.0019	<.001	<.001	<.002	0.27	NA
	4/6/2006	0.035	<0.001	0.012	0.077	0.18	3.4
	8/5/2005	0.0057	<0.0005	0.0011	0.0019	NA	NA
	5/5/2005	1.90	0.013	0.86	3.20	NA	NA
OW 22+00	4/7/2007	<0.005	<0.005	<0.005	<0.01	2.4	NA
	8/21/2006	<0.010	0.012	<0.010	<0.030	3.6	87
	4/6/2006	<0.001	<0.001	<0.001	<0.003	3.9	13
	5/5/2005	3.10	0.045	0.15	0.34	NA	NA
OW 23+10	4/7/2007	<0.001	0.0071	0.0032	0.0093	0.0400	NA
	8/21/2006	0.015	0.012	0.013	0.27	0.17	290
	4/6/2006	0.026	0.012	0.018	0.18	0.31	20
	8/5/2005	0.53	<0.01	<0.01	0.047	NA	NA
	5/5/2005	0.34	0.0092	0.011	0.08	NA	NA
OW 23+90	4/7/2007	<0.001	<0.001	<0.001	<0.002	<0.0025	NA
	8/21/2006	0.0017	0.0024	0.0039	<0.030	0.0034	4.5
	4/6/2006	0.012	0.0032	0.014	0.029	0.034	24
	8/5/2005	0.39	<0.02	0.03	0.072	NA	NA
	5/5/2005	0.98	0.016	0.031	0.13	NA	NA
OW 25+70	4/7/2007	<0.001	<0.001	<0.001	<0.002	<0.0025	NA
	8/21/2006	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.0
	4/6/2006	<0.0025	<0.001	<0.001	<0.003	<0.0025	<1.0
	8/5/2005	<0.0005	<0.0005	<0.0005	<0.0005	NA	NA
	5/5/2005	0.00079	<0.0005	<0.0005	<0.0005	NA	NA

Notes:
mg/L = milligrams per liter
CW = collection well
OW = observation well
NA = not analyzed
NE = not established
MTBE = methyl tertiary butyl ether
DRO = diesel range organics
WQCC 20NMAC 6.2.33103 = New Mexico Standard for Groundwater of 10,000 ug/L or less

Analytical Results Summary Table - Bluff Seeps / Outfalls
Bloomfield Refinery - Bloomfield, New Mexico

		Parameters			
		Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)
WQCC 20NMAC 6.2.3103(mg/L):		**0.01**	**0.75**	**0.75**	**0.62**
WQCC 20NMAC 6.4(mg/L):		**0.022**	**6.8**	**3.1**	**NE**
Sample ID:	**Date Sampled:**				
Outfall #1	10/9/2007	<0.001	0.0029	<0.001	0.0039
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #6	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #7	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #8	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/7/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002
Outfall #9	10/9/2007	<0.001	<0.001	<0.001	<0.002
	11/8/2007	<0.001	<0.001	<0.001	<0.002
	12/10/2007	<0.001	<0.001	<0.001	<0.002

Notes:
mg/L = milligram per liter
NE = not established
WQCC 20NMAC 6.2.33103 = New Mexico Standard for Groundwater of 10,000 ug/L or less
WQCC 20NMAC 6.4 = New Mexico Standards for Interstate and Intrastate Surface Water

ANNUAL DATA REPORT

FORMER GIANT BLOOMFIELD REFINERY

GIANT INDUSTRIES ARIZONA, INC.

March 2007

Prepared By:

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1.0 INTRODUCTION AND METHODOLOGY

Introduction

The following annual report describes work completed at Giant Industries Arizona, Inc.'s (Giant's) former refinery in Bloomfield, New Mexico since the previous annual report submitted in March 2006. The report contains data collected during that time including:

- Analytical data from groundwater sampling;
- Groundwater elevations;
- Product levels from monitoring wells;
- Tank volume data.

The refinery is located in the NW ¼ of Section 27 and the SW ¼ of Section 22, Township 29 N, Range 12W in San Juan County, New Mexico. It is on the corner of Highway 64 and County Road 350, approximately 5 miles west of the town of Bloomfield, New Mexico (Figure 1). The facility consists of the former Giant Bloomfield Refinery and associated remedial equipment both within and south of the refinery boundary. The refinery operated from 1974 to 1982 and is presently inactive.

A remedial system was installed in stages beginning in 1988 and gradually has been simplified over time. Remediation was designed to treat groundwater affected by various releases during operation of the former refinery and periodic spills at the truck unloading facility. It consists of a series of groundwater monitoring wells, groundwater recovery wells, water treatment facilities and treated water infiltration trenches (Figure 2). The system processed approximately 4,311,691 gallons of water in 2006.

Methodology

Impacted groundwater is pumped from the aquifer through a series of recovery wells located strategically within the affected area. Recovery wells are utilized to create a hydraulic barrier and prevent migration of affected water beyond the well. A hydraulic barrier is formed as water is pumped through the recovery well, thereby depressing the water table. Figure 3 illustrates the concept. Sufficient recovery wells are placed

throughout the site so that the radii of influence from adjacent wells overlap, and a barrier is formed across the plume to prevent migration of affected water.

Impacted groundwater is collected in a storage tank (Tank 102) and subsequently treated. The method of treatment used at the Giant Bloomfield Refinery is carbon adsorption, where recovered water is pumped into a carbon filtration tank. Inside, volatile and non-volatile organic compounds are adsorbed into a carbon matrix lining the tank.

The treated water is discharged into the aquifer through an infiltration trench. The infiltration trench consists of a subsurface distribution system placed within gravel packs. Water infiltrates the surrounding strata and eventually makes its way back to the aquifer. The return of recovered water to the aquifer serves as a recharge mechanism. Figure 4 is a simplified diagram representation of groundwater recovery, treatment and disposal at the former refinery.

Monitoring at the site consists of regular inspections and maintenance of facilities, as well as regular sampling of groundwater on site. Section 2 describes the sampling program at the site. Results are presented in Section 3. Numerous monitoring wells are located within and south of the refinery (Figure 2). Analytical results of groundwater samples collected from monitoring wells help determine the effectiveness and progress of remedial efforts. In addition to sampling, water and product levels in each well are determined quarterly. This information is tabulated and utilized to prepare potentiometric surface maps. Water levels are included in Section 4. Product levels are also shown. Figures 5-8 are potentiometric surface maps for 2006 water levels. The contours on the maps represent the elevation of surface of the groundwater for each quarter. The maps are useful in determining direction of groundwater flow and effectiveness of hydraulic control achieved by the recovery well system. Additionally, oil absorbent socks are installed in all monitoring wells showing free-phase hydrocarbons. These socks are checked quarterly and replaced as necessary.

Regular weekly inspections are performed to assure safe and efficient operation of the remediation system. The Control Panel, located in the Dispatch Office, serves to monitor and control the operation of the treatment system, while providing alarm and shutdown functions to safeguard against spills and other undesirable events. The Control Panel is checked weekly. An inspection is also made in the control building at Tank 102, the southern infiltration gallery and each recovery well. Treated effluent volumes and flow rates are monitored weekly with a water meter that has been installed near the carbon

adsorption tank. These values are recorded and compared with previous readings to ensure normal operation. Maintenance of the system includes replacement of filters in well houses, equipment lubrication, air compressor oil changes, adding nutrients as necessary, listening for unusual pump and motor noise, inspecting the carbon pre-filter and repairing all equipment as required. Observations are recorded in a bound field logbook with the date, time and person recording the information noted. All equipment is inspected for leaks and malfunctions. The operator is familiar with the location of underground lines and notes any surface indication of underground leaks. Leaks of any size are noted and repaired.

Modifications to the Treatment System

In 2005, Giant Industries requested approval from the New Mexico Oil Conservation Division (NMOCD) to plug and abandon nine groundwater monitoring wells and one groundwater recovery well located down gradient of the refinery. The NMOCD has not formally responded to this proposal. Subsequently, Giant submitted a revised sample schedule in Discharge Plan GW040 in 2006 and an amended Discharge Plan GW040 in 2007 to remove the wells listed below from the sampling matrix and discontinue pumping well SHS-14 based on the number of clean reporting quarters, as noted below:

Type of Well	Identification	Years of Monitoring Beneath Standards
Monitoring	SHS-3	7
Monitoring	SHS-4	8
Monitoring	SHS-6	8
Monitoring	SHS-10	8
Monitoring	SHS-12	8
Monitoring	SHS-13	8
Recovery	SHS-14	3
Monitoring	SHS-15	8
Monitoring	SHS-16	8
Monitoring	SHS-17	7

The wells listed above were sampled in the first quarter of 2006. The revised sampling schedule was instituted in October of 2006. They will not be sampled in 2007.

2.0 SAMPLING PROGRAM

Introduction

Table 1 describes water sampling conducted at the Giant Bloomfield Refinery. Influent and effluent water quality is monitored to verify compliance with New Mexico Water Quality Control Commission (NMWQCC) standards. System influent and effluent is sampled and analyzed for general chemistry, halocarbons and aromatics on a quarterly basis throughout the year. Facility effluent is also sampled annually for PAHs and metals. Recovery and monitoring wells are sampled as shown in Table 1.

Methodology

Influent water is collected from a system valve prior to entering storage Tank 102. Samples of effluent water are collected through a sample valve as treated water exits the carbon adsorption tank. Water is collected in appropriate pre-cleaned and/or pre-preserved sample bottles or glass vials. For EPA methods 601 and 602 analyses, vials are filled and capped with no air inside to prevent degradation of the sample. Samples are labeled with the date and time of collection, sample designation, project name, collector's name and parameters to be analyzed. They are immediately sealed and packed on ice. The samples are shipped to Pinnacle Laboratories in Albuquerque, NM in a sealed cooler via UPS before designated holding times expire. Proper chain-of-custody (COC) procedures are followed with logs documenting the date and time sampled, sample number, type of sample, sampler's name, preservative used, analyses required and sampler's signatures.

Prior to sampling monitoring and wells, depth to ground water and total depth of wells is measured with a Keck oil/water interface probe. Presence of any free-phase crude oil is also investigated using the interface probe. The interface probe is decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the wells is calculated, and a minimum of three casing volumes of water is purged from each well using a disposable bailer or a permanent decontaminated PVC bailer. As water is extracted, pH, electric conductivity and temperature are monitored. Wells are purged until these properties stabilize or the well bails dry, indicating that the purge water is representative of aquifer conditions. Stabilization is

defined as three consecutive stable readings for each water property (±0.4 units for pH, ±10 percent for electric conductivity and ±2° C for temperature). Once each monitoring well is properly purged, groundwater samples are collected in bottles or vials and shipped to the laboratory as described above. The method for sampling recovery wells is similar, the difference being that pumps installed within the wells are used to purge groundwater.

Table 1. Giant Industries, Inc. Bloomfield Refinery Sample Schedule for 2006

LOCATION	MONTHLY	QUARTERLY	SEMI-ANNUALLY	ANNUALLY
System Influent		601 602 GWC	601 602 GWC	601 602 GWC
System Effluent		601 602 GWC	601 602 GWC	601 602 GWC Metals PAH
GRW-3				601 602 GWC PAH
GRW-6				601 602 GWC PAH
GBR-17				601 602 GWC PAH
GBR-24D				601 602 GWC PAH
GBR-30				601 602 GWC PAH
GBR-31				601 602 GWC PAH

LOCATION	MONTHLY	QUARTERLY	SEMI-ANNUALLY	ANNUALLY
SHS-4*				601 602 GWC
SHS-6*				601 602 GWC
SHS-10*				601 602 GWC
SHS-12*				601 602 GWC
SHS-13*				601 602 GWC
SHS-14*				601 602 GWC
SHS-15*				601 602 GWC
SHS-16*				601 602 GWC
SHS-17*				601 602 GWC
SHS-19				601 602 GWC
SHS-18				601 602 GWC
GBR-51				601 602 GWC
GBR-52				601 602 GWC
GBR-32				601 602

LOCATION	MONTHLY	QUARTERLY	SEMI-ANNUALLY	ANNUALLY
				GWC Metals
GBR-48				601 602 GWC Metals
GBR-49				601 602 GWC Metals
GBR-50				601 602 GWC Metals

NOTES:
*Wells will be removed from the sampling schedule in 2007 as described in Section 1.0.
All wells have water and free product elevations determined on a quarterly basis.
Wells exhibiting free product are not sampled.
601 and 602 refer to United States Environmental Protection Agency methods for organic chemical analysis.
GWC refers to groundwater characteristics.

3.0 ANNUAL ANALYTICAL RESULTS

Lab results detailing the quality of groundwater sampled at the Giant Bloomfield Refinery is shown in Table 2. Raw data, as received from the laboratory, is available on request as a supplement to the annual report. Toxic pollutants, as defined by WQCC standards, are absent from influent and effluent water. Results indicate most analytes are not detected. When constituents are present, they are detected only in trace amounts.

The analytical results presented in Table 2 are listed in units as described below:

	Unit of Measure
Total dissolved solids (180)	mg/l
Total dissolved solids (calc)	mg/l
Total alkalinity as CaCO3	mg/l
Total hardness as CaCO3	mg/l
Bicarbonate as HCO3	mg/l
Carbonate as CO3	mg/l
Chloride	mg/l
Sulfate	mg/l
Calcium	mg/l
Magnesium	mg/l
Potassium	mg/l
Sodium	mg/l
Laboratory Conductivity	µmhos/cm

The remainder of the data is measured in µg/l.

Table 2. Giant Industries, Inc. Bloomfield Refinery 2006 Annual Analytical Data

	JAN*	APR	JUL	OCT	DEC
SYSTEM EFFLUENT					
Lab pH	7.4	7.2	7.3	7.1	
Lab Conductivity@25C	3160	3290	2430	3310	
Total Dissolved Solids (Calc)	2450	2420	3140	2620	
Total Alkalinity as CaCO3	336	337	566	300	
Total Hardness as CaCO3	851	730	629	960	
Bicarbonate as HCO3	335	334	566	300	
Carbonate as CO3	1.58	12	nd	nd	
Hydroxide	nd	nd	nd	nd	
Chloride	348	106	67.1	75	
Sulfate	1490	1300	1110	1300	
Calcium	352	292	242	339	
Magnesium	31.9	26.1	23.2	27.3	
Potassium	7.49	5.89	4.39	7.82	
Sodium	456	367	404	375	
HALOCARBONS					
Bromodichloromethane	nd	nd	nd	nd	
Bromoform	nd	nd	nd	nd	
Bromomethane	nd	nd	nd	nd	
Carbon Tetrachloride	nd	nd	nd	nd	
Chloroethane	nd	nd	nd	nd	
Chloroform	nd	nd	nd	nd	
Chloromethane	nd	nd	nd	nd	
Dibromochloromethane	nd	nd	nd	nd	
1,2-Dibromomethane (EDB)	nd	nd	nd	nd	
1,2-Dichlorobenzene	nd	nd	nd	nd	
1,3-Dichlorobenzene	nd	nd	nd	nd	
1,4-Dichlorobenzene	nd	nd	nd	nd	
1,1-Dichloroethane	nd	nd	nd	nd	
1,2-Dichloroethane (EDC)	nd	nd	nd	nd	
1,1-Dichoroethene	nd	nd	nd	nd	
trans-1,2-Dichloroethene	nd	nd	nd	nd	
1,2-Dichloropropane	nd	nd	nd	nd	
cis-1,3-Dichloropropene	nd	nd	nd	nd	
trans-1,3-Dichloropropene	nd	nd	nd	nd	
Methylene Chloride	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	
Tetrachloroethane	nd	nd	nd	nd	

	JAN*	APR	JUL	OCT	DEC
1,1,1-Trichloroethane	nd	nd	nd	nd	
1,1,2-Trichloroethane	nd	nd	nd	nd	
Trichloroethene	nd	nd	nd	nd	
Trichlorofluoromethane	nd	nd	nd	nd	
Vinyl Chloride	nd	nd	nd	nd	
AROMATICS					
Benzene	nd	nd	nd	nd	
Chlorobenzene	nd	nd	nd	nd	
1,2-Dichlorobenzene	nd	nd	nd	nd	
1,3-Dichlorobenzene	nd	nd	nd	nd	
1,4-Dichlorobenzene	nd	nd	nd	nd	
Ethylbenzene	nd	nd	nd	nd	
Methyl-t-Butyl Ether	nd	nd	nd	nd	
Toluene	nd	nd	nd	nd	
Total Xylenes	nd	nd	nd	nd	
PAH					
1-Methylnapthalene	0.760				
2-Methylnapthalene	nd				
Benzo(a)pyrene	nd				
Napthalene	nd				
METALS (mg/l)					
Antimony	nd				
Arsenic	nd				
Beryllium	nd				
Cadmium	nd				
Chromium	0.003				
Copper	0.019				
Lead	nd				
Nickel	0.018				
Selenium	nd				
Silver	nd				
Thallium	nd				
Zinc	nd				
Mercury	nd				
SYSTEM INFLUENT					
Lab pH	7.5	7.1	7.3	6.4	
Lab Conductivity@25C	3250	3350	3410	3380	

	JAN*	APR	JUL	OCT	DEC
Total Dissolved Solids (Calc)	2460	2420	2360	2580	
Total Alkalinity as CaCO3	311	359	515	297	
Total Hardness as CaCO3	851	795	669	970	
Bicarbonate as HCO3	309	356	515	297	
Carbonate as CO3	1.88	14.4	nd	nd	
Hydroxide	nd	nd	nd	nd	
Chloride	681	141	59.9	74	
Sulfate	1440	1290	1060	1300	
Calcium	331	318	235	343	
Magnesium	29.9	28.2	24.4	27.7	
Potassium	7.43	4.05	12.7	8.29	
Sodium	428	390	428	374	
HALOCARBONS					
Bromodichloromethane	nd	nd	nd	nd	
Bromoform	nd	nd	nd	nd	
Bromomethane	nd	nd	nd	nd	
Carbon Tetrachloride	nd	nd	nd	nd	
Chloroethane	nd	nd	nd	nd	
Chloroform	nd	nd	nd	nd	
Chloromethane	nd	nd	nd	nd	
Dibromochloromethane	nd	nd	nd	nd	
1,2-Dibromomethane (EDB)	nd	nd	nd	nd	
1,2-Dichlorobenzene	nd	nd	nd	nd	
1,3-Dichlorobenzene	nd	nd	nd	nd	
1,4-Dichlorobenzene	nd	nd	nd	nd	
1,1-Dichloroethane	nd	nd	nd	nd	
1,2-Dichloroethane (EDC)	nd	nd	nd	nd	
1,1-Dichoroethene	nd	nd	nd	nd	
trans-1,2-Dichloroethene	nd	nd	nd	nd	
1,2-Dichloropropane	nd	nd	nd	nd	
cis-1,-Dichloropropene	nd	nd	nd	nd	
trans-1,2-Dichloropropene	nd	nd	nd	nd	
Methylene Chloride	nd	nd	nd	nd	
1,1,2,2-Tetrachloroethane	nd	nd	nd	nd	
Tetrachloroethane	nd	nd	nd	nd	
1,1,1-Trichloroethane	nd	nd	nd	nd	
1,1,2-Trichloroethane	nd	nd	nd	nd	
Trichloroethene	nd	nd	nd	nd	
Trichlorofluoromethane	nd	nd	nd	nd	
Vinyl Chloride	nd	nd	nd	nd	

	JAN*	APR	JUL	OCT	DEC
AROMATICS					
Benzene	nd	nd	nd	nd	
Chlorobenzene	nd	nd	nd	nd	
1,2-Dichlorobenzene	nd	nd	nd	nd	
1,3-Dichlorobenzene	nd	nd	nd	nd	
1,4-Dichlorobenzene	nd	nd	nd	nd	
Ethylbenzene	nd	nd	nd	nd	
Methyl-t-Butyl Ether	nd	nd	nd	nd	
Toluene	nd	nd	nd	nd	
Total Xylenes	nd	nd	nd	nd	
GRW-3					
Lab pH	7.2				
Lab Conductivity@25C	3150				
Total Dissolved Solids (Calc)	2310				
Total Alkalinity as CaCO3	571				
Total Hardness as CaCO3	614				
Bicarbonate as HCO3	569				
Carbonate as CO3	2.38				
Hydroxide	nd				
Chloride	303				
Sulfate	1270				
Calcium	202				
Magnesium	21.1				
Potassium	3.92				
Sodium	484				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				

	JAN*	APR	JUL	OCT	DEC
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	2.6				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
PAH					
1-Methylnapthalene	16.5				
2-Methylnapthalene	20.2				
Benzo(a)pyrene	nd				
Napthalene	24.8				
GRW-6					
Lab pH	7.3				
Lab Conductivity@25C	2690				
Total Dissolved Solids (Calc)	960				
Total Alkalinity as CaCO3	588				
Total Hardness as CaCO3	594				
Bicarbonate as HCO3	584				
Carbonate as CO3	3.82				

	JAN*	APR	JUL	OCT	DEC
Hydroxide	nd				
Chloride	259				
Sulfate	902				
Calcium	196				
Magnesium	29.9				
Potassium	4.12				
Sodium	447				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	0.7				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				

	JAN*	APR	JUL	OCT	DEC
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	0.6				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
PAH					
1-Methylnapthalene	nd				
2-Methylnapthalene	nd				
Benzo(a)pyrene	nd				
Napthalene	nd				
GBR-17					
Lab pH					7.0
Lab Conductivity@25C					2500
Total Dissolved Solids (Calc)					2000
Total Alkalinity as CaCO3					164
Total Hardness as CaCO3					696
Bicarbonate as HCO3					163
Carbonate as CO3					nd
Hydroxide					nd
Chloride					48
Sulfate					1400
Calcium					273
Magnesium					22.6
Potassium					7.27
Sodium					222
HALOCARBONS					
Bromodichloromethane					nd
Bromoform					nd
Bromomethane					nd
Carbon Tetrachloride					nd
Chloroethane					nd
Chloroform					nd
Chloromethane					nd
Dibromochloromethane					nd
1,2-Dibromomethane (EDB)					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd

	JAN*	APR	JUL	OCT	DEC
1,4-Dichlorobenzene					nd
1,1-Dichloroethane					nd
1,2-Dichloroethane (EDC)					nd
1,1-Dichoroethene					nd
trans-1,2-Dichloroethene					nd
1,2-Dichloropropane					nd
cis-1,-Dichloropropene					nd
trans-1,2-Dichloropropene					nd
Methylene Chloride					nd
1,1,2,2-Tetrachloroethane					nd
Tetrachloroethane					nd
1,1,1-Trichloroethane					nd
1,1,2-Trichloroethane					nd
Trichloroethene					nd
Trichlorofluoromethane					nd
Vinyl Chloride					nd
AROMATICS					
Benzene					nd
Chlorobenzene					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
Ethylbenzene					nd
Methyl-t-Butyl Ether					nd
Toluene					nd
Total Xylenes					nd
GBR-24D					
Lab pH	7.5				
Lab Conductivity@25C	4090				
Total Dissolved Solids (Calc)	3300				
Total Alkalinity as CaCO3	259				
Total Hardness as CaCO3	1270				
Bicarbonate as HCO3	258				
Carbonate as CO3	1.78				
Hydroxide	nd				
Chloride	374				
Sulfate	1560				
Calcium	144				
Magnesium	46.5				

	JAN*	APR	JUL	OCT	DEC
Potassium	10.4				
Sodium	563				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	0.7				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	0.3				
1,2-Dichloroethane (EDC)	5.6				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	0.7				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				

	JAN*	APR	JUL	OCT	DEC
Total Xylenes	nd				
PAH					
1-Methylnapthalene	nd				
2-Methylnapthalene	nd				
Benzo(a)pyrene	nd				
Napthalene	nd				
GBR-30					
Lab pH	6.9				
Lab Conductivity@25C	3790				
Total Dissolved Solids (Calc)	3120				
Total Alkalinity as CaCO3	218				
Total Hardness as CaCO3	1310				
Bicarbonate as HCO3	218				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	322				
Sulfate	1760				
Calcium	469				
Magnesium	45.7				
Potassium	9.22				
Sodium	464				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				

	JAN*	APR	JUL	OCT	DEC
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	0.8				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
PAH					
1-Methylnapthalene	nd				
2-Methylnapthalene	nd				
Benzo(a)pyrene	nd				
Napthalene	nd				
GBR-31					
Lab pH	7.1				
Lab Conductivity@25C	3200				
Total Dissolved Solids (Calc)	2760				
Total Alkalinity as CaCO3	177				
Total Hardness as CaCO3	1030				
Bicarbonate as HCO3	176				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	162				
Sulfate	1770				
Calcium	412				

	JAN*	APR	JUL	OCT	DEC
Magnesium	35.4				
Potassium	6.14				
Sodium	423				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				

	JAN*	APR	JUL	OCT	DEC
Toluene	nd				
Total Xylenes	nd				
PAH					
1-Methylnapthalene	nd				
2-Methylnapthalene	nd				
Benzo(a)pyrene	nd				
Napthalene	nd				
GBR-32					
Lab pH					7.2
Lab Conductivity@25C					5480
Total Dissolved Solids (Calc)					3880
Total Alkalinity as CaCO3					228
Total Hardness as CaCO3					962
Bicarbonate as HCO3					227
Carbonate as CO3					nd
Hydroxide					nd
Chloride					480
Sulfate					1800
Calcium					363
Magnesium					39.5
Potassium					10.1
Sodium					564
HALOCARBONS					
Bromodichloromethane					nd
Bromoform					nd
Bromomethane					nd
Carbon Tetrachloride					nd
Chloroethane					nd
Chloroform					nd
Chloromethane					nd
Dibromochloromethane					nd
1,2-Dibromomethane (EDB)					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
1,1-Dichloroethane					nd
1,2-Dichloroethane (EDC)					nd
1,1-Dichoroethene					nd

	JAN*	APR	JUL	OCT	DEC
trans-1,2-Dichloroethene					nd
1,2-Dichloropropane					nd
cis-1,-Dichloropropene					nd
trans-1,2-Dichloropropene					nd
Methylene Chloride					nd
1,1,2,2-Tetrachloroethane					nd
Tetrachloroethane					nd
1,1,1-Trichloroethane					nd
1,1,2-Trichloroethane					nd
Trichloroethene					nd
Trichlorofluoromethane					nd
Vinyl Chloride					nd
AROMATICS					
Benzene					nd
Chlorobenzene					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
Ethylbenzene					nd
Methyl-t-Butyl Ether					nd
Toluene					nd
Total Xylenes					nd
METALS					
Calcium					363
Magnesium					39.5
Potassium					10.1
Sodium					564
Iron					1.24
Mangenese					1.04
GBR-48					
Lab pH					7.1
Lab Conductivity@25C					2700
Total Dissolved Solids (Calc)					1850
Total Alkalinity as CaCO3					176
Total Hardness as CaCO3					458
Bicarbonate as HCO3					175
Carbonate as CO3					nd
Hydroxide					nd

	JAN*	APR	JUL	OCT	DEC
Chloride					140
Sulfate					820
Calcium					174
Magnesium					18.1
Potassium					7.27
Sodium					293
HALOCARBONS					
Bromodichloromethane					nd
Bromoform					nd
Bromomethane					nd
Carbon Tetrachloride					nd
Chloroethane					nd
Chloroform					nd
Chloromethane					nd
Dibromochloromethane					nd
1,2-Dibromomethane (EDB)					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
1,1-Dichloroethane					nd
1,2-Dichloroethane (EDC)					nd
1,1-Dichoroethene					nd
trans-1,2-Dichloroethene					nd
1,2-Dichloropropane					nd
cis-1,-Dichloropropene					nd
trans-1,2-Dichloropropene					nd
Methylene Chloride					nd
1,1,2,2-Tetrachloroethane					nd
Tetrachloroethane					nd
1,1,1-Trichloroethane					nd
1,1,2-Trichloroethane					nd
Trichloroethene					nd
Trichlorofluoromethane					nd
Vinyl Chloride					nd
AROMATICS					
Benzene					nd
Chlorobenzene					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd

	JAN*	APR	JUL	OCT	DEC
1,4-Dichlorobenzene					nd
Ethylbenzene					nd
Methyl-t-Butyl Ether					nd
Toluene					nd
Total Xylenes					nd
METALS					
Calcium					174
Magnesium					18.1
Potassium					7.27
Sodium					293
Iron					7.77
Mangenese					0.457
GBR-49					
Lab pH					6.4
Lab Conductivity@25C					4520
Total Dissolved Solids (Calc)					3460
Total Alkalinity as CaCO3					112
Total Hardness as CaCO3					1060
Bicarbonate as HCO3					112
Carbonate as CO3					nd
Hydroxide					nd
Chloride					280
Sulfate					2200
Calcium					406
Magnesium					38.8
Potassium					13.5
Sodium					495
HALOCARBONS					
Bromodichloromethane					nd
Bromoform					nd
Bromomethane					nd
Carbon Tetrachloride					nd
Chloroethane					nd
Chloroform					nd
Chloromethane					nd
Dibromochloromethane					nd
1,2-Dibromomethane (EDB)					nd
1,2-Dichlorobenzene					nd

	JAN*	APR	JUL	OCT	DEC
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
1,1-Dichloroethane					nd
1,2-Dichloroethane (EDC)					nd
1,1-Dichoroethene					nd
trans-1,2-Dichloroethene					nd
1,2-Dichloropropane					nd
cis-1,-Dichloropropene					nd
trans-1,2-Dichloropropene					nd
Methylene Chloride					nd
1,1,2,2-Tetrachloroethane					nd
Tetrachloroethane					0.6
1,1,1-Trichloroethane					nd
1,1,2-Trichloroethane					nd
Trichloroethene					nd
Trichlorofluoromethane					nd
Vinyl Chloride					nd
AROMATICS					
Benzene					5.4
Chlorobenzene					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
Ethylbenzene					nd
Methyl-t-Butyl Ether					nd
Toluene					nd
Total Xylenes					nd
METALS					
Calcium					406
Magnesium					38.8
Potassium					13.5
Sodium					495
Iron					120
Mangenese					5.91
GBR-50					
Lab pH					6.7
Lab Conductivity@25C					3510
Total Dissolved Solids (Calc)					2600

	JAN*	APR	JUL	OCT	DEC
Total Alkalinity as CaCO3					225
Total Hardness as CaCO3					956
Bicarbonate as HCO3					224
Carbonate as CO3					nd
Hydroxide					nd
Chloride					61
Sulfate					1700
Calcium					378
Magnesium					5.73
Potassium					326
Sodium					
HALOCARBONS					nd
Bromodichloromethane					nd
Bromoform					nd
Bromomethane					nd
Carbon Tetrachloride					nd
Chloroethane					nd
Chloroform					nd
Chloromethane					nd
Dibromochloromethane					nd
1,2-Dibromomethane (EDB)					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
1,1-Dichloroethane					nd
1,2-Dichloroethane (EDC)					nd
1,1-Dichoroethene					nd
trans-1,2-Dichloroethene					nd
1,2-Dichloropropane					nd
cis-1,-Dichloropropene					nd
trans-1,2-Dichloropropene					nd
Methylene Chloride					nd
1,1,2,2-Tetrachloroethane					nd
Tetrachloroethane					nd
1,1,1-Trichloroethane					nd
1,1,2-Trichloroethane					nd
Trichloroethene					nd
Trichlorofluoromethane					nd
Vinyl Chloride					nd

	JAN*	APR	JUL	OCT	DEC
AROMATICS					
Benzene					nd
Chlorobenzene					nd
1,2-Dichlorobenzene					nd
1,3-Dichlorobenzene					nd
1,4-Dichlorobenzene					nd
Ethylbenzene					nd
Methyl-t-Butyl Ether					nd
Toluene					nd
Total Xylenes					nd
METALS					
Calcium					378
Magnesium					28.9
Potassium					9.04
Sodium					326
Iron					5.73
Mangenese					0.373
GBR-51					
Lab pH	7.3				
Lab Conductivity@25C	3160				
Total Dissolved Solids (Calc)	2540				
Total Alkalinity as CaCO3	203				
Total Hardness as CaCO3	1130				
Bicarbonate as HCO3	202				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	164				
Sulfate	1580				
Calcium	420				
Magnesium	33.6				
Potassium	4.52				
Sodium	318				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				

	JAN*	APR	JUL	OCT	DEC
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	5.2				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
GBR-52					
Lab pH	6.8				
Lab Conductivity@25C	3310				
Total Dissolved Solids (Calc)	2780				
Total Alkalinity as CaCO3	159				
Total Hardness as CaCO3	1190				

	JAN*	APR	JUL	OCT	DEC
Bicarbonate as HCO3	158				
Carbonate as CO3	1.23				
Hydroxide	nd				
Chloride	179				
Sulfate	1710				
Calcium	477				
Magnesium	38.6				
Potassium	5.61				
Sodium	335				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				

	JAN*	APR	JUL	OCT	DEC
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-4					
Lab pH	7.4				
Lab Conductivity@25C	3180				
Total Dissolved Solids (Calc)	2750				
Total Alkalinity as CaCO3	69.5				
Total Hardness as CaCO3	1250				
Bicarbonate as HCO3	69.5				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	71				
Sulfate	1590				
Calcium	433				
Magnesium	36.6				
Potassium	8.9				
Sodium	311				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				

	JAN*	APR	JUL	OCT	DEC
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-6					
Lab pH	7.3				
Lab Conductivity@25C	3080				
Total Dissolved Solids (Calc)	2490				
Total Alkalinity as CaCO3	52.9				
Total Hardness as CaCO3	1250				
Bicarbonate as HCO3	52.9				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	208				
Sulfate	1470				
Calcium	377				
Magnesium	31.6				
Potassium	7.34				
Sodium	304				
HALOCARBONS					

	JAN*	APR	JUL	OCT	DEC
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-19					
Lab pH	7.4				

	JAN*	APR	JUL	OCT	DEC
Lab Conductivity@25C	2600				
Total Dissolved Solids (Calc)	1730				
Total Alkalinity as CaCO3	616				
Total Hardness as CaCO3	634				
Bicarbonate as HCO3	615				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	160				
Sulfate	646				
Calcium	166				
Magnesium	23.1				
Potassium	4.32				
Sodium	361				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				

	JAN*	APR	JUL	OCT	DEC
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	0.5				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-10					
Lab pH	7.2				
Lab Conductivity@25C	2920				
Total Dissolved Solids (Calc)	2350				
Total Alkalinity as CaCO3	203				
Total Hardness as CaCO3	921				
Bicarbonate as HCO3	203				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	255				
Sulfate	1260				
Calcium	288				
Magnesium	58.1				
Potassium	11.1				
Sodium	339				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				

	JAN*	APR	JUL	OCT	DEC
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	1.0				
SHS-12					
Lab pH	7.2				
Lab Conductivity@25C	3140				
Total Dissolved Solids (Calc)	2270				
Total Alkalinity as CaCO3	310				
Total Hardness as CaCO3	792				
Bicarbonate as HCO3	310				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	182				
Sulfate	1080				
Calcium	316				
Magnesium	25.7				

	JAN*	APR	JUL	OCT	DEC
Potassium	8.98				
Sodium	440				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				

	JAN*	APR	JUL	OCT	DEC
Total Xylenes	nd				
SHS-13					
Lab pH	7.0				
Lab Conductivity@25C	3800				
Total Dissolved Solids (Calc)	3150				
Total Alkalinity as CaCO3	349				
Total Hardness as CaCO3	1780				
Bicarbonate as HCO3	349				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	275				
Sulfate	1450				
Calcium	518				
Magnesium	50.0				
Potassium	6.98				
Sodium	364				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	1.2				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				

	JAN*	APR	JUL	OCT	DEC
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-14					
Lab pH	7.5				
Lab Conductivity@25C	2500				
Total Dissolved Solids (Calc)	1970				
Total Alkalinity as CaCO3	235				
Total Hardness as CaCO3	990				
Bicarbonate as HCO3	235				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	183				
Sulfate	1040				
Calcium	330				
Magnesium	36				
Potassium	6.92				
Sodium	229				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				

	JAN*	APR	JUL	OCT	DEC
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-15					
Lab pH	7.3				
Lab Conductivity@25C	2280				
Total Dissolved Solids (Calc)	1750				
Total Alkalinity as CaCO3	88				
Total Hardness as CaCO3	792				
Bicarbonate as HCO3	88				
Carbonate as CO3	nd				
Hydroxide	nd				

	JAN*	APR	JUL	OCT	DEC
Chloride	123				
Sulfate	1010				
Calcium	295				
Magnesium	29.4				
Potassium	6.2				
Sodium	196				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				

	JAN*	APR	JUL	OCT	DEC
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-16					
Lab pH	7.3				
Lab Conductivity@25C	2480				
Total Dissolved Solids (Calc)	2150				
Total Alkalinity as CaCO3	174				
Total Hardness as CaCO3	1270				
Bicarbonate as HCO3	174				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	148				
Sulfate	1130				
Calcium	504				
Magnesium	46.7				
Potassium	12.7				
Sodium	210				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				

	JAN*	APR	JUL	OCT	DEC
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				
SHS-17					
Lab pH	7.3				
Lab Conductivity@25C	3270				
Total Dissolved Solids (Calc)	2430				
Total Alkalinity as CaCO3	179				
Total Hardness as CaCO3	1030				
Bicarbonate as HCO3	179				
Carbonate as CO3	nd				
Hydroxide	nd				
Chloride	269				
Sulfate	1020				
Calcium	313				
Magnesium	43.1				
Potassium	7.63				
Sodium	368				
HALOCARBONS					
Bromodichloromethane	nd				
Bromoform	nd				
Bromomethane	nd				

	JAN*	APR	JUL	OCT	DEC
Carbon Tetrachloride	nd				
Chloroethane	nd				
Chloroform	nd				
Chloromethane	nd				
Dibromochloromethane	nd				
1,2-Dibromomethane (EDB)	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
1,1-Dichloroethane	nd				
1,2-Dichloroethane (EDC)	nd				
1,1-Dichoroethene	nd				
trans-1,2-Dichloroethene	nd				
1,2-Dichloropropane	nd				
cis-1,-Dichloropropene	nd				
trans-1,2-Dichloropropene	nd				
Methylene Chloride	nd				
1,1,2,2-Tetrachloroethane	nd				
Tetrachloroethane	nd				
1,1,1-Trichloroethane	nd				
1,1,2-Trichloroethane	nd				
Trichloroethene	nd				
Trichlorofluoromethane	nd				
Vinyl Chloride	nd				
AROMATICS					
Benzene	nd				
Chlorobenzene	nd				
1,2-Dichlorobenzene	nd				
1,3-Dichlorobenzene	nd				
1,4-Dichlorobenzene	nd				
Ethylbenzene	nd				
Methyl-t-Butyl Ether	nd				
Toluene	nd				
Total Xylenes	nd				

NOTES:
*First quarter sampling was conducted on February 2nd and February 7th in 2006.
SHS-18 was not sampled in 2006.
Groundwater from GBR-17 was not analyzed for PAH.

4.0 Water and Product Levels

Groundwater monitoring wells have been installed throughout the site of the former refinery to monitor groundwater quality and flow direction (Figure 2). Water and product levels in each well are determined quarterly. These data are presented in tables 3 and 4 and are utilized to prepare the potentiometric surface maps shown in figures 5-8. The contours on the maps represent the groundwater surface elevation. The rate of groundwater flow is, on average, 0.625 ft/ft in a southwest direction, and is consistent throughout the year.

Table 3. Giant Industries, Inc. Bloomfield Refinery Quarterly Water Levels

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
January 2006					
GRW-1	5394.30	54.58	-	-	5339.72
GRW-2	5391.28	49.60	-	-	5341.68
GRW-3	5388.77	53.15	-	-	5335.62
GRW-4	5390.02	59.25	-	-	5330.77
GRW-5	5390.56	64.75	-	-	5325.81
GRW-6	5390.81	48.08	-	-	5342.73
GRW-9	5395.70	52.66	-	-	5343.04
GRW-10	5395.02	58.85	58.84	0.01	5336.18
GRW-11	5397.85	58.02	-	-	5339.83
GRW-12	5397.24	44.70	-	-	5352.54
GRW-13	5396.90	52.37	-	-	5344.53
GBR-5	5395.07	26.50	-	-	5368.57
GBR-7	5395.85	29.03	-	-	5366.82
GBR-8	5390.50	41.94	-	-	5348.56
GBR-9	5389.92	47.56	-	-	5342.36
GBR-10	5390.57	42.52	-	-	5348.05
GBR-11	5389.43	42.44	-	-	5346.99
GBR-13	5393.04	42.38	-	-	5350.66
GBR-15	5397.99	40.89	-	-	5357.10
GBR-18	5421.68	55.14	-	-	5366.54
GBR-19	5393.83	43.23	42.85	0.38	5350.90
GBR-20	5393.47	35.75	-	-	5357.72

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
GBR-21S	5400.65	26.15	-	-	5374.50
GBR-21D	5400.19	41.10	-	-	5359.09
GBR-22	5395.91	DRY	-	-	Dry
GBR-23	5403.72	29.77	-	-	5373.95
GBR-24S	5396.08	33.30	-	-	5362.78
GBR-24D	5396.77	34.61	-	-	5362.16
GBR-25	5396.72	38.70	-	-	5358.02
GBR-26	5395.59	38.00	-	-	5357.59
GBR-30	5396.58	36.34	-	-	5360.24
GBR-31	5394.86	37.50	-	-	5357.36
GBR-33†	5396.28	39.65	-	-	5356.63
GBR-34	5394.00	39.82	39.80	0.02	5354.20
GBR-35	5393.66	39.83	39.80	0.03	5353.85
GBR-39	5397.55	40.33	-	-	5357.22
GBR-40	5400.76	32.27	-	-	5368.49
GBR-41	5396.35	27.00	-	-	5369.35
GBR-51	5389.68	44.10	-	-	5345.58
GBR-52	5387.74	41.67	-	-	5346.07
SHS-1	5383.54	40.74	-	-	5342.80
SHS-2	5381.66	31.05	-	-	5350.61
SHS-3	5383.33	NA	-	-	Not Accessible
SHS-4	5383.62	43.05	-	-	5340.57
SHS-5	5378.36	39.78	-	-	5338.58
SHS-6	5378.17	40.05	-	-	5338.12
SHS-8	5380.25	40.39	-	-	5339.86
SHS-9	5380.79	39.65	-	-	5341.14
SHS-10	5373.80	37.88	-	-	5335.92
SHS-12	5373.94	40.68	-	-	5333.26
SHS-13	5367.81	37.14	-	-	5330.67
SHS-14	5367.07	35.40	-	-	5331.67
SHS-15	5366.21	35.22	-	-	5330.99
SHS-16	5362.58	32.90	-	-	5329.68
SHS-17	5364.35	34.50	-	-	5329.85
SHS-18	5373.64	40.84	-	-	5332.80
SHS-19	5378.89	43.52	-	-	5335.37

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
April 2006					
GRW-1	5394.30	54.50	-	-	5339.80
GRW-2	5391.28	41.50	-	-	5349.78
GRW-3	5388.77	54.21	-	-	5334.56
GRW-4	5390.02	54.55	-	-	5335.47
GRW-5	5390.56	67.04	-	-	5323.52
GRW-6	5390.81	43.48	-	-	5347.33
GRW-9	5395.70	52.50	-	-	5343.20
GRW-10	5395.02	52.78	52.75	0.03	5342.26
GRW-11	5397.85	57.30	-	-	5340.55
GRW-12	5397.24	NA	-	-	Water Below Pump
GRW-13	5396.90	51.86	-	-	5345.04
GBR-5	5395.07	27.30	-	-	5367.77
GBR-7	5395.85	29.76	-	-	5366.09
GBR-8	5390.50	42.34	-	-	5348.16
GBR-9	5389.92	47.70	-	-	5342.22
GBR-10	5390.57	42.54	-	-	5348.03
GBR-11	5389.43	42.62	-	-	5346.81
GBR-13	5393.04	42.92	-	-	5350.12
GBR-15	5397.99	40.76	-	-	5357.23
GBR-18	5421.68	35.94	-	-	5385.74
GBR-19	5393.83	42.04	-	-	5351.79
GBR-20	5393.47	37.26	-	-	5356.21
GBR-21S	5400.65	26.70	-	-	5373.95
GBR-21D	5400.19	40.88	-	-	5359.31
GBR-22	5395.91	DRY	-	-	Dry
GBR-23	5403.72	30.50	-	-	5373.22
GBR-24S	5396.08	33.28	-	-	5362.80
GBR-24D	5396.77	34.60	-	-	5362.17
GBR-25	5396.72	38.07	-	-	5358.65
GBR-26	5395.59	37.85	-	-	5357.74
GBR-30	5396.58	36.25	-	-	5360.33
GBR-31	5394.86	37.38	-	-	5357.48
GBR-33†	5396.28	39.12	-	-	5357.16
GBR-34	5394.00	40.34	-	-	5353.66
GBR-35	5393.66	39.19	-	-	5354.47

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
GBR-39	5397.55	40.48	-	-	5357.07
GBR-40	5400.76	33.00	-	-	5367.76
GBR-41	5396.35	28.70	-	-	5367.65
GBR-51	5389.68	43.73	-	-	5345.95
GBR-52	5387.74	42.30	-	-	5345.44
SHS-1	5383.54	40.47	-	-	5343.07
SHS-2	5381.66	36.83	-	-	5344.83
SHS-3	5383.33	NA	-	-	Not Accessible
SHS-4	5383.62	42.83	-	-	5340.79
SHS-5	5378.36	39.52	-	-	5338.84
SHS-6	5378.17	39.80	-	-	5338.37
SHS-8	5380.25	40.20	-	-	5340.05
SHS-9	5380.79	39.04	-	-	5341.75
SHS-10	5373.80	36.85	-	-	5336.95
SHS-12	5373.94	40.34	-	-	5333.60
SHS-13	5367.81	36.84	-	-	5330.97
SHS-14	5367.07	35.10	-	-	5331.97
SHS-15	5366.21	33.92	-	-	5332.29
SHS-16	5362.58	31.65	-	-	5330.93
SHS-17	5364.35	32.61	-	-	5331.74
SHS-18	5373.64	40.33	-	-	5333.31
SHS-19	5378.89	43.24	-	-	5335.65
July 2006					
GRW-1	5394.30	55.10	-	-	5339.20
GRW-2	5391.28	NA	-	-	Not Accessible
GRW-3	5388.77	54.65	-	-	5334.12
GRW-4	5390.02	57.53	-	-	5332.49
GRW-5	5390.56	66.48	-	-	5324.08
GRW-6	5390.81	43.34	-	-	5347.47
GRW-9	5395.70	48.80	-	-	5346.90
GRW-10	5395.02	43.20	-	-	5351.82
GRW-11	5397.85	59.95	-	-	5337.90
GRW-12	5397.24	NA	-	-	Water below pump
GRW-13	5396.90	56.36	-	-	5340.54
GBR-5	5395.07	30.35	-	-	5364.72

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
GBR-7	5395.85	31.70	-	-	5364.15
GBR-8	5390.50	43.25	-	-	5347.25
GBR-9	5389.92	47.72	-	-	5342.20
GBR-10	5390.57	42.53	-	-	5348.04
GBR-11	5389.43	43.00	-	-	5346.43
GBR-13	5393.04	43.74	-	-	5349.30
GBR-15	5397.99	40.24	-	-	5357.75
GBR-18	5421.68	36.53	-	-	5385.15
GBR-19	5393.83	42.26	-	-	5351.57
GBR-20	5393.47	38.90	-	-	5354.57
GBR-21S	5400.65	40.88	-	-	5359.77
GBR-21D	5400.19	27.21	-	-	5372.98
GBR-22	5395.91	DRY	-	-	Dry
GBR-23	5403.72	30.35	-	-	5373.37
GBR-24S	5396.08	33.14	-	-	5362.94
GBR-24D	5396.77	34.35	-	-	5362.42
GBR-25	5396.72	37.75	-	-	5358.97
GBR-26	5395.59	37.50	-	-	5358.09
GBR-30	5396.58	36.08	-	-	5360.50
GBR-31	5394.86	37.00	-	-	5357.86
GBR-33†	5396.28	38.51	-	-	5357.77
GBR-34	5394.00	38.45	-	-	5355.55
GBR-35	5393.66	38.60	-	-	5355.06
GBR-39	5397.55	39.73	-	-	5357.82
GBR-40	5400.76	32.05	-	-	5368.71
GBR-41	5396.35	29.97	-	-	5366.38
GBR-51	5389.68	43.78	-	-	5345.90
GBR-52	5387.74	42.30	-	-	5345.44
SHS-1	5383.54	40.70	-	-	5342.84
SHS-2	5381.66	37.25	-	-	5344.41
SHS-3	5383.33	NA	-	-	Not Accessible
SHS-4	5383.62	42.95	-	-	5340.67
SHS-5	5378.36	39.78	-	-	5338.58
SHS-6	5378.17	40.00	-	-	5338.17
SHS-8	5380.25	40.45	-	-	5339.80
SHS-9	5380.79	NA	-	-	Out of service

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
SHS-10	5373.80	40.80	-	-	5333.00
SHS-12	5373.94	38.30	-	-	5335.64
SHS-13	5367.81	37.29	-	-	5330.52
SHS-14	5367.07	NA	-	-	Out of service
SHS-15	5366.21	34.50	-	-	5331.71
SHS-16	5362.58	32.15	-	-	5330.43
SHS-17	5364.35	34.10	-	-	5330.25
SHS-18	5373.64	NA	-	-	Out of service
SHS-19	5378.89	43.35	-	-	5335.54
October 2006					
GRW-1	5394.30	39.15	-	-	5355.15
GRW-2	5391.28	42.37	-	-	5348.91
GRW-3	5388.77	44.19	-	-	5344.58
GRW-4	5390.02	55.10	-	-	5334.92
GRW-5	5390.56	55.69	-	-	5334.87
GRW-6	5390.81	49.83	-	-	5340.98
GRW-9	5395.70	49.70	-	-	5346.00
GRW-10	5395.02	60.58	-	-	5334.44
GRW-11	5397.85	61.45	-	-	5336.40
GRW-12	5397.24	NA	-	-	Water below pump
GRW-13	5396.90	48.68	-	-	5348.22
GBR-5	5395.07	21.04	-	-	5374.03
GBR-7	5395.85	29.08	-	-	5366.77
GBR-8	5390.50	43.02	-	-	5347.48
GBR-9	5389.92	47.87	-	-	5342.05
GBR-10	5390.57	42.54	-	-	5348.03
GBR-11	5389.43	43.09	-	-	5346.34
GBR-13	5393.04	43.34	-	-	5349.70
GBR-15	5397.99	40.18	-	-	5357.81
GBR-18	5421.68	36.73	-	-	5384.95
GBR-19	5393.13	41.99	-	-	5351.14
GBR-20	5393.47	36.20	-	-	5357.27
GBR-21S	5400.65	27.18	-	-	5373.47
GBR-21D	5400.19	40.52	-	-	5359.67
GBR-22	5395.91	Dry	-	-	Dry

Well #	Wellhead Elevation (ft)	Depth to Water (ft)	Depth to Product (ft)	Product Thickness (ft)	Adjusted WSEL* (ft)
GBR-23	5403.72	29.89	-	-	5373.83
GBR-24S	5396.08	32.43	-	-	5363.65
GBR-24D	5396.77	33.96	-	-	5362.81
GBR-25	5396.72	37.94	-	-	5358.78
GBR-26	5395.59	35.21	-	-	5360.38
GBR-30	5396.58	34.11	-	-	5362.47
GBR-31	5393.69	37.04	-	-	5356.65
GBR-33†	5396.28	39.03	-	-	5357.25
GBR-34	5394.00	39.15	-	-	5354.85
GBR-35	5393.66	39.25	-	-	5354.41
GBR-39	5397.55	39.34	-	-	5358.21
GBR-40	5400.76	33.34	-	-	5367.42
GBR-41	5396.35	28.27	-	-	5368.08
GBR-51	5389.68	42.20	-	-	5347.48
GBR-52	5387.74	40.98	-	-	5346.76
SHS-1	5383.54	40.73	-	-	5342.81
SHS-2	5381.66	40.49	-	-	5341.17
SHS-3	5383.33	NA	-	-	Not Accessible
SHS-4	5383.62	42.96	-	-	5340.66
SHS-5	5378.36	NA	-	-	Not Accessible
SHS-6	5378.17	39.84	-	-	5338.33
SHS-8	5380.25	40.56	-	-	5339.69
SHS-9	5380.79	NA	-	-	Out of service
SHS-10	5373.80	37.43	-	-	5336.37
SHS-12	5373.94	40.82	-	-	5333.12
SHS-13	5367.81	37.23	-	-	5330.58
SHS-14	5367.07	36.56	-	-	5330.51
SHS-15	5366.21	34.42	-	-	5331.79
SHS-16	5362.58	32.10	-	-	5330.48
SHS-17	5364.35	33.99	-	-	5330.36
SHS-18	5373.64	39.98	-	-	5333.66
SHS-19	5378.89	42.72	-	-	5336.17

*WSEL = Water Surface Elevation Adjusted for Product Depth using 0.8 g/ml.
† Wellhead elevation has not been corrected after road construction.

Table 4. Giant Industries, Inc. Bloomfield Refinery Quarterly Product Levels

Well #	Product Thickness (ft) January 2006	Product Thickness (ft) April 2006	Product Thickness (ft) July 2006	Product Thickness (ft) October 2006
GRW-10	**0.01**	**0.03**	0	0
GBR-19	**0.38**	0	0	0
GBR-34	**0.02**	0	0	0
GBR-35	**0.03**	0	0	**0.01**
GBR-23	0	0	0	**0.01**
SHS-8	0	0	0	**0.01**

5.0 Total Volume History

Section 5 presents the volume of groundwater managed for the year. Total volume pumped from each well, current tank volumes and the re-injection volume is reported.

Table 5. Giant Industries, Inc. Bloomfield Refinery
Tank Volume Change 2006

Tank Number	Beginning Volume (Gallons)	Ending Volume (Gallons)	Change (Gallons)
102	8,832	11,830	2,998
		Total Net Volume Change (Gallons):	**2,998**

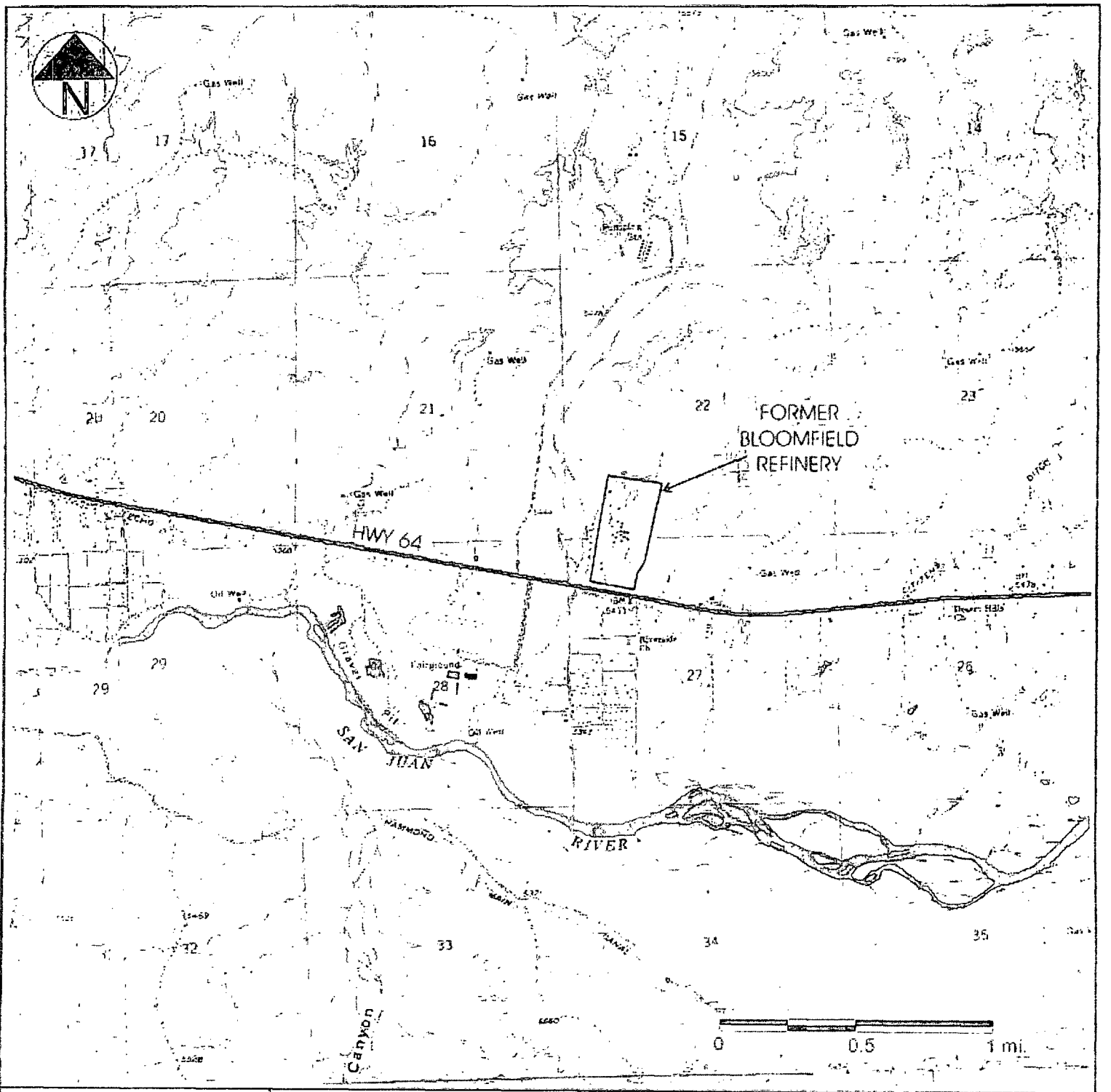
Table 6. Giant Industries, Inc. Bloomfield Refinery
Recovery Well Volume Tabulation 2006

Well #	Jan-Jul	Jul-Dec	Total
GRW-1	25,000	17,594	42,594
GRW-2	3,900	3,660	7,560
GRW-3	64,590	36,456	101,046
GRW-4	65,850	29,399	95,249
GRW-5	132,210	153,801	286,011
GRW-6	51,220	19,773	70,993
GRW-9	68,010	45,808	113,818
GRW-10	1,817,470	1,039,168	2,856,638
GRW-11	109,180	72,151	181,331
GRW-12	0	18,304	18,304
GRW-13	20,730	12,077	32,807
SHS-9	48	9	57
SHS-14	19,216	42,440	61,656
SHS-18	717	577	1,294
SHS-19	202,648	236,587	439,235
		Total Volume Pumped in Gallons:	**4,308,593**

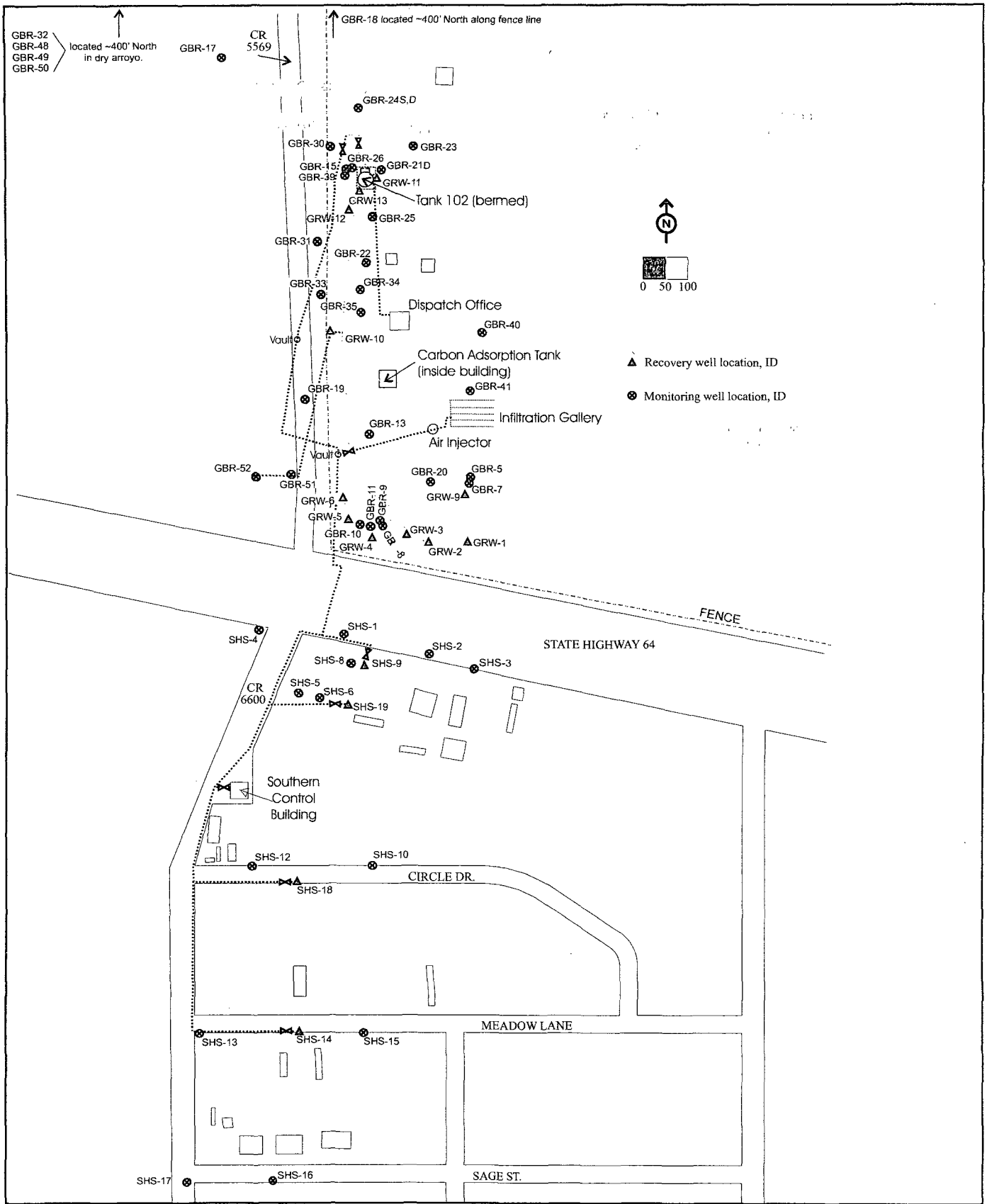
Table 7. Giant Industries, Inc. Bloomfield Refinery
Total Volume Summary 2006

Total Volume of Water Recovered:	4,308,593 gallons
Net Change in Storage Volume:	2,998 gallons
Total Water Treated and Pumped to the Infiltration Gallery:	**4,311,591 gallons**

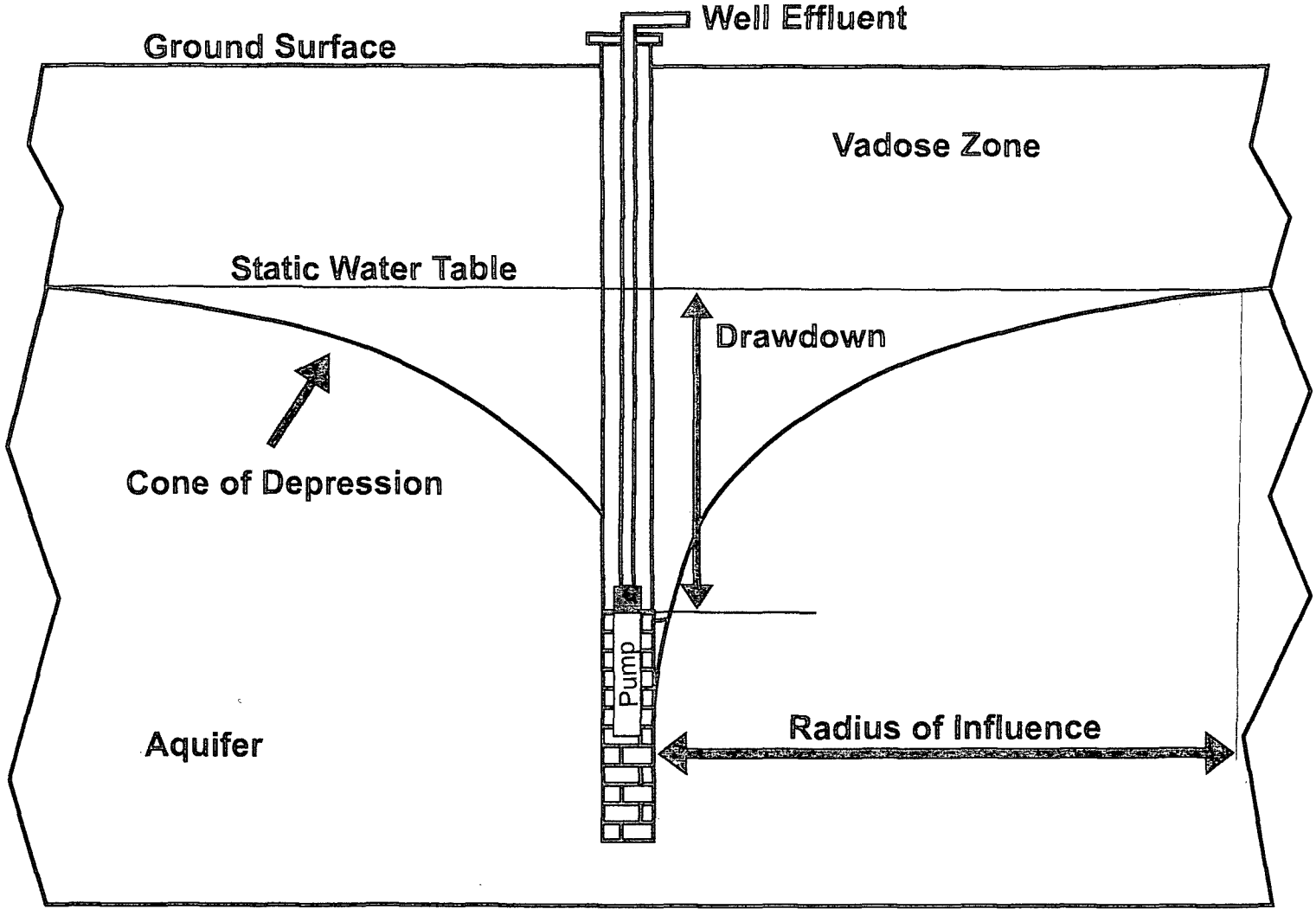
6.0 FIGURES



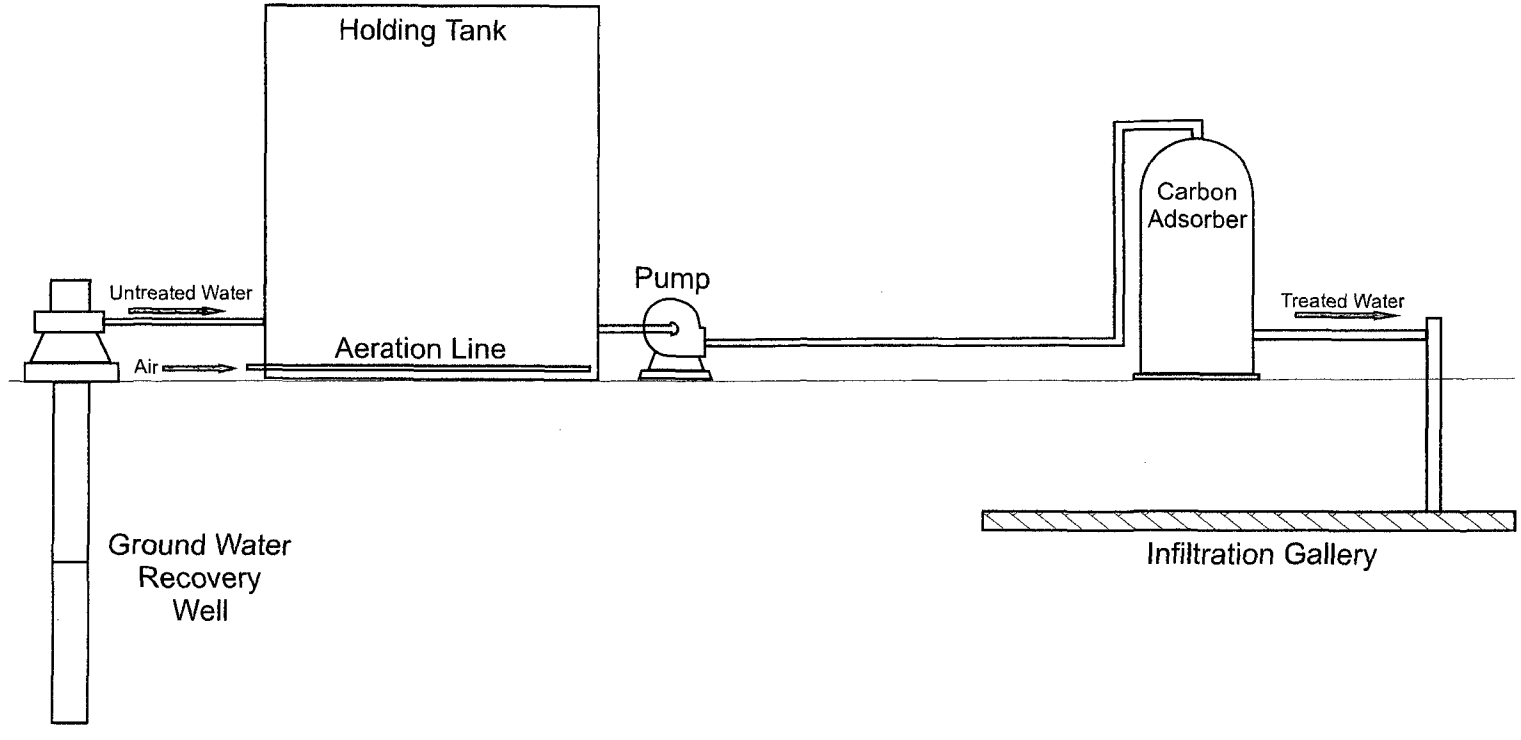
Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GIANT BLOOMFIELD FORMER REFINERY SAN JUAN COUNTY, NEW MEXICO TOPOGRAPHIC MAP (USGS 1:100,000 Scale Horn Canyon, New Mexico Topographic Map)	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/13/07	FIGURE 1



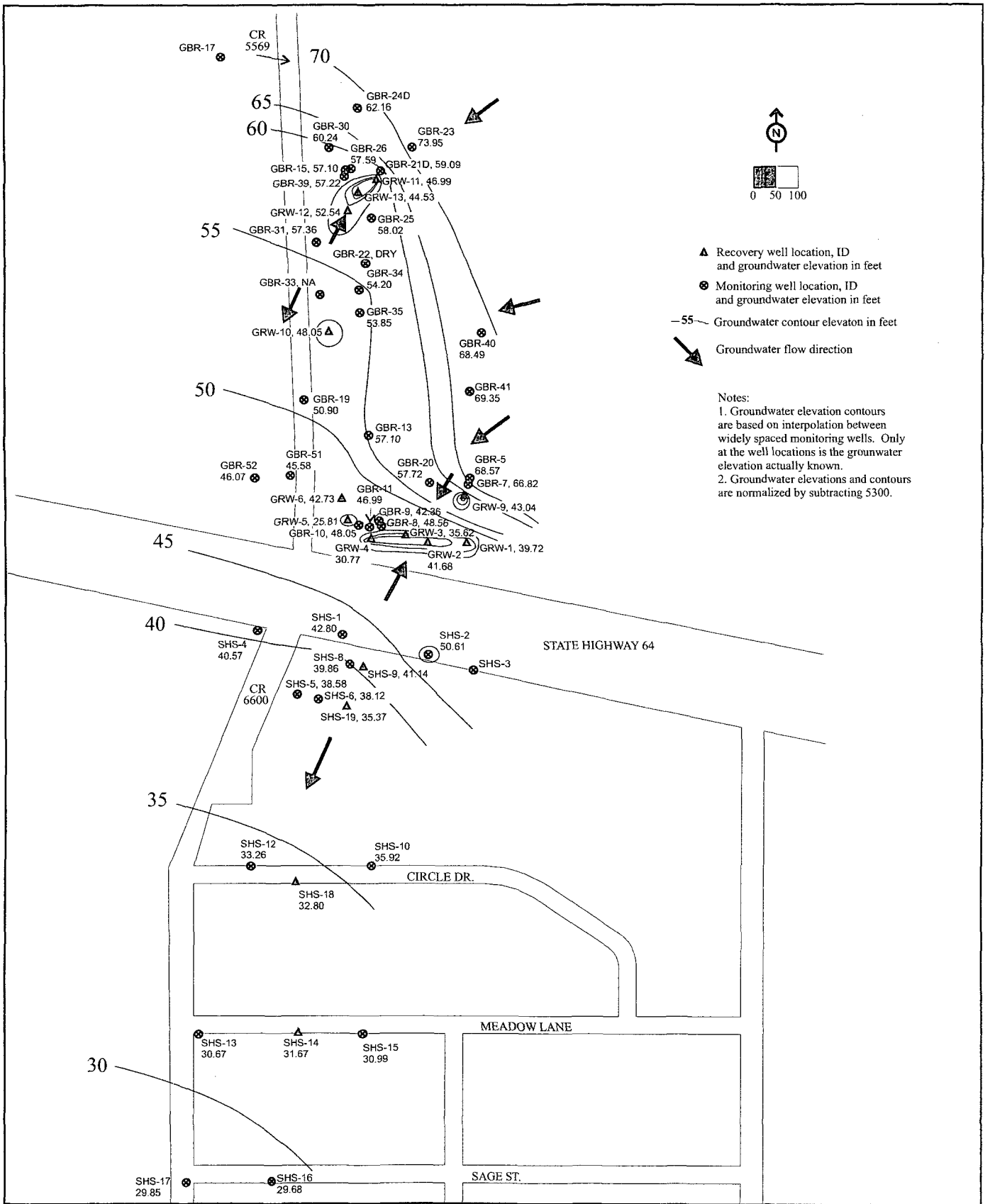
Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GIANT BLOOMFIELD FORMER REFINERY SITE MAP	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/13/07	FIGURE 2



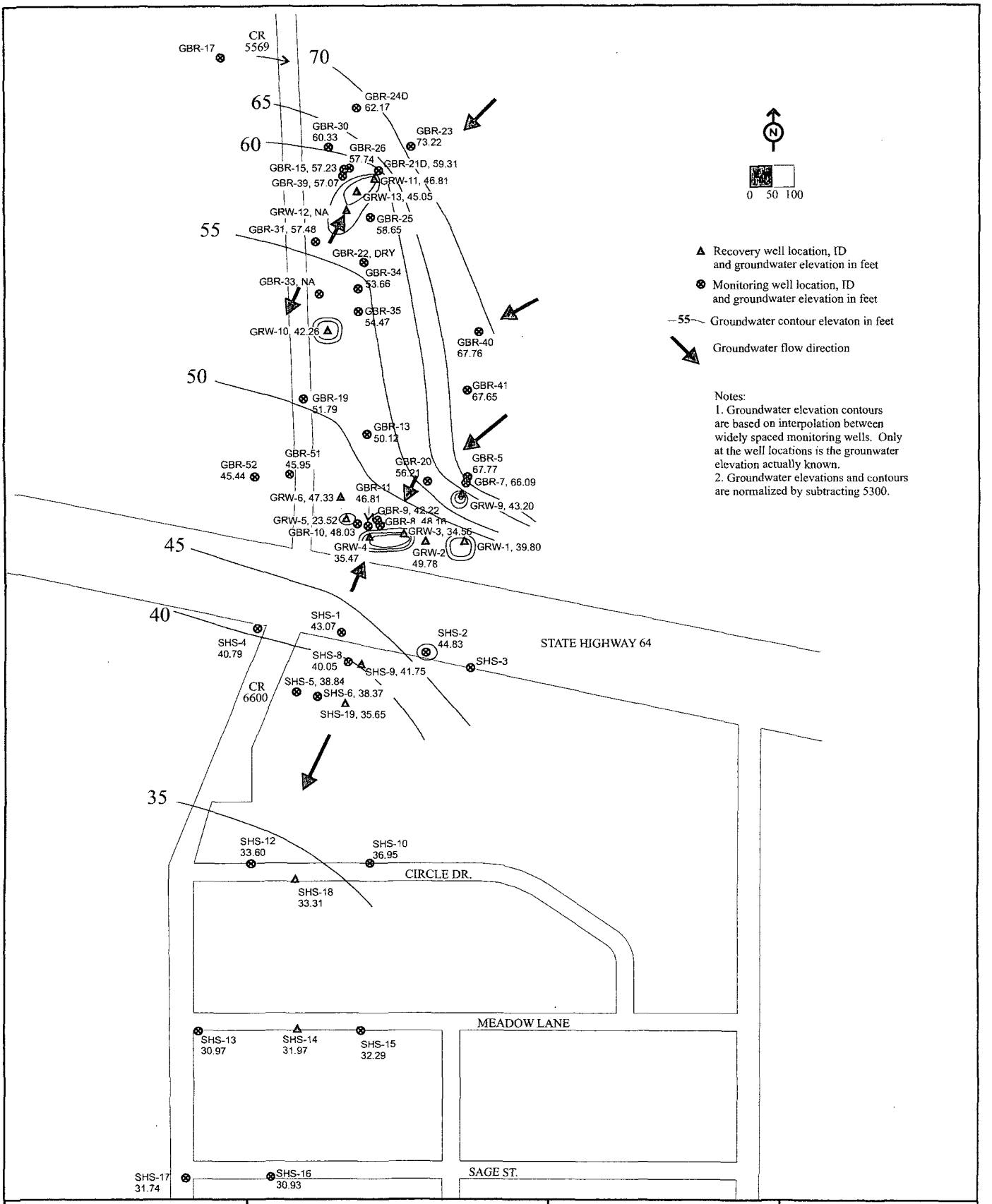
Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	EFFECT OF PUMPING ON AN AQUIFER	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/13/07	FIGURE 3



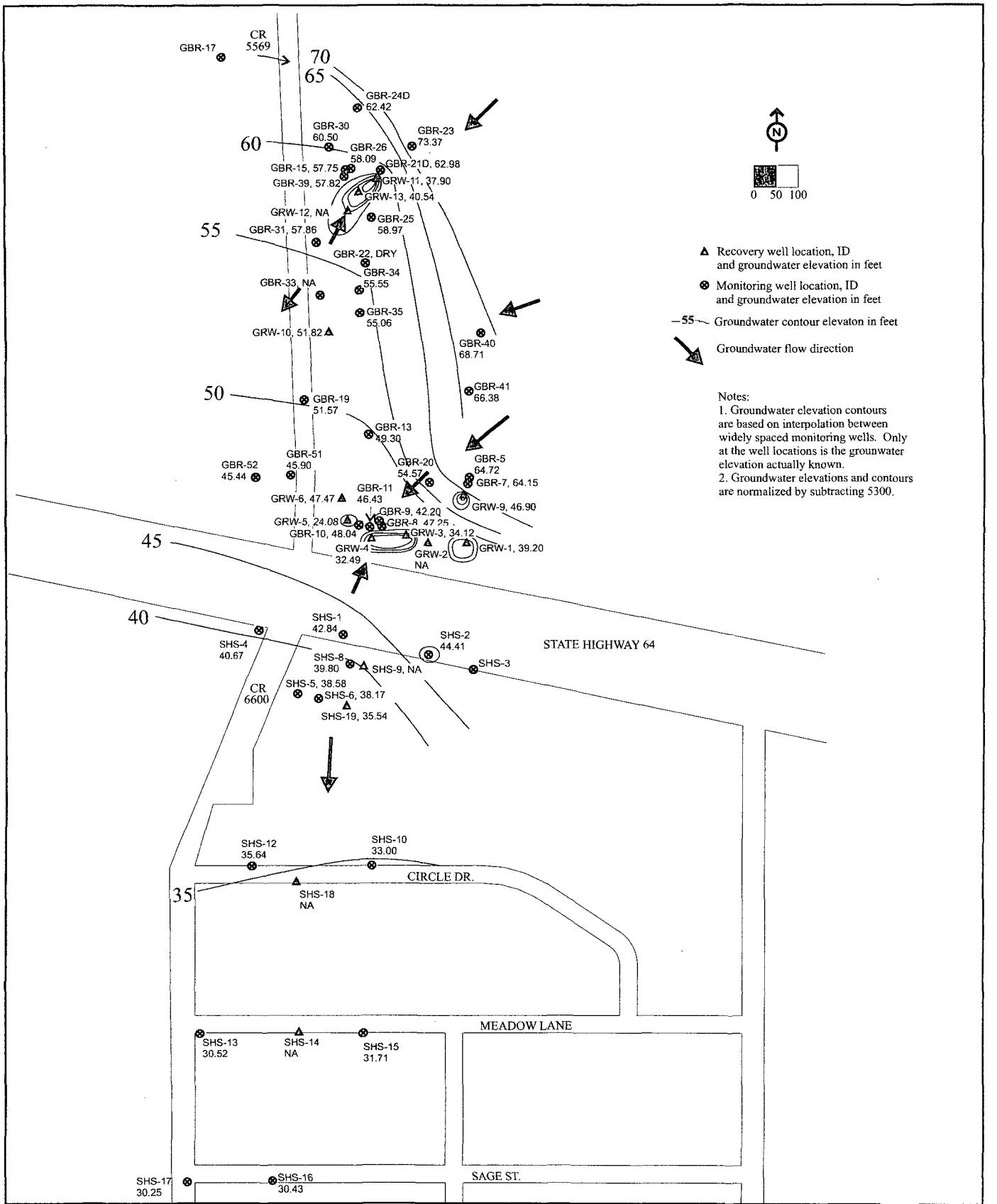
Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	SIMPLIFIED REPRESENTATION OF THE GROUNDWATER RECOVERY, TREATMENT AND DISPOSAL SYSTEM	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/13/07	FIGURE 4



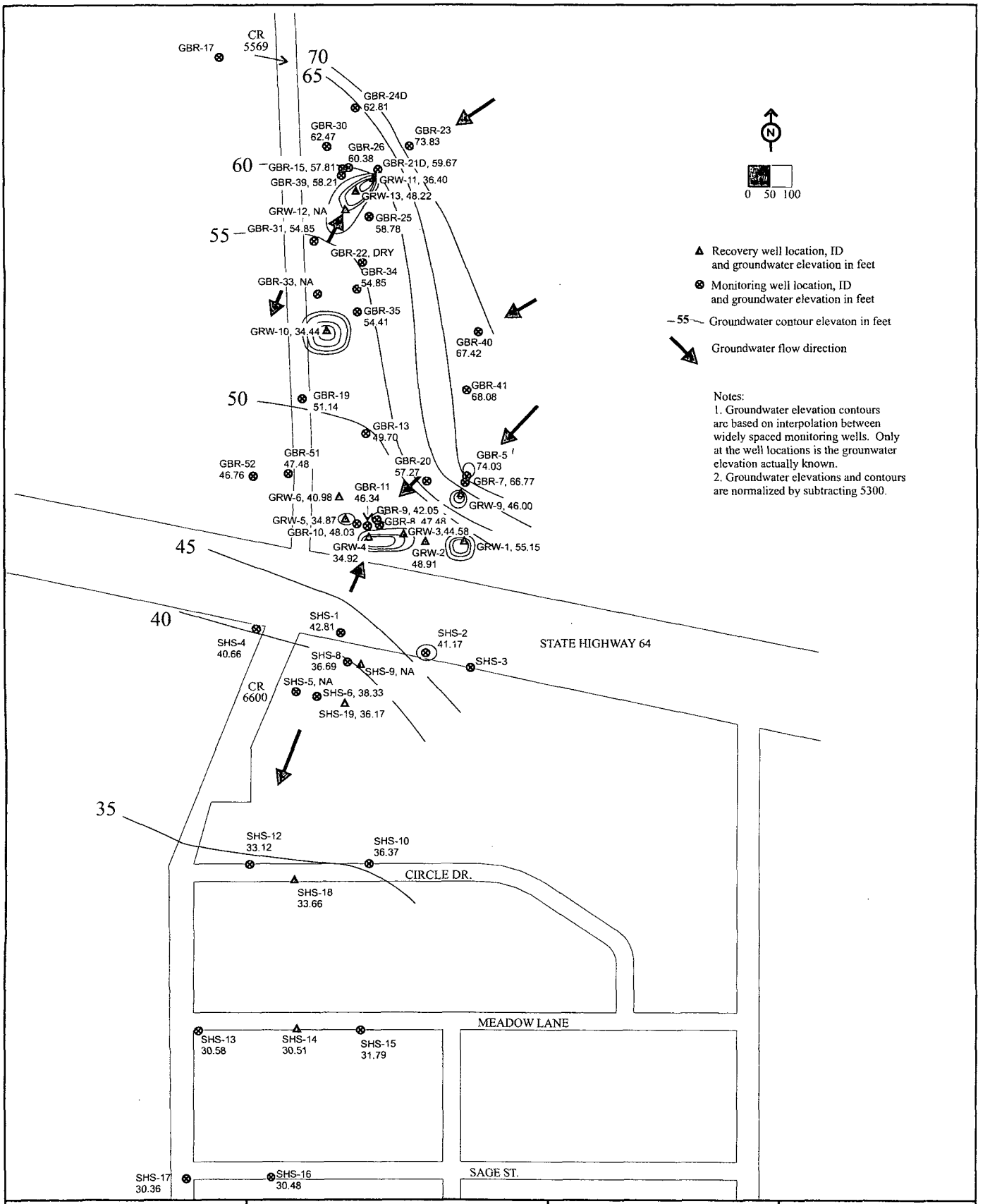
Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GROUNDWATER POTENTIOMETRIC SURFACE MAP JANUARY 2006	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/22/07	FIGURE 5



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GROUNDWATER POTENTIOMETRIC SURFACE MAP APRIL 2006	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/22/07	FIGURE 6



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GROUNDWATER POTENTIOMETRIC SURFACE MAP JULY 2006	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/22/07	FIGURE 7



Lodestar Services, Inc PO Box 3861 Farmington, NM 87499	GROUNDWATER POTENTIOMETRIC SURFACE MAP OCTOBER 2006	PROJECT: FORMER REFINERY ANNUAL REPORT DRAWN BY: ALA REVISED: 02/22/07	FIGURE 8

RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM ANNUAL REPORT

January 2007 through December 2007

SAN JUAN REFINING COMPANY
GIANT – BLOOMFIELD REFINERY
SUBMITTED: JANUARY 2008

Western Refining

BLOOMFIELD REFINERY

WNR LISTED NYSE

January 25, 2008

Certified Mail: 7007 0220 0004 0187 0169
7007 0220 0004 0187 0152

Hope Monzeglio
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Bldg 1
Santa Fe, NM 87505

Wayne Price
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr
Santa Fe, NM 87505

Re: River Terrace Voluntary Corrective Measures
Bioventing System Annual Report
January 2007 through December 2007

Dear Hope and Wayne,

Western Refining - Bloomfield Refinery submits the River Terrace Voluntary Corrective Measures Bioventing System Annual Report as requested by NMED. This report summarizes data gathered throughout 2007.

If you have questions or would like to discuss any aspect of the report, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
Bloomfield Refinery

Cc: Robert Wilkinson, USEPA – Region VI
Brandon Powell, NMOCD Aztec District Office

CONTENTS

Section	Title
1.0	Executive Summary
2.0	Introduction
3.0	Scope of Activities
4.0	Regulatory Criteria / Groundwater Cleanup Standards
5.0	Monitoring Results
6.0	In-Situ Respiration Test
7.0	Summary
8.0	Maps
9.0	Field Methods
10.0	Chemical Analytical Program
11.0	Chemical Analytical Reports

Executive Summary

On-going sampling at the River Terrace area is conducted in accordance with the approved Bioventing System Monitoring Plan, dated October 28, 2006, and in accordance with an NMED comment letter dated June 13, 2007.

A facility plot plan and river terrace project plot plan are provided in Section 7.0

The bioventing system was installed to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons that were identified in soil along the western portion of the river terrace. The project includes a dewatering system to provide an increased vadose zone for bioremedial activity.

Quarterly analysis of the groundwater and soil gas of the TP, DW, and MW wells provide periodic progress information of the bioventing system. Performance monitoring offers periodic feedback of remediation operation and GAC filter capability. An in situ respiration test was not performed in May 2007 due to high flow rates of the San Juan River and the inability to duplicate conditions similar to the May 2006 respiration test. The in situ respiration test was re-scheduled and conducted in September 2007.

Field data collected throughout 2007 indicate the bioventing system is continuing to enhance bioremedial activity within the river terrace area. Soil gas concentrations collected in the field show that the bioventing system provides sufficient oxygen supply to fully oxygenate the subsurface, supporting aerobic biodegradation of hydrocarbons. These results suggest that as treatment progresses, petroleum hydrocarbon concentrations will diminish.

Section 2.0 Introduction

INTRODUCTION

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Western Refining P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Western Refining #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Status	Corrective Action/Compliance	
US EPA ID	NMD089416416	
SIC Code	2911	

Purpose of Monitoring: River Terrace Voluntary Corrective Measures – Assess and Provide Periodic Progress Information

Type of Monitoring: Periodic Groundwater and Soil Vapor Monitoring

BACKGROUND INFORMATION

SITE LOCATION AND DESCRIPTION

The Bloomfield Refinery is a crude oil refining facility with a crude capacity of 18,000 barrels per day. It is located approximately 1 mile south of Bloomfield, New Mexico, in San Juan County, latitude N36 41' 87", longitude W107 58' 70". It is further located approximately ½ mile east of State Route 550 on Count Road 4990 (a.k.a. Sullivan Road).

The refinery is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. The geological units that comprise the site include, in order of increasing depth, San Juan River Alluvium, Quaternary apron deposits, Aeolian sand and silt, Jackson Lake Terrace, and the Tertiary Nacimiento Formation. An unnamed arroyo flows toward the San Juan River on the southern and western edges of the site. East of the site, a well-defined arroyo cuts a small canyon from the bluff to the San Juan River. Hammond Ditch lies on the bluff between the limit of the Jackson Lake Terrace and the refinery.

Refinery offices are on the western end of the facility, along with warehouse space, maintenance areas, and a storage yard containing used material (e.g., pipes, valves). Petroleum processing units, located in the northwest portion of the refinery, include the crude unit, fluidized cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. The API Separator is located in the northwestern portion of the site. The aeration lagoons are located in the north central section of the refinery.

In the central portion of the site, aboveground storage tanks (AST's) occupy a large percentage of refinery property. South of the refinery and across Sullivan Road are terminals for loading product and off-loading crude, as well as gas storage and hazardous waste storage.

Western Refining merged with San Juan Refining Company (SJRC) May 31, 2007. The refinery is operated by Western Refining. The historical and current activities conducted at the refinery are petroleum processing, crude and product storage, crude unloading and product loading, waste management (closed and existing facilities), and offices and non-petroleum material storage

HISTORY OF RIVER TERRACE

1999

Sheet piling was installed along with a bentonite slurry wall adjacent to the San Juan River, at the River Terrace, in order to intercept a small hydrocarbon seep that had been detected in the area.

2004

MW #48 & MW #49 and 8 temporary piezometers were installed to launch a River Terrace Investigation. Several temporary piezometers were drilled on the north side of Hammond Ditch to chart the Naciemento Formation. The development of a slurry wall that will be constructed on the north side of Hammond Ditch to prevent the spread of hydrocarbons to the San Juan River was initiated.

2005

The North Boundary Barrier Wall installation was completed March 2005. In April, five more temporary piezometers were installed at the River Terrace. Dewatering Wells #1 and #2 and thirteen bioventing wells were drilled in August at the River Terrace. Construction of the River Terrace Bioventing Project was initiated in August. The system was put on-line in January 2006.

2006

System monitoring began in January abiding by the guidelines from the River Terrace Voluntary Corrective Measures Monitoring Plan approved by OCD and NMED. The In-Situ Respiration test was conducted in May 2006. Quarterly performance monitoring was carried out in March, June, September, and December of 2006.

2007

The dewatering pumps failed and were replaced in February. Breakthrough in the lead GAC (V-612) was detected in April at which time it was taken out of service and V-611 became the lead GAC. V-612 was replaced and back in service in June as the lag filter. Quarterly performance monitoring for the Bioventing System occurred in February, June, August, and October. The In-Situ Respiration Test was conducted in September 2007.

Section 3.0 Scope of Activities

Scope of Activities

Bloomfield Refinery initiated and constructed the River Terrace Bioventing Project to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons existing in the soil at the River Terrace. The system was put on-line in January 2006 at which time the Voluntary Corrective Measure Bioventing Monitoring Plan was followed.

The NMED letter from June 13, 2007 (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006) revised the monitoring plan to include additional metals analysis and incorporate quarterly sampling of TP-7. These revisions were implemented during the second quarter sampling event.

An in situ respiration test was not performed in May 2007 due to high flow rates of the San Juan River and the inability to duplicate conditions similar to the May 2006 respiration test. The in situ respiration test was re-scheduled and conducted in September 2007. Section 6 of this report presents the 2007 In Situ Respiration Test Summary.

Performance Monitoring

On-going performance monitoring activities continued on a quarterly basis to assess the progress of the remediation system in reducing fuel hydrocarbons. Laboratory analysis of groundwater, treated groundwater, and soil gas are included in the on-going performance monitoring program. In addition, certain field parameter data are collected using portable gauges and gas meters.

Section 5.0 of this report summarizes the field parameters and analytical data obtained during routine performance monitoring performed during 2006 and 2007.

Pressure Readings

Pressure readings were collected from each of the TP wells (TP-7 was not measured in the first quarter), MW #49, and DW #1 were also measured using a hand-held Magnahelic gauge connected to the sample port at the top of each well. Injection pressure and flow rates were also taken from all bioventing wells (BV wells).

This data is available in Section 5.0 Tab 1 and Tab 4 in this report.

Groundwater

First quarter groundwater samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B),

GRO and DRO (EPA Method 8015B). MW #49 and DW #1 were also analyzed for Total Lead, Chromium, and Mercury (EPA Method 6010C and 7470). Field measurements included temperature, pH, conductivity, DO, and ORP.

Second quarter sampling occurred during the week of June 18, 2007. TP-7 was included in this sampling regimen per the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006 – Item #2). TP-7 was sampled after a 24 hour recharge time. In the same letter, NMED required additional metals analysis of all the TP Wells, MW #49, and DW #1 on a quarterly basis for lead and on an annual basis for chromium and barium. Annual analysis of chromium and barium (EPA Method 6010B) was conducted in the second quarter event. Lead analysis (EPA Method 6010B) was performed on all of the TP Wells, MW #49, and DW#1. DW #1 also received an analysis for mercury (EPA Method 7470). In addition, groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). Field measurements included temperature, pH, conductivity, DO, and ORP.

Third quarter monitoring occurred during the week of August 20, 2007 and fourth quarter monitoring was conducted during the week of October 29, 2007. During those sampling events, all TP Wells, MW #49, and DW #1 groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B), and lead analysis (EPA Method 6010B). DW #1 also received an analysis for mercury (EPA Method 7470). Field measurements included temperature, pH, conductivity, DO, and ORP. TP-7 was sampled after a 24 hour recharge time.

A summary of the groundwater monitoring results can be found in Section 5.0 Tab 2 and Tab 3.

Soil Gas

First quarter samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Soil gas analysis included BTEX (8021B) and GRO (8015B). Field measurements of gas hydrocarbons (using a PID) and oxygen and carbon dioxide concentrations (using a multi-gas meter) were taken. The second quarter monitoring event utilized the same collection sites (with the addition of TP-7), and the same methods and parameters. Second quarter samples were collected the week of June 18, 2007. Third quarter monitoring was conducted during the week of August 20, 2007 and fourth quarter monitoring was carried out during the week of October 29, 2007.

A summary of the soil gas monitoring results can be found in Section 5.0 Tab 1.

GAC Filter Monitoring

Extracted groundwater from the dewatering wells is treated prior to discharge to the raw water ponds, located within the east portion of the refinery. Extracted groundwater is pumped through two GAC filters positioned in series for removal of dissolved-phase hydrocarbons.

GAC filter sampling includes influent samples from a sample port located upstream of the GAC filters, and effluent samples collected from ports located after each of the lead and lag GAC filters. Monitoring the performance of the GAC filters is necessary to estimate GAC filter change-out frequency.

GAC filter influent samples (GAC Inf) and effluent samples collected downstream of the lag GAC filter (GAC 2 Eff) were collected quarterly. Effluent samples from the lead GAC filter (GAC 1 Eff) were obtained weekly until breakthrough was detected. Samples were analyzed for BTEX by EPA Method 8021B, GRO and DRO by EPA Method 8015B.

Break through in the lead GAC was detected in April through lab analysis and V-612 was bypassed and taken out of service on April 30, 2007. V-611 became the lead GAC at that time.

Pumping operations were interrupted from January 11, 2007 to February 6, 2007 due to both dewatering pumps breaking down and subsequent replacement of both pumps. Since that time, efforts have been made to optimize the dewatering system without damaging the pumps by adjusting pump speed to match pump outflow with water table inflow.

In October, all piping at the River Terrace Bioventing System was re-insulated with weatherproof insulation.

A summary of the GAC filter performance monitoring results is presented in Section 5.0 Tab 5 of this report.

Field Data Collection

All water/product levels were measured to an accuracy of 0.01 foot using a Geotech Interface Probe. After determining water levels, purge volumes were calculated.

Soil gas purging and sampling were done before groundwater purging and sampling. After sufficient purging (three well volumes), soil gas samples were collected using the vacuum pump. Field measurements of vapor-phase organics (using a PID meter), oxygen, and carbon dioxide concentrations (using a multi-gas meter) were recorded using portable field instruments.

Prior to soil gas purging, a YSI 550A Dissolved Oxygen Probe was used to determine dissolved oxygen (DO) levels. At least three well volumes were purged

from each well prior to groundwater sampling. Electrical conductance, pH, temperature, and oxidation reduction potential were monitored during purging using an Ultrameter 6P. The wells were considered satisfactorily purged when the pH, E.C., and temperature values did not vary by more than 10 percent for at least three measurements.

Field data and analytical results can be found in Section 5.0 – Tabs 1, 2, 3, 4 and 5.

All purged water was collected and disposed of through the refinery wastewater system.

Section 4.0 Regulatory Criteria / Groundwater Cleanup Standards

TABLE OF NEW MEXICO AND THE U. S. EPA'S GROUNDWATER STANDARDS

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
General Properties				
non-aqueous phase liquid (NAPL)	NP			
petroleum				
floating product	NP			
undesirable odor (a)	NP			
pH (units) (a)	6 - 9	6.5 - 8.5		
total dissolved solids (TDS) (a)	1000	500		
turbidity		tt		
Biological Contaminants				
giardia lambia	tt	Zero		
legionella	tt	Zero		
total coliform	<5%+	Zero		
viruses	tt	Zero		
Inorganic Contaminants				
aluminum	5.0 (i)	0.05 - 0.2 (a)		
ammonia				30
antimony		0.006	0.006	
arsenic	0.1	0.05	0.05	
asbestos-fibers/liter (longer than 10 um)		7 million	7 million	
barium	1.0	2	2	
beryllium		0.004	0.004	
boron	0.75 (i)			0.06
bromate		0.01 (p)	Zero (p)	
cadmium	0.01	0.005	0.005	
chlorate				0.01

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
chloride (a)	250	250		0.01
chlorine				1
chlorine dioxide				0.08
chlorite		1.0 (p)	0.08 (p)	
chromium	0.05	0.1	0.1	
cobalt (i)	0.05			
copper		1.3 (al)	1.3	
cyanide	0.2	0.2	0.2	
fluoride	1.6	4.0		
fluoride (a)		2		
iron (a)	1.0	0.3		
lead	0.05	0.015 (al)	Zero	
manganese (a)	0.2	0.05		
mercury	0.002	0.002	0.002	
molybdenum	1.0 (i)			0.05
nickel	0.2 (i)	0.1	0.1	
nitrate - N	10	10	10	
nitrite - N		1	1	
nitrate + nitrite (as N)		10	10	
selenium	0.05	0.05	0.05	
silver	0.05	0.05	0.05	
silver (a)		0.1		
sodium				20
strontium				17
sulfate	600 (a)	250 (a) / 400 (p)	400	
thallium		0.002	0.0005	
vanadium				0.02
zinc (a)	10.0	5		
Radioactive Contaminants				
Gross alpha (pCi/L) *		15	Zero	
Gross beta & photon emitters (mrem/yr) **		4	Zero	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
radium 226 (pCi/L)		20 (p)	Zero	
radium 228 (pCi/L)		20 (p)	Zero	
radium 226 + 228 (pCi/L)	30	5	Zero	
radon 222 (pCi/L)		300 (p)	Zero	
uranium	5	0.02 (p)	Zero	
Benzenes				
benzene	0.01	0.005	Zero	
Alkyl Benzenes				
methylbenzene (toluene)	0.75	1 (p) / 0.04 (a)	1	
ethylbenzene	0.75	0.7 (p) / 0.03 (a)	0.7	
dimethyl benzene isomers (xylenes)	0.62	10 (p) / 0.02 (a)	10	
vinylbenzene (styrene)		0.1	0.1	
trimethyl benzene isomers				
propyl benzene isomers				
butyl benzene isomers				
Chlorinated Benzenes				
chlorobenzene	tox	0.1	0.1	
o-dichlorobenzene	tox	0.6	0.6	
m-dichlorobenzene	tox			
p-dichlorobenzene	tox	0.075 (p) / 0.005 (a)	0.075	
1,2,4-trichlorobenzene		0.07	0.07	
1,3,5-trichlorobenzene				0.04
1,2,4,5-tetrachlorobenzene	tox			
pentachlorobenzene	tox			
hexachlorobenzene	tox	0.001	Zero	
Toluenes				
o-chlorotoluene				0.1
p-chlorotoluene				0.1
2,4-dinitrotoluene (2,4-DNT)	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
2,4,6-trinitrotoluene (TNT)				0.002
isopropyltoluene				
Nitrogenated Benzenes				
aminobenzene (aniline)				
nitrobenzene	tox			
1,3-dinitrobenzene				0.001
Phenols (hydroxybenzenes)	0.005 (a)			
phenol (carbolic acid)	tox			4
2-chlorophenol				0.04
2,4-dichlorophenol	tox			0.02
2,4-dinitro-o-creosol	tox			
2,4-dimethylphenol				
2-methylphenol				
4-methylphenol				
2-nitrophenol				
dinitrophenols	tox			
2,4,5-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
pentachlorophenol	tox	0.001 (p) / 0.03 (a)	Zero	
p-cresol				
Polycyclics				
acenapthene				
anthracene	tox			
benz(a)anthracene		0.0001 (p)	Zero	
benzo(a)pyrene	0.0007	0.0002	Zero	
benzo(b)fluoranthene		0.0002 (p)	Zero	
benzo(k)fluoranthene	tox	0.0002 (p)	Zero	
chrysene		0.0002 (p)	Zero	
dibenz(a)anthracene		0.0003 (p)	Zero	
diphenylhydrazine	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
fluoranthene	tox			
fluorene	tox			
indeno(1,2,3-c,d)pyrene		0.0004 (p)	Zero	
naphthalene	tox			0.3
naphthalenes ****	0.03			
phenanthrene	tox			
polychlorinated biphenyls (PCBs)	0.001			
PCBs as decachlorobiphenyl		0.0005	Zero	
pyrene	tox			
Methanes				
chloromethane (methyl chloride)	tox			0.003
dichloromethane (methylene chloride)	0.1	0.005	Zero	
trichloromethane (chloroform)	0.1		Zero (p)	
tetrachloromethane (carbon tetrachloride)	0.01	0.005	Zero	
bromomethane (methyl bromide)	tox			0.01
bromochloromethane				0.09
bromodichloromethane	tox		Zero (p)	
chlorodibromomethane			Zero (p)	0.1
tribromomethane (bromoform)	tox		Zero (p)	
trihalomethanes (THMs) ***		0.1/0.08 (p)	Zero	
fluorotrichloromethane (Freon 11)	tox			2
dichlorodifluoromethane (Freon 12)	tox			1
Ethanes				
1,2-dibromoethane (ethylene dibromide, EDB)	0.0001	0.00005	Zero	
1,1-dichloroethane	0.025			
1,2-dichloroethane (ethylene dichloride, EDC)	0.01	0.005	Zero	
1,1,1-trichloroethane (TCA)	0.06	0.2	0.2	
1,1,2-trichloroethane	0.01	0.005	0.003	
1,1,1,2-tetrachloroethane				0.07

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
1,1,2,2-tetrachloroethane	0.01			
hexachloroethane	tox			
Ethenes (Ethylenes)				
chloroethane (vinyl chloride)	0.001	0.002	Zero	
1,1-dichloroethene	0.005	0.007	0.007	
cis-1,2-dichloroethene	tox	0.07	0.07	
trans-1,2-dichloroethene	tox	0.1	0.1	
trichloroethene (TCE)	0.1	0.005	Zero	
tetrachloroethene (perchloroethylene, PCE)	0.02	0.005	Zero	
Propanes & Propenes				
1,2-dichloropropane (propylene dichloride, PDC)		0.005	Zero	
1,2,3-trichloropropane				0.04
1,2-dibromo-3-chloropropane (DBCP)		0.0002	Zero	
dichloropropenes	tox			
1,3-dichloropropene	tox			0.01
Aldehydes, Ethers, Furans, & Ketones				
acetone				
bis (2-chloroethyl) ether	tox			
bis (2-chloroisopropyl) ether	tox			0.3
bis (chloromethyl) ether	tox			
dibenzofuran				
p-dioxane (diethylene dioxide)				0.568
formaldehyde (methanal)				1
isophorone	tox			0.1
methyl ethyl ketone (MEK, 2-butanone)				0.1
methyl tertiary butyl ether (MTBE)	0.1 (a)			0.04
tetrahydrofuran				

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
Nitrosamines				
N-nitrosodiethylamine	tox			
N-nitrosodimethylamine (NDMA)	tox			
N-nitrosodibutylamine	tox			
N-nitrosodiphenylamine	tox			
N-nitrosopyrrolidine	tox			
Phthalate Esters				
dibutyl phthalate	tox			
di-2-ethylhexyl phthalate	tox	0.006	Zero	
diethyl phthalate	tox			
dimethyl phthlate	tox			
Explosives				
dinitrophenols	tox			
2,4-dinitrotoluene (2,4-DNT)	tox			
hexahydro-1,3,5-trinitro-s-triazine (RDX)				0.002
HMX				0.4
nitroglycerin (glycerol trinitrate)				0.005
nitroguanidine				0.7
2,4,6-trinitrotoluene (TNT)				0.002
Other Organics				
acrolein	tox			
acrylamide		tt	Zero	
acrylonitrile	tox			0.004
benzidine	tox			
chloral hydrate		tt (p)	0.04 (p)	
chloramine				0.3

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
dibromoacetonitrile				0.02
dichloroacetic acid				0.003
dichloroacetonitrile				0.006
dichlorobenzidine	tox			
di(2-ethylhexyl)adipate		0.4	0.4	
diisopropyl methylphosphonate				0.6
epichlorohydrin (1-chlor-2,3-epoxypropane)		tt	Zero	
ethylene glycol (1,2-ethanediol)				7
Haloacetic Acids ****		0.06 (p)		
dichloroacetic acid			Zero (p)	
trichloroacetic acid			0.3 (p)	
hexachlorobutadiene	tox			0.001
hexachlorocyclopentadiene	tox	0.05 (p) / 0.008 (a)	0.05	
n-hexane				4.0
Other Pesticides				
acifluorfen				0.1
alachlor		0.002	Zero	
aldicarb		0.003 (p)	0.001	
aldicarb sulfone		0.002 (p)	0.001	
aldicarb sulfoxide		0.004 (p)	0.001	
aldrin	tox			0.001
ametryn				0.06
ammonium sulfamate				2
arsenal (imazapyr)				
atrazine		0.003	0.003	
baygon				0.003
bentazon				0.02
bromacil				0.09
butylate				0.35
carbaryl				0.7
carbofuran		0.04	0.04	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
carboxin				0.7
chloramben				0.1
chlordane	tox	0.002	Zero	
chlorothalonil				0.5
chlorpyrifos				0.02
cyanazine				0.01
2,4-D (2,4-dichlorophenoxyacetic acid)		0.07	0.07	
dacthal				4
daiapon		0.2	0.2	
DDT (dichloro diphenyl trichloroethane)	tox			
4,4'-DDD				
4,4'-DDE				
diazinon				0.0006
dicamba				0.2
dieldrin	tox			0.002
dimethrin				2
dinoseb		0.007	0.007	
dioxin		0.00000005	Zero	
diphenamid				0.2
diquat		0.02	0.02	
disulfoton				0.0003
diuron				0.01
endosulfan	tox			
endothall		0.1	0.1	
endrin	tox	0.002	0.002	
ethylene thiourea				0.001
fenamiphos				0.002
fluometuron				0.09
fonofos				0.01
glyphosate		0.7	0.7	
heptachlor	tox	0.0004	Zero	
heptachlor epoxide		0.0002	Zero	
hexazinone				0.2
lindane (gamma-BHC)	tox	0.0002	0.0002	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
alpha-BHC	tox			
beta-BHC	tox			
delta-BHC				
malathion				0.2
maleic hydrazide				4
methomyl				0.2
methoxychlor		0.04	0.04	
methyl chlorophenoxyacetic acid (MCPA)				0.011
methyl parathion				0.002
metolachlor				0.1
metribuzin				0.2
oxamyl (vydate)		0.2	0.2	
paraquat				0.03
picloram		0.5	0.5	
prometon				0.1
pronamide				0.05
propachlor				0.09
propazine				0.01
propham				0.1
simazine		0.004	0.004	
2,4,5-T (2,4,5-trichlorophenoxyacetic acid)				0.07
tebuthiuron				0.5
terbacil				0.09
terbufos				0.0009
toxaphene	tox	0.003	Zero	
2,4,5-TP (silvex)		0.05	0.05	
trifluralin				0.005

Abbreviations

al Action Level that, if exceeded, requires water treatment
BHC benzene hexachloride, also called hexachlorocyclohexane
DDD 1,1'-(2,2-dichloroethylidene) -bis/4-chlorobenzene

DDE 1,1'-(2,2-dichloroetheneylidene)-bis/4-chlorobenzene
HA Health Advisory
HMX octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MCL Maximum Contaminant Level
MCLG Maximum Contaminant Level Goal
mg/L milligrams per liter
mrem/yr millirem per year
mrem ede/yr dose committed over a 50-year period to a "reference man" from an annual intake rate of 2 liters drinking water per day
MTBE methyl tertiary butyl ether, a synonym for 2-methoxy-2-methyl propane (the standard includes other ether-based gasoline additives)
NP the contaminant shall Not be Present
pCi/L picocuries per liter
tox a numerical standard has not been established, but the contaminant is listed in a narrative standard of "toxic pollutant" defined in WQCC regulations
2,4,5-TP 2,4,5-trichlorophenoxypropionic acid
tt Treatment Technique that public water system operators must adhere to instead of a numerical standard
um micrometer
U.S. EPA Uniter States Environmental Protection Agency
WQCC New Mexico Water Quality Control Commission

Footnotes

* The proposed standard excludes radon 222, radium 226 and uranium activity
** This standard excludes radium 228 activity. Units for the existing standard are mrem/yr. U.S. EPA has proposed to change the units to mrem ede/yr.
*** The "THMs" standard applies to the sum of chloroform, dichlorobromomethane, dibromochloromethane, and bromoform.
**** This standard applies to the sum of naphthalene and monomethylnaphthalene isomers.
***** This standard applies to the sum of mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids.

Use and Applicability of Standards

All New Mexico standards are adopted by the WQCC except for the MTBE and petroleum (floating product and undesirable odor) standards, which are adopted by the New Mexico Environmental Improvement Board.

U.S. EPA's MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs do not take treatment costs into considerartion and are not enforceable. Health-based proposed MCLs and final enforceable MCLs are set as close to MCLGs as feasible with use of best technology, treatment techniques and other means.

U.S. EPA's HAs serve as informal technical guidance to assist Federal, State and Local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards and are subject to change as new information becomes available. All HAs listed are for lifetime exposures except for p-dioxane (10 day) and n-hexane (7 year).

NEW MEXICO ENVIRONMENT DEPARTMENT TPH SCREENING GUIDELINES
October 2006

In some instances, it may be practical to assess areas of soil contamination that are the result of releases of petroleum products such as jet fuel and diesel, using total petroleum hydrocarbon (TPH) analyses. TPH results may be used to delineate the extent of petroleum-related contamination at these sites and ascertain if the residual level of petroleum products in soil represents an unacceptable risk to future users of the site. Petroleum hydrocarbons represent complex mixtures of compounds, some of which are regulated constituents and some compounds that are not regulated. In addition, the amount and types of the constituent compounds in a petroleum hydrocarbon release differ widely depending on what type of product was spilled and how the spill has weathered. This variability makes it difficult to determine the toxicity of weathered petroleum products in soil solely from TPH results; however, these results can be used to approximate risk in some cases, depending upon the nature of the petroleum product, the release scenario, how well the site has been characterized, and anticipated potential future land uses. In some cases, site clean up cannot be based solely on results of TPH sampling. The New Mexico Environment Department (NMED) will make these determinations on a case by case basis. If NMED determines that additional data are necessary, these TPH guidelines must be used in conjunction with the screening guidelines for individual petroleum-related contaminants in Table 3 and other contaminants, as applicable.

The screening levels for each petroleum carbon range from the Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons/Extractable Petroleum Hydrocarbons (VPH/EPH) approach and the percent composition table below were used to generate screening levels corresponding to total TPH. Except for waste oil, the information in the compositional assumptions table was obtained from the Massachusetts Department of Environmental Protection guidance document *Implementation of the MADEP VPH/EPH Approach* (October 31, 2002). TPH toxicity was based only on the weighted sum of the toxicity of the hydrocarbon fractions listed in Table 1.

Table 1. TPH Compositional Assumptions in Soil

Petroleum Product	C11-C22 Aromatics	C9-C18 Aliphatics	C19-C36 Aliphatics
Diesel #2/ new crankcase oil	60%	40%	0%
#3 and #6 Fuel Oil	70%	30%	0%
Kerosene and jet fuel	30%	70%	0%
Mineral oil dielectric fluid	20%	40%	40%
Unknown oil[a]	100%	0%	0%
Waste Oil[b]	0%	0%	100%

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

A TPH screening guideline was calculated for each of the types of petroleum product based on the assumed composition from Table 1 for petroleum products and the direct soil standards incorporating ceiling concentrations given in the MADEP VPH/EPH Excel spreadsheet for each of the carbon fractions. Groundwater concentrations are based on the weighted sum of the noncarcinogenic toxicity of the petroleum fractions.

Method 1 from the MADEP VPH/EPH document was applied, which represents generic cleanup standards for soil and groundwater. Method 1 applies if contamination exists in only soil and groundwater. The MADEP VPH/EPH further divides groundwater into standards. Standard GW-1 applies when groundwater may be used for drinking water purposes. GW-1 standards are based upon ingestion and use of groundwater as a potable water supply. The TPH screening guidelines for sites with potable groundwater are presented in Table 2a.

Table 2a. TPH Screening Guidelines for Potable Groundwater (GW-1)

TPH			Concentration in Groundwater (mg/L)
Petroleum Product	**Residential Direct Exposure (mg/kg)**	**Industrial Direct Exposure (mg/kg)**	
Diesel #2/crankcase oil	520	1120	1.72
#3 and #6 Fuel Oil	440	890	1.34
Kerosene and jet fuel	760	1810	2.86
Mineral oil dielectric fluid	1440	3040	3.64
Unknown oil [a]	200	200	0.2
Waste Oil [b]	2500	5000	Petroleum-Related Contaminants
Gasoline	Not applicable	Not applicable	Petroleum-Related Contaminants

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

The second standard is GW-2, which is applicable for sites where the depth to groundwater is less than 15 feet from the ground surface and within 30 feet of an occupied structure. The structure may be either residential or industrial. GW-2 standards are based upon "inhalation exposures that could occur to occupants of the building impacted by volatile compounds, which partition from the groundwater" (MADEP 2001). The GW-2 screening guidelines ONLY apply for the evaluation of inhalation exposures. If potential ingestion or contact with contaminated soil and/or

groundwater could occur, then the screening guidelines provided in Table 2.a should be applied. Table 2.b lists the TPH screening guidelines for the inhalation scenario.

Table 2b. TPH Screening Guidelines – Vapor Migration and Inhalation of Groundwater (GW-2)

TPH			Concentration in Groundwater (mg/L)
Petroleum Product	**Residential Direct Exposure (mg/kg)**	**Industrial Direct Exposure (mg/kg)**	
Diesel #2/crankcase oil	880	2200	30.4
#3 and #6 Fuel Oil	860	2150	35.3
Kerosene and jet fuel	940	2350	15.7
Mineral oil dielectric fluid	1560	3400	10.4
Unknown oil [a]	800	2000	50.0
Waste Oil [b]	2500	5000	Petroleum-Related Contaminants
Gasoline	Not applicable	Not applicable	Petroleum-Related Contaminants

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

Mineral oil based hydraulic fluids can be evaluated for petroleum fraction toxicity using the screening guidelines from Tables 2a and 2b specified for waste oil, because this type of hydraulic fluid is composed of approximately the same range of carbon fractions as waste oil. However, these hydraulic fluids often contain proprietary additives that may be significantly more toxic than the oil itself; these additives must be considered on a site- and product-specific basis (see ATSDR hydraulic fluids profile reference). **Use of alternate screening guideline values requires prior written approval from the New Mexico Environment Department.** TPH screening guidelines in Tables 2a and 2b must be used in conjunction with the screening levels for petroleum-related contaminants given in Table 3 because the TPH screening levels are NOT designed to be protective of exposure to these individual petroleum-related contaminants. Table 3 petroleum-related contaminants screening levels are based on the *NMED Technical Background Document for Development of Soil Screening Levels, Rev 4.0 (June 2006).*

The list of petroleum-related contaminants does not include polyaromatic hydrocarbons (PAHs) with individual screening levels that would exceed the total TPH screening levels (acenaphthene, anthracene, flouranthene, flourene, and pyrene). In addition, these TPH screening guidelines are based solely on human health, not ecological risk considerations, protection of surface water, or

potential indoor air impacts from soil vapors. Potential soil vapor impacts to structures or utilities are not addressed by these guidelines. Site-specific investigations for potential soil vapor impacts to structures or utilities must be done to assure that screenings are consistently protective of human health, welfare or use of the property. NMED believes that use of these screening guidelines will allow more efficient screenings of petroleum release sites at sites while protecting human health and the environment. Copies of the references cited below are available on the MADEP website at http://www.state.ma.us/dep/bwsc/vph_eph.htm and the NMED website at http://www.nmenv.state.nm.us/HWB/guidance.html.

Revised Table 3. Petroleum-Related Contaminants Screening Guidelines

Petroleum-Related Contaminants	Values for Direct Exposure to Soil		NMED DAF[a] 20 GW Protection (mg/kg in soil)	NMED DAF[b] 1 GW Protection (mg/kg in soil)
	NMED Residential SSL (mg/kg)	NMED Industrial SSL (mg/kg)		
Benzene	1.03E+01	2.58E+01	2.01E-02	1.00E-03
Toluene	2.52E+02	2.52E+02	2.17E+01	1.08E+00
Ethylbenzene	1.28E+02	1.28E+02	2.02E+01	1.01E+00
Xylenes[c]	8.20E+01	8.20E+01	2.06E+00	1.03E-01
Naphthalene	7.95E+01	3.00E+02	3.94E-01	1.97E-02
2-Methyl naphthalene[d]	5.00E+02	1.00E+03	---[e]	---[e]
Benzo(a)anthracene	6.21E+00	2.34E+01	1.09E+01	5.43E-01
Benzo(b)fluoranthene	6.21E+00	2.34E+01	3.35E+01	1.68E+00
Benzo(k)fluoranthene	6.21E+01	2.34E+02	3.35E+02	1.68E+01
Benzo(a)pyrene	6.21E-01	2.34E+00	2.78E+00	1.39E-01
Chrysene	6.15E+02	2.31E+03	3.48E+02	1.74E+01
Dibenz(a,h)anthracene	6.21E-01	2.34E+00	1.04E+01	5.18E-01
Indeno(1,2,3-c,d)pyrene	6.21E+00	2.34E+01	9.46E+01	4.73E+00

[a] DAF - Dilution Attenuation Factor

[b] For contaminated soil in contact with groundwater.

[c] Based upon total xylenes

[d] No NMED value available, value taken from Massachusetts Contingency Plan, 310 CMR 40.0985, 4/3/06.

[e] No NMED value available and leachability-based value for DAF =1 or 20 not established in the Massachusetts Contingency Plan, 310 CMR 40.0985, 4/3/06.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Toxicological Profile for Hydraulic fluids.

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 1994. "Background Documentation for the Development of the MCP Numerical Standards."

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 2002. "Characterizing Risks Posed by Petroleum

Contaminated Sites: Implementation of the MADEP VPH/EPH Approach," Policy, October 31, 2002.

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 2003. "Updated Petroleum Hydrocarbon Fraction Toxicity Values for the VPH/EPH/APH Methodology." November 2003.

New Mexico Environment Department, Hazardous Waste Bureau and Groundwater Quality Bureau Voluntary Remediation Program. 2006. "Technical Background Document for Development of Soil Screening Levels." June 2006. Revision 4.0.

Section 5.0 Monitoring Results

Title	Tab Number
Soil Gas Monitoring	1
Groundwater Monitoring	2
Groundwater Metals Analysis	3
Bioventing Wells Pressure Reading	4
GAC Analysis	5

RIVER TERRACE

Soil Gas Monitoring

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #1	Pre-Dewater	Week of 1/09/06	9.4	5.14	0.00	1401.0	15.0	1.30	5.80	47.00	3.5	320.0	2800.0
	1st Quarter 2006	Week of 3/06/06	15.0	8.04	0.30	1534.0	20.7	0.10	22.00	321.00	12.0	2100.0	8500.0
	2nd Quarter 2006	Week of 6/17/06	12.5	6.8	0.05	1452.0	18.9	0.50	2.60	5.50	<2.0	210.0	3100.0
	3rd Quarter 2006	Week of 9/11/06	10.4	5.68	0.01	85.5	20.6	0.10	29.00	<2.0	36.0	170.0	920.0
	4th Quarter 2006	Week of 12/04/6	13.5	7.42	0.02	1146.0	20.8	0.30	<5.00	8.30	140.0	1000.0	8000.0
	1st Quarter 2007	Week of 2/26/07	14.2	7.79	0.11	1981.0	20.4	0.30	6.10	8.20	150	1200.0	7300.0
	2nd Quarter 2007	Week of 6/18/07	10.3	5.67	0.00	301.0	19.0	0.40	<0.10	<0.10	0.3	1.0	7.4
	3rd Quarter 2007	Week of 8/20/07	11.4	6.24	0.00	3275.0	17.9	4.20	23.00	<0.10	75.0	390.0	1300.0
	4th Quarter 2007	Week of 10/29/07	9.6	5.29	0.00	51.0	19.3	0.70	6.10	<0.10	9.0	12.0	95.0
TP - #2	Pre-Dewater	Week of 1/09/06	12.0	6.62	0.00	1589.0	4.0	6.40	7.80	11.00	8.0	88.0	1100.0
	1st Quarter 2006	Week of 3/06/06	18.0	9.83	0.05	92.7	20.9	0.00	0.36	1.80	1.4	17.0	150.0
	2nd Quarter 2006	Week of 6/17/06	15.1	8.27	0.15	23.8	20.9	0.00	0.21	0.23	0.1	2.8	25.0
	3rd Quarter 2006	Week of 9/11/06	13.4	7.37	0.01	5.4	20.9	0.00	<0.10	<0.10	<0.10	<0.1	<5.0
	4th Quarter 2006	Week of 12/04/6	16.5	9.03	0.08	67.0	20.9	0.00	0.11	<0.10	1.6	18.0	120.0
	1st Quarter 2007	Week of 2/26/07	16.2	8.86	0.10	8.8	20.6	0.10	<0.10	<0.10	1.1	17.0	88.0
	2nd Quarter 2007	Week of 6/18/07	13.7	7.5	0.10	112.0	20.1	0.10	<0.10	<0.10	<0.10	1.4	10.0
	3rd Quarter 2007	Week of 8/20/07	14.1	7.73	0.00	13.0	19.9	0.00	<0.10	<0.10	<0.10	<0.1	<5.0
	4th Quarter 2007	Week of 10/29/07	12.5	6.86	0.00	0.7	19.7	0.00	<0.10	<0.10	<0.10	<0.10	<5.0
TP - #3	Pre-Dewater	Week of 1/09/06	11.8	6.44	0.00	NM	17.80	0.00	<0.000050	<0.000050	<0.000050	0.000093	<0.005
	1st Quarter 2006	Week of 3/06/06	15.0	8.09	0.00	179.8	18.6	0.60	0.55	2.20	0.53	23.0	1300.0
	2nd Quarter 2006	Week of 6/17/06	13.2	7.23	0.00	2.9	20.9	1.00	<0.10	<0.10	<0.10	<0.3	<5.0
	3rd Quarter 2006	Week of 9/11/06	13.5	7.41	0.00	6.6	20.9	0.10	<0.10	<0.10	<0.10	<0.1	<5.0
	4th Quarter 2006	Week of 12/04/6	14.0	7.77	0.00	1.3	19.7	0.50	<0.10	<0.10	<0.10	<0.3	<5.0
	1st Quarter 2007	Week of 2/26/07	13.7	7.52	0.00	5.2	20.4	0.10	<0.10	<0.10	0.11	1.2	13.0
	2nd Quarter 2007	Week of 6/18/07	12.8	7.02	0.00	19.0	20.5	0.10	<0.10	<0.10	<0.10	1.0	7.6
	3rd Quarter 2007	Week of 8/20/07	13.9	7.62	0.00	16.0	19.6	0.10	<0.10	<0.10	<0.10	1.3	19.0
	4th Quarter 2007	Week of 10/29/07	12.7	6.94	0.00	0.4	19.2	0.30	<0.10	<0.10	<0.10	<0.1	<5.0

NR = Not Required NM = Not Measured

RIVER TERRACE

Soil Gas Monitoring

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #5	Pre-Dewater	Week of 1/09/06	8.6	4.70	0.00	103.5	16.0	1.10	0.13	54.00	0.25	38.0	150.0
	1st Quarter 2006	Week of 3/06/06	14.0	7.81	0.01	1534.0	19.7	0.10	69.00	310.00	55.00	2000.0	34000.0
	2nd Quarter 2006	Week of 6/17/06	9.6	5.24	0.00	953.0	18.6	1.40	<10	15.00	11.00	130.0	1800.0
	3rd Quarter 2006	Week of 9/11/06	9.7	5.32	0.00	137.0	18.6	1.40	<2.5	<2.5	79.00	380.0	1200.0
	4th Quarter 2006	Week of 12/04/6	11.0	5.95	0.00	1805.0	19.3	0.90	6.10	15.00	14.00	1400.0	8900.0
	1st Quarter 2007	Week of 2/26/07	10.2	5.59	0.00	1268.0	19.8	0.60	<5.00	9.80	23.00	1000.0	6100.0
	2nd Quarter 2007	Week of 6/18/07	12.1	6.62	0.00	1100.0	18.6	1.90	<5.00	<5.00	<5.00	1500.0	9000.0
	3rd Quarter 2007	Week of 8/20/07	12.7	6.97	0.00	9890.0	16.9	2.60	<0.10	<0.10	<0.10	910.0	13000.0
	4th Quarter 2007	Week of 10/29/07	8.7	4.78	0.00	54.1	19.3	0.30	<0.10	<0.10	9.80	46.0	180.0
TP - #6	Pre-Dewater	Week of 1/09/06	10.4	5.63	0.00	350.0	16.5	1.40	2.70	41.00	0.36	210.0	570.0
	1st Quarter 2006	Week of 3/06/06	16.0	8.61	0.00	1534.0	20.0	0.30	7.60	47.00	6.50	950.0	4500.0
	2nd Quarter 2006	Week of 6/17/06	11.3	6.18	0.00	56.9	20.6	0.50	<0.10	0.18	<0.10	3.1	100.0
	3rd Quarter 2006	Week of 9/11/06	11.3	6.17	0.00	8.1	26.0	0.60	<0.10	<0.10	0.18	1.0	17.0
	4th Quarter 2006	Week of 12/04/6	12.0	6.61	0.00	160.0	19.4	0.60	<0.50	<0.50	2.30	37.0	320.0
	1st Quarter 2007	Week of 2/26/07	6.39	6.39	0.00	29.5	20.2	0.30	<0.20	<0.20	1.00	13.0	98.0
	2nd Quarter 2007	Week of 6/18/07	13.4	7.32	0.00	25.0	19.2	0.70	<0.10	<0.10	<0.10	<0.1	<5.0
	3rd Quarter 2007	Week of 8/20/07	14.0	7.65	0.00	14.0	19.1	0.60	<0.10	<0.10	<0.10	0.4	<5.0
	4th Quarter 2007	Week of 10/29/07	10.4	5.7	0.00	3.6	19.4	0.20	<0.10	<0.10	0.39	2.3	6.6
TP - #7	Pre-Dewater	Week of 1/09/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1st Quarter 2006	Week of 3/06/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter 2006	Week of 6/17/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	3rd Quarter 2006	Week of 9/11/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	4th Quarter 2006	Week of 12/04/6	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter 2007	Week of 6/18/07	9.9	5.4	0.00	35.0	20.6	0.00	<0.10	<0.10	<0.10	1.0	7.0
	3rd Quarter 2007	Week of 8/20/07	11.3	6.2	0.00	38.0	19.8	0.10	<0.10	<0.10	<0.10	<0.3	<5.0
	4th Quarter 2007	Week of 10/29/07		5.42	0.00	7.4	19.2	0.70	<0.10	<0.10	<0.10	0.9	9.4

NR = Not Required NM = Not Measured

RIVER TERRACE

Soil Gas Monitoring

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #8	Pre-Dewater	Week of 1/09/06	10.3	5.61	0.00	1589.0	4.6	8.90	6.90	31.00	2.90	300.0	1800.0
	1st Quarter 2006	Week of 3/06/06	16.0	8.92	0.05	1534.0	20.7	0.10	8.80	220.00	13.00	1900.0	7700.0
	2nd Quarter 2006	Week of 6/17/06	13.7	7.5	0.01	1641.0	20.9	0.10	<2.00	6.60	2.20	460.0	3700.0
	3rd Quarter 2006	Week of 9/11/06	11.3	6.21	0.01	11.2	20.9	0.00	<0.10	<0.10	0.13	0.4	14.0
	4th Quarter 2006	Week of 12/04/6	15.0	8.21	0.02	555.0	20.5	0.40	<5.00	7.40	50.00	710.0	4700.0
	1st Quarter 2007	Week of 2/26/07	15.6	8.57	0.05	1775.0	20.4	0.30	<5.00	9.50	130.00	1400.0	7100.0
	2nd Quarter 2007	Week of 6/18/07	11.3	6.22	0.00	59.0	20.1	0.10	<0.10	<0.10	<0.10	<0.3	<5.0
	3rd Quarter 2007	Week of 8/20/07	12.2	6.67	0.00	91.0	19.7	0.10	<0.10	<0.10	<0.10	0.8	6.2
	4th Quarter 2007	Week of 10/29/07	10.6	5.81	3.00	3.7	19.7	0.10	<0.10	<0.10	0.11	0.6	<5.0
TP - #9	Pre-Dewater	Week of 1/09/06	11.3	5.08	0.00	8.5	17.2	0.20	<0.05	0.05	0.18	0.4	31.0
	1st Quarter 2006	Week of 3/06/06	10.0	5.21	0.00	7.7	20.6	0.10	<0.05	0.09	0.06	0.5	8.0
	2nd Quarter 2006	Week of 6/17/06	9.0	5.26	0.00	13.9	20.9	0.00	<0.10	<0.10	0.10	0.6	31.0
	3rd Quarter 2006	Week of 9/11/06	10.0	5.48	0.00	18.3	20.3	0.30	<0.10	0.21	0.18	2.5	140.0
	4th Quarter 2006	Week of 12/04/6	10.0	5.39	0.00	9.6	20.9	0.10	<0.10	<0.10	0.16	3.5	20.0
	1st Quarter 2007	Week of 2/26/07	9.2	5.07	0.00	95.1	20.6	0.20	<0.10	0.15	4.30	41.0	290.0
	2nd Quarter 2007	Week of 6/18/07	8.6	4.73	0.00	24.0	20.6	0.10	<0.10	<0.10	<0.10	0.9	6.6
	3rd Quarter 2007	Week of 8/20/07	9.4	5.18	0.00	48.0	19.9	0.00	<0.10	<0.10	<0.10	2.8	65.0
	4th Quarter 2007	Week of 10/29/07	9.0	4.94	0.00	8.2	19.7	0.10	<0.10	<0.10	0.56	4.0	49.0
TP - #10	Pre-Dewater	Week of 1/09/06	9.3	5.08	0.00	0.0	17.8	0.00	<0.05	<0.05	<0.05	0.3	<5.0
	1st Quarter 2006	Week of 3/06/06	11.0	5.86	0.00	21.9	17.1	1.10	0.07	0.62	0.05	6.1	25.0
	2nd Quarter 2006	Week of 6/17/06	9.6	5.23	0.00	6.7	20.9	0.00	0.11	0.16	<0.10	0.6	14.0
	3rd Quarter 2006	Week of 9/11/06	9.6	5.26	0.00	4.7	20.9	0.00	<0.10	<0.10	<0.10	<0.3	<5.0
	4th Quarter 2006	Week of 12/04/6	10.0	5.57	0.00	18.0	14.4	0.70	<0.10	<0.10	0.20	2.7	22.0
	1st Quarter 2007	Week of 2/26/07	9.5	5.23	0.00	3.3	20.4	0.10	<0.10	<0.10	<0.10	0.9	6.0
	2nd Quarter 2007	Week of 6/18/07	8.5	4.62	0.00	38.0	20.6	0.00	<0.10	<0.10	<0.10	1.0	11.0
	3rd Quarter 2007	Week of 8/20/07	9.7	5.32	0.00	42.0	19.7	0.00	<0.10	<0.10	<0.10	1.0	16.0
	4th Quarter 2007	Week of 10/29/07	8.7	4.74	0.00	0.5	19.4	0.00	<0.10	<0.10	<0.10	<0.3	<5.0

NR = Not Required NM = Not Measured

RIVER TERRACE

Soil Gas Monitoring

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #11	Pre-Dewater	Week of 1/09/06	10.2	5.55	0.00	0.0	17.5	0.30	<0.05	<0.05	<0.05	0.1	<5.0
	1st Quarter 2006	Week of 3/06/06	11.0	6.31	0.00	13.2	20.0	0.40	0.06	0.32	0.053	3.3	13.0
	2nd Quarter 2006	Week of 6/17/06	10.3	5.61	0.00	2.6	18.8	1.40	<0.10	<0.10	<0.10	<0.3	<5.0
	3rd Quarter 2006	Week of 9/11/06	10.3	5.69	0.00	2.8	19.1	1.40	<0.10	<0.10	0.24	1.5	9.0
	4th Quarter 2006	Week of 12/04/6	10.0	6.00	0.00	2.8	14.4	0.70	<0.10	<0.10	<0.10	<0.1	<5.0
	1st Quarter 2007	Week of 2/26/07	10.4	5.69	0.00	5.9	19.0	1.00	<0.10	<0.10	0.11	1.4	11.0
	2nd Quarter 2007	Week of 6/18/07	9.5	5.17	0.00	45.0	20.6	0.00	<0.10	<0.10	<0.10	0.7	7.2
	3rd Quarter 2007	Week of 8/20/07	10.5	5.75	0.00	81.0	14.9	6.20	<0.10	<0.10	<0.10	1.4	39.0
	4th Quarter 2007	Week of 10/29/07	9.5	5.18	0.00	0.6	19.4	0.00	<0.10	<0.10	<0.10	<0.3	<5.0
TP - #12	Pre-Dewater	Week of 1/09/06	13.5	7.38	0.00	0.2	17.8	0.00	<0.05	<0.05	<0.05	0.3	<5.0
	1st Quarter 2006	Week of 3/06/06	15.0	7.94	0.00	10.1	18.7	1.40	0.05	0.21	0.06	2.3	9.0
	2nd Quarter 2006	Week of 6/17/06	13.6	7.44	0.00	6.7	20.9	0.00	0.12	0.19	<0.10	0.5	17.0
	3rd Quarter 2006	Week of 9/11/06	13.6	7.48	0.00	5.7	20.9	0.00	<0.10	<0.10	0.10	<0.3	<5.0
	4th Quarter 2006	Week of 12/04/6	14.0	7.67	0.00	30.3	18.5	1.60	<0.20	<0.20	0.28	24.0	120.0
	1st Quarter 2007	Week of 2/26/07	13.5	7.4	0.00	18.10	20.4	0.20	<0.10	<0.10	1.10	11.0	61.0
	2nd Quarter 2007	Week of 6/18/07	12.5	6.82	0.00	26.0	20.6	0.10	<0.10	<0.10	<0.10	0.6	6.0
	3rd Quarter 2007	Week of 8/20/07	13.4	7.36	0.00	19.0	19.8	0.00	<0.10	<0.10	<0.10	1.0	14.0
	4th Quarter 2007	Week of 10/29/07	12.7	6.92	0.00	0.7	19.4	0.00	<0.10	<0.10	<0.10	<0.3	<5.0
TP - #13	Pre-Dewater	Week of 1/09/06	11.4	6.24	0.00	0.1	17.8	0.00	<0.05	<0.05	<0.05	<0.05	<5.0
	1st Quarter 2006	Week of 3/06/06	12.0	6.78	0.00	12.6	19.1	1.00	0.05	0.17	0.09	1.6	8.6
	2nd Quarter 2006	Week of 6/17/06	11.6	6.35	0.00	19.5	18.1	1.00	0.11	0.48	0.11	2.4	27.0
	3rd Quarter 2006	Week of 9/11/06	11.6	6.33	0.00	1.8	18.6	6.90	<0.10	<0.10	<0.10	<0.3	<5.0
	4th Quarter 2006	Week of 12/04/6	11.9	6.51	0.00	13.8	18.5	1.10	<0.10	<0.10	0.18	2.4	18.0
	1st Quarter 2007	Week of 2/26/07	11.3	6.16	0.00	4.10	20.2	0.20	<0.10	<0.10	0.20	2.9	24.0
	2nd Quarter 2007	Week of 6/18/07	10.3	5.63	0.00	97.0	20.6	0.00	<0.10	<0.10	<0.10	0.6	5.8
	3rd Quarter 2007	Week of 8/20/07	11.0	6.1	0.00	128.0	19.8	0.00	<0.10	<0.10	<0.10	1.3	30.0
	4th Quarter 2007	Week of 10/29/07	10.0	5.8	0.00	0.7	19.4	0.10	<0.10	<0.10	<0.10	<0.3	<5.0

NR = Not Required NM = Not Measured

Soil Gas Monitoring

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
DW #1	Pre-Dewater	Week of 1/09/06	113.0	6.9	0.00	0.0	12.7	7.40	0.09	0.14	0.59	1.2	35.0
	1st Quarter 2006	Week of 3/06/06	130.0	7.91	0.00	25.4	9.9	8.70	<0.05	0.61	0.17	5.2	61.0
	2nd Quarter 2006	Week of 6/17/06	150.0	6.49	0.00	5.8	16.6	4.40	<0.10	<0.10	<0.10	0.3	8.6
	3rd Quarter 2006	Week of 9/11/06	105.0	6.39	0.00	7.8	18.8	1.30	<0.10	<0.10	<0.10	<0.3	<5.0
	4th Quarter 2006	Week of 12/04/6	92.0	5.58	0.00	1.1	20.9	0.00	<0.10	<0.10	<0.10	<0.3	<5.0
	1st Quarter 2007	Week of 2/26/07	100.5	6.11	0.00	1.00	19.8	0.50	<0.10	<0.10	<0.10	<0.3	<5.0
	2nd Quarter 2007	Week of 6/18/07	95.6	5.81	0.00	9.0	18.6	1.80	<0.10	<0.10	<0.10	0.3	<5.0
	3rd Quarter 2007	Week of 8/20/07	110.0	6.71	0.00	27.0	18.6	1.10	<0.10	<0.10	<0.10	0.5	9.0
	4th Quarter 2007	Week of 10/29/07	95.0	5.8	0.00	0.7	19.3	0.20	<0.10	<0.10	<0.10	<0.3	<5.0
MW #49	Pre-Dewater	Week of 1/09/06	71.1	9.69	0.00	0.0	17.1	1.00	<0.05	<0.05	0.08	0.3	<5.0
	1st Quarter 2006	Week of 3/06/06	74.0	10.07	0.00	20.3	19.2	1.00	<0.05	1.00	0.06	8.9	28.0
	2nd Quarter 2006	Week of 6/17/06	73.0	9.98	0.00	16.1	16.8	2.70	<0.10	<0.10	<0.10	1.4	35.0
	3rd Quarter 2006	Week of 9/11/06	68.0	9.38	0.00	3.5	17.7	2.80	<0.10	<0.10	<0.10	<0.3	<5.0
	4th Quarter 2006	Week of 12/04/6	67.0	9.16	0.00	2.1	19.0	1.00	<0.10	<0.10	<0.10	0.5	<5.0
	1st Quarter 2007	Week of 2/26/07	64.4	8.79	0.00	1.60	19.8	0.60	<0.10	<0.10	<0.10	<0.3	<5.0
	2nd Quarter 2007	Week of 6/18/07	61.6	8.41	0.00	64.0	17.4	3.00	<0.10	<0.10	<0.10	<0.3	11.0
	3rd Quarter 2007	Week of 8/20/07	68.0	9.3	0.00	22.0	15.7	5.00	<0.10	<0.10	<0.10	0.4	<5.0
	4th Quarter 2007	Week of 10/29/07	63.0	8.62	0.00	1.1	18.2	1.60	<0.10	<0.10	<0.10	<0.3	<5.0

NR = Not Required NM = Not Measured

River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #1	Baseline	Week of 8/15/05	5.35	NPP	9.38	2034	6.92	70.6	NR	NR	1.40	0.05	3.80	23.00	<0.05	1.90	66.00
	1st Quarter 2006	Week of 3/06/06	8.04	NPP	9.38	2233	7.04	52.0	0.83	186	1.50	<0.05	4.10	30.00	<0.12	3.80	72.00
	2nd Quarter 2006	Week of 6/17/06	6.80	NPP	9.38	2372	6.96	67.3	0.56	-15	2.60	<0.25	3.30	18.00	<0.62	4.30	40.00
	3rd Quarter 2006	Week of 9/11/06	5.68	NPP	9.38	3053	7.00	72.8	0.71	-50	3.20	<0.10	3.80	20.00	<0.25	3.50	98.00
	4th Quarter 2006	Week of 12/04/06	7.42	NPP	9.38	3631	6.99	57.3	NM	96	1.60	<0.10	3.20	20.00	<0.25	3.30	95.00
	1st Quarter 2007	Week of 2/26/07	7.79	NPP	9.38	3825	6.82	50.3	0.65	134	2.00	<0.10	6.30	32.00	<0.25	3.00	160.00
	2nd Quarter 2007	Week of 6/18/07	5.67	NPP	9.38	4907	6.93	65.9	0.31	185	1.90	<0.10	4.00	19.00	<0.25	2.10	70.00
	3rd Quarter 2007	Week of 8/20/07	6.24	NPP	9.38	4661	6.93	74.4	4.19	237	1.20	<0.10	4.20	20.00	<0.25	3.30	80.00
	4th Quarter 2007	Week of 10/29/07	5.29	NPP	9.38	4123	6.78	63.4	0.49	223	1.50	<0.001	3.80	18.00	<0.25	1.80	64.00
TP #2	Baseline	Week of 8/15/05	6.84	NPP	9.92	2225	6.85	65.2	NR	NR	6.10	8.70	4.20	25.00	<0.05	1.10	84.00
	1st Quarter 2006	Week of 3/06/06	9.83	NPP	9.92	1802	7.08	53.2	9.48	184	6.20	1.70	0.51	5.00	<0.12	9.90	27.00
	2nd Quarter 2006	Week of 6/17/06	8.27	NPP	9.92	3586	6.93	62.8	0.94	-216	3.60	2.40	2.80	14.00	<0.12	4.90	42.00
	3rd Quarter 2006	Week of 9/11/06	7.37	NPP	9.92	2531	7.03	67.4	0.65	-13	3.30	0.27	2.80	15.00	<0.25	1.30	77.00
	4th Quarter 2006	Week of 12/04/06	9.03	NPP	9.92	3548	6.92	53.5	2.14	177	1.70	<0.10	2.40	12.00	<0.25	1.50	41.00
	1st Quarter 2007	Week of 2/26/07	8.86	NPP	9.92	3783	6.82	51.4	1.45	171	4.30	<0.10	4.30	19.00	<0.25	2.10	94.00
	2nd Quarter 2007	Week of 6/18/07	7.50	NPP	9.92	2576	6.87	67.5	0.70	191	1.40	0.32	3.80	15.00	<0.25	<1.00	47.00
	3rd Quarter 2007	Week of 8/20/07	7.73	NPP	9.92	3771	6.97	71.0	1.78	217	0.64	<0.10	2.00	4.80	<0.25	1.00	28.00
	4th Quarter 2007	Week of 10/29/07	6.86	NPP	9.92	3507	6.96	62.4	0.85	217	1.50	<0.10	2.40	3.70	<0.25	1.40	22.00

NR = Not Required

NPP = No Product Present

River Terrace

Ground Water Monitoring

Field Measurements

											EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #3	Baseline	Week of 8/15/05	6.61	NPP	12.35	1295	6.85	68.4	NR	NR	<0.005	<0.005	<0.005	0.0012	<0.0025	<1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	8.09	NPP	12.35	1050	6.94	47.9	0.21	256	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	2nd Quarter 2006	Week of 6/17/06	7.23	NPP	12.35	856	6.99	62.1	0.98	179	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	7.41	NPP	12.35	779	6.99	68.0	0.33	233	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	4th Quarter 2006	Week of 12/04/06	7.77	NPP	12.35	673	7.06	54.8	1.32	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	7.52	NPP	12.35	839	6.89	47.0	1.65	248	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	7.02	NPP	12.35	560	6.85	60.8	3.12	211	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	7.62	NPP	12.35	815	6.97	66.2	2.67	246	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	6.94	NPP	12.35	806	6.87	62.3	3.40	254	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
TP #5	Baseline	Week of 8/15/05	5.91	NPP	8.84	923	6.90	68.7	NR	NR	0.35	<0.005	3.50	21.00	<0.05	1.20	56.00
	1st Quarter 2006	Week of 3/06/06	7.81	NPP	8.84	747	7.03	54.1	0.52	-51	0.20	<0.02	0.28	20.00	<0.05	<1.00	59.00
	2nd Quarter 2006	Week of 6/17/06	5.24	NPP	8.84	989	6.94	65.3	0.05	39	0.05	<0.001	1.60	16.00	<0.025	<3.00	34.00
	3rd Quarter 2006	Week of 9/11/06	5.32	NPP	8.84	879	7.09	71.0	0.29	149	<0.01	<0.01	3.10	16.00	<0.025	<1.00	110.00
	4th Quarter 2006	Week of 12/04/06	5.95	NPP	8.84	1377	6.99	56.0	1.36	229	0.07	<0.050	1.20	10.00	<0.120	<1.00	50.00
	1st Quarter 2007	Week of 2/26/07	5.59	NPP	8.84	1027	6.87	49.6	0.79	219	<0.01	<0.01	1.30	18.00	<0.025	<1.00	85.00
	2nd Quarter 2007	Week of 6/18/07	6.62	NPP	8.84	884	6.87	63.9	0.80	148	0.34	<0.10	3.50	21.00	<0.25	<1.00	78.00
	3rd Quarter 2007	Week of 8/20/07	6.97	NPP	8.84	911	6.88	69.8	0.17	129	0.30	<0.10	3.00	22.00	<0.25	<1.00	69.00
	4th Quarter 2007	Week of 10/29/07	4.78	NPP	8.84	857	7.04	66.5	0.23	229	<0.001	<0.001	2.60	17.00	<0.0025	1.20	56.00

NR = Not Required

NPP = No Product Present

River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #6	Baseline	Week of 8/15/05	5.78	NPP	9.94	1128	6.94	68.2	NR	NR	0.28	<0.01	2.80	7.50	<0.05	1.00	26.00
	1st Quarter 2006	Week of 3/06/06	8.61	NPP	9.94	602	7.35	52.3	0.63	153	<0.001	<0.001	0.18	0.75	<0.025	<1.00	2.70
	2nd Quarter 2006	Week of 6/17/06	6.18	NPP	9.94	1216	6.98	66.5	0.38	94	<0.001	<0.001	4.40	0.35	<0.025	<1.00	1.90
	3rd Quarter 2006	Week of 9/11/06	6.17	NPP	9.94	2698	7.02	69.4	0.76	45	0.03	<0.01	0.41	0.05	<0.025	<1.00	5.30
	4th Quarter 2006	Week of 12/04/06	6.61	NPP	9.94	1826	6.95	54.8	1.03	226	0.01	<0.001	<0.001	<0.003	<0.0025	<1.00	0.48
	1st Quarter 2007	Week of 2/26/07	6.39	NPP	9.94	1857	6.83	47.5	0.72	253	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.28
	2nd Quarter 2007	Week of 6/18/07	7.32	NPP	9.94	1361	6.89	62.2	1.19	220	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.11
	3rd Quarter 2007	Week of 8/20/07	7.65	NPP	9.94	1317	6.89	69.0	0.38	145	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.19
	4th Quarter 2007	Week of 10/29/07	5.70	NPP	9.94	1502	6.93	63.3	0.53	177	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.07
TP #7	Baseline	Week of 8/15/05	5.72	NPP	9.72	1740	6.89	68	NR	NR	<0.0005	<0.0005	0.00065	0.0049	<0.0025	<1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter 2006	Week of 6/17/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	3rd Quarter 2006	Week of 9/11/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	4th Quarter 2006	Week of 12/04/06	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter 2007	Week of 6/18/07	5.40	NPP	9.72	2795	6.83	59.2	0.39	222	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.05
	3rd Quarter 2007	Week of 8/20/07	6.20	NPP	9.72	2267	7.09	67.6	1.01	245	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	5.42	NPP	9.72	1066	6.89	59.7	1.10	253	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05

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River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #8	Baseline	Week of 8/15/05	6.61	NPP	9.72	1934	6.94	72.4	NR	NR	1.10	<0.05	3.20	25.00	<0.25	7.80	84.00
	1st Quarter 2006	Week of 3/06/06	8.92	NPP	9.72	1613	7.03	52.6	0.61	228	0.35	<0.10	1.10	10.00	<0.025	18.00	37.00
	2nd Quarter 2006	Week of 6/17/06	7.50	NPP	9.72	2032	7.01	67.6	0.48	143	0.26	<0.100	0.64	6.30	<0.025	6.80	19.00
	3rd Quarter 2006	Week of 9/11/06	6.21	NPP	9.72	2977	7.03	74.6	0.43	107	<0.01	<0.010	0.58	1.60	<0.025	5.60	57.00
	4th Quarter 2006	Week of 12/04/06	8.21	NPP	9.72	1855	7.04	57.3	1.56	187	0.04	<0.010	1.30	12.00	<0.025	1.40	79.00
	1st Quarter 2007	Week of 2/26/07	8.57	NPP	9.72	2964	6.95	50.5	2.45	208	<0.01	<0.01	1.30	13.00	<0.025	2.10	70.00
	2nd Quarter 2007	Week of 6/18/07	6.22	NPP	9.72	2704	6.92	66..3	1.21	160	<0.01	<0.01	0.29	8.60	<0.025	1.20	35.00
	3rd Quarter 2007	Week of 8/20/07	6.67	NPP	9.72	3084	6.89	74.4	0.36	245	<0.01	<0.01	0.48	3.70	<0.025	1.70	31.00
	4th Quarter 2007	Week of 10/29/07	5.81	NPP	9.72	2555	6.88	64.1	0.77	185	<0.01	<0.01	0.38	1.50	<0.025	1.60	14.00
TP #9	Baseline	Week of 8/15/05	5.12	NPP	10.97	1968	6.92	62.8	NR	NR	<0.005	<0.001	<0.003	0.02	0.027	<1.00	1.10
	1st Quarter 2006	Week of 3/06/06	5.21	NPP	10.97	1944	7.02	47.8	0.75	214	<0.001	<0.001	<0.003	<0.003	<0.0025	<1.00	0.09
	2nd Quarter 2006	Week of 6/17/06	5.26	NPP	10.97	1883	7.02	60.6	0.39	169	<0.001	<0.001	0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	5.48	NPP	10.97	1809	7.04	64.8	1.09	219	<0.001	<0.001	0.001	<0.003	<0.0025	<1.00	0.72
	4th Quarter 2006	Week of 12/04/06	5.39	NPP	10.97	2149	7.06	51.9	1.37	254	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	5.07	NPP	10.97	2379	6.85	46.1	0.85	173	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	4.73	NPP	10.97	2035	6.90	58.5	0.31	224	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	5.18	NPP	10.97	1342	7.11	67.5	1.15	136	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	4.94	NPP	10.97	875	6.98	61.7	0.41	218	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05

NR = Not Required

NPP = No Product Present

River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #10	Baseline	Week of 8/15/05	5.10	NPP	9.95	377	6.94	71.2	NR	NR	<0.0005	<0.0005	<0.0005	0.0025	<0.0025	<1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	5.86	NPP	9.95	355	6.99	42.8	1.72	224	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	2nd Quarter 2006	Week of 6/17/06	5.23	NPP	9.95	325	7.01	59.8	1.52	168	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	5.26	NPP	9.95	395	6.97	62.6	0.45	247	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	4th Quarter 2006	Week of 12/04/06	5.57	NPP	9.95	387	7.00	44.9	1.44	269	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	5.23	NPP	9.95	426	6.85	41.1	3.87	233	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	4.62	NPP	9.95	268	6.86	57.2	7.32	213	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	5.32	NPP	9.95	368	6.98	61.8	1.16	230	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	4.74	NPP	9.95	307	6.90	51.3	2.28	253	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
TP #11	Baseline	Week of 8/15/05	5.67	NPP	9.98	794	6.93	68.2	NR	NR	<0.0005	<0.0005	<0.0005	0.0028	<0.0025	<1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	6.31	NPP	9.98	851	6.92	45.4	0.24	243	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	2nd Quarter 2006	Week of 6/17/06	5.61	NPP	9.98	551	6.98	62.6	1.11	177	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	5.69	NPP	9.98	632	7.06	67.7	0.36	269	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	4th Quarter 2006	Week of 12/04/06	6.00	NPP	9.98	738	7.07	52.8	0.97	257	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	5.69	NPP	9.98	540	6.87	44.2	1.45	262	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	5.17	NPP	9.98	378	6.84	62.5	1.69	217	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	5.75	NPP	9.98	596	7.02	69.4	1.49	226	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	5.18	NPP	9.98	541	6.93	56.6	0.59	242	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05

NR = Not Required

NPP = No Product Present

River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B WQCC 20NMAC 6.2.3103					EPA Method 8015B TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #12	Baseline	Week of 8/15/05	7.43	NPP	11.79	2143	6.88	64.1	NR	NR	<0.0005	<0.0005	0.00055	0.0042	0.0028	1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	7.94	NPP	11.79	1234	6.91	48.0	0.19	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	2nd Quarter 2006	Week of 6/17/06	7.44	NPP	11.79	1171	7.00	55.9	0.26	157	<0.001	<0.001	<0.001	<0.003	0.0049	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	7.48	NPP	11.79	1875	6.98	60.0	0.91	237	<0.001	<0.001	<0.001	<0.003	0.0081	<1.00	<0.05
	4th Quarter 2006	Week of 12/04/06	7.67	NPP	11.79	855	6.99	52.8	3.11	252	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	7.40	NPP	11.79	952	6.92	48.2	1.73	205	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	6.82	NPP	11.79	1750	6.81	56.7	2.04	242	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	6.36	NPP	11.79	2189	6.97	57.1	1.6	238	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	6.92	NPP	11.79	1745	6.85	54.3	0.56	271	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
TP #13	Baseline	Week of 8/15/05	6.27	NPP	16.09	1226	6.97	58.4	NR	NR	<0.0005	<0.0005	<0.0005	0.0037	<0.0025	<1.00	<0.05
	1st Quarter 2006	Week of 3/06/06	6.78	NPP	16.09	508	6.90	46.3	0.28	242	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	2nd Quarter 2006	Week of 6/17/06	6.35	NPP	16.09	526	7.02	58.6	0.28	240	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	6.33	NPP	16.09	554	6.98	63.9	0.54	244	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	4th Quarter 2006	Week of 12/04/06	6.51	NPP	16.09	515	7.08	53.9	0.97	251	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	1st Quarter 2007	Week of 2/26/07	6.16	NPP	16.09	449	6.97	46.7	1.86	236	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	2nd Quarter 2007	Week of 6/18/07	5.63	NPP	16.09	563	6.86	56.3	1.43	207	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	6.17	NPP	16.09	472	7.04	58.3	1.29	220	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	5.80	NPP	16.09	342	6.99	58.6	0.74	237	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05

NR = Not Required

NPP = No Product Present

River Terrace

Ground Water Monitoring

			Field Measurements								EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O. (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
DW #1	Baseline	Week of 8/15/05	6.43	NPP	15.62	1226	6.97	58.4	NR	NR	<0.001	<0.001	<0.001	0.0031	<0.001	NR	NR
	1st Quarter 2006	Week of 3/06/06	7.91	NPP	15.62	2118	6.95	50.2	0.75	-64	<0.005	<0.005	0.041	0.23	<0.012	2.20	2.80
	2nd Quarter 2006	Week of 6/17/06	6.49	NPP	15.62	2329	6.96	58.0	0.42	143	<0.001	<0.001	0.016	0.12	<0.0025	1.60	0.90
	3rd Quarter 2006	Week of 9/11/06	6.39	NPP	15.62	2067	7.04	66.2	0.30	258	<0.005	<0.005	<0.005	<0.015	<0.012	<1.00	1.20
	4th Quarter 2006	Week of 12/04/06	5.58	NPP	15.62	2789	7.01	52.7	1.24	281	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	0.09
	1st Quarter 2007	Week of 2/26/07	6.11	NPP	15.62	3126	6.88	48.1	0.65	235	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.29
	2nd Quarter 2007	Week of 6/18/07	5.81	NPP	15.62	2548	6.75	58.6	4.59	257	<0.001	<0.001	<0.001	0.0026	<0.0025	<1.00	0.15
	3rd Quarter 2007	Week of 8/20/07	6.71	NPP	15.62	1928	7.05	65.7	0.27	155	<0.001	<0.001	<0.001	0.01	<0.0025	<1.00	0.29
	4th Quarter 2007	Week of 10/29/07	5.80	NPP	15.62	1990	6.88	62.9	0.62	294	<0.001	<0.001	<0.001	0.01	<0.0025	<1.00	0.06
MW #49	Baseline	Week of 8/15/05	9.57	NPP	16.48	2393	6.96	59.8	NR	NR	0.093	<0.002	0.015	0.0041	<0.002	NR	NR
	1st Quarter 2006	Week of 3/06/06	10.07	NPP	16.48	961	7.07	51.9	0.33	190	<0.001	<0.001	<0.001	0.0061	<0.0025	<1.00	0.074
	2nd Quarter 2006	Week of 6/17/06	9.98	NPP	16.48	701	7.01	57.9	0.26	181	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	<0.05
	3rd Quarter 2006	Week of 9/11/06	9.38	NPP	16.48	1736	7.04	64.4	0.89	234	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	0.23
	4th Quarter 2006	Week of 12/04/06	9.16	NPP	16.48	2356	7.07	56.2	0.78	295	<0.001	<0.001	<0.001	<0.003	<0.0025	<1.00	0.081
	1st Quarter 2007	Week of 2/26/07	8.79	NPP	16.48	2568	6.90	48.4	0.73	265	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.05
	2nd Quarter 2007	Week of 6/18/07	8.41	NPP	16.48	1217	6.95	57.5	0.49	217	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	3rd Quarter 2007	Week of 8/20/07	9.30	NPP	16.48	924	6.86	63.9	0.52	192	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	<0.05
	4th Quarter 2007	Week of 10/29/07	8.62	NPP	16.48	2740	6.95	62.3	0.39	265	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.00	0.05

NR = Not Required

NPP = No Product Present

River Terrace

Groundwater Monitoring - Total Metals

			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
Sample Location	Sampling Activities	Date	Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
TP - #1	Baseline	Week of 1/04/06	0.62	<0.006	0.038	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.14	<0.006	0.240	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.074	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.044	NR	NR	NR	NR	NR	
TP - #2	Baseline	Week of 1/04/06	0.85	<0.006	0.016	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.29	<0.006	0.067	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.019	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.007	NR	NR	NR	NR	NR	
TP - #3	Baseline	Week of 1/04/06	0.11	<0.006	0.014	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.2	0.008	0.007	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.010	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	

NR = Not Required

River Terrace

Groundwater Monitoring - Total Metals

Sample Location	Sampling Activities	Date	WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
			Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
TP - #5	Baseline	Week of 1/04/06	0.45	<0.006	0.038	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.21	<0.006	0.09	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.044	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.032	NR	NR	NR	NR	NR	
TP - #6	Baseline	Week of 1/04/06	0.46	<0.006	0.014	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.38	<0.006	0.03	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.009	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	
TP - #7	Baseline	Week of 1/04/06	NR	NR	NR	NR	NR	NR	NR	NR	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.075	<0.006	<0.005	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.006	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	

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River Terrace

Groundwater Monitoring - Total Metals

			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
Sample Location	Sampling Activities	Date	Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
TP - #8	Baseline	Week of 1/04/06	2.2	<0.006	0.02	<0.0002	<0.02	<0.002	<0.02	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.44	<0.006	0.054	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.027	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.30	NR	NR	NR	NR	NR	
TP - #9	Baseline	Week of 1/04/06	0.28	<0.006	<0.005	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.91	0.018	0.020	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.013	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	
TP - #10	Baseline	Week of 1/04/06	0.46	0.007	0.015	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.41	0.024	0.009	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.006	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	

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River Terrace

Groundwater Monitoring - Total Metals

			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
Sample Location	Sampling Activities	Date	Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
TP - #11	Baseline	Week of 1/04/06	0.12	<0.006	0.0093	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.33	0.013	0.015	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.010	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.006	NR	NR	NR	NR	NR	
TP - #12	Baseline	Week of 1/04/06	0.2	<0.006	0.016	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.21	0.010	0.016	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.021	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	0.010	NR	NR	NR	NR	NR	
TP - #13	Baseline	Week of 1/04/06	Jan-00	<0.006	<0.005	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2007	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.42	0.019	0.011	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.012	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	

NR = Not Required

River Terrace

Groundwater Monitoring - Total Metals

			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
Sample Location	Sampling Activities	Date	Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
MW - #49	Baseline	Week of 1/04/06	0.15	<0.006	<0.005	<0.0002	<0.02	<0.002	<0.05	<0.005	
	1st Quarter 2006	Week of 3/06/06	NR	<0.006	<0.005	NR	NR	NR	NR	NR	
	2nd Quarter 2006	Week of 6/17/06	NR	<0.006	<0.005	NR	NR	NR	NR	NR	
	3rd Quarter 2006	Week of 9/11/06	NR	0.006	<0.005	NR	NR	NR	NR	NR	
	4th Quarter 2006	Week of 12/04/06	NR	<0.006	<0.005	NR	NR	NR	NR	NR	
	1st Quarter 2007	Week of 2/26/07	NR	<0.006	<0.005	NR	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.064	<0.006	<0.005	NR	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	<0.005	NR	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	NR	NR	NR	NR	NR	

NR = Not Required

River Terrace

Groundwater Monitoring - Total Metals

			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)						EPA Method 6010 & 7470
Sample Location	Sampling Activities	Date	Barium (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	Arsenic (mg/L)	Cadmium (mg/L)	Se (mg/L)	Silver (mg/L)	
			2	0.1	0.015	0.002	0.05	0.005	0.05	0.05	
DW - #1	Baseline	Week of 1/04/06	0.45	<0.006	<0.005	0.011	<0.02	<0.002	<0.05	<0.005	
	Resample	Week of 19/06	NR	NR	NR	0.016	NR	NR	NR	NR	
	1st Quarter 2006	Week of 3/06/06	NR	NR	NR	0.021	NR	NR	NR	NR	
	2nd Quarter 2006	Week of 6/17/06	NR	NR	NR	0.052	NR	NR	NR	NR	
	3rd Quarter 2006	Week of 9/11/06	NR	NR	NR	0.0047	NR	NR	NR	NR	
	4th Quarter 2006	Week of 12/04/06	NR	NR	NR	0.00069	NR	NR	NR	NR	
	1st Quarter 2007	Week of 2/26/07	NR	<0.006	<0.005	0.002	NR	NR	NR	NR	
	2nd Quarter 2007 (Annual)	Week of 6/18/07	0.93	<0.03	<0.025	<0.0002	NR	NR	NR	NR	
	3rd Quarter 2007	Week of 8/20/07	NR	NR	0.009	<0.0002	NR	NR	NR	NR	
	4th Quarter 2007	Week of 10/29/07	NR	NR	<0.005	<0.0002	NR	NR	NR	NR	

NR = Not Required

River Terrace

BV Air Pressure 2007

Sample Location	Sampling Activities	Date	Time	Velocity (scfm)	Pressure (psi)
BV - 1	1st Quarter	2/26/2007	1344	10.0	2.0
	2nd Quarter	6/18/2007	1123	10.0	2.0
	3rd Quarter	8/20/2007	1014	12.0	2.0
	4th Quarter	10/29/2007	901	10.0	2.2
BV - 2	1st Quarter	2/26/2007	1345	9.0	1.9
	2nd Quarter	6/18/2007	1124	4.0	2.0
	3rd Quarter	8/20/2007	1013	6.0	1.9
	4th Quarter	10/29/2007	902	4.0	2.0
BV - 3	1st Quarter	2/26/2007	1348	12.0	1.9
	2nd Quarter	6/18/2007	1125	14.0	1.9
	3rd Quarter	8/20/2007	1010	14.0	1.9
	4th Quarter	10/29/2007	900	16.0	2.0
BV - 4	1st Quarter	2/26/2007	1347	11.0	1.9
	2nd Quarter	6/18/2007	1003	5.0	2.0
	3rd Quarter	8/20/2007	1011	6.0	1.9
	4th Quarter	10/29/2007	859	11.0	2.2
BV - 5	1st Quarter	2/26/2007	1353	12.0	1.9
	2nd Quarter	6/18/2007	1120	14.0	1.9
	3rd Quarter	8/20/2007	1009	10.0	1.9
	4th Quarter	10/29/2007	850	16.0	2.0
BV - 6	1st Quarter	2/26/2007	1346	12.0	1.9
	2nd Quarter	6/18/2007	1005	7.0	2.0
	3rd Quarter	8/20/2007	1012	10.0	1.9
	4th Quarter	10/29/2007	858	8.0	2.0
BV - 7	1st Quarter	2/26/2007	1351	12.0	2.0
	2nd Quarter	6/18/2007	1121	13.0	1.9
	3rd Quarter	8/20/2007	1008	12.0	1.9
	4th Quarter	10/29/2007	851	12.0	2.1

River Terrace

BV Air Pressure 2007

Sample Location	Sampling Activities	Date	Time	Velocity (scfm)	Pressure (psi)
BV - 8	1st Quarter	2/26/2007	1352	12.0	1.9
	2nd Quarter	6/18/2007	1119	14.0	1.9
	3rd Quarter	8/20/2007	1000	14.0	1.9
	4th Quarter	10/29/2007	853	16.0	2.0
BV - 9	1st Quarter	2/26/2007	1350	10.0	1.9
	2nd Quarter	6/18/2007	1122	9.0	2.0
	3rd Quarter	8/20/2007	1007	8.0	1.9
	4th Quarter	10/29/2007	856	8.0	2.0
BV - 10	1st Quarter	2/26/2007	1354	12.0	1.9
	2nd Quarter	6/18/2007	1118	14.0	2.0
	3rd Quarter	8/20/2007	1002	15.0	1.9
	4th Quarter	10/29/2007	852	14.0	2.0
BV - 11	1st Quarter	2/26/2007	1349	12.0	1.9
	2nd Quarter	6/18/2007	1126	8.0	1.9
	3rd Quarter	8/20/2007	1006	8.0	1.9
	4th Quarter	10/29/2007	857	6.0	2.0
BV - 12	1st Quarter	2/26/2007	1355	11.0	1.9
	2nd Quarter	6/18/2007	1117	12.0	1.9
	3rd Quarter	8/20/2007	1004	12.0	1.9
	4th Quarter	10/29/2007	854	14.0	2.1
BV - 13	1st Quarter	2/26/2007	1356	12.0	2.0
	2nd Quarter	6/18/2007	1116	12.0	1.9
	3rd Quarter	8/20/2007	1005	11.0	1.9
	4th Quarter	10/29/2007	855	13.0	2.0

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			EPA Method 8021B WQCC 20NMAC 6.2.3103				EPA Method 8015B	
			WQCC 20NMAC 6.2.3103				TPH Screening Guidelines Table 2a	
			0.01	0.75	0.75	0.62	1.72	
Sample Location	Sampling Event	DATE	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	DRO (mg/L)	GRO (mg/L)
GAC INF	1st Quarter	03/13/07	0.230	0.039	0.860	2.900	<1.0	12.00
	2nd Quarter	06/20/07	0.350	<0.02	0.730	0.700	1.4	4.80
	3rd Quarter	07/12/07	0.055	<0.001	0.830	4.100	<1.0	17.00
	4th Quarter	10/09/07	0.037	<0.001	0.760	3.900	<1.0	16.00
GAC 2 EFF (V-611) North Filter		01/11/07	Dewatering pumps at MW #48 and DW #2were pulled. Purchased new pumps that were installed 02/06/07					
		02/20/07	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		02/27/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/06/07	Pumps down due to Break and Repair of Discharge Piping					
Became Lead Filter on April 30, 2007 When V-612 was Taken Out of Service and replaced on June13, 2007. V-611 is now the Lead Filter	1st Quarter	03/13/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/26/07	Pumps down due to the San Juan River Sediment Load					
		04/02/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		04/12/07	Pumps down because Fresh Water Ponds are Full					
		04/16/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		04/25/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
	Lead Filter	05/02/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		05/09/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		05/15/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
	2nd Quarter	06/20/07	0.0025	<0.001	0.0015	0.002	<1.0	<0.050
	3rd Quarter	07/12/07	0.002	<0.001	0.012	0.078	<1.0	0.28
		07/23/07	Pumps down due to the San Juan River Sediment Load					
		08/14/07	<0.001	<0.001	0.002	0.006	<1.0	<0.050
		09/10/07	<0.001	<0.001	<0.001	<0.002		
	4th Quarter	10/09/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		11/08/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		12/12/07	Pumps down because Fresh Water Ponds are Full					

GAC Filter Monitoring 2007 Annual Report

			EPA Method 8021B WQCC 20NMAC 6.2.3103				EPA Method 8015B	
			WQCC 20NMAC 6.2.3103				TPH Screening Guidelines Table 2a	
			0.01	0.75	0.75	0.62	1.72	
Sample Location	Sampling Event	DATE	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	DRO (mg/L)	GRO (mg/L)
GAC 1 EFF (V-612) South Filter		01/03/07	<0.001	<0.001	<0.001	<0.003	6.2	0.093
		01/10/07	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		01/11/07	Dewatering pumps at MW #48 and DW #2were pulled. Purchased new pumps that were installed 02/06/07					
Lead Filter Until April 30, 2007 When it was Taken Out of Service and replaced on June13, 2007. Now the Lag Filter		02/08/07	0.003	<0.001	<0.001	<0.003	<1.0	<0.050
		02/20/07	0.002	<0.001	<0.001	<0.003	<1.0	<0.050
		02/27/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/06/07	Pumps down due to Break and Repair of Discharge Piping					
	1st Quarter	03/13/07	0.003	<0.001	<0.001	<0.002	<1.0	<0.050
		03/21/07	0.003	<0.001	<0.001	<0.002	1.2	0.051
		03/26/07	Pumps down due to the San Juan River Sediment Load					
		04/02/07	0.014	<0.001	<0.001	<0.002	<1.0	0.071
		04/12/07	Pumps down because Fresh Water Ponds are Full					
		04/16/07	0.028	<0.001	<0.001	<0.002	<1.0	0.11
		04/25/07	0.014	<0.001	<0.001	<0.002	<1.0	0.074
	2nd Quarter (Lag Filter)	6/20/087	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
	3rd Quarter	07/12/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		07/23/07	Pumps down due to the San Juan River Sediment Load					
		08/14/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		09/10/07	<0.001	<0.001	<0.001	<0.002		
	4th Quarter	10/09/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		12/12/07	Pumps down because Fresh Water Ponds are Full					

Section 6.0 In-Situ Respiration Test

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Tables	6
Figures	7
Appendix A	8

River Terrace Bioventing System
2007 In Situ Respiration Test Summary
Giant Refinery – Bloomfield, New Mexico

INTRODUCTION

Purpose

In September 2007, Bloomfield Refinery performed an in situ respiration test to evaluate the effectiveness of the River Terrace bioventing system by assessing the in situ biodegradation rates within and near the impacted soil zone. The respiration rate test consisted of monitoring the rate at which oxygen is depleted and carbon dioxide is generated after the air supply is turned off. The in situ respiration test was performed following methods consistent with the sampling regimen described in Soil Bioventing Principles and Practice (Lesson, 1997) and as described in the Bioventing System Monitoring Plan Amendment (MPI, 2006). The 2007 in situ monitoring data was compared to the data collected during the initial in situ respiration test conducted in May 2006 to monitor progress of bioremediation activity within the western portion of the River Terrace over the past 16 months of system operation.

Background

The objective of a bioventing system is to elevate depressed oxygen concentrations in soil gas in the presence of biodegradable organic compounds, like petroleum hydrocarbons. When petroleum hydrocarbons are introduced to soils, naturally-occurring bacteria use oxygen to metabolize the hydrocarbons for energy and cell growth. Hydrocarbon impacted shallow soils (approximately 0 to 3 feet below grade) are commonly treated under natural conditions because oxygen is constantly replenished from the atmosphere, supporting constant microbial activity. Hydrocarbon releases that penetrate deeper into the subsurface may reach a depth at which the atmosphere is unable to naturally replenish oxygen that is consumed by the microbes as hydrocarbons are consumed. Therefore, in a deeper impacted soil zone, oxygen concentrations in soil gas commonly decrease to near 0 percent (%) by volume while carbon dioxide concentrations increase. Once the oxygen is gone, biodegradation of hydrocarbons by aerobic processes stops.

Bioventing systems are designed to provide adequate oxygen to support continuing aerobic metabolism of organics by soil microbes within the deeper area of the subsurface. Once oxygen levels in soil gas are elevated above 5% by volume through air injection, the concentration of oxygen is no longer limiting the rate at which the biodegradation reaction proceeds. With such abundant oxygen, the concentration of the food source, or hydrocarbon, is usually the factor that determines biodegradation rates.

At the Bloomfield Refinery, a bioventing system was installed to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons that were identified in soil within the western portion of the River Terrace to a depth of approximately 8 feet below existing grade surface (bgs). The bioventing system includes a dewatering system to enhance the effectiveness of the bioventing system by depressing the water table within the influenced area (western portion of the River Terrace) so as to optimize bioremedial activity.

2007 IN SITU RESPIRATION TEST

During the week of September 17th, 2007, an in situ respiration test was performed in order to estimate the rate at which oxygen is depleted by microbial activity in the soil following over 20 months of system operation. This was the second in situ test performed since the start-up of the bioventing system. During the respiration test, the supply of oxygen from the engineered system was turned off while the dewatering system remained operational. With no oxygen being added to the subsurface, oxygen, carbon dioxide, and VOC concentrations in soil gas were monitored in the field over a 72-hour period. Oxygen concentration trend graphs were developed to estimate oxygen utilization and biodegradation rates within the soils.

Data Collection

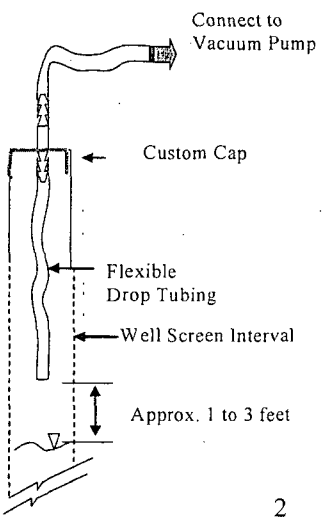
Groundwater Level Monitoring

Prior to starting the respiration test, depth-to-groundwater measurements were collected from each of the BV and TP wells within the bioventing system well field. The dewatering system, which consists of two wells (DW-2 and MW-48) each equipped with variable-speed pumps, are used to depress the groundwater elevation within the western portion of the River Terrace area and enhance the effects of the bioventing system.

The groundwater level measurements were used to determine how far to extend dedicated sample tubing into each well casing for soil gas sample collection. Table 1 summarizes the depth-to-groundwater measurements collected prior to initiating the respiration test, and the approximate depth to which the sampling tubing was set for each sampling location.

Soil Gas Sampling

Initial soil gas samples were collected from each temporary piezometer (TP) within the bioventing area before the air supply was turned off, and then again as soon as possible after the air supply was turned off. The initial baseline samples were collected to ensure the entire well field was sufficiently oxygenated (with oxygen concentrations above 10% by volume) and to be able to calculate the change in oxygen concentration levels over the 72 hour test period.



Typical Set-Up for Soil Gas Sampling

With the supply of oxygen from the engineered system turned off, soil gas samples were collected from each BV well (BV-1 through BW-13) and specified TP wells (TP-1, -2, -5, -6, -7, -8, and -9) at a frequency outlined in the Bioventing System Monitoring Plan Amendment letter (MPI, 2006). In order to collect soil gas samples, each sample well was equipped with dedicated Teflon tubing and an air-tight well seal to prevent ambient air from filling the well casing between sample collection intervals. Sample tubing extended down into each well casing to approximately 1 to 3 feet above the groundwater surface (refer to Table 1). Samples collected from different intervals throughout the well field allowed for interpretation of biodegradation rates representative of the entire influence area.

A minimum of three well volumes of soil gas was purged before collecting each soil gas sample. After the soil sample is collected, the end of the dedicated tubing at each well head was sealed to prevent air from being drawn into the well between sample collection events.

Oxygen, carbon dioxide, and volatile organic compound (VOC) concentrations were monitored at each BV and specified TP well using a multi-gas meter and VOC analyzer. Soil gas samples were collected from the TP wells every hour for the first eight hours, and every 12 hours (at a minimum) for the remainder of the 72 hour respiration test. Soil gas samples were collected from each BV well every 12 hours for 72 hours. Soil gas measurements collected at the TP wells and BV wells are summarized in Table 2 and Table 3, respectively.

ANALYSIS AND CONCLUSIONS

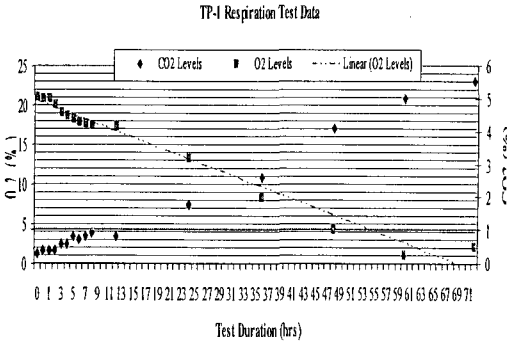
Data Analysis

The most important data that reflects the in situ biodegradation rate is the rate at which oxygen is consumed by soil microbes, known as the oxygen utilization rate (OUR). The rate at which petroleum hydrocarbons are being degraded in situ is derived from the OUR using stoichiometry and estimates of soil properties at the Site. This in situ biodegradation rate is expressed in terms of the mass of hydrocarbons (in mg) being degraded per unit soil (in kilograms) per unit of time (usually days), or mg/kg-d.

Oxygen Utilization Rate

Oxygen and carbon dioxide concentration versus time plots were developed for each TP and BV well within the influenced area. A linear trend line was fitted to each O_2 data set using Microsoft Excel. The negative slope of the trend line is interpreted as the oxygen utilization rate, which by using soil properties and stoichiometry, translates into an estimate of the rate at which organics are being

Example of Soil Gas Data Trend Graph



biodegraded by the soil microbes. The oxygen utilization rate trend graphs for each data set are provided in Appendix A. Oxygen concentration levels greater than 5% by volume represent in situ conditions in which oxygen is not limiting the rate of biodegradation.

The R^2 value for each linear regression line reflects how closely the estimated values for the trend line correspond to the actual data. Higher R^2 values are indicators of consistent sample collection techniques. The R^2 values for each data set are included on each respective oxygen utilization rate trend graph (Appendix A).

Biodegradation Rate

Variables used in calculating the biodegradation rate from the oxidation utilization rate, chemical properties, and soil properties are as follows:

Biodegradation Rate, *mg/kg*day*	k_b	Calculated
Oxygen Utilization Rate, *%/day*	k_o	from linear regression
Gas-Filled Pore Space, *mg3*gas / cm3*soil*	$\square_a$ =	0.25
Density of Oxygen, *mg/liter*	$\square_{o2}$ =	1330
Mass Ratio of Hydrocarbons to Oxygen Required for Mineralization, *gm of HC / gm of O_2*	C =	0.283
Soil Bulk Density, *gm/cm3*	$\square_s$ =	1.4

Therefore, the biodegradation rate is calculated using the following equation:

Biodegradation Rate

$$k_b = \frac{(-k_o * \square_{O2} * \square_a * C * 0.01)}{\square_s}$$

The biodegradation rate for each data set was calculated using the above equation and calculated OUR. A summary of the biodegradation rates calculated for each TP and BV well are summarized in Table 4.

The calculated biodegradation rate for each monitoring location was plotted on a well location map to show the biodegradation rate distribution throughout the area influenced by the bioventing system (refer to Figure 1).

Conclusions

The 2007 in situ monitoring data was reviewed and compared to the data collected during the initial in situ respiration test conducted in May 2006.

Comparison of the two data sets allow for interpretation in progress of bioremediation activity at the River Terrace over the most recent 16 months of system operation. Based on evaluation of the 2007 data collected during the in situ respiration and in situ monitoring results collected in 2006, the following interpretations were made:

Groundwater Elevation Data

- The average depth-to-groundwater measurement prior to staring the 2007 in situ monitoring was approximately 7.5 feet below grade surface (ft bgs). During 2006 in situ monitoring, the average depth-to-groundwater was approximately 7.6 ft. Based on similar drawdown condition when the two in situ monitoring events were conducted, comparative results from the two events allow for interpretation of bioremedial progress within the target area. A comparison of the depth-to-groundwater levels and corresponding soil gas sample interval for each monitoring well is included below.

Groundwater Levels and Soil Gas Sample Interval Summary

Well ID	Depth-to-Groundwater (2006) *(ft bgs)*	Depth-to-Groundwater (2007) *(ft bgs)*	Difference between 2006 and 2007 events	Soil Gas Sample Depth (2006) *(ft bgs)*	Soil Gas Sample Depth (2007) *(ft bgs)*
TP-1	6.7	5.9	0.8	5	4.5
TP-2	8.5	7.6	0.9	7.5	6.5
TP-5	7.6	5.2	2.4	6	4.5
TP-6	7.4	5.9	1.5	4	4
TP-7	NA	5.8	NA	NA	5
TP-8	6.8	6.3	0.5	5	5
TP-9	4.3	5.0	-0.7	3	3.5
BV-1	6.2	7	-0.8	4.5	5
BV-2	6.5	7.2	-0.7	5	6
BV-3	8	7.5	0.5	6	6
BV-4	7.1	7.7	-0.6	5	6
BV-5	8.8	8.6	0.2	7	7
BV-6	7	7.7	-0.7	5	6
BV-7	7.1	7.8	-0.7	5	6
BV-8	12.6	12.3	0.3	9	10.5
BV-9	7	7.7	-0.7	5	6.5
BV-10	9.1	9.5	-0.4	7	8
BV-11	7.1	7.8	-0.7	5	6.5
BV-12	9	8.7	0.3	7	7
BV-13	8.2	8.0	0.2	7	6

Note:

ft bgs = feet below grade surface

Field Soil Gas Data

- Initial oxygen concentrations detected prior to the start of the 2007 respiration test show that the well field was well oxygenated. Similar conditions existed during the 2006 monitoring event. With such abundance of oxygen, the rate at which oxygen was consumed during the test is more reflective of the amount of food source available (hydrocarbons) to the microbes.

- The decreasing concentration (percent by volume) of oxygen and increasing concentration of carbon dioxide over time is a common indicator of biodegradation. The soil gas concentrations detected over the 72 hour monitoring period during the 2007 monitoring event from the TP and BV wells support the continued presence of active biodegradation within the River Terrace area.

Oxygen Utilization Rates

- Oxygen and carbon dioxide concentration versus time plots were developed to determine the oxygen utilization rate at each monitored location. The distribution of the data sorted by oxygen utilization rate revealed that the TPs consistently yielded greater oxidation utilization rates than the BV wells (even though spatial distribution of both well types is about the same). The lag in the oxygen utilization rates, and thus lower biodegradation rates, at the BV wells when compared to rates monitored at adjacent TP wells is likely attributed to how the wells are constructed and the fact that the BV wells serve as the injection point for oxygen. The larger bore hole and filter pack around the BV well casings create a longer diffusion pathway for vapors from the soil to migrate, and thus requires a longer time to equilibrate between the soil formation and the inside of the well bore. In addition, the high flow of air into the subsurface through the BV wells can likely cause contaminants within the vicinity of the BV borehole to be stripped from the adjacent soil matrix, thus resulting in lower microbial activity due to lack of food source (petroleum hydrocarbons) for the microbes .

  The TP wells yielded more responsive and representative results because the wells are constructed with smaller diameter well casings and constructed without filter pack. Those features allow for more responsive monitoring of in situ gas changes. Similar results were evident following evaluation of the 2006 respiration test data.

- The linear regression line R^2 (data correlation) value for each data set reflects the precision of the data. The 2007 data correlation values were generally higher than 0.75, with the average correlation value being 0.70. Linear regression lines with R^2 values above 0.7 are considered indicators of good and consistent sample collection techniques. Lower linear regression values may be attributed to the dynamics of the subsurface environment.

Biodegradation Rates

- Based on 2007 in situ respiration results, the average biodegradation rate measured from the BV wells was 0.67 mg/kg-d, with the highest rate detected at BV-6 (1.77 mg/kg-d). The average biodegradation rate from data collected at the TP wells was 1.36 mg/kg-d, with the highest rate detected at TP-5 (3.56

mg/kg-d). The utilization of oxygen by microbes at TP-9 was not detected (due to a positive OUR value); therefore no biodegradation rate was calculated.

The average biodegradation rate detected at the TP wells decreased by approximately 57% between the 2006 and 2007 respiration test events, with the average biodegradation rate for 2006 and 2007 being 3.16 mg/kg-d and 1.36 mg/kg-d, respectively. Similar conclusions are supported by the average biodegradation rates detected at the BV wells; the average biodegradation rate detected during the 2006 and 2007 test events were 1.82 mg/kg-d and 0.67 mg/kg-d, respectively. The lower biodegradation rates over time are indicators of successful progress in bioremediation in the subsurface. Figure 1 provides a comparison of biodegradation rates detected during the 2006 and 2007 in situ respiration test for each monitored TP and BV well.

- The significantly lower detected biodegradation activity at wells TP-6, TP-7, and TP-9 continue to support the notion that the wells may be positioned outside the influenced area. Refer to additional River Terrace analytical data for additional supporting information based on groundwater and field parameter data collected over time.
- Since the 2006 and 2007 in situ respiration tests were conducted under similar subsurface conditions, the comparative different in the biodegradation rate is most likely the result of a decreased food source (hydrocarbon), thus resulting in low biodegradation activity.

REFERENCES

1. Leeson, A. and R.E. Hinchee. 1997. "Soil Bioventing Principles and Practice," CRC Press. NY.
2. Malcolm Pirnie, Inc. (MPI), 2005. "Bioventing System Monitoring Plan (Revised)," Giant Refinery Company Bloomfield, October 28, 2005.
3. Malcolm Pirnie, Inc. 2006. "Bioventing System Monitoring Plan Amendment," Giant Refinery Company Bloomfield, May 18, 2006.

Table 1 - Groundwater Level and 2007 In Situ Sampling Depth Summary

River Terrace Bioventing System
2007 In Situ Repiration Test Summary

Well ID	Depth to Groundwater (2007) *(ft bgs)*	Soil Gas Sample Depth (2007) *(ft bgs)*
TP-1	5.9	5.0
TP-2	7.6	7.5
TP-5	5.2	6.0
TP-6	5.9	4.0
TP-7	5.8	5.0
TP-8	6.3	5.0
TP-9	5.0	3.0
BV-1	7.0	4.5
BV-2	7.2	5
BV-3	7.5	6
BV-4	7.7	5
BV-5	8.6	7
BV-6	7.7	5
BV-7	7.8	5
BV-8	12.3	9
BV-9	7.7	5
BV-10	9.5	7
BV-11	7.8	5
BV-12	8.7	7
BV-13	8.0	7

Notes:
ft = feet
bgs = below ground surface

Table 2 - TP Well Soil Gas Data Summary

River Terrace Bioventing System
2007 In Situ Respiration Test Summary

TP-1

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-1	18.6	1.0	190.0
1	9/17/2007	TP-1	18.3	2.0	201.0
2	9/17/2007	TP-1	18.3	1.3	122.0
3	9/17/2007	TP-1	17.5	1.5	161.0
4	9/17/2007	TP-1	16.7	1.5	199.0
5	9/17/2007	TP-1	17.1	1.1	73.0
6	9/17/2007	TP-1	16.7	1.3	62.1
7	9/17/2007	TP-1	16.7	1.2	51.5
8	9/17/2007	TP-1	16.7	1.0	35.2
10	9/17/2007	TP-1	16.6	1.4	38.7
23	9/18/2007	TP-1	14.7	2.8	38.8
36	9/18/2007	TP-1	13.6	3.4	169.0
48	9/19/2007	TP-1	14.4	3.2	77.9
60	9/19/2007	TP-1	12.1	4.5	465.0
72	9/20/2007	TP-1	13.9	4.2	380.0

TP-2

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-2	19.7	0.1	0.0
1	9/17/2007	TP-2	19.4	0.1	0.2
2	9/17/2007	TP-2	19.3	0.1	0.0
3	9/17/2007	TP-2	19.2	0.2	0.0
4	9/17/2007	TP-2	18.9	0.3	0.0
5	9/17/2007	TP-2	18.9	0.2	2.4
6	9/17/2007	TP-2	18.9	0.3	0.0
7	9/17/2007	TP-2	19.0	0.3	0.4
8	9/17/2007	TP-2	18.9	0.3	0.4
10	9/17/2007	TP-2	18.7	0.3	0.3
23	9/18/2007	TP-2	18.3	0.6	0.1
36	9/18/2007	TP-2	16.6	0.9	2.8
48	9/19/2007	TP-2	16	1.3	0.7
60	9/19/2007	TP-2	13.9	1.7	1.6
72	9/20/2007	TP-2	13.3	2.1	0.8

TP-5

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-5	18.7	0.8	757.0
1	9/17/2007	TP-5	19.0	0.3	81.0
2	9/17/2007	TP-5	19.2	0.2	38.5
3	9/17/2007	TP-5	19.0	0.2	39.3
4	9/17/2007	TP-5	18.9	0.5	36.4
5	9/17/2007	TP-5	19.4	0.1	4.2
6	9/17/2007	TP-5	19.4	0.2	2.3
7	9/17/2007	TP-5	19.7	0.2	3.1
8	9/17/2007	TP-5	19.7	0.2	1.8
10	9/17/2007	TP-5	19.7	0.0	1.2
23	9/18/2007	TP-5	20.3	0.1	0.3
36	9/18/2007	TP-5	11.8	4.3	832.0
48	9/19/2007	TP-5	7.6	7.3	1048.0
60	9/19/2007	TP-5	6.1	7.3	2715.0
72	9/20/2007	TP-5	5.8	8.1	1128.0

TP-6

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-6	19.2	0.5	0.0
1	9/17/2007	TP-6	19.1	0.5	5.7
2	9/17/2007	TP-6	18.9	0.5	1.4
3	9/17/2007	TP-6	18.7	0.6	7.0
4	9/17/2007	TP-6	18.7	0.6	10.2
5	9/17/2007	TP-6	18.7	0.6	3.8
6	9/17/2007	TP-6	18.7	0.7	2.7
7	9/17/2007	TP-6	18.8	0.8	6.0
8	9/17/2007	TP-6	18.8	0.8	2.0
10	9/17/2007	TP-6	18.8	0.7	3.7
23	9/18/2007	TP-6	19.3	0.8	0.5
36	9/18/2007	TP-6	18.6	0.8	25
48	9/19/2007	TP-6	19	0.9	1.9
60	9/19/2007	TP-6	18.3	0.8	1.5
72	9/20/2007	TP-6	18.7	0.9	4

Table 2 - TP Well Soil Gas Data Summary

River Terrace Bioventing System
2007 In Situ Respiration Test Summary

TP-7

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-8	18.7	1.3	9
1	9/17/2007	TP-8	18.7	1.1	5.1
2	9/17/2007	TP-8	19.0	0.9	7.9
3	9/17/2007	TP-8	18.9	1.2	45.4
4	9/17/2007	TP-8	18.9	0.2	1.1
5	9/17/2007	TP-8	19.4	0.1	1
6	9/17/2007	TP-8	19.4	0.2	0.7
7	9/17/2007	TP-8	19.7	0.1	0.9
8	9/17/2007	TP-8	19.7	0.1	1.3
10	9/17/2007	TP-8	19.7	0.1	0.5
23	9/18/2007	TP-8	19.2	1.2	2.2
36	9/18/2007	TP-8	18.7	1.2	36.1
48	9/19/2007	TP-8	19.3	1.1	105
60	9/19/2007	TP-8	18.4	1	72.8
72	9/20/2007	TP-8	19.2	1.2	87.3

TP-8

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-9	19.7	0.1	705
1	9/17/2007	TP-9	19.4	0.1	5.0
2	9/17/2007	TP-9	19.2	0.1	4.1
3	9/17/2007	TP-9	19.1	0.1	102
4	9/17/2007	TP-9	18.9	0.2	101
5	9/17/2007	TP-9	19.0	0.2	2.7
6	9/17/2007	TP-9	18.7	0.2	1.9
7	9/17/2007	TP-9	18.7	0.2	3.4
8	9/17/2007	TP-9	18.9	0.2	2.5
10	9/17/2007	TP-9	18.7	0.2	3.1
23	9/18/2007	TP-9	17.9	0.3	0.9
36	9/18/2007	TP-9	16	0.3	0.7
48	9/19/2007	TP-9	14.6	0.5	1.1
60	9/19/2007	TP-9	12.5	0.7	1.5
72	9/20/2007	TP-9	10.4	1.1	3.2

TP-9

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	TP-8	19.7	0.1	85
1	9/17/2007	TP-8	19.7	0.1	1.0
2	9/17/2007	TP-8	19.4	0.1	16.0
3	9/17/2007	TP-8	19.4	0.1	32.1
4	9/17/2007	TP-8	19.3	0.2	11.5
5	9/17/2007	TP-8	19.3	0.1	24.0
6	9/17/2007	TP-8	19.4	0.2	0.9
7	9/17/2007	TP-8	19.7	0.1	1.0
8	9/17/2007	TP-8	19.6	0.1	0.4
10	9/17/2007	TP-8	19.7	0.1	0.4
23	9/18/2007	TP-8	20.3	0.1	3.5
36	9/18/2007	TP-8	19.7	0.2	104
48	9/19/2007	TP-8	20.5	0.1	20.5
60	9/19/2007	TP-8	19.4	0.1	185
72	9/20/2007	TP-8	20.1	0.1	174

Notes:
hr = hour
% = percent by volume
ppm = parts per million

Table 3 - BV Well Soil Gas Data Summary

River Terrace Bioventing System
2007 In Sity Respiration Test

BV-1

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-1	21.1	NM	NM
12	9/17/2007	BV-1	19.7	0.1	0.7
24	9/18/2007	BV-1	19.3	0.1	0.9
36	9/18/2007	BV-1	18.7	0.1	18.8
48	9/19/2007	BV-1	19.0	0.1	63.7
60	9/19/2007	BV-1	18.2	0.1	33.3
72	9/20/2007	BV-1	18.7	0.2	50.8

BV-2

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-2	21.1	NM	NM
12	9/17/2007	BV-2	18.9	0.1	2.1
24	9/18/2007	BV-2	19.0	0.1	0.8
36	9/18/2007	BV-2	18.2	0.1	0.7
48	9/19/2007	BV-2	18.0	0.2	1.2
60	9/19/2007	BV-2	16.0	0.2	1.9
72	9/20/2007	BV-2	16.7	0.3	1.8

BV-3

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-3	21.1	NM	NM
12	9/17/2007	BV-3	19.7	0.1	1.1
24	9/18/2007	BV-3	19.0	0.1	0.6
36	9/18/2007	BV-3	18.2	0.1	15
48	9/19/2007	BV-3	18.5	0.1	33.5
60	9/19/2007	BV-3	17.6	0.1	29.4
72	9/20/2007	BV-3	18.2	0.1	27.8

BV-4

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-4	21.1	NM	NM
12	9/17/2007	BV-4	18.9	0.1	3.0
24	9/18/2007	BV-4	18.6	0.1	0.9
36	9/18/2007	BV-4	17.0	0.1	2.8
48	9/19/2007	BV-4	16.6	0.2	2.7
60	9/19/2007	BV-4	14.7	0.3	3.1
72	9/20/2007	BV-4	15.0	0.3	3.1

BV-5

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-5	21.1	NM	NM
12	9/17/2007	BV-5	19.7	0.1	0.4
24	9/18/2007	BV-5	19.9	0.1	0.3
36	9/18/2007	BV-5	18.9	0.1	6.9
48	9/19/2007	BV-5	18.9	0.1	24.4
60	9/19/2007	BV-5	18.0	0.2	22.5
72	9/20/2007	BV-5	18.0	0.2	20.7

BV-6

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-6	21.1	NM	NM
12	9/17/2007	BV-6	18.7	0.0	2.8
24	9/18/2007	BV-6	18.0	0.2	0.8
36	9/18/2007	BV-6	16.1	0.2	1.2
48	9/19/2007	BV-6	14.8	0.4	1.4
60	9/19/2007	BV-6	12.8	0.6	1.6
72	9/20/2007	BV-6	12.3	0.8	2.9

BV-7

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-7	21.1	NM	NM
12	9/17/2007	BV-7	18.2	1.0	11.8
24	9/18/2007	BV-7	19.3	0.7	10.0
36	9/18/2007	BV-7	18.0	1.1	10.8
48	9/19/2007	BV-7	9.0	0.8	27.1
60	9/19/2007	BV-7	16.7	1.7	28.8
72	9/20/2007	BV-7	18.7	0.9	24.9

BV-8

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-8	21.1	NM	NM
12	9/17/2007	BV-8	19.7	0.1	0.4
24	9/18/2007	BV-8	19.0	0.1	0.9
36	9/18/2007	BV-8	17.8	0.2	8.0
48	9/19/2007	BV-8	18.0	0.3	15.8
60	9/19/2007	BV-8	16.6	0.5	17.4
72	9/20/2007	BV-8	17.3	0.4	7.0

Table 3 - BV Well Soil Gas Data Summary

River Terrace Bioventing System
2007 In Sity Respiration Test

BV-9

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-9	21.1	NM	NM
12	9/17/2007	BV-9	19.2	0.2	1.1
24	9/18/2007	BV-9	20.1	0.2	3.5
36	9/18/2007	BV-9	18.7	0.2	5.9
48	9/19/2007	BV-9	19.4	0.3	5.6
60	9/19/2007	BV-9	17.3	0.5	10.0
72	9/20/2007	BV-9	18.9	0.3	16.8

BV-10

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-10	21.1	NM	NM
12	9/17/2007	BV-10	19.0	0.2	2.5
24	9/18/2007	BV-10	19.0	0.3	0.4
36	9/18/2007	BV-10	17.8	0.4	1.1
48	9/19/2007	BV-10	17.8	0.6	1.1
60	9/19/2007	BV-10	16.7	0.8	11.8
72	9/20/2007	BV-10	17.1	0.7	2.2

BV-11

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-11	21.1	NM	NM
12	9/17/2007	BV-11	18.7	0.1	4.9
24	9/18/2007	BV-11	18.3	0.2	2.9
36	9/18/2007	BV-11	17.3	0.3	3.2
48	9/19/2007	BV-11	17.0	0.5	2.8
60	9/19/2007	BV-11	15.7	0.7	6.2
72	9/20/2007	BV-11	15.8	0.9	9.6

BV-12

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-12	21.1	NM	NM
12	9/17/2007	BV-12	19.2	0.1	1.9
24	9/18/2007	BV-12	19.7	0.2	1.4
36	9/18/2007	BV-12	18.7	0.2	1.9
48	9/19/2007	BV-12	19.3	0.2	1.8
60	9/19/2007	BV-12	16.9	0.6	4.9
72	9/20/2007	BV-12	18.4	0.4	1.6

BV-13

Hour Into Testing (hr)	Date of Collection	Sample Location	O2 (%)	CO2 (%)	VOCs (ppm)
0	9/17/2007	BV-13	21.1	NM	NM
12	9/17/2007	BV-13	19.2	0.1	1.3
24	9/18/2007	BV-13	19.0	0.1	0.7
36	9/18/2007	BV-13	18.2	0.1	1.3
48	9/19/2007	BV-13	18.3	1.0	0.8
60	9/19/2007	BV-13	17.3	0.1	0.2
72	9/20/2007	BV-13	17.3	0.1	0.7

Notes:
hr = hour
% = percent by volume
ppm = parts per million

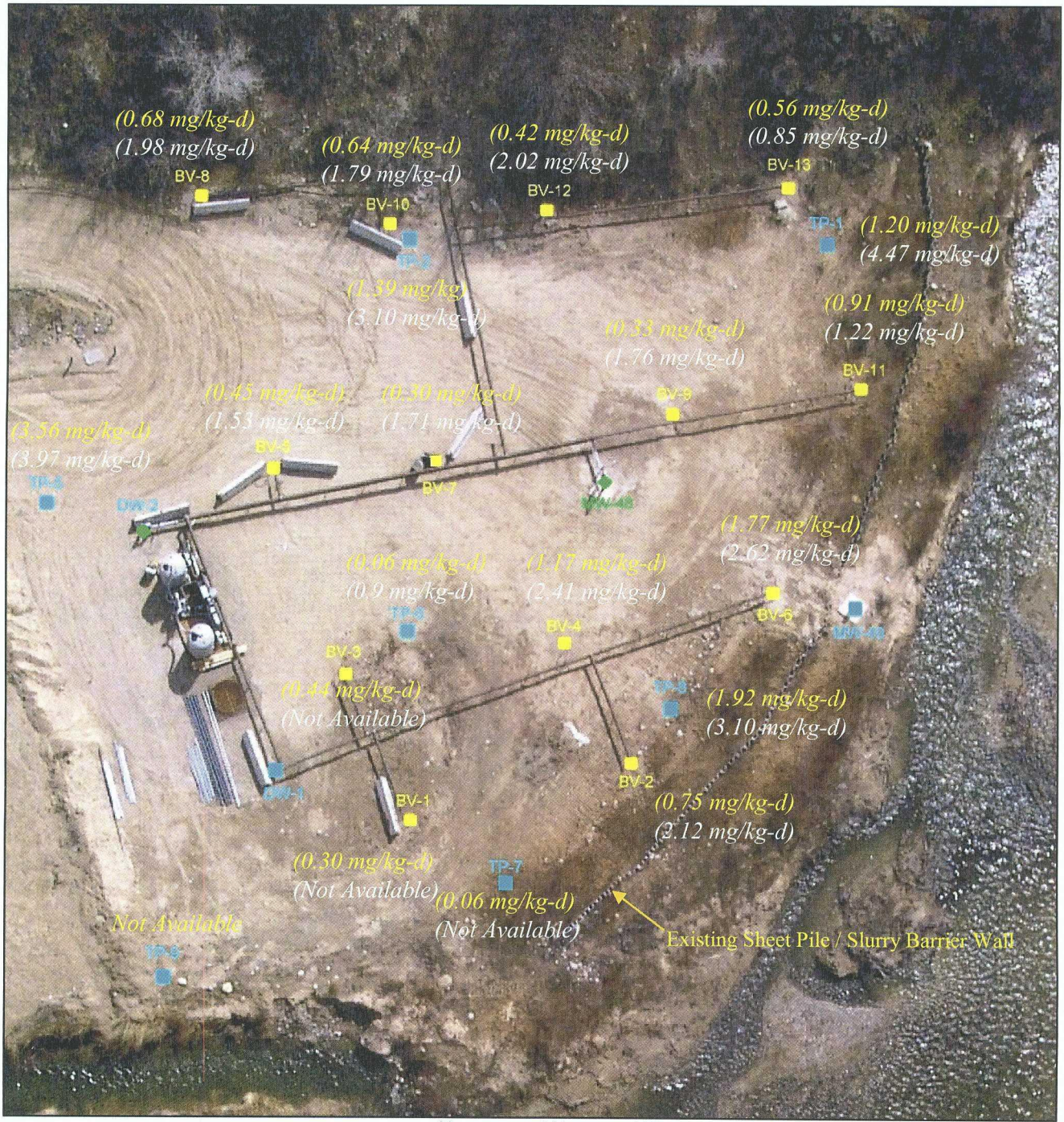
Table 4 - Summary of Biodegredation Rates

River Terrace Bioventing System
2007 In Situ Respiration Test Summary

Well ID	Oxygen Utilization Rate *(%/hr)*	Oxygen Utilization Rate *(%/day)*	Biodegredation Rate *(mg/kg*day)*	Data Correlation (R^2)
TP-1	-0.0741	-1.778	1.20	0.7988
TP-2	-0.0859	-2.062	1.39	0.9771
TP-5	-0.2205	-5.292	3.56	0.8924
TP-6	-0.0039	-0.094	0.063	0.1311
TP-7	-0.0036	-0.086	0.058	0.0422
TP-8	-0.1191	-2.858	1.92	0.9788
TP-9	0.0079	0.190	NA	0.2596
BV-1	-0.0186	-0.446	0.300	0.7547
BV-2	-0.0466	-1.118	0.752	0.8571
BV-3	-0.0271	-0.650	0.437	0.7873
BV-4	-0.0722	-1.733	1.165	0.948
BV-5	-0.0279	-0.670	0.450	0.8413
BV-6	-0.1096	-2.630	1.768	0.9802
BV-7	-0.0187	-0.449	0.302	0.2415
BV-8	-0.0424	-1.018	0.684	0.8556
BV-9	-0.0203	-0.487	0.327	0.3479
BV-10	-0.0401	-0.962	0.647	0.9061
BV-11	-0.0561	-1.346	0.905	0.9677
BV-12	-0.0262	-0.629	0.423	0.4422
BV-13	-0.0345	-0.828	0.557	0.9486

Notes:

BV = Bioventing Well
TP = Temporary Piezometer
%/hr = Percent by volume per hour
%/day = Percent by volume per day
mg = milligrams
kg = kilograms
NA = Not Available; degredation of oxygen was not measured.



Bloomfield Refinery
Bloomfield, NM

0' 20' 40'

(Approximate Scale)

N

Figure 1: Summary of Biodegradation Rates

River Terrace Bioventing System
2007 In Situ Respiration Test Summary

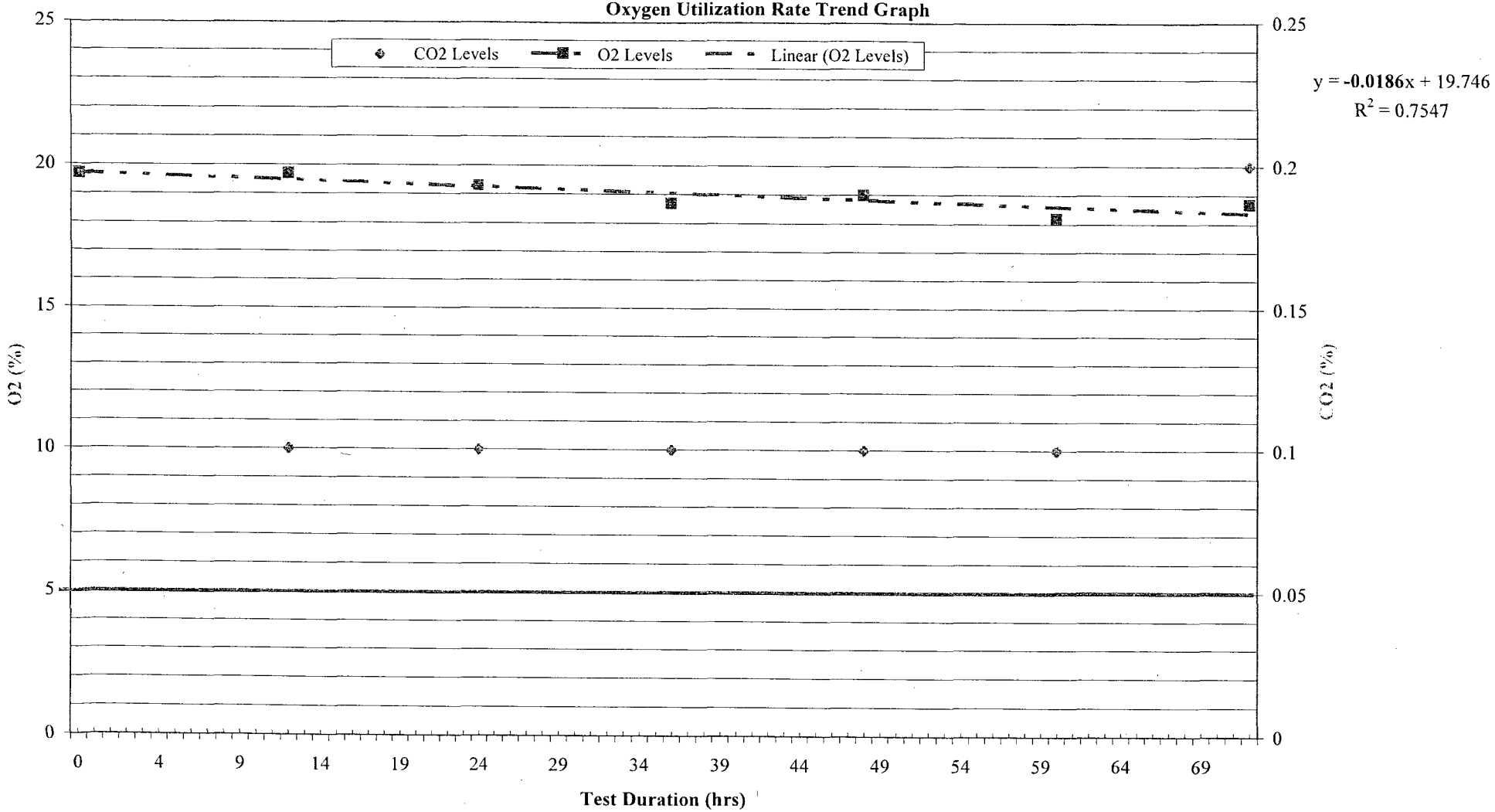
Legend

TP = Temporary Piezometer
BV = Biovent Well
DW = Dewatering Well
MW = Monitoring Well
mg = milligrams
kg = kilograms
d = day

0.30 mg/kg-d ←2007 In Situ Rates
0.30 mg/kg-d ←2006 In Situ Rates

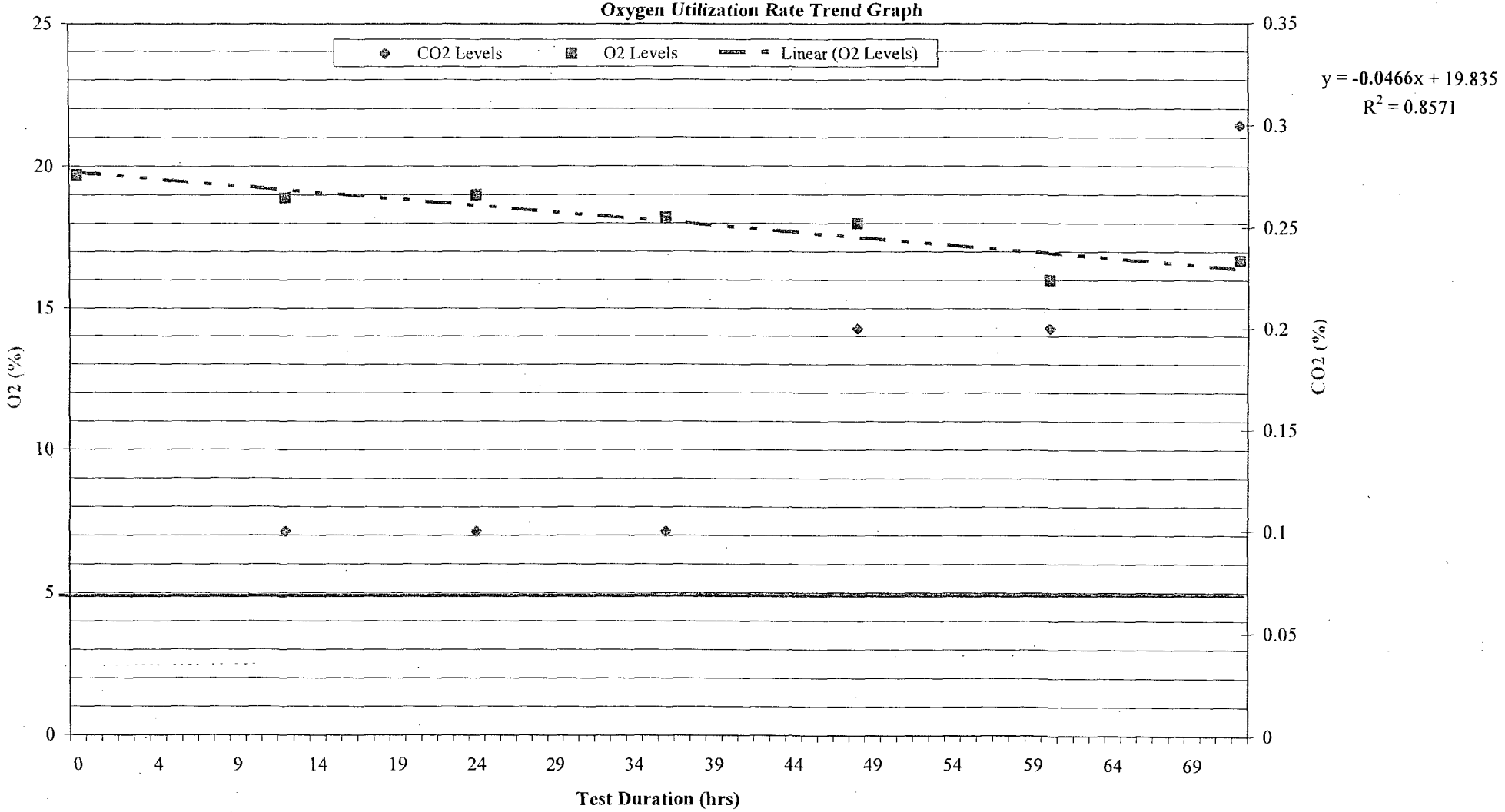
BV-1

Oxygen Utilization Rate Trend Graph



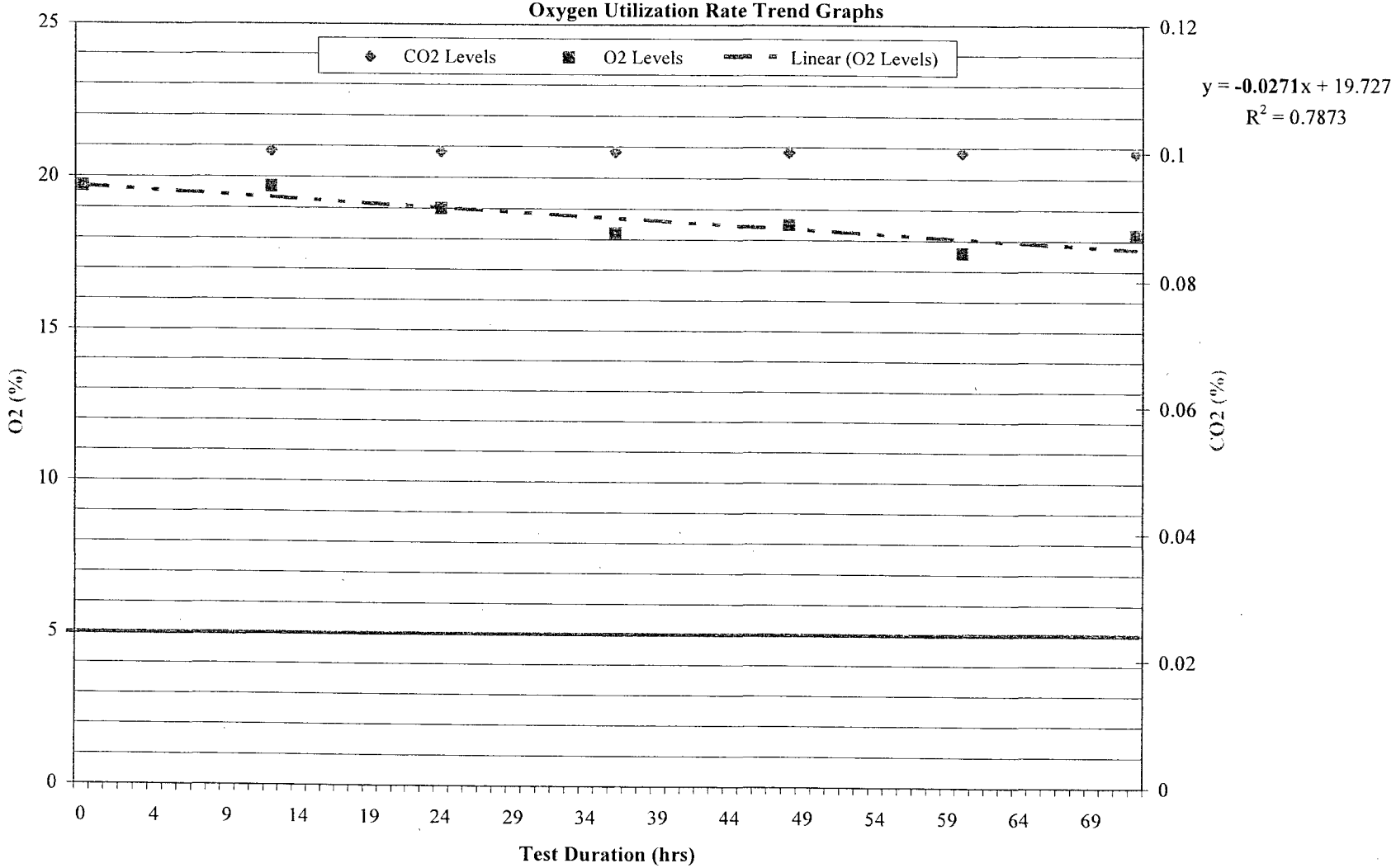
BV-2

Oxygen Utilization Rate Trend Graph



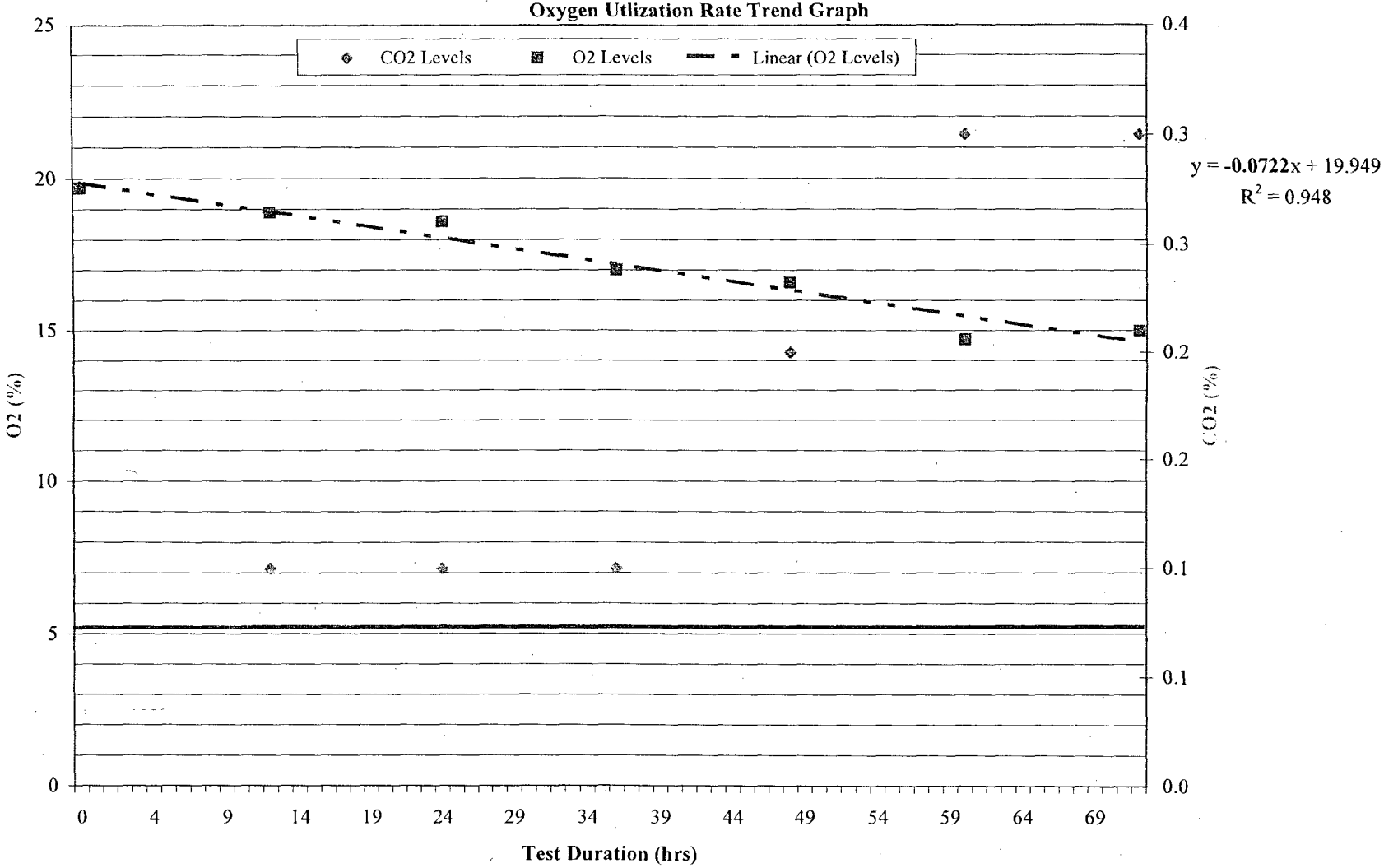
BV-3

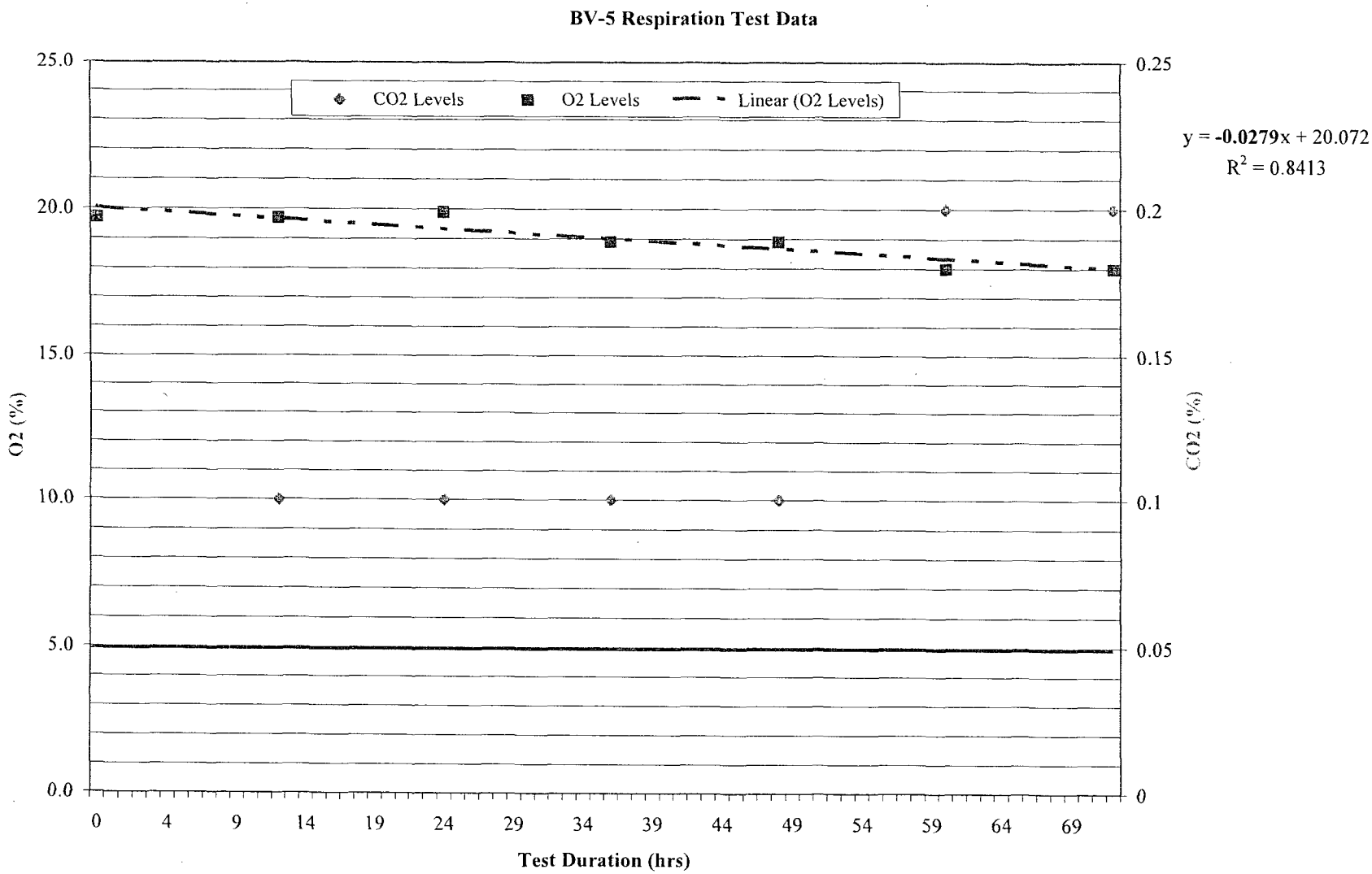
Oxygen Utilization Rate Trend Graphs



BV-4

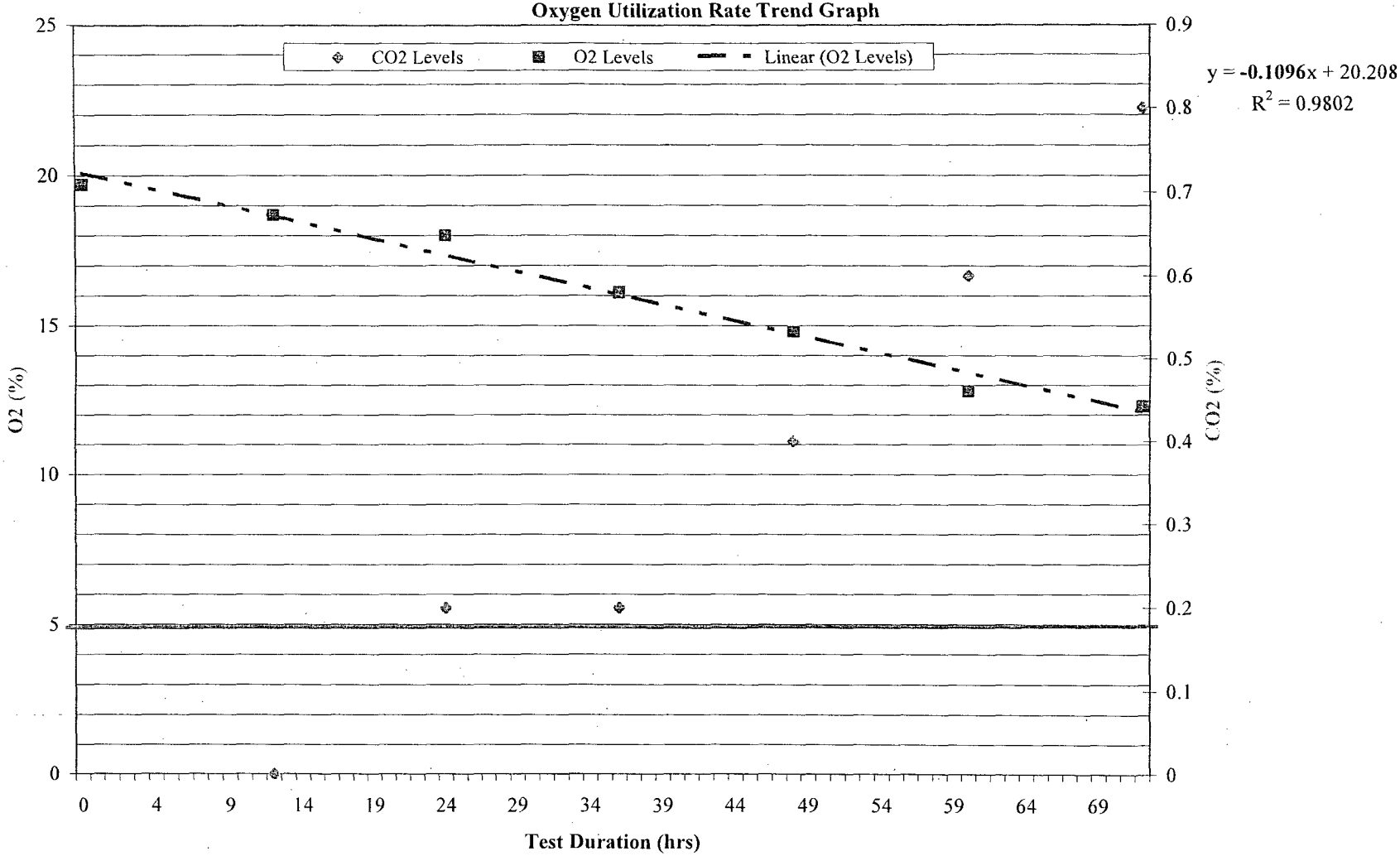
Oxygen Utlization Rate Trend Graph




BV-5 Respiration Test Data
CO2 Levels
O2 Levels
Linear (O2 Levels)
y = -0.0279x + 20.072
R2 = 0.8413
O2 (%)
CO2 (%)
Test Duration (hrs)
25.0
20.0
15.0
10.0
5.0
0.0
0.25
0.2
0.15
0.1
0.05
0
0
4
9
14
19
24
29
34
39
44
49
54
59
64
69

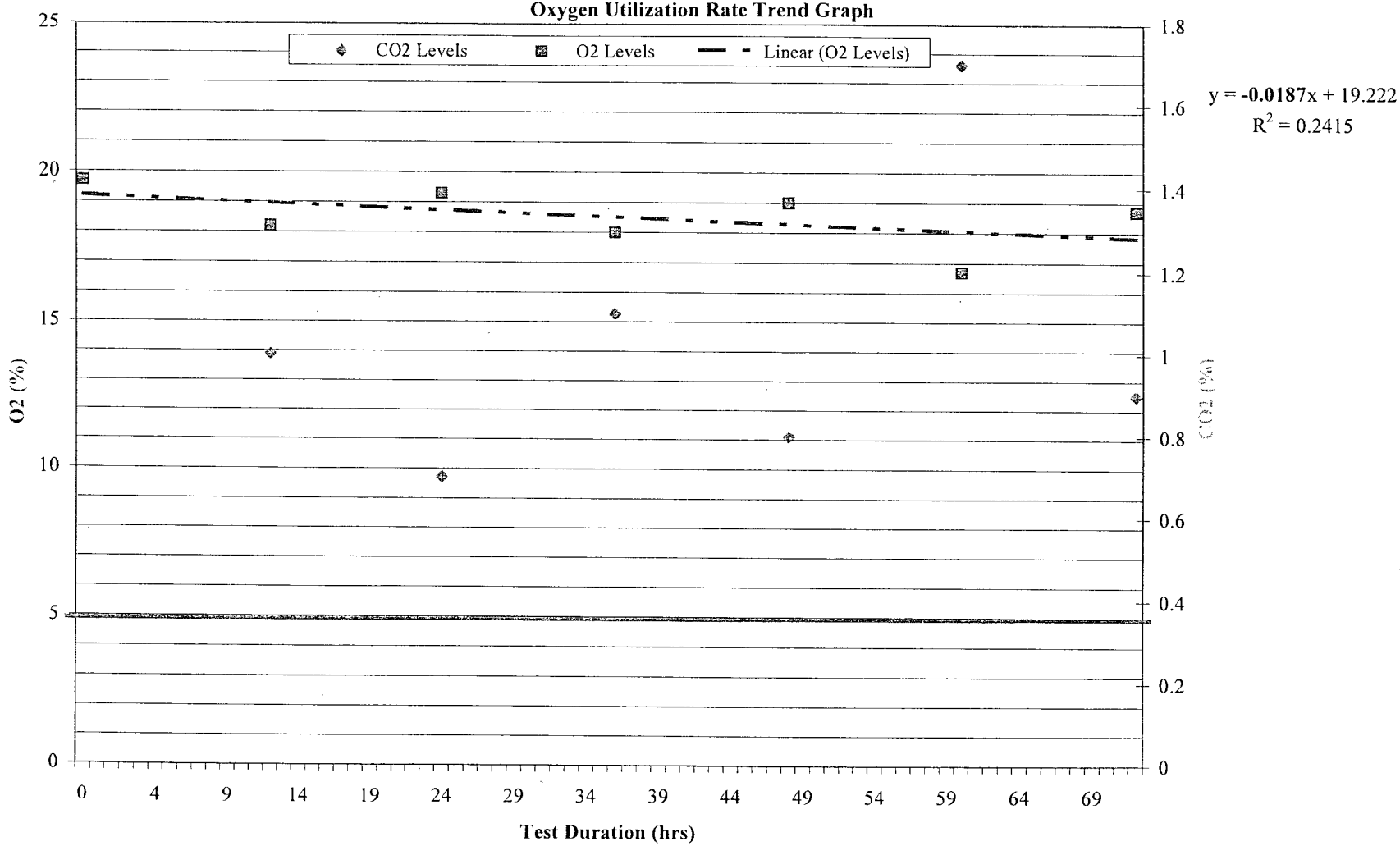
BV-6

Oxygen Utilization Rate Trend Graph



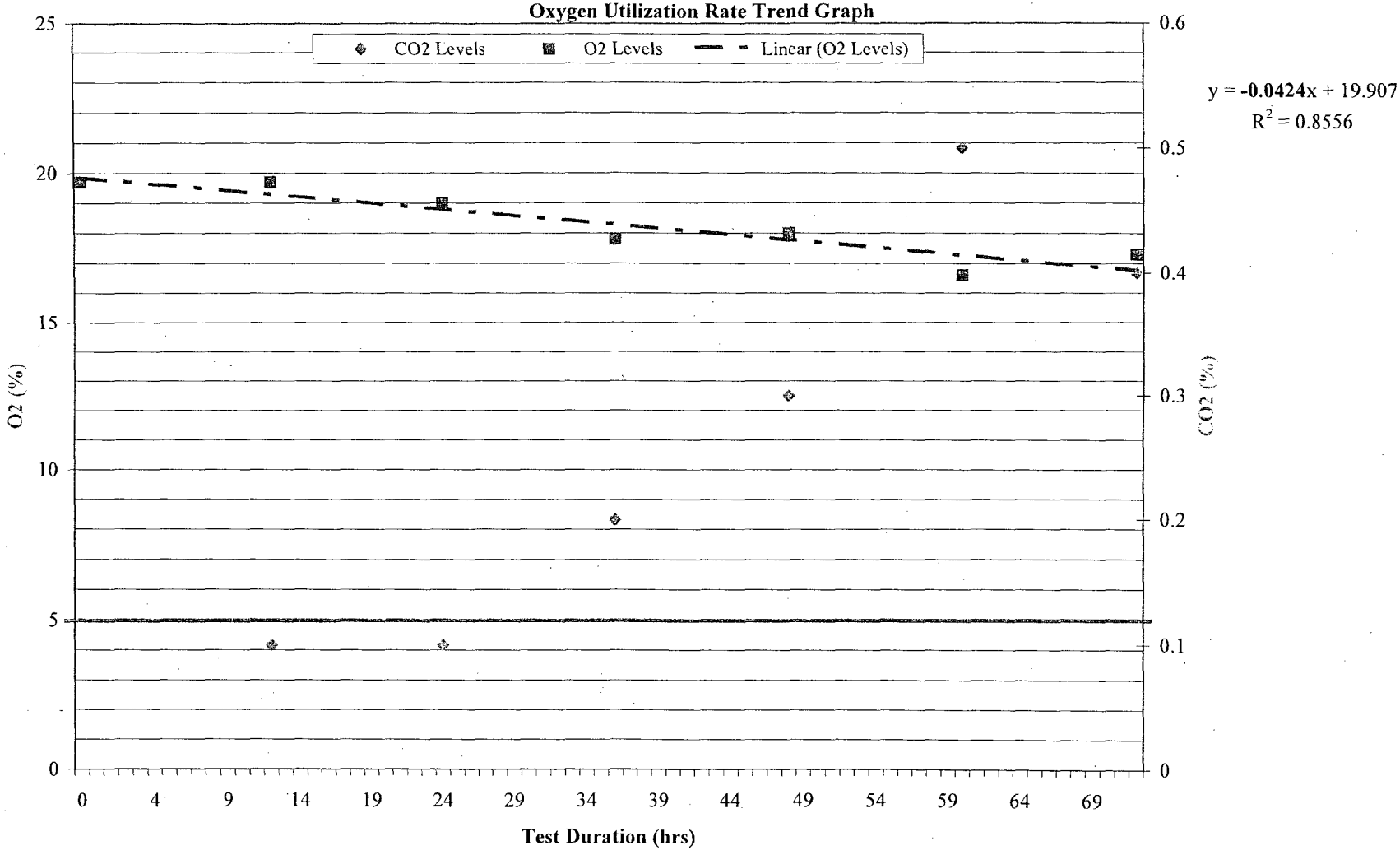
BV-7

Oxygen Utilization Rate Trend Graph



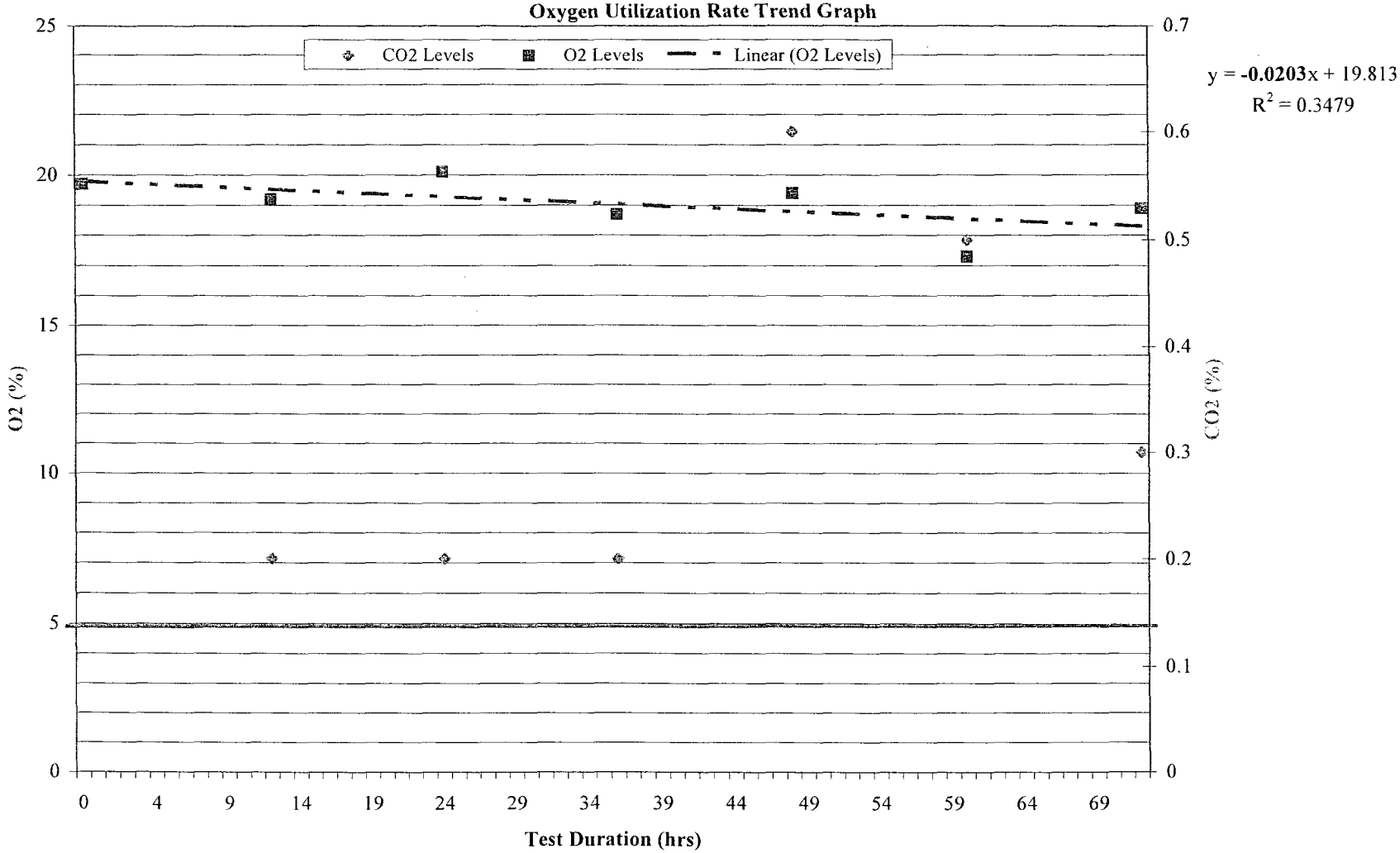
BV-8

Oxygen Utilization Rate Trend Graph



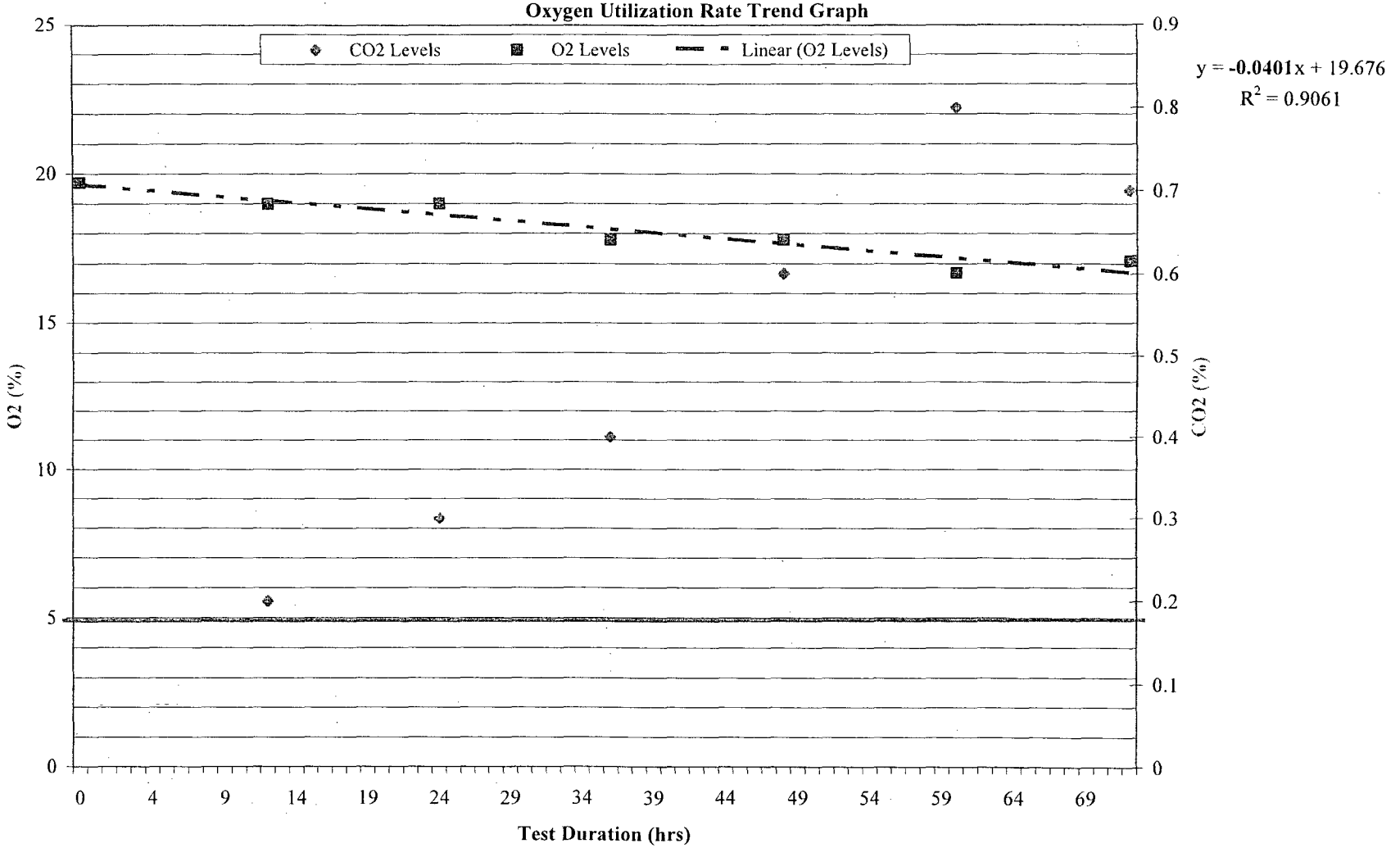
BV-9

Oxygen Utilization Rate Trend Graph



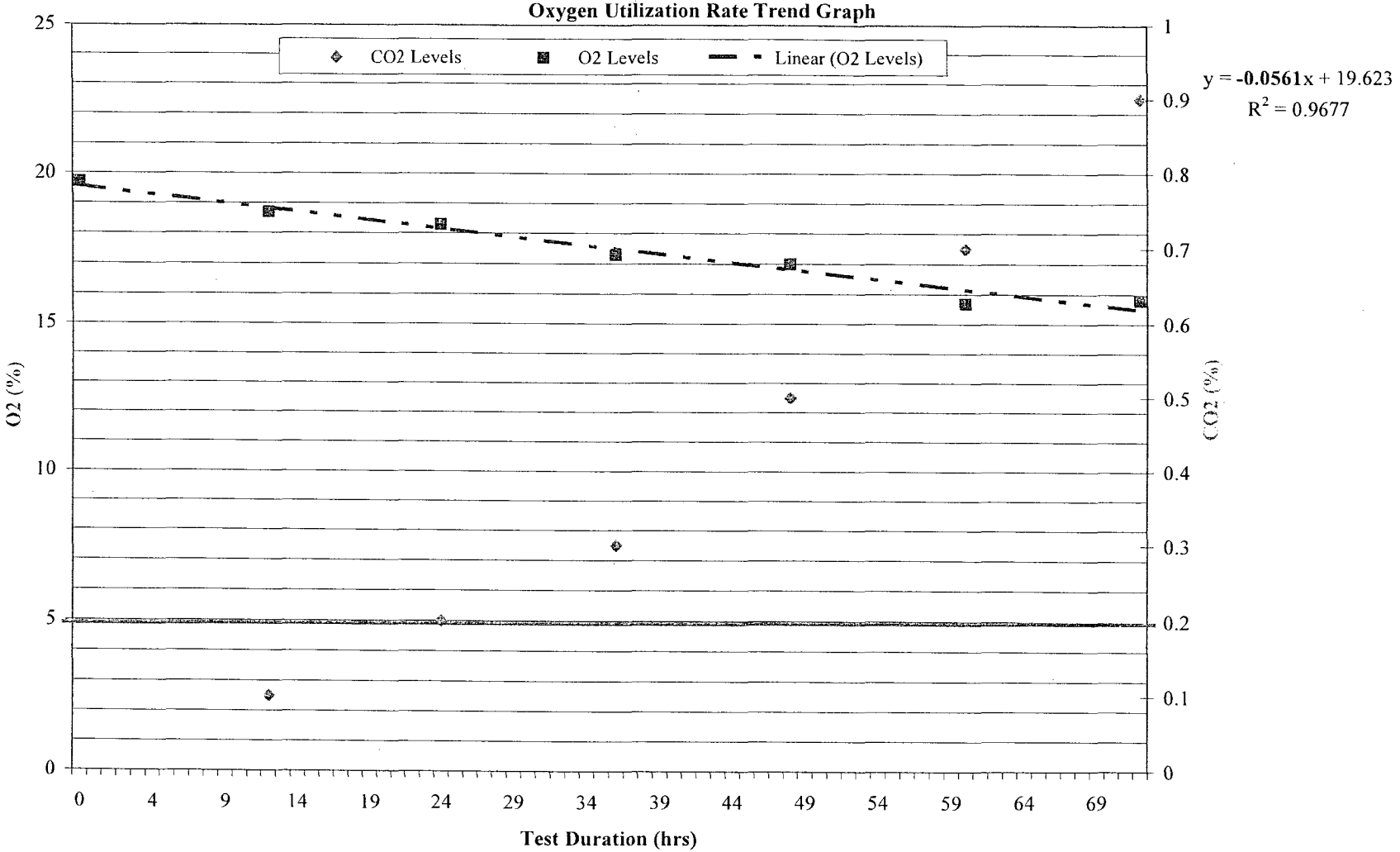
BV-10

Oxygen Utilization Rate Trend Graph



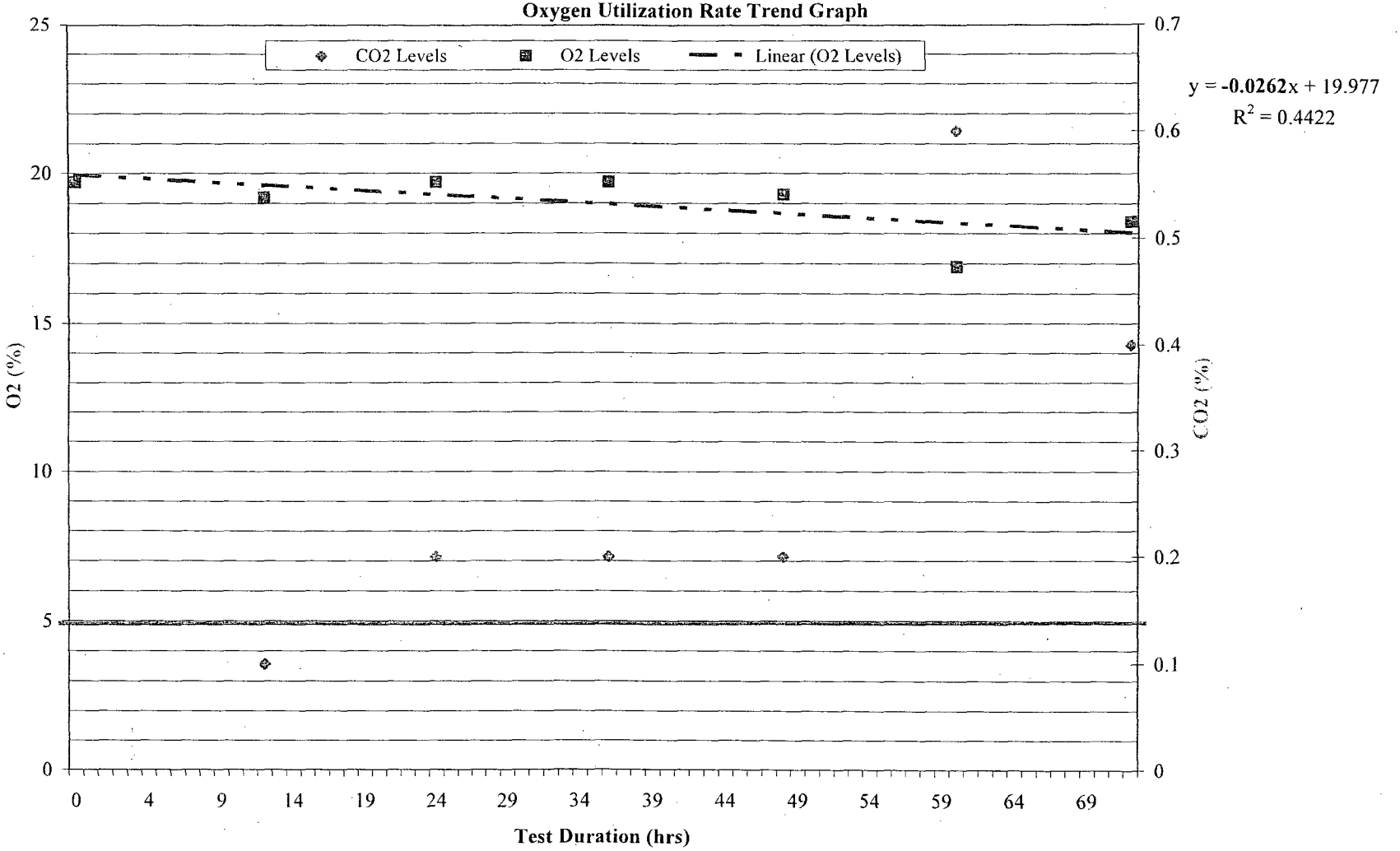
BV-11

Oxygen Utilization Rate Trend Graph



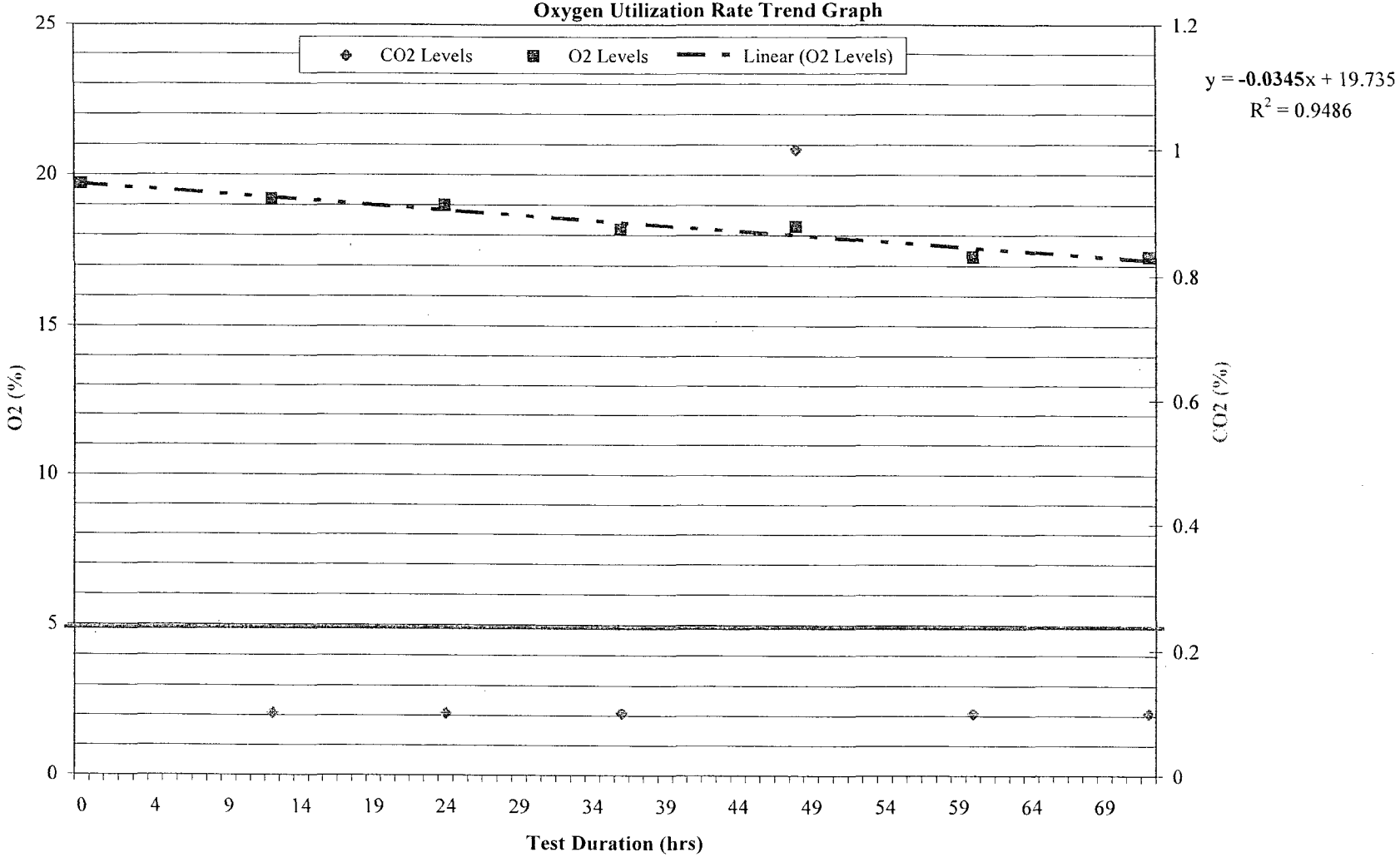
BV-12

Oxygen Utilization Rate Trend Graph

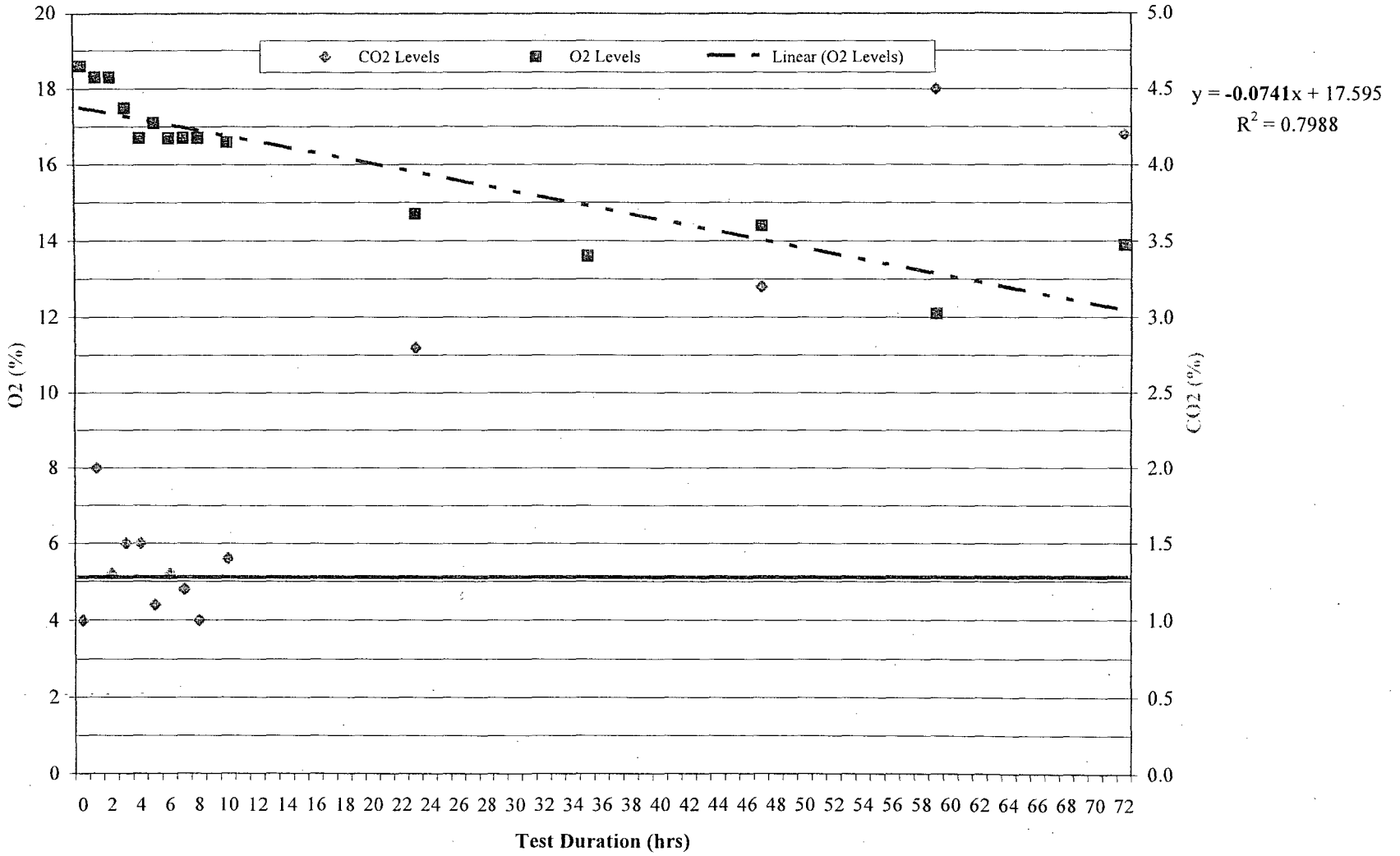


BV-13

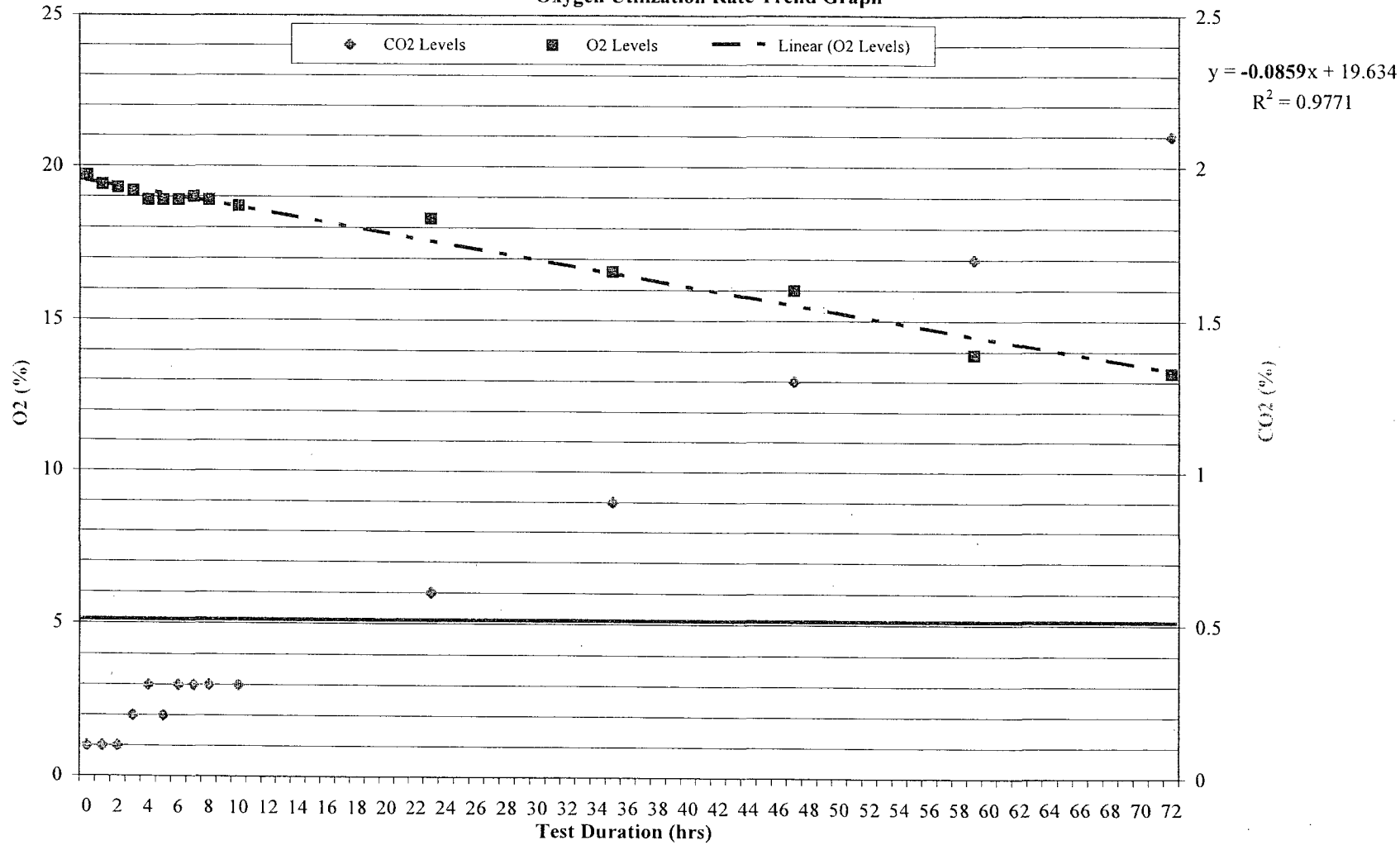
Oxygen Utilization Rate Trend Graph



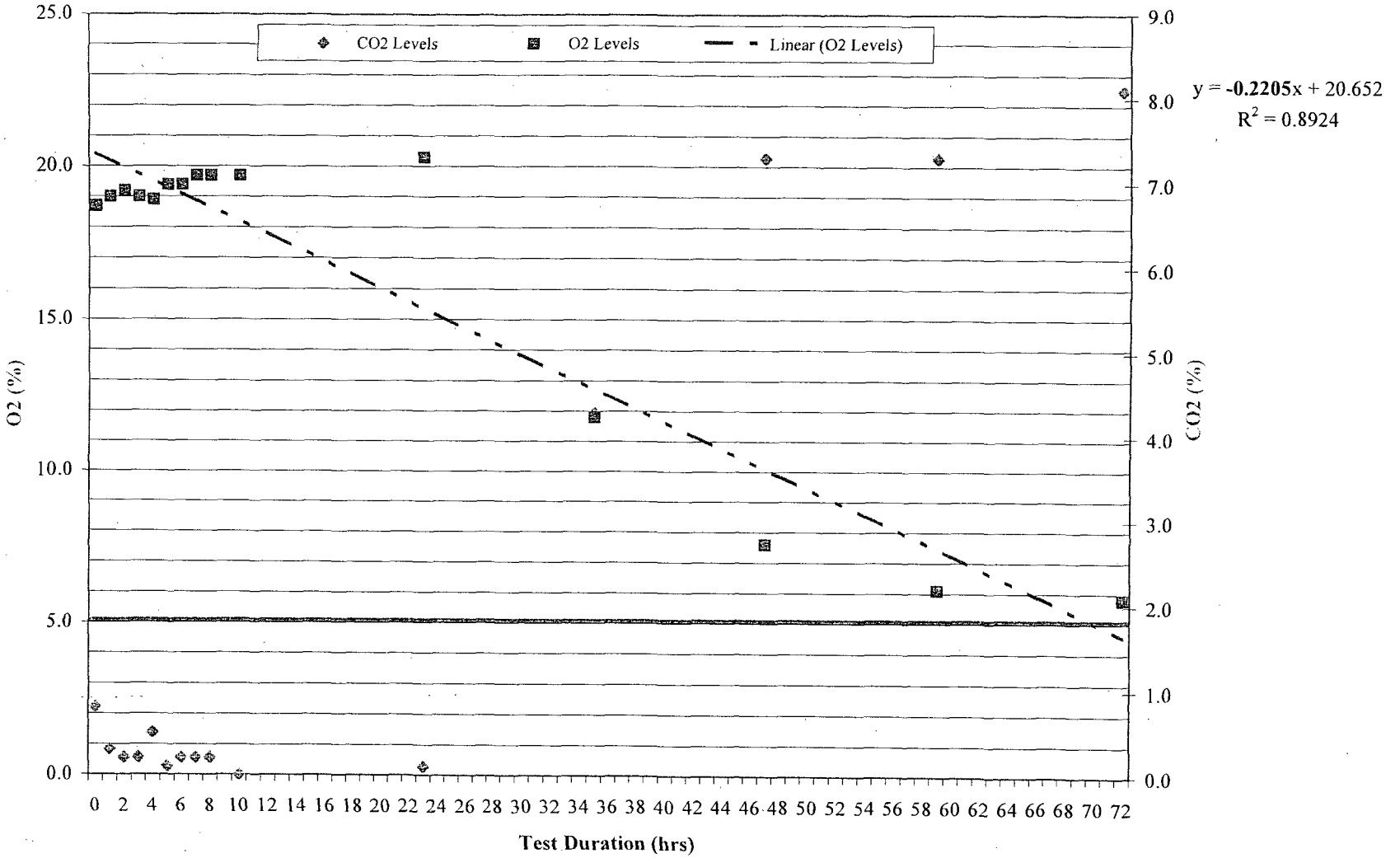
TP-1
Oxygen Utilization Rate Trend Graph



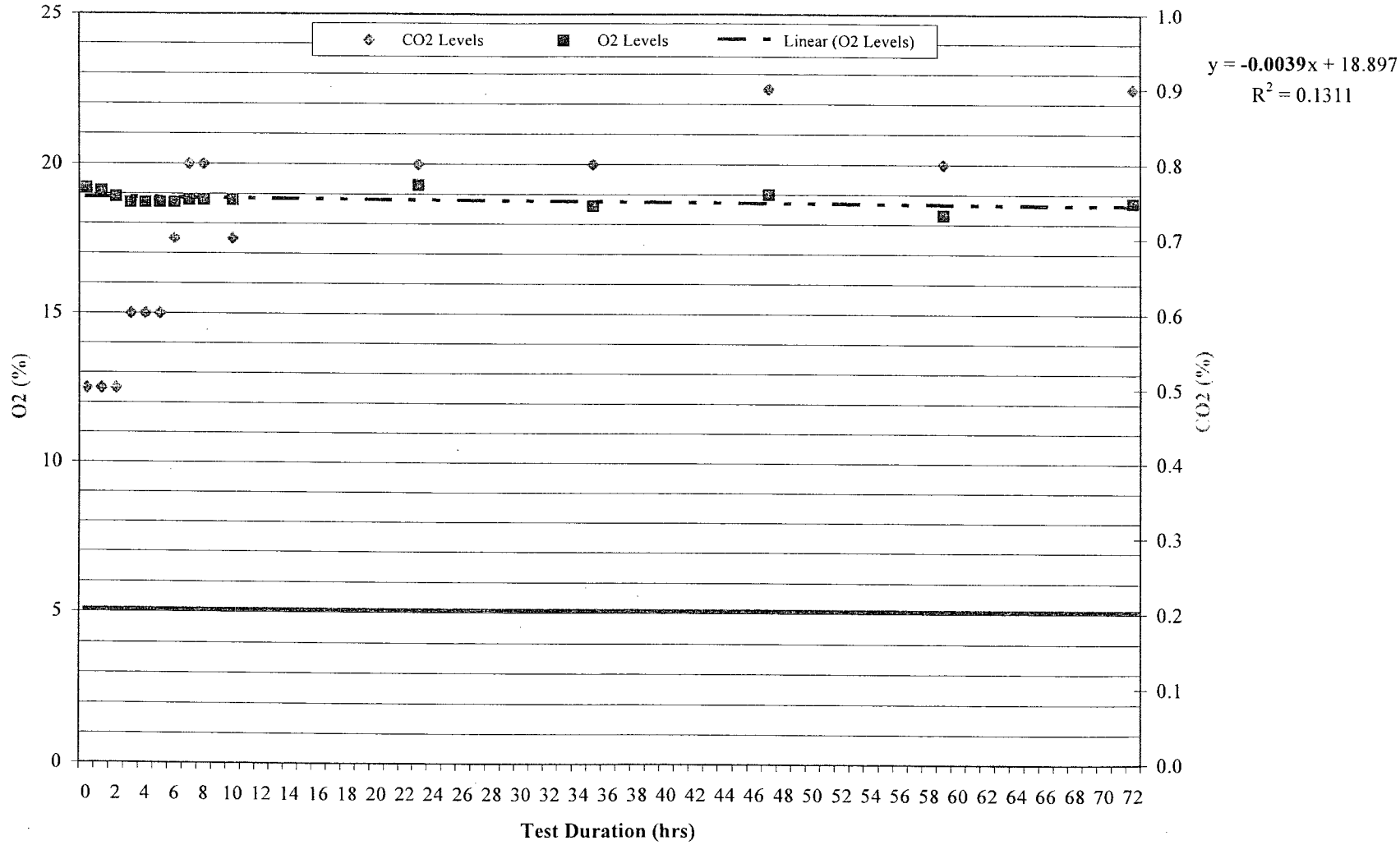
TP-2
Oxygen Utilization Rate Trend Graph



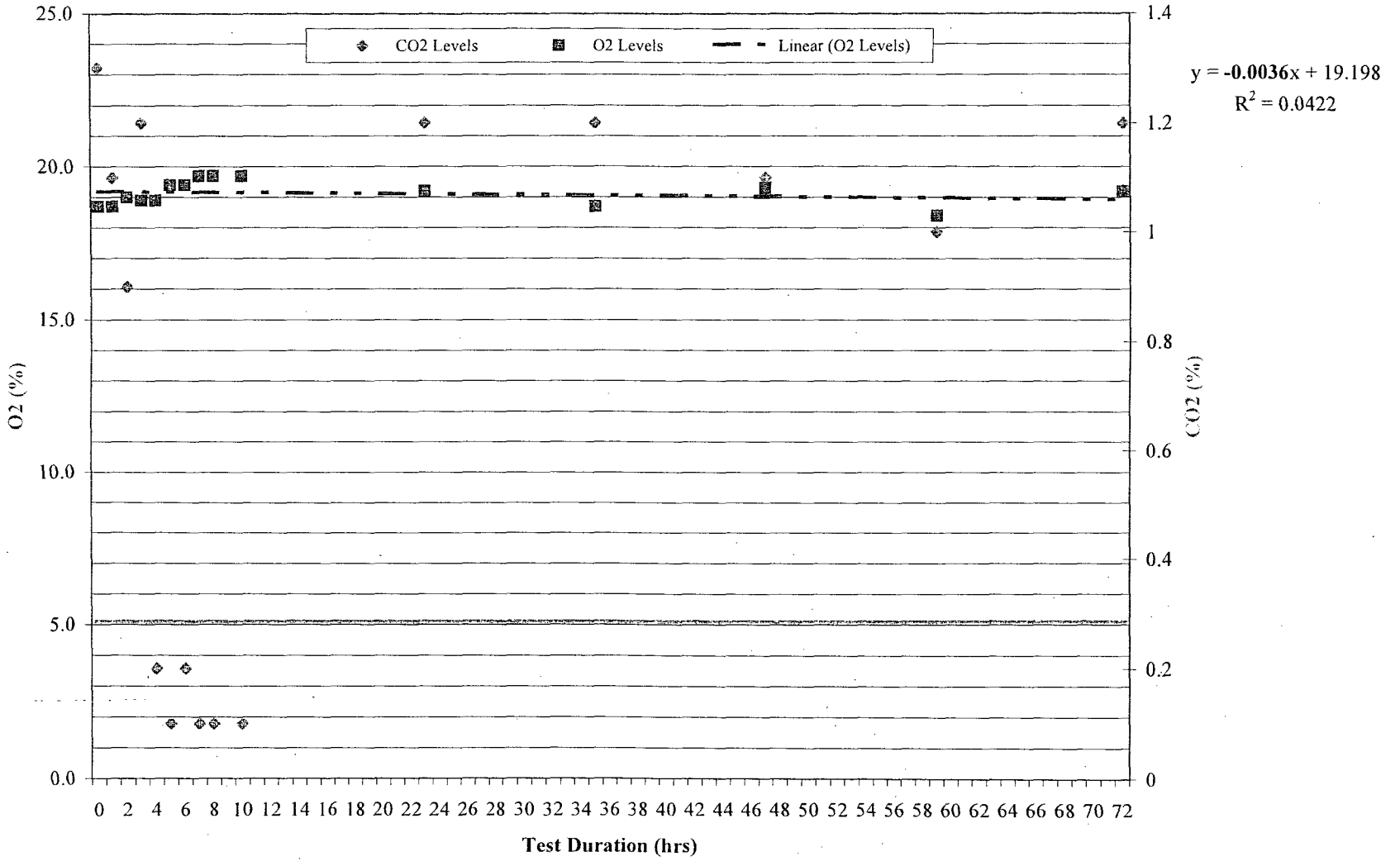
TP-5
Oxygen Utilization Rate Trend Graph



TP-6
Oxygen Utilization Rate Trend Graph

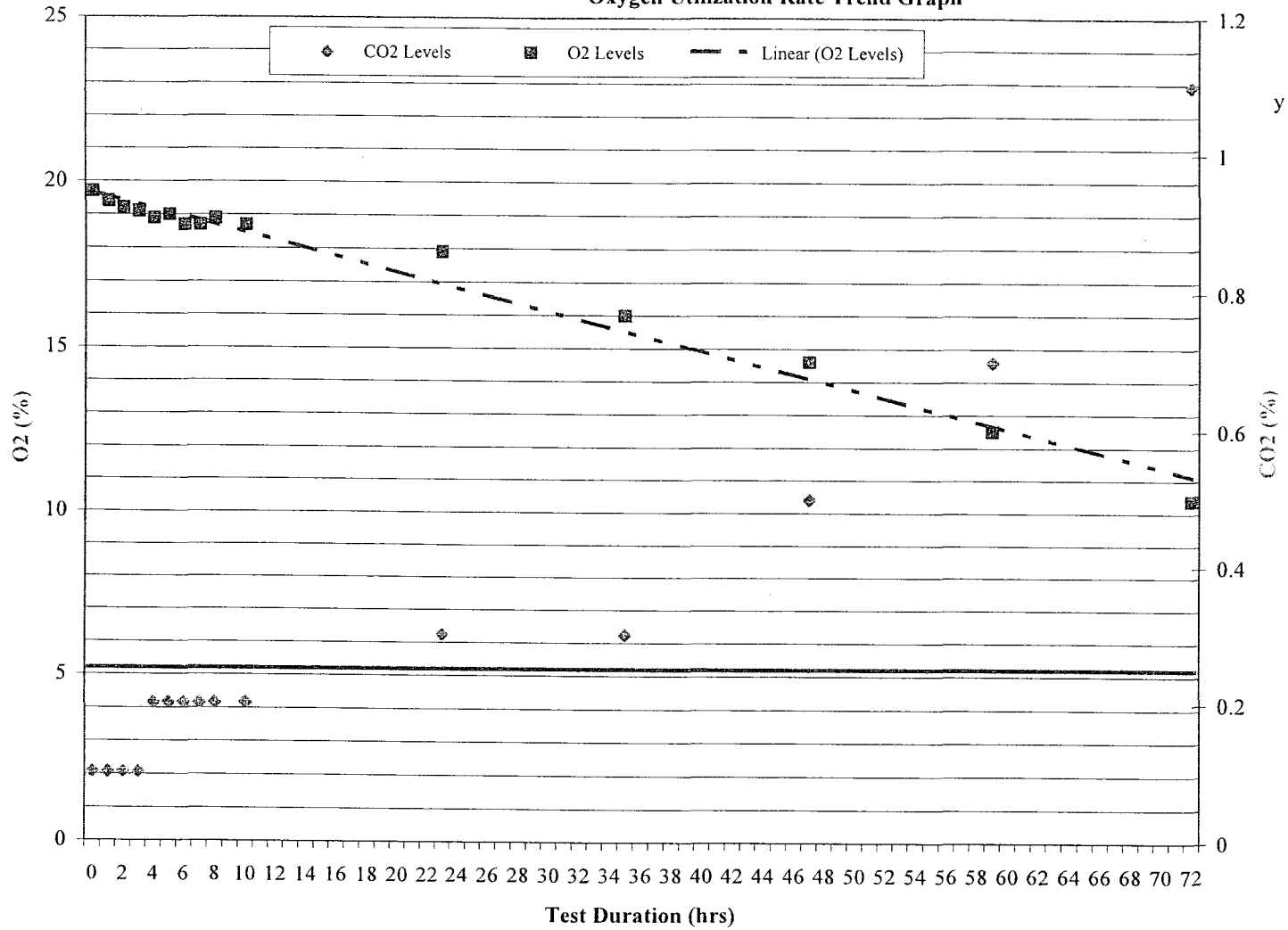


TP-7
Oxygen Utilization Rate Trend Graph



TP-8

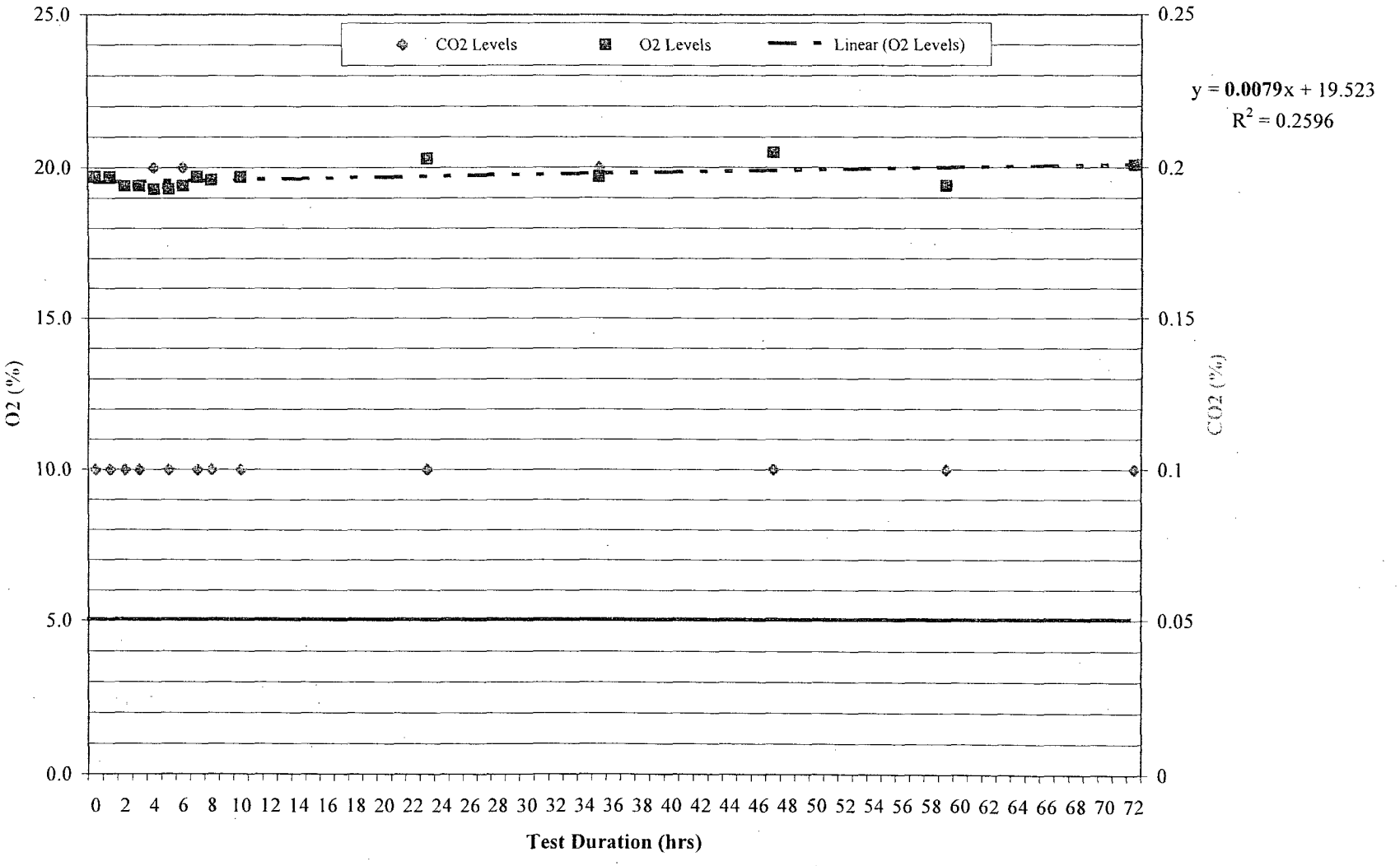
Oxygen Utilization Rate Trend Graph



$y = -0.1191x + 19.805$

$R^2 = 0.9788$

TP-9
Oxygen Utilization Rate Trend Graph



Section 7.0 Summary

Summary

Construction of the River Terrace Bioventing Project was initiated in August 2005. The system was put on-line in January 2006. On-going sampling at the River Terrace area is conducted in accordance with the approved Bioventing System Monitoring Plan, dated October 28, 2006, and in accordance with an NMED comment letter dated June 13, 2007. The NMED letter revised the monitoring plan to include additional metals analysis and incorporate quarterly sampling of TP-7. These revisions were implemented during the second quarter sampling event of 2007.

Data Collection

First quarter groundwater samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). MW #49 and DW #1 were also analyzed for Total Lead, Chromium, and Mercury (EPA Method 6010C and 7470). Field measurements included temperature, pH, conductivity, DO, and ORP.

Second quarter sampling occurred during the week of June 18, 2007. TP-7 was included in this sampling regimen per the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006 – Item #2). TP-7 was sampled after a 24 hour recharge time. In the same letter, NMED required additional metals analysis of all the TP Wells, MW #49, and DW #1 on a quarterly basis for lead and on an annual basis for chromium and barium. Annual analysis of chromium and barium (EPA Method 6010B) was conducted in the second quarter event. Lead analysis (EPA Method 6010B) was performed on all of the TP Wells, MW #49, and DW#1. DW #1 also received an analysis for mercury (EPA Method 7470). In addition, groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). Field measurements included temperature, pH, conductivity, DO, and ORP.

Third quarter monitoring occurred during the week of August 20, 2007 and fourth quarter monitoring was conducted during the week of October 29, 2007. During those sampling events, all TP Wells, MW #49, and DW #1 groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B), and lead analysis (EPA Method 6010B). DW #1 also received an analysis for mercury (EPA Method 7470). Field measurements included temperature, pH, conductivity, DO, and ORP. TP-7 was sampled after a 24 hour recharge time.

An in situ respiration test was not performed in May 2007 due to high flow rates of the San Juan River and the inability to duplicate conditions similar to the May 2006 respiration test. The in situ respiration test was re-scheduled and performed in September 2007. The respiration rate test consisted of monitoring the rate at which oxygen is depleted and carbon dioxide is generated when the air supply is turned off. Soil gas samples were collected from each BV well (BV-1 through BW-13) and specified TP wells (TP-1, -2, -5, -6, -7, -8, and -9) at a frequency outlined in the Bioventing System Monitoring Plan Amendment. Oxygen, carbon dioxide, and VOC concentrations in soil gas were monitored in these wells over a 72-hour period.

GAC filter influent samples (GAC Inf) and effluent samples collected downstream of the lag GAC filter (GAC 2 Eff) were collected quarterly. Effluent samples from the lead GAC filter (GAC 1 Eff) were obtained weekly until breakthrough was detected. Samples were analyzed for BTEX by EPA Method 8021B, GRO and DRO by EPA Method 8015B.

Analysis and Conclusions

Since August 2005, BTEX concentrations have been detected within the following ranges at monitoring wells within the western portion of the River Terrace area (TP-1, 2, 6 and 8)

Benzene:	<0.001mg/L	to	6.2 mg/L
Toluene:	<0.001 mg/L	to	8.7 mg/L
Ethylbenzene:	<0.001 mg/L	to	6.3 mg/L
Xylenes:	<0.002 mg/L	to	32.0 mg/L

BTEX and total petroleum hydrocarbon concentrations in groundwater have generally decreased over time at wells within the western portion of the River Terrace. Fluxuation in groundwater concentration at wells within the western portion of the River Terrace were most likely caused by fluxuating groundwater levels due to dewatering system operations and change in river flow, thus causing a flushing effect of the smear zone in soil.

Analytical results of the groundwater monitoring continue to indicate that the contaminants of concern are primarily benzene, toluene, ethylbenzene, and xylene (BTEX) at TP #1, TP #2, TP #5, and TP #8. BTEX results at TP #6 were below WQCC Standards in 2007. BTEX results are still below WQCC Standards at TP #3, TP #7, TP #9, TP #10, TP #11, TP #12 and TP #13.

Barium and chromium have been detected in the River Terrace wells since second quarter 2007 when NMED included metals analysis for River Terrace sampling. The detected concentrations of barium and chromium have been below New Mexico water quality standards of 1.00 mg/L and 0.05 mg/L, respectively.

Lead has been detected at the River Terrace at concentrations ranging between <0.005 mg/L and 0.3 mg/L, with the highest concentration detected at TP-8 during the October 2007 sampling event. TP-8 is located on the refinery-side of the river terrace slurry wall, and therefore is unlikely to impact the San Juan River. Lead concentrations at MW-49 are non-detect, supporting the notion of containment on the refinery-side of the slurry wall.

Mercury was once detected at DW-1 during the February 2007 sampling event. Mercury was not detected in all subsequent sampling events.

Field data indicates the bioventing system is continuing to enhance bioremedial activity within the river terrace area around TP-#1, TP-#2, TP-#5, TP-#6, and TP-#8. Soil gas concentrations collected in the field indicate that the bioventing system is providing enough oxygen to sustain optimal microbial activity (e.g., vapor-phase oxygen concentrations at or above 5 percent).

Performance monitoring will continue on a quarterly basis following the guidelines from the Bioventing System Monitoring Plan and the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006).

In-Situ Respiration Test

The decreasing concentration (percent by volume) of oxygen and increasing concentration of carbon dioxide over time is a common indicator of biodegradation. The soil gas concentrations detected over the 72 hour monitoring period during the 2007 monitoring event from the TP and BV wells support the continued presence of active biodegradation within the River Terrace area.

The average biodegradation rate detected at the TP wells decreased by approximately 57% between the 2006 and 2007 respiration test events, with the average biodegradation rate for 2006 and 2007 being 3.16 mg/kg-d and 1.36 mg/kg-d, respectively. Similar conclusions are supported by the average biodegradation rates detected at the BV wells; the average biodegradation rate detected during the 2006 and 2007 test events were 1.82 mg/kg-d and 0.67 mg/kg-d, respectively. The lower biodegradation rates over time are indicators of successful progress in bioremediation in the subsurface.

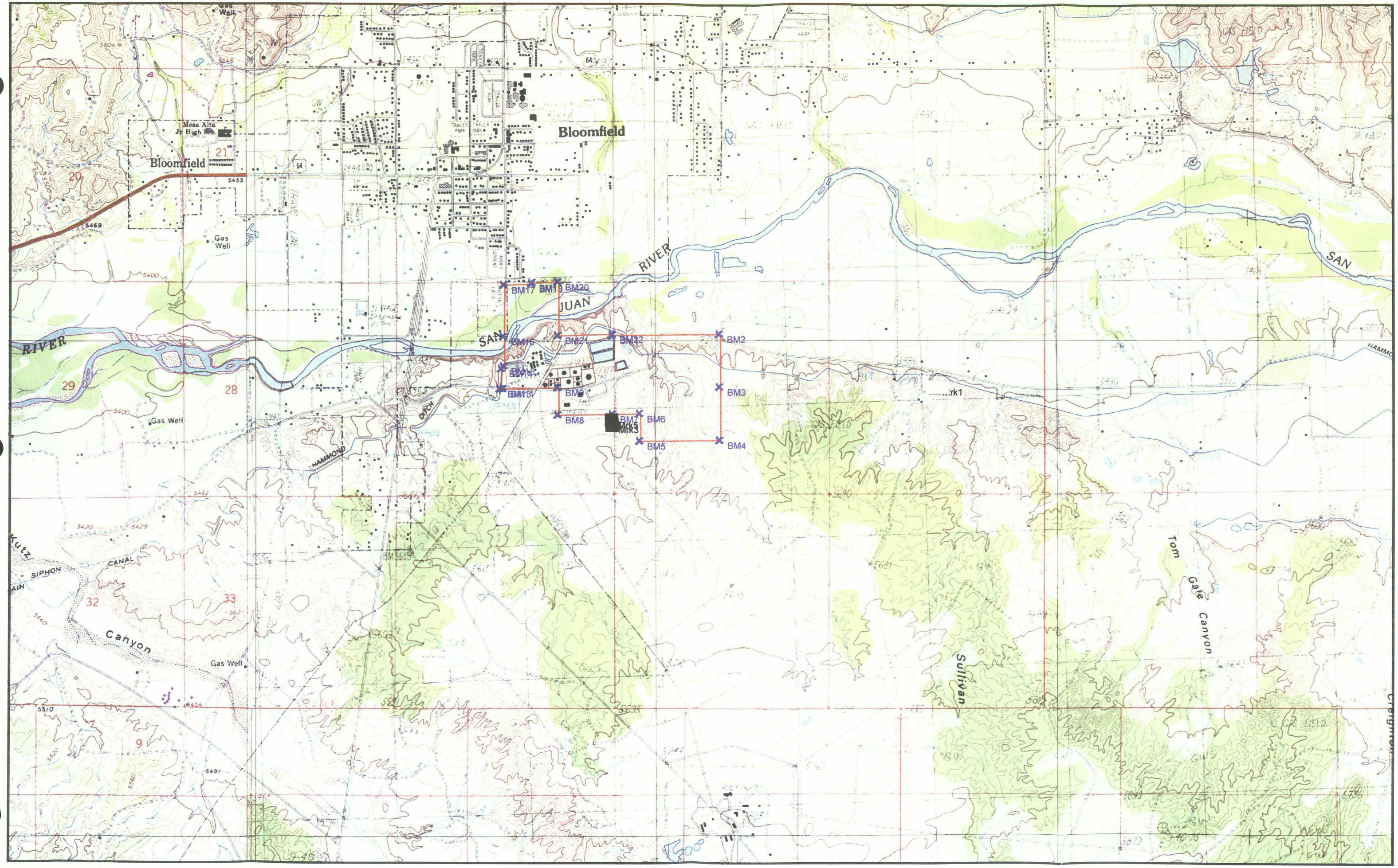
Since the 2006 and 2007 in situ respiration tests were conducted under similar subsurface conditions, the comparative different in the biodegradation rate is most likely the result of a decreased food source (hydrocarbon), thus resulting in low biodegradation activity.

GAC Analysis

Break through in the lead GAC was detected in April through lab analysis and V-612 was bypassed and taken out of service on April 30, 2007. V-611 became the lead GAC at that time. Refinery personnel will continue to analyze GAC 1 EFF (V-611) for BTEX, GRO, and DRO on a monthly basis. GAC INF and GAC 2 EFF (V-612) will be analyzed quarterly for BTEX, GRO, and DRO.

Section 8.0 Maps

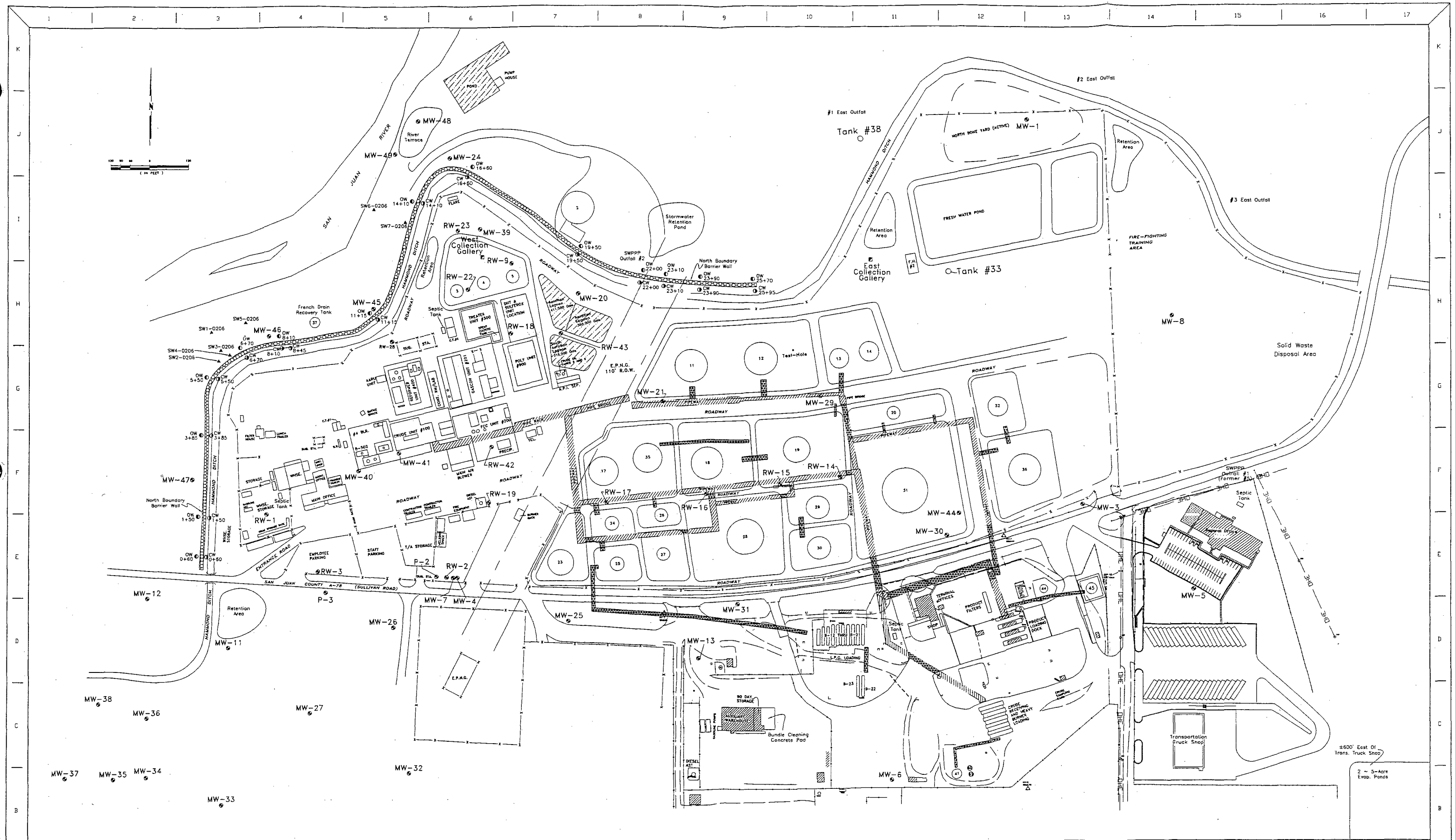
Title	Figure
Vicinity Map	Figure 1
Facility Site Plan	Figure 2
River Terrace Bioventing Project Plot Plan	Figure 3
Soil Vapor 3rd QTR BTEX Concentration Map	Figure 4
Soil Vapor 4th QTR BTEX Concentration Map	Figure 5
Groundwater 3rd QTR BTEX Concentration Map	Figure 6
Groundwater 4th QTR BTEX Concentration Map	Figure 7



N

Scale: 1 inch equals 2000 feet

GIANT



NOTES
"MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"P" – Piezometer
– Denotes Under Ground Pipe-Way.
– Denotes Above Ground Pipe-Way.
– Denotes Slurry Barrier Wall
"CW" – Collection Well Locations
"OW" – Observation Well Locations
"SW" – Sump Well Locations

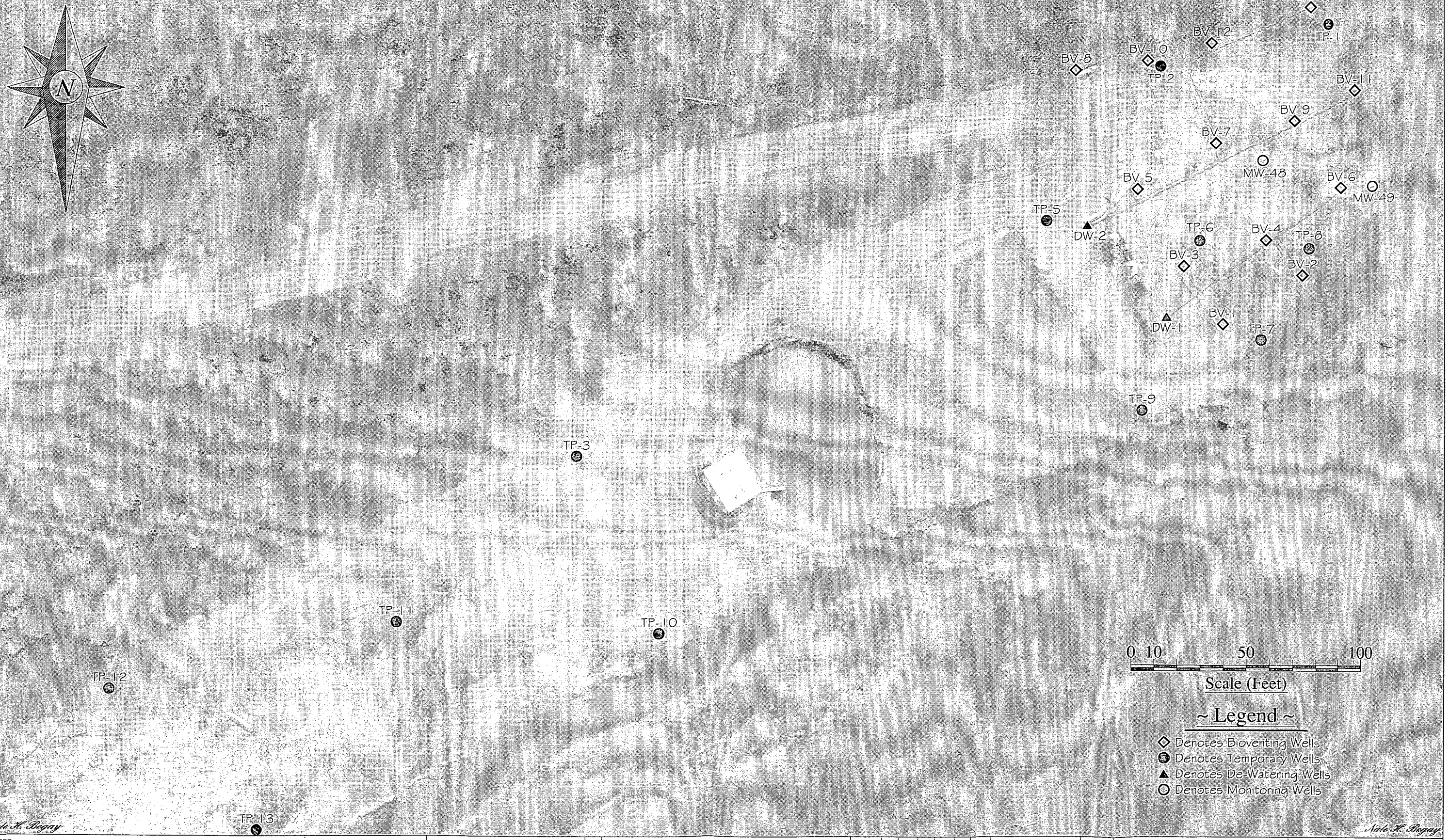
NO.	REVISION	JOB No.	DRAWN	CHECKED	APPROVED	AFE/WO No.
8	Revised To Indicate Tanks 24 & 25 Addition.	NHB	13/06			
7	Observation, & Collection Wells Added As Per Enviro. Dept. Mark-Ups.	NHB	12/05			
6	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.	NHB	7/05			
5	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.	NHB	3/05			
4	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.	NHB	2/04			
10	Revised As Per Red-Line Mark-Ups From 'C. Hurtado' Enviro. Dept.	NHB	7/07			
9	Revised To Indicate "SW" or Sump Well Locations.	NHB	5/06			
1	Updated As Per Enviromental Dept. Mark Up	BY	DATE	BY	DATE	BY DATE

REFERENCE DWGS.

SCALE	As Noted
DRAWN BY	NHB 8/29/02
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	

Giant Bloomfield Refinery Area Plot Plan Recovery Well & Monitoring Well Location's

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO
DWG. NO. D-000-900-023 — REV. 10



NOTES

Reference Drawings:
B-500-900-022
B-500-900-023

NO.	REVISION	JOB No.	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
1	Removal Of "TP-4" As Per Instruction From Enviro. Dept.		NHB	8/07				
A	Drawn As Per Sketch From Enviro. Dept.							

REFERENCE DWGS.

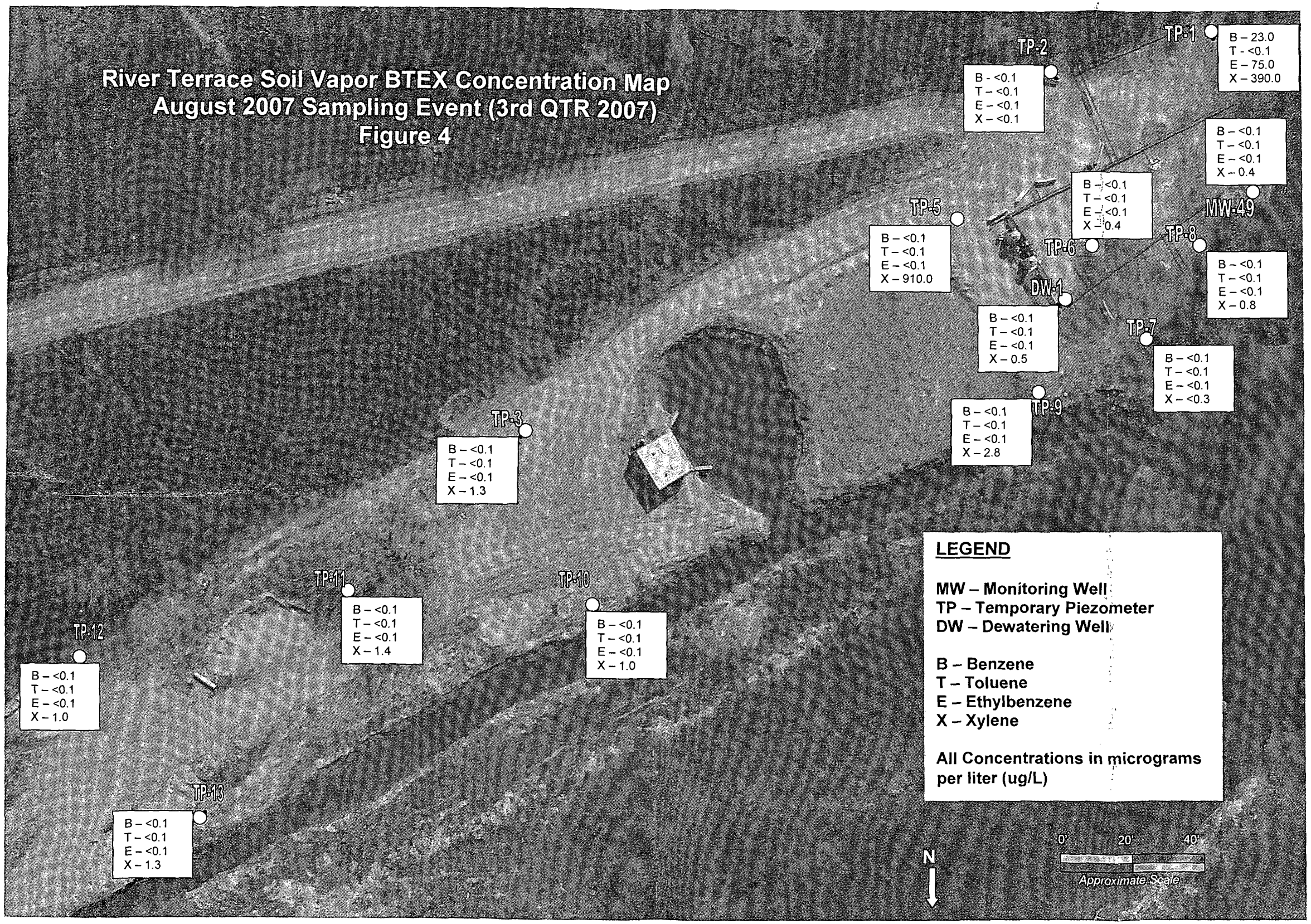
SCALE	As Noted
DRAWN BY	NHB
DATE	1/3/07
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	NONE

River Terrace Project
Bioventing & Temporary-
Well Location Plot Plan

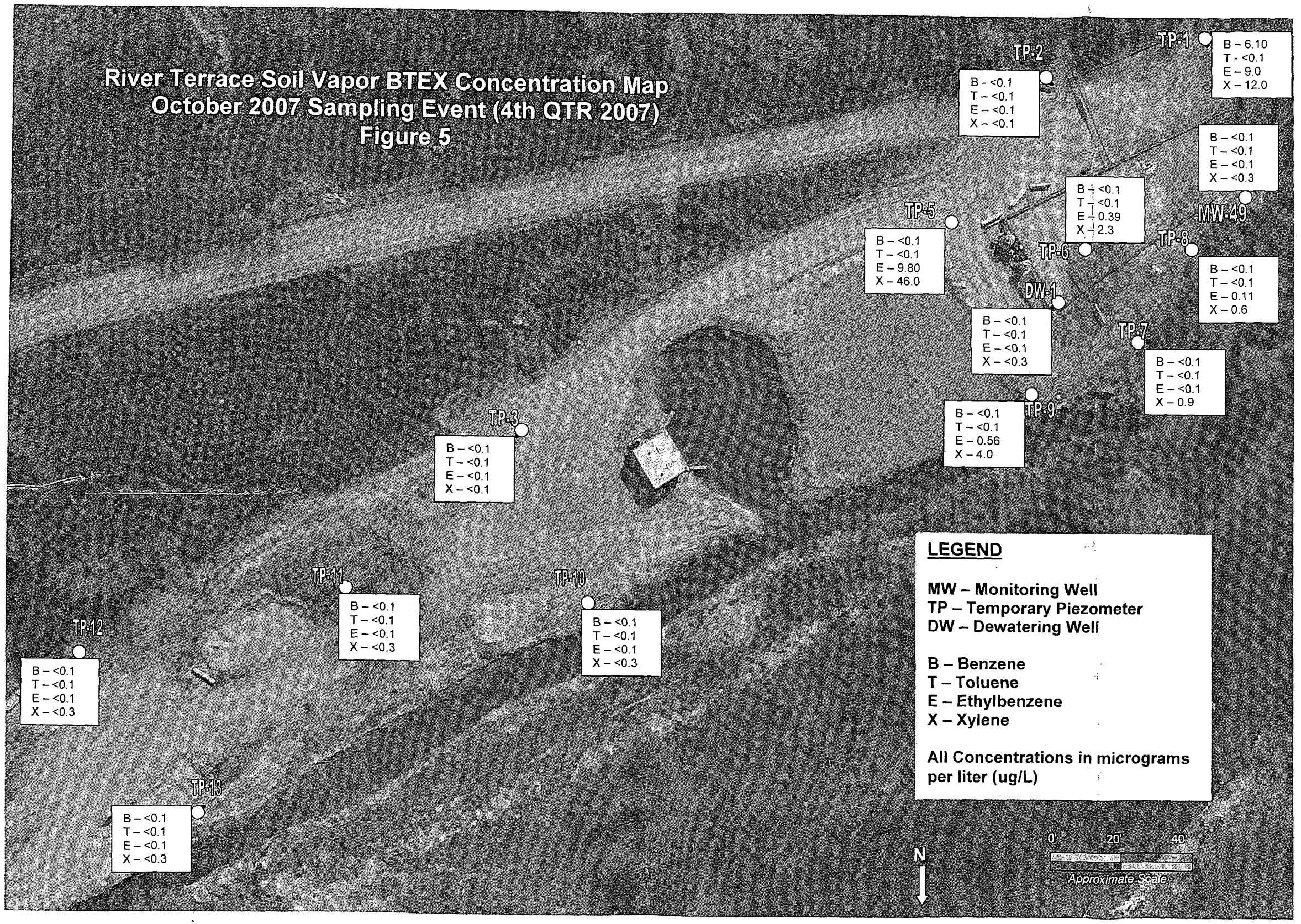
GIANT REFINING CO.
BLOOMFIELD REFINERY
BLOOMFIELD NEW MEXICO

DWG. NO. B-500-900-024
REV. 1

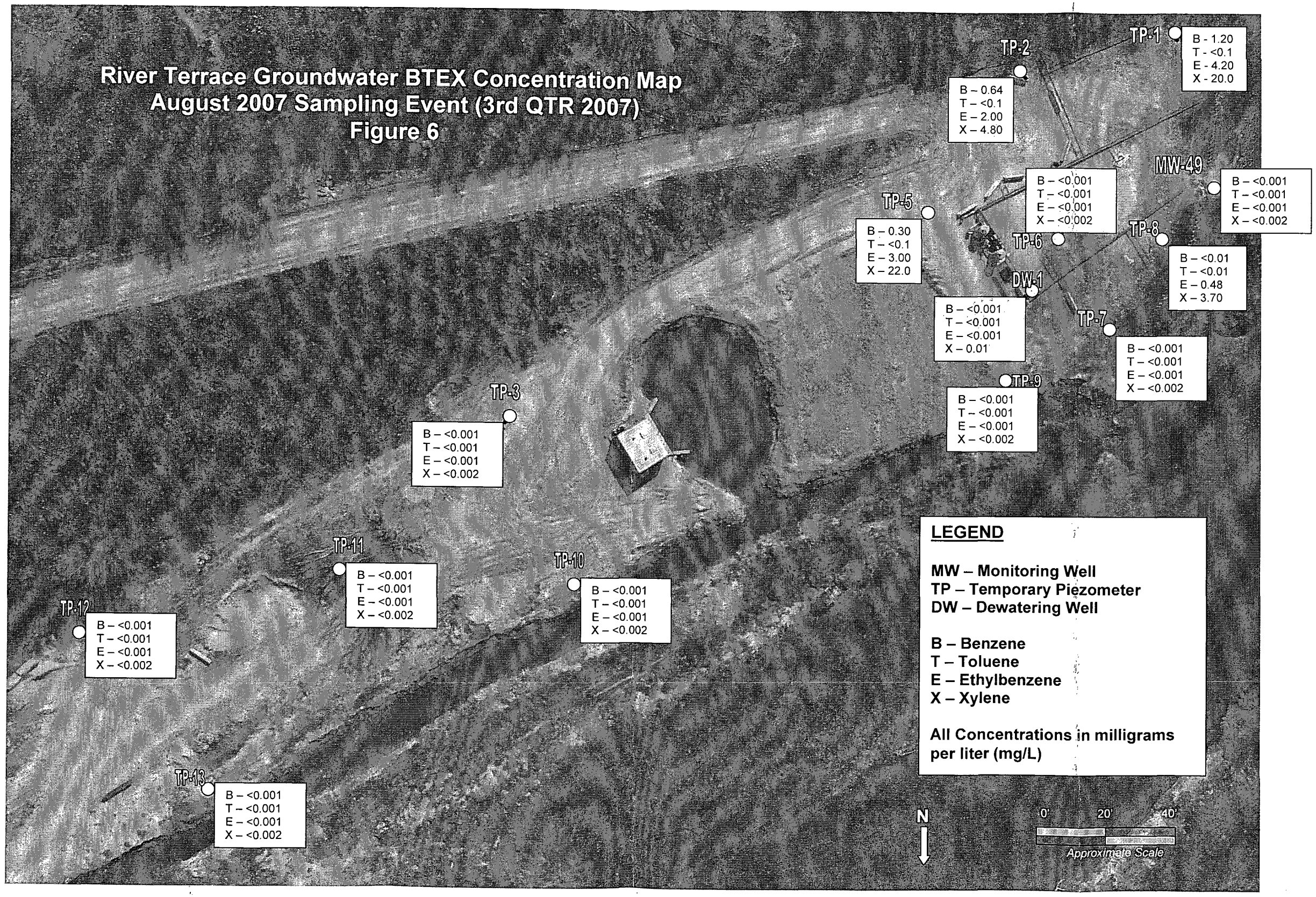
River Terrace Soil Vapor BTEX Concentration Map
August 2007 Sampling Event (3rd QTR 2007)
Figure 4



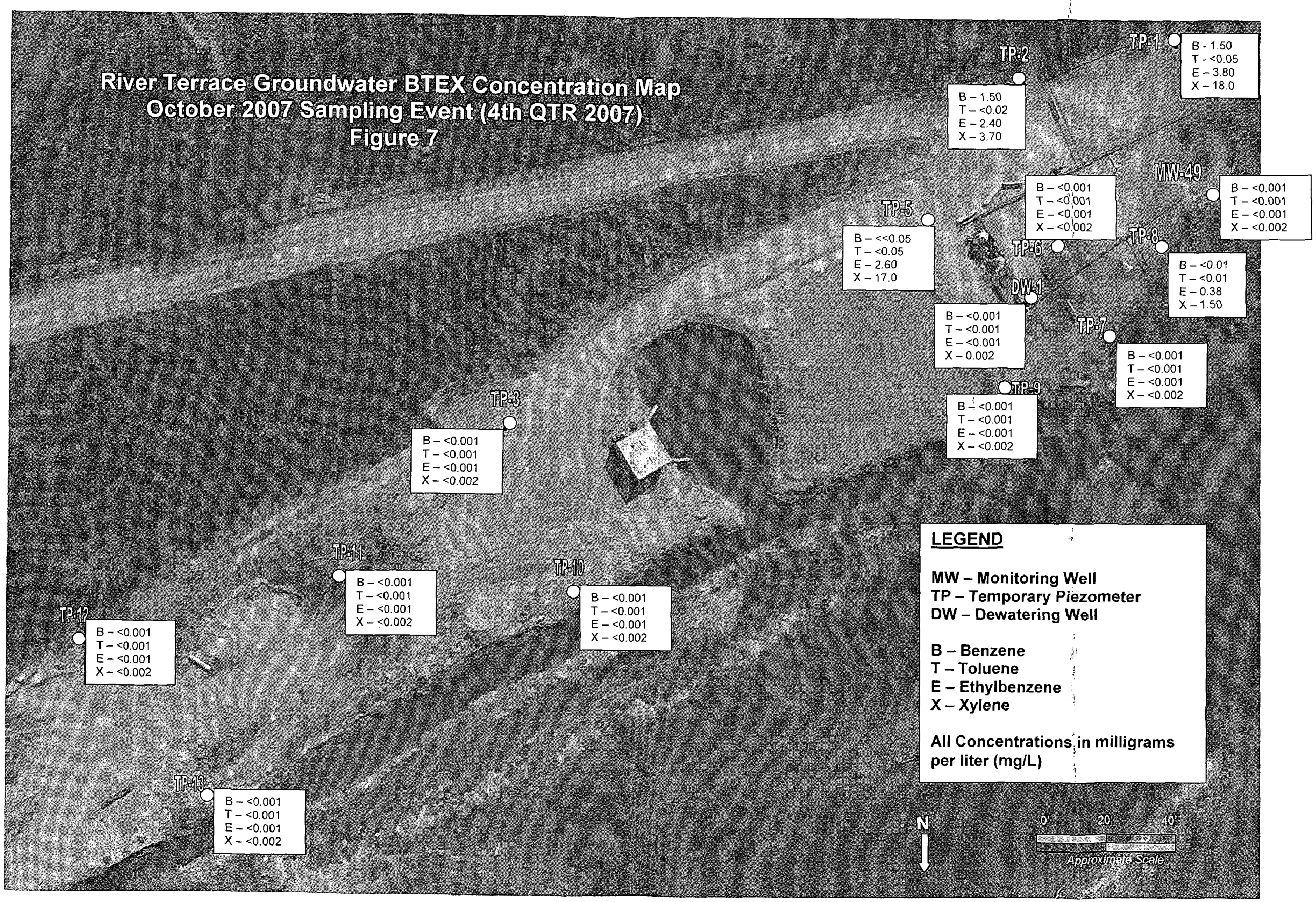
River Terrace Soil Vapor BTEX Concentration Map
October 2007 Sampling Event (4th QTR 2007)
Figure 5



River Terrace Groundwater BTEX Concentration Map
August 2007 Sampling Event (3rd QTR 2007)
Figure 6



River Terrace Groundwater BTEX Concentration Map
October 2007 Sampling Event (4th QTR 2007)
Figure 7



Field Methods

Soil Gas Sampling

Sampling Procedure

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. Injection pressure and injection flow rates are collected from all bioventing wells in which air is being injected. Soil gas samples are taken before groundwater purging and sampling.

Each well is equipped with an air-tight well cap for sample extraction through a sample port at the top of the well casing. Each well has dedicated flexible Teflon Food Grade tubing which extends through both sides of the sample port with one side continuing down into the well casing to approximately 1 foot above the water table. The other end (topside) protrudes from the cap and is available as a connector.

Before purging, pressure is measured by attaching a hand-held Magnahelic Pressure Gauge to the topside tubing.

A portable vacuum pump is used for purging and sample collection. The topside tubing is connected to the suction of the vacuum pump and three purge volumes are withdrawn from the well prior to sample collection. After sufficient purging, a Tedlar bag is attached to the tubing at the discharge end of the pump for sample collection. All samples are properly labeled and placed in a cooler for delivery to the off-site laboratory or for field measurements of vapor-phase organics

Well Purging Technique

A vacuum pump is used to remove stagnant air from the soil gas sampling assembly. Approximately three well volumes are purged from the well before sampling. Purged volumes are determined by using the following equation:

Conversion Factor X Depth to Water X 28L/ft3 X Three

The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	0.196L/ft
4"	0.0873L/ft
2"	0.0.0218L/ft
1"	0.0.005545L/ft

Soil Gas Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative soil gas samples include:

- Interface Probe
- Vacuum Pump
- 1 Liter Tedlar Bags
- PID Meter
- RKI Eagle Meter
- Cooler to store Tedlar Bags

- Sharpie Permanent Marker
- Field Paperwork/Logsheet
- Trash container (plastic garbage bag)

Tedlar bags and tubing dedicated for each well are used for field measurements. New Tedlar bags are used for BTEX and GRO collection and analysis.
After sufficient purging, samples are collected using the vacuum pump. Field measurements of vapor-phase organics, oxygen, and carbon dioxide concentrations are recorded using portable field instruments. BTEX and GRO samples are labeled immediately with location, date, time, analysis, and sampler and then put in a trash bag and placed in a cooler. The field logsheet is reviewed to verify all entries. Samples are then shipped to the laboratory.
To prevent cross-contamination, procedures include dedicated tubing for each of the wells sampled as well as a five minute purge time of the vacuum pump in ambient air.

Instrument Calibration

The RKI Eagle is a portable gas detection system with sensors for oxygen, carbon dioxide, and methane. Calibration of the instrument is conducted at the beginning of each day of sampling.
The meter is turned on and allowed to warm up. Fill the dedicated Tedlar bags with known calibration gas. One bag is used for the carbon dioxide calibration and the other bag contains the oxygen and methane calibration gasses. Press and hold the AIR/▲ button until a tone sounds. The Eagle automatically sets the toxics circuits to zero and the oxygen circuit to 20.9%.
Press and hold the SHIFT /▼ button, then press the DISP/ADJ button. The calibration menu is displayed. Use the AIR/▲ and SHIFT/▼ buttons to place the prompt next to the SINGLE CALIBRATION menu option. Press the POWER/ENTER button to display the Single Calibration menu. Use the AIR/▲ or SHIFT/▼ button to place the prompt next to the channel to calibrate. Press the POWER/ENTER button. Connect the tubing from the Tedlar bag to the Eagle's probe. If necessary, use the AIR/▲ (increase) and SHIFT/▼ (decrease) buttons to adjust the reading to match the concentration listed on the calibration cylinder. Press the POWER/ENTER button to set the span value. Repeat the steps for any other channels you want to calibrate.

The MiniRae 2000 Portable VOC Monitor (PID) is calibrated at the beginning of each day of sampling. Turn on the monitor and wait for the **Ready** message display. Press and hold both **(N/-)** and **(MODE)** keys for three seconds to enter programming mode. The first menu item **"Calibrate/select Gas?"** will be displayed. Press **(N/-)** to scroll to **Fresh Air Cal?** And press **(Y/-)** to select that menu item. Clean ambient air can be used for the "fresh air" calibration. Press **(Y/-)** to begin the zeroing process.
After zeroing is complete, press **(N/-)** to scroll to the next menu item. When **Span Cal?** is displayed press **(Y/-)** to select that menu item. Connect the monitor to a known calibration gas cylinder (isobutylene) after the display shows **Apply gas**

now! The monitor will then perform the calibration. When calibration is completed, turn off the flow of gas, disconnect the cylinder, and exit the programming mode by pressing the **(MODE)** key once.

Groundwater Sampling

Groundwater Elevation

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. The technician records separate phase hydrocarbon, depth to water, and total well depth using this probe.

Water Quality/Groundwater Sampling

Prior to purging, a YSI 550A Dissolved Oxygen Probe is used to determine dissolved oxygen (DO) levels. Water quality parameters are measured using an Ultrameter 6P by the Myron L Company. Electrical conductance, oxidation-reduction potential (ORP), pH, and temperature are monitored during purging.

Well Purging Technique

At least three well volumes are purged from the well. Purge volumes are determined using the following equation:
Well Depth – Casing Height – Depth to Liquid X Conversion Factor X Three.
The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	1.50 gal/ft
5"	1.02 gal/ft
4"	0.74 gal/ft
3"	0.367 gal/ft
2"	0.163 gal/ft

Well Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Probe
- Ultrameter 6P
- YSI 550A Dissolved Oxygen Instrument
- Distilled Water
- Disposable Latex Gloves
- Disposable Bailers
- String/Twine
- Cooler with Ice
- Bottle kits with Preservatives (provided by the contract laboratory)
- Glass Filters and Syringes Jar (usually 4 oz.)
- Sharpie Permanent Marker
- Field Paperwork/Log sheet
- Two 5-gallon buckets

- Trash container (plastic garbage bag)
- Ziploc Bags
- Paper towels

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed.
All purged water is poured into a 55-gallon drum designated for sampling events.

After sufficient purging, samples are collected with the bailer and poured into the appropriate sample containers. Two people are usually utilized for sampling. Sampling takes place over a bucket to insure that spills are contained

Samples are labeled immediately with location, date, time, analysis, preservative, and sampler. Then they are put in a Ziploc bag and placed in a cooler holding sufficient ice to keep them cool. The field log sheet is reviewed to verify all entries.

Purge and Decontamination Water Disposal
The Ultrameter 6P, YSI 550A DO Probe, and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained.
All rinse and purge water is contained and then disposed of through the refinery wastewater system.

Instrument Calibration
Calibration of the YSI 550A Dissolved Oxygen Instrument occurs at the beginning of each day of sampling. The probe is powered on and allowed to stabilize, which usually takes 15 minutes. Enter the calibration menu. The LCD will prompt you to enter the local altitude in hundreds of feet. When the proper altitude appears on the LCD, press the **ENTER** key.
The LCD will then prompt you to enter the salinity of the water you are about to analyze. After entering the correct salinity, the instrument will return to normal operation.

The Ultrameter 6P instrument calibration occurs at the beginning of each day of sampling. For Conductivity and TDS calibration, the cell is rinsed three times with a 3000 umhos/cm NaCl Standard. The cell cup is refilled with the standard. Either the **COND** or the **TDS** button is pressed and then the **CAL** button is pushed. Press the up or down arrow until the display agrees with the standard. The **CAL** button is pressed to accept the value.
The Ultrameter 6P has an electronic ORP calibration which is automatically calibrated with the 7 pH. The pH sensor well is rinsed three times with 7.0 buffer solution and then refilled again with that buffer. The **pH** button is pressed then the **CAL** button. The up or down arrow is adjusted until the display agrees with

the buffer value. The **CAL** button is pushed to accept that value. Repeat the calibration steps using an acid buffer solution and then again with a base buffer solution.

Section 10.0 Chemical Analytical Program

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Hall Environmental Analysis Laboratory

QUALITY ASSURANCE PLAN

Effective Date: May 2007

Revision 8.3

www.hallenvironmental.com

Control Number: 0000069

Approved By:

Nancy McDuffie Date
Laboratory Manager/QA Officer

Approved By:

Andy Freeman Date
Business Manager

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www.hallenvironmental.com

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3.0 Introduction

Purpose of Document

The purpose of this Quality Assurance Manual is to formally document the quality assurance policies and procedures of Hall Environmental Analysis Laboratory, Inc. (HEAL), for the benefit of its employees, clients, and accrediting organizations. This laboratory continually implements the aspects of this plan as an essential and integral part of laboratory operations in order to assure that high quality data is produced in an efficient cost effective manner.

Objectives

The objective of HEAL is to achieve and maintain excellence in environmental testing. This is accomplished by developing, incorporating and documenting the procedures and policies specified in this manual. A laboratory staff that is analytically competent, well qualified, and highly trained carries out these activities. An experienced management team, knowledgeable in their area of expertise, monitors them. Finally, a comprehensive Quality Assurance program governs laboratory practices and assures that the analytical results are valid and defensible.

HEAL establishes and thoroughly documents its activities to ensure that all data generated and processed will be scientifically valid and of known and documented quality. Routine laboratory activities are detailed in method specific. All data reported meets the applicable requirements for NELAC, EPA and/or State Bureaus. For specific method requirements refer to Standard Operating Procedures (SOP's), EPA methods, Standard Methods 20th edition or state specific methods.

The management assures that this documentation is correct in terms of required accuracy, data reproducibility, and that the procedures contain proper Quality Control measures. The management additionally assures that all equipment is reliable, well maintained and calibrated. The procedures and practices of the laboratory are able to conform to client specifications and regulatory requirements. Meticulous records are maintained for all samples and their respective analyses so that results are well documented and defensible in a court of law.

The HEAL QA Officer is responsible for supervising and administering this quality assurance program, insuring each individual is responsible for its proper implementation. All HEAL management remains committed to the encouragement of excellence in analytical testing and will continue to provide the necessary resources and environment conducive to its achievement.

Policies

Understanding that quality cannot be mandated, it is the policy of this laboratory to provide an environment that encourages all staff members to take pride in the quality of their work. In addition to furnishing proper equipment and supplies, HEAL stresses the importance of continued training and professional development. Further, HEAL recognizes the time required

for data interpretation. Therefore, no analyst feels pressure to sacrifice data quality for data quantity. Each staff member must perform with the highest level of integrity and professional competence, always being alert to problems that could compromise the quality of technical work.

Management and senior personnel supervise analysts closely in all operations. Under no circumstance is the willful act or fraudulent manipulation of analytical data condoned. Such acts must be reported immediately to the management. Reported acts will be assessed on an individual basis and resulting actions could result in dismissal. The laboratory staff is encouraged to speak with lab managers or senior management if they feel that there are any commercial, financial, or other undo pressures, which might adversely affect the quality of their work.

All client information at HEAL is considered confidential. No information will be given out without the express verbal or written permission of the client. All reports generated will be held in the strictest of confidence.

This is a controlled document. Each copy is assigned a unique tracking number and when released to a client or accrediting agency the QA Officer keeps the tracking number on file.

4.0 Organization and Responsibility

Company

HEAL is accredited in accordance with NELAC standards (see NELAC accredited analysis list) and by the Arizona Department of Health Services. Additionally, HEAL is qualified as defined under the Petroleum Storage Tank Regulations of the State of New Mexico Environmental Improvement Board (USTR §1201), the State of New Mexico Water Quality Control Commission regulations and the New Mexico State Drinking Water Bureau. It is a locally owned small business that was estabiished in 1991. HEAL is a full service Environmental Analysis Laboratory with analytical capabilities that include both organic and inorganic methodologies and has performed analyses of soil, water and air samples for many sites in the region. HEAL's client base includes local, state and federal governmental agencies, private consultants as well as individual homeowners. It has performed as a subcontractor to the state of New Mexico and to the New Mexico Department of Transportation. HEAL has been acclaimed by its customers as producing quality results and as being adaptive to client-specific needs.

The laboratory is divided into a volatile organic section, a semi-volatile organic section, and an inorganic section. Each section has a designated manager/technical director. The section managers report directly to the laboratory manager, who oversees all operations.

Certifications

National Environmental Laboratory Accreditation Program (NELAP) – Oregon Primary accrediting authority.

Arizona Department of Health Services

See appendix A for copies of current licenses and licensed parameters.

Personnel

All employees training certificates and diplomas are kept on file with demonstrations of capability for each method they perform. An Organizational Chart can be found on page 11.

Laboratory Director

The Laboratory Director is responsible for overall technical direction and business leadership of Hall Environmental Analysis Laboratory, Inc. The Laboratory Manager and the Business Manager report directly to the Laboratory Director. Someone with a minimum of 7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Laboratory Manager/Technical Director

The Laboratory Manager is responsible for the daily operations of the laboratory. The Laboratory Manager is the technical director of the laboratory and in conjunction with the technical directors of the sections, is responsible for coordinating activities within the laboratory with the overall goal of efficiently producing high quality data in a reasonable time.

In events where employee scheduling or current workload is such that new work cannot be incorporated with missing holdtimes, the Laboratory Manager has authority to modify employee scheduling or re-schedule projects.

Additionally, the laboratory manager reviews and approves new analytical procedures and methods, and performs a technical review of most analytical results. The Laboratory Manager provides technical support to customers and staff.

The Lab Manager also observes the performance of supervisors to ensure good laboratory practices and proper techniques are being taught and utilized, assisting in overall quality control implementation, and strategic planning for the future of the company. Other duties include assisting in establishing laboratory policies which lead to the fulfillment of requirements for various certification programs, assuring that all Quality Assurance and Quality Control documents are reviewed and approved, and assisting in conducting Quality Assurance Audits.

The lab manager addresses questions or complaints that cannot be answered by the section managers. Someone with a minimum of 7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Business/ Project Manager

The role of the business/project manager is to act as a liaison between the client and the laboratory. The business project manager reviews reports, updates clients on the status of projects in-house, prepares quotations for new work, and is responsible for the marketing effort.

All new work is assessed by the project manager and reviewed with the other managers so as the not exceed the laboratories capacity. In events where employee scheduling or current workload is such that new work cannot be incorporated with missing holdtimes, the Business Manager has authority to re-schedule projects.

It is also the duty of the project manager to work with government agencies and other clients to make certain that the laboratory is compliant on specific work plan requirements.

Additionally, the Business Manager can initiate the review of the need for new analytical procedures and methods, and performs a technical review of some analytical results. The Business Manager provides technical support to customers. Someone with a minimum of

7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Quality Assurance Officer

The Quality Assurance Officer (QAO) is responsible for developing and carrying out the approved Quality Assurance Program, and advising and assisting management in meeting these requirements. The QAO monitors quality control activities of the laboratory in order to determine conformance with the Quality Assurance Program, performing Quality Assurance Audits, writing reports, providing follow-up action, and issuing Observation and Corrective Action Reports as needed.

Additional responsibilities include cataloged documentation of the following: Staff Training and Demonstration Of Capability (DOC) records, Instrument Detection Limits (IDL), Method Detection Limits (MDL), and Instrument/Equipment Certification and/or Maintenance records.

Complaints from clients are logged on a complaint form, which is reviewed by the QAO to ensure that it is handled according to the Quality Systems Section 5.5.3.1 and kept on file. When procedures are not in compliance with the requirements of this plan, "stop work orders" can be issued.

Finally, the QAO provides clients with Quality Control data and Quality Assurance reports as requested. Someone with a minimum of 3 years of directly related experience and a BS in a scientific or engineering discipline should fill this position or it can be filled by a senior manager.

Section Manager/Technical Directors

The Section Manager/Technical Directors are responsible for training and supervising departmental staff. They schedule incoming work and monitor laboratory personnel to ensure that proper procedures and techniques are being used. They supervise and implement new Quality Control procedures as directed by the QAO, update and maintain quality control records and evaluate laboratory personnel in their Quality Control activities.

They are the technical director of the associated section and review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 3 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Chemist I, II and III

A Chemist is responsible for the analysis of soil and water samples and the generation of high quality data in accordance with the laboratory SOPs and QA/QC guidelines in a reasonable time as prescribed by standard turnaround schedules or as directed by the Section Manager, Laboratory Manager or Business Manager.

The chemist is responsible for making sure all data generated is entered in the database in the correct manner and the raw data is reviewed, signed and delivered to the appropriate peer for review. A Chemist reports daily to the section manager and will inform them as to material needs of the section specifically pertaining to the analyses preformed by the chemist. Additional duties may include preparation of samples for analysis, maintenance of lab instruments or equipment, cleaning and providing technical assistance to lower level laboratory staff.

The senior chemist in the section may be asked to perform supervisory duties as related to operational aspects of the section. The chemist may perform all duties of a lab technician.

The position of Chemist is a full or part time hourly position and may divided into three levels, Chemist I, II, and III. Chemist I must have a minimum of an AA in a related field or equivalent experience. Chemist II must have a minimum of an AA in a related field or equivalent plus, at least 2 years of environmental or closely related lab experience. Chemist III must have Bachelors degree and 3 years of environmental or closely related lab experience.

Lab Technician

A lab technician is responsible for providing support in the form of sample preparation, sample analysis, general lab maintenance, glassware washing, chemical inventories and sample kit preparation.

Sample Control Manager

The sample control manager is responsible for receiving samples and reviewing the sample login information after it has been entered into the computer. The sample control manager also checks the samples against the chain-of-custody for any sample and/or labeling discrepancies prior to distribution.

The sample control manager is also responsible for sending out samples to the sub-contractors along with the review and shipping of field sampling bottle kits. The sample control manager acts as a liaison between the laboratory and field sampling crew to assure the appropriate analytical tests is assigned. If a discrepancy is noted the sample Control Manager or sample custodian will contact the customer to resolve any questions or problems. The Sample Control Manager is an integral part the customer service team.

This position should be filled by someone with a high school diploma and a minimum of 3 years of directly related experience and can also be filled by a senior manager.

Delegations in the Absence of Key Personnel

Planned absences shall be preceded by notification to the Laboratory Manager. The appropriate staff members shall be informed of the absence. In the case of unplanned absences, the organizational superior shall either assume the responsibilities and duties or delegate the responsibilities and duties to an appropriately qualified member.

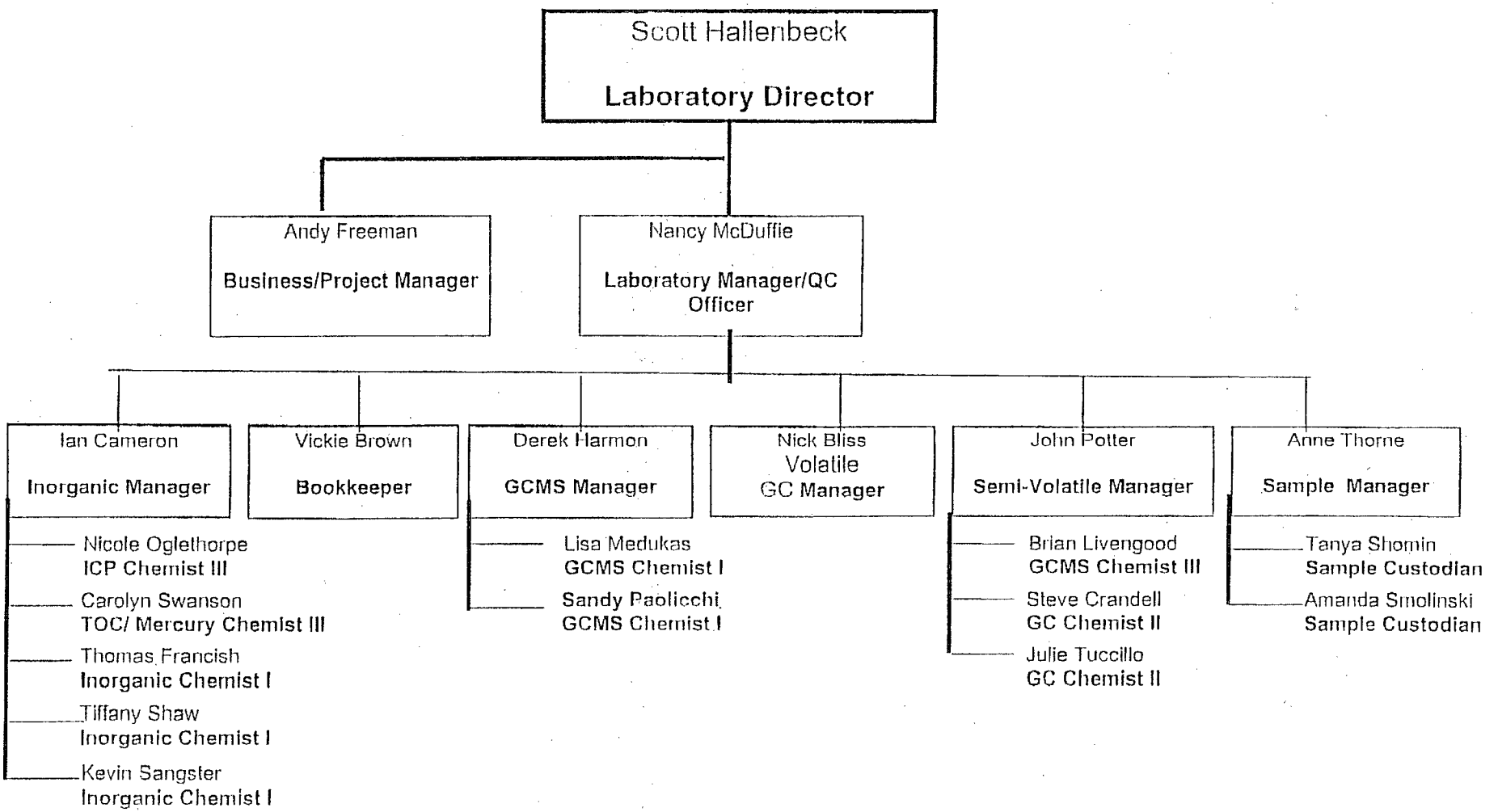
Laboratory Personnel Qualification and Training

All personnel joining HEAL shall undergo orientation and training. During this period the new personnel shall be introduced to the organization and their responsibilities, as well as the policies and procedures of the company. They shall also undergo on the job training and shall work with trained staff. They will be shown required tasks and be observed while performing them. Initial demonstration of capability must be completed and documented prior to performing assignments unsupervised.

New employees that do not have prior analysis experience will not be allowed to perform analysis until they have demonstrated attention to detail with minimal errors in the assigned tasks. To ensure a sustained level of quality performance among staff members, continuing demonstration of capability shall be performed at least once a year.

Laboratory staff must successfully pass an external Proficiency Testing (PT) sample or initial PT sample. Each new employee shall sign an ethics and data integrity agreement to ensure that they know that data quality is our main objective. Every HEAL employee recognizes that although turn around time is important, quality is put above any pressure to complete the task expediently. Analysts are not compensated for passing QC parameters nor are incentives given for the quantity of work produced.

Diagram of Organizational Structure



5.0 Receipt and Handling of Samples

Sampling

Procedures

HEAL does not provide field sampling for any projects. Sample kits are prepared and provided for clients upon request. The sample kits contain the appropriate sampling containers (with a preservative when necessary), labels, blue ice, a cooler, chain-of-custody forms, plastic bags, bubble wrap, and any special sampling instructions. The sample control manager reviews the kits prior to shipment.

Containers

Containers which are sent out for sampling are purchased by HEAL from a commercial source. Glass containers are certified "EPA Cleaned" QA level 1. Those containers are received with a Certificate of Analysis verifying that the containers have been cleaned according to the EPA wash procedure. Containers are generally used once and discarded. If the samples are collected and stored in inappropriate containers the laboratory may not be able to accurately quantify the amount the desired components. In this case re-sampling may be required.

Preservation

If sampling for an analyte(s) requires preservation, the sample custodians fortify the containers prior to shipment to the field. The required preservative is introduced into the vials in uniform amounts and done so rapidly to minimize the risk of contamination. Vials that contain a preservative are labeled appropriately.

The following pages contain tables specifying additional preservation requirements for samples.

Tables of Standard Holding Times, Preservation, and Containers

Organic Compounds

Compound	Matrix	Container	Preservative	Holding time
Purgeable halocarbons and aromatics	aqueous	40 mL glass voas, teflon-lined septum	$HgCl_2$, or HCl, pH <2; cool, <6° C	14 days to analysis
Purgeable halocarbons and aromatics	Soil/MeOH*	4 oz. Jar/2-20 ml VOAs w/ methanol	cool, <6° C	14 days to analysis
Semi-volatiles	aqueous	1 L amber	cool, <6° C	7 days to extract, 40 days after extraction to analyze
Semi-volatiles	soil	8 oz. Jar	cool, <6° C	14 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	aqueous	1 L amber	cool, <6° C	7 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	soil	8 oz. Jar	cool, <6° C	14 days to extract, 40 days after extraction to analyze

*Use of field methanol kits are available and recommended for the PSTB.

Inorganic Compounds

Compound	Matrix	Container	Preservative	Holding time
Acidity	aqueous	250-mL HDP	cool, <6° C	14 days
Alkalinity	aqueous	250-mL HDP	cool, <6° C	14 days
Ammonia	aqueous	1-L HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Biochemical Oxygen Demand	aqueous	2-L HDP	cool, <6° C	48 hours
Bromide	aqueous	250-mL HDP	none required	28 days
Chemical Oxygen Demand	aqueous	125-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Chloride	aqueous	125-mL HDP	none required	28 days
Chloride	solid	4-oz jar	none required	28 days
Chlorine, total residual	aqueous	500-mL HDP	none required	analyze immediately
Chromium VI	aqueous	250-mL HDP	cool, <6° C	24 hours
Chromium VI	solid	8-oz jar	cool, <6° C	as soon as possible

Compound	Matrix	Container	Preservative	Holding Time
Color	aqueous	125-mL HDP	cool, <6° C	48 hours
Cyanide	aqueous	1-L HDP	cool, <6° C NaOH pH>12	14 days
Cyanide	solid	4-oz jar	cool, <6° C	14 days
Fluoride	aqueous	500-mL HDP	none required	28 days
Hardness	aqueous	250-mL HDP	HNO_3 or H_2SO_4 pH<2	6 months
Hydrogen ion (pH)	aqueous	60-mL HDP	none required	analyze immediately
Hydrogen ion (pH)	solid	4-oz jar	none required	analyze immediately
Kjeldahl and organic nitrogen	aqueous	1-L HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Mercury	aqueous	250-mL HDP	HNO_3 pH < 2	28 days
Mercury	solid	8-oz jar	none required	28 days
Metals (except Cr VI and Hg)	aqueous	500-mL HDP	HNO_3 pH < 2	6 months
Nitrate	aqueous	250-mL HDP	cool, <6° C	48 hours
Nitrate	solid	8-oz jar	cool, <6° C	analyze immediately
Nitrate-Nitrite	aqueous	250-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Nitrate-Nitrite	solid	8-oz jar	cool, <6° C	28 days
Nitrite	aqueous	125-mL HDP	cool, <6° C	48 hours
Oil and Grease	aqueous	2-L wide-mouth glass	cool, <6° C, H_2SO_4 pH<2	28 days
Oil and Grease	solid	2-L wide-mouth glass	cool, <6° C	28 days
Organic Carbon	aqueous	125-mL HDP	cool, <6° C, HCl or H_2SO_4 pH<2	28 days
Organic Carbon	solid	4-oz jar	cool, <6° C	28 days
Orthophosphate	aqueous	125-mL HDP	Cool, <6° C	48 hours
Phenolics	aqueous	1-L Boston Round	cool, <6° C, H_2SO_4 pH<2	28 days
Phenolics	solid	8-oz jar (glass only)	cool, <6° C	28 days
Phosphorous (elemental)	aqueous	1-L Boston Round	cool, <6° C	48 hours
Phosphorous (total)	aqueous	125-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Residue, total	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, filterable(TDS)	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, non-filterable (TSS)	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, settleable	aqueous	Imhoff Cone	cool, <6° C	48 hours

Residue, volatile	aqueous	250-mL HDP	cool, <6° C	7 days

Constituent	Matrix	Container	Preservative	Holding Time
Silica	aqueous	125-mL HDP	cool, <6° C	28 days
Specific conductance	aqueous	250-mL HDP	cool, <6° C	28 days
Specific conductance	solid	8-oz jar	cool, <6° C	28 days
Sulfate	aqueous	125-mL HDP	cool, <6° C	28 days
Sulfate	solid	4-oz jar	cool, <6° C	28 days
Sulfide	aqueous	1-L HDP	cool, <6° C, ZnAc + NaOH pH>9	7 days
Sulfide	solid	8-oz jar	cool, <6° C	7 days
Surfactants	aqueous	500-mL HDP	cool, <6° C	48 hours
Turbidity	aqueous	250-mL HDP	cool, <6° C	48 hours

Sample Custody

Chain-of-Custody Form

A Chain-of-Custody (CoC) form is used to provide a record of sample chronology starting with the field sampling through laboratory analysis. HEALs CoC contains the client's name, address, phone and fax numbers, the project name and number, the project manager's name, and the field sampler's name. It also identifies the date and time of sample collection, sample matrix, field sample ID number, number/volume of sample containers, sample temperature upon receipt, and any sample preservative information.

There is also a space to record the HEAL ID number assigned to samples after they are received. Next to the sample information is a space for the client to indicate the desired analyses to be performed. Finally, there is a section to track the actual custody of the samples. The custody section contains lines for signatures, dates and times when samples are relinquished and received. The CoC form also includes a space to record special sample related instructions, sampling anomalies, time constraints, and any sample disposal considerations.

A sample chain-of-custody form can be found at the end of this section.

Receiving Samples

Samples are received by authorized HEAL personnel. Upon arrival, the CoC is compared to the respective samples. After the samples and CoC have been determined to be complete and accurate, the sampler signs over the CoC. The HEAL staff member in turn signs the chain-of-custody, also noting the current date and time. This relinquishes custody of the samples from the sampler and delegates sample custody to HEAL. The third (pink) copy of the CoC form is given to the person who has relinquished custody of the samples.

Logging in Samples and Storage

Standard Operating Procedures have been established for the receiving and tracking of all samples (refer to HALL Login SOP). These procedures ensure that samples are received and properly logged into the laboratory, and that all associated documentation, including chain of custody forms, are complete and consistent with the samples received. Each sample set is given a unique HEAL tracking ID number. Individual sample locations within a defined sample set are given a unique sample ID suffix-number. Labels with the HEAL numbers, and analytes requested, are generated and placed on their respective containers. The pH of preserved samples is checked and noted if out of compliance. Samples are reviewed by the sample control manager prior to being distributed to the storage refrigerators or appropriate laboratory personnel.

Samples are stored in the volatile section refrigerator, the semi-volatile section refrigerator, or the inorganic section refrigerator. If a soil sample must be extracted for both volatile and semi-volatile analysis, it is first placed into the volatile soil sample refrigerator. After the volatile extraction, the sample is moved to the semi-volatile refrigerator to minimize any risk of contamination.

Each project (sample set) is entered into the Laboratory Information Management System (LIMS) with a unique ID given to every container. The ID tag includes the Lab ID, Client ID, date and time of collection, and the analysis/analyses to be performed. The LIMS continually updates throughout the lab. Therefore, at any time, an analyst or manager may inquire about a project and/or samples status. For more information about the login procedures, reference the Sample Login SOP.

Disposal of Samples

Analytical results are used to characterize their respective sample contamination level(s) so that the proper disposal can be performed. These wastes will be disposed of according to their hazard as well as their type and level of contamination. Refer to the Hall Environmental Analysis Laboratory Chemical Hygiene Plan for details regarding waste disposal.

Waste drums are provided by an outside agency. These drums are removed by the outside agency and disposed of in a proper manner.

The wastes that are determined to be non-hazardous are disposed of as non-hazardous waste.

CHAIN-OF-CUSTODY RECORD

Accreditation Applied:
NELAC ☐ USACE ☐
Other:

Client:

Address:

Phone #:

Fax #:

Project Name:

Project #:

Project Manager:

Sampler:

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					H_2Cl_2	HNO_3		

Date: Time: Relinquished By: (Signature) Remarks:

Date: Time: Relinquished By: (Signature) Remarks:

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ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_2, NO_3, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)

Remarks:

6.0 Analytical Procedures

All analytical methods used at HEAL incorporate necessary and sufficient Quality Assurance and Quality Control practices. A Standard Operating Procedure is used for each method to provide the necessary criteria to yield acceptable results. These procedures are updated each year or more often if necessary and are attached as a pdf file in the Laboratory Information Management System (LIMS) for easy access by each analyst. The sample is almost always consumed or altered during the analytical process. Therefore, it is important that each step in the analytical process be correctly followed in order to yield valid data.

When unforeseen problems arise, the analyst, section manager, and lab manager meet to discuss the factors involved. The analytical requirements are evaluated and a suitable corrective action, or resolution is established. The client is notified in the case narrative with the final report or before if validity is in question.

List of Procedures Used

Typically, the procedures used by HEAL are EPA approved methodologies. However, proprietary methods for client specific samples, are sometimes used. The following tables list EPA Method numbers with their corresponding analytes and/or instrument classification.

Organic Analysis

Methodology	Title of Method
8021B	"Halogenated and Aromatic Volatile Organics by Gas Chromatography"
8015B	"Nonhalogenated Volatile Organics by Gas Chromatography" (Gasoline Range and Diesel Range Organics)
8081A	"Organochlorine Pesticides by Gas Chromatography"
8082	"PCBs as Aroclors by Gas Chromatography"
8151A	"Chlorinated Herbicides by GC using Methylation or Pentafluorobenzylation Derivitization"
8310	"Polynuclear Aromatic Hydrocarbons"
8330	"Nitroaromatics and Nitramines"
8315	"Formaldehyde"
1005	"TNRCC – Total Petroleum Hydrocarbons"
504.1	"EDB" & "DBCP"
418.1	"Total Petroleum Hydrocarbons"
413.2	"Oil and Grease"

Gas Chromatographic/Mass Spectrometric Methods

Methodology	Title of Method
8260B	"Volatile Organic Compounds by GC/MS: Capillary Column Technique"
8270C	"Semivolatile Organic Compounds by GC/MS: Capillary Column Technique"
624	"Purgeables"
625	"Base/Neutrals and Acids"

Inorganic Analysis

Methodology	Title of Method
310.1	Alkalinity
350.3	Ammonia
300.0/300.1	Anions (aqueous)
9065	Anion (soil)
120.1	Electrical Conductivity
3500	Ferrous Iron
351.2	Total Kjeldhal Nitrogen (TKN)
9095	Paint Filter
150.1	pH
420.3	Phenols
160.1	Total Dissolved Solids (TDS)
160.2	Total Suspended Solids (TSS)
180.1	Turbidity
	Metals
200.7/6010B	ICP Metals
7470	Mercury (aqueous)
7471	Mercury (soil)

Preparative Methodologies

Methodology	Title of Method
1311	Toxicity Characteristic Leaching Procedure
1312	Synthetic Precipitation Leaching Procedure
3005	Acid Digestion of Waters for Total Recoverable or Dissolved Metals
3010	Acid Digestion of Aqueous Samples and Extracts for Total Metals
3050	Acid Digestion of Sediment, Sludge, and Soil samples
3510B	Separatory Funnel Liquid-Liquid Extraction
3540	Soxhlet Extraction
3545	Accelerated Solvent Extraction
3665	Sulfuric Acid/Permanganate Cleanup (PCB)
5030	Purge-and-Trap for Aqueous Samples
5035	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples

Analytical Standard Operating Procedures (SOPs) are based upon the above listed methods and a variety of other publications. A log of all current SOPs is on file with the QAO and detailed SOPs are available at request.

7.0 Calibration

All equipment and instrumentation used at HEAL are operated, maintained and calibrated according to manufacturers guidelines, as well as criteria set forth in applicable analytical methodology. Personnel who have been properly trained in there procedures perform operation and calibration. Brief descriptions of the calibration processes for our major laboratory equipment and instruments are found below.

Thermometers

The thermometers in the laboratory are used to measure the temperatures of the refrigerators/freezers, ovens, water baths, TCLP Extractions, digestion blocks and samples at the time of log-in. All of these are checked for annually with a NIST certified thermometer and a correction factor is noted on each thermometer log.

Refrigerators/Freezers

Each laboratory refrigerator or freezer contains a thermometer capable of measuring to a minimum precision of 1°C. The thermometers are kept with the bulb immersed in liquid. Each workday, the temperatures of the refrigerators are recorded in a designated logbook to insure that the refrigerators are between ± 2° C. Samples are stored separately from the standards to reduce the risk of contamination.

Ovens

The oven contains a thermometer graduated by 1° C. the temperature is measured before and after a cycle when the operating procedure demands this level of precision. Otherwise they are checked daily.

Instrument Calibration

An instrument calibration is the relationship between the known concentrations of a set of calibration standards introduced into an analytical instrument and the measured response they produce. Calibration curve standards are a prepared series of aliquots at various known concentrations levels from a primary source reference standard. Specific mathematical types of calibration techniques are outlined in SW-846 8000B. The entire initial calibration must be performed prior to sample analyses.

The lowest standard in the calibration curve must be at or below the required reporting limit.

A minimum of 5 calibration points must be used for the calibration curve for GC, GC/MS and HPLC methods.

Most compounds tend to be linear and a linear approach should be favored when linearity is suggested by the calibration data. Non-linear calibration should be considered only when a linear approach cannot be applied. It is not acceptable to use an alternate calibration procedure when a compound fails to perform in the usual manner. When this occurs it is indicative of instrument issues or operator error.

If a non-linear calibration curve fit is employed, a minimum of six calibration levels must be used for second-order (quadratic) curves and a third order polynomial requires a minimum of seven calibration levels.

When more than 5 levels of standards are analyzed in anticipation of using second- or third-order calibration curves, all calibration points MUST be used regardless of the calibration option employed. The highest or lowest calibration point may be excluded for the purpose of narrowing the calibration range, and meeting the requirements for a specific calibration option. Otherwise, unjustified exclusion of calibration data is expressly forbidden.

Analytical methods vary in QC acceptance criteria. HEAL follows the method specific guidelines for QC acceptance. The specific acceptance criteria are outlined in the analytical methods and its corresponding SOP.

Analytical balance

All of the analytical balances are capable of weighing to a minimum precision of 0.1 grams. Records are kept of daily calibration checks for the balances in use. Certified weights are used in these checks. The balances are annually certified by an outside source and the certifications are on file with the QAO.

pH Meter

The pH meter measures to a precision of 0.01 pH units. The log book contains the calibration before each use, or each day, if used more than once per day. It is calibrated using 3 certified buffers. Also available with the pH meter is a magnetic stirrer with a temperature sensor.

Other Analytical Instrumentation and Equipment

The conductivity probe constant shall be determined prior to use. A 3 point linear curve is used.

Eppendorf (or equivalent brands) pipettes are calibrated gravimetrically once a week and verified prior to use.

Reagents

HEAL assures that the reagents used are of acceptable quality for their intended purpose. This is accomplished by ordering high quality reagents and adhering to good laboratory practices so as to minimize contamination or chemical degradation. All reagents must meet any specifications noted in the analytical method.

Upon receipt, all reagents are assigned a separate ID number, and logged into the LIMS. All reagents shall be labeled with the date received into the laboratory and again with the date opened for use. Recommended shelf life shall be documented and controlled. Dilutions or solutions prepared shall be clearly labeled, dated, and signed. These solutions are traceable back to their primary reagents.

All gases used with an instrument shall meet specifications of the manufacturer. Recommended shelf life shall be documented and controlled. All safety requirements that relate to maximum and/or minimum allowed pressure, fitting types, and leak test frequency, shall be followed. When a new tank of gas is delivered, it shall be checked for leaks and marked with the date put in use. The date and initial pressure of a new tank will be noted on the new tank.

HEAL has a Quality Assurance Procedure designed to assure that the quality of laboratory reagent water meets established criteria for all analytical methods. HEAL continuously monitors the quality of the reagent water and provides the necessary indicators for maintenance of the purification systems.

Reagent blank samples are also analyzed to ensure that no contamination is present at detectable levels. The frequency of reagent blank analysis is the same as calibration verification samples. The reagent blank and calibration verification should be analyzed successively. Refrigerator storage blanks are stored in the volatiles refrigerator for a period of one week and analyzed and replaced once a week.

8.0 Maintenance

Maintenance logs are kept for each major instrument. In the front of the log, the following information is included:

Unique name of the item or equipment
Manufacturer
Type of Instrument
Model Number
Serial Number
Date received and date placed into service
Location of Instrument
Condition of instrument upon receipt

For routine maintenance, the following information shall be included in the log:

Maintenance Date
Maintenance Description
Maintenance Performed by Initials

A manufacturer service agreement (or equivalent) covers most major instrumentation to assure prompt and reliable response to maintenance needs beyond HEAL instrument operator capabilities.

9.0 Quality Control

Internal Quality Control Checks

Hall Environmental Analysis Laboratory, Inc. utilizes various internal quality control checks, including replicates, spiked samples, blanks, laboratory control spikes, calibration standards, quality control charts, uncertainty measurements and surrogates.

Replicates, or duplicates, are identical tests repeated for the same sample in order to determine the precision of such a method. A Relative Percent Difference (RPD) is calculated as a measure of this precision.

Spiked Samples (MS/MSD) are samples evaluated with a known added quantity of a target compound. This is to help determine the accuracy of the analyses. A percent recovery is calculated to assess the quality of the accuracy.

Duplicate samples, laboratory control spikes (LCS) and spiked samples (MS/MSD) are performed according to the following schedule for each area:

Organics: LCS and MS/MSD samples are analyzed for every batch of 20 samples (sufficient sample volume permitting for the MS/MSD).

Metals and wet chemistry: LCS, MS/MSD and sample duplicate analysis are performed, at a minimum, for every batch of 20 samples (sufficient sample volume permitting for the MS/MSD and sample duplicate).

Anions: LCS, MS/MSD and sample duplicate analysis are performed, at a minimum, for every batch of 10 samples (sufficient sample volume permitting for the MS and sample duplicate).

Blanks consist of all the reagents measured and treated as they are with samples, except without the samples. This enables the laboratory to assure clean reagents and procedures.

Blind Quality Control Samples are samples provided by an unbiased third party. They contain a pre-determined concentration of the target compound, which is unknown to the analyst. They are analyzed quarterly, and enable the laboratory to assess the quality of its results.

Calibration standards are standards run to calibrate and confirm the consistency of the instrumentation. Calibration standards are utilized at the beginning and end of each batch, and more frequently for larger batches.

Quality Control Charts are charts with acceptable ranges of the values of quality control checks. If a value falls outside the appropriate range, immediate evaluation and assessment of the procedures is required.

A surrogate compound, a substance that has similar properties to the target compounds (but not expected to be present), is added in all applicable tests. It is a measure of the level of recovery achieved in testing.

Uncertainty measurements are used to estimate the range of uncertainty of a certain result.

The specific types and frequency of QC sample analysis differ from method to method and section to section. Individual method specific QC sample criteria are outlined in the each Methods SOP.

SOPs will be update annually or more often if changes are deemed necessary. SOPs are stored as a linked .pdf file in the test portion of the LIMS. This is done by right clicking on the SOP tab of the test screen and adding the appropriate path where the current SOPs are located on the server. The QAO will update these links as necessary.

An initial demonstration of capability is performed each time there is a change in instrument type, personnel, or test method. A minimum of 4 replicate control spikes are prepared and analyzed according to the test method. Sample results are compared against current acceptable LCS recovery limits.

Precision, Accuracy, Detection Levels

Precision

The laboratory uses sample duplicates to assess precision. A duplicate sample is analyzed for each batch of 20 samples (5% frequency) when possible. HEAL requires the RPD to fall within the 99% confidence interval of established control charts or a RPD of less than 20 if control charts are not available. RPD's greater than these limits are considered out-of-control and require an appropriate response. Allowances can be made for high RPD values when the sample results are above the detection limit but less than less than 5X the detection limit. Criteria (based on sample matrix and methodology) for these situations require analyst/supervisor review to determine appropriate corrective action required.

Accuracy

The accuracy of an analysis refers to the difference between the calculated value and the actual value of a measurement. The accuracy of a laboratory result is evaluated by comparing the measured amount of QC reference material recovered from a sample and the known amount added. Control limits are established for each analytical method and sample matrix. Recoveries are assessed to determine the method efficiency and/or the matrix effect.

Analytical accuracy is expressed as the percent recovery (%R) of an analyte or parameter. A known amount of analyte is added to an environmental sample before the sample is prepared and subsequently analyzed. The equation used to calculate percent recovery is:

%Recovery = {(concentration* recovered)/(concentration* added)} X 100

*or amount

HEAL requires that the Percent Recovery to fall within the 99 % confidence interval of established control limits. A value that falls outside of the confidence interval requires

a warning and process evaluation. The confidence intervals are calculated by determining the mean and sample standard deviation. If control limits are not available, the range of 85 to 115% is used unless the specific method dictates otherwise. Percent Recoveries outside of this range mandate additional action such as analyses by Method of Standard Additions, additional sample preparation(s) where applicable, method changes, out-of-control action or data qualification.

Detection Limit

Current practices at HEAL define the Detection Limit (DL) as the smallest amount that can be detected above the baseline noise in a procedure within a stated confidence level.

HEAL presently utilize an Instrument Detection Limit (IDL), a Method Detection Limit (MDL), and a Practical Quantitation Limit (PQL). The relationship between these levels is approximately
IDL: MDL: PQL = 1:5:5.

The IDL is a measure of the sensitivity of an analytical instrument. The IDL is the amount which, when injected, produces a detectable signal in 99% of the analyses at that concentration. An IDL can be considered the minimum level of analyte concentration that is detectable above random baseline noise.

The MDL is a laboratories measure of the sensitivity of an analytical method. An MDL determination (also outlined in SW-846 Appendix B part 136) consists of replicate spiked samples carried through all necessary preparation steps. The spike concentration is three times the standard deviation of three replicates of spikes. Seven replicates are spiked and then analyzed successively and their Standard Deviation (s) calculated. The method detection limit (MDL) can be calculated using the standard deviation according to the formula:

$$MDL = s * t(99\%)$$

Where t (99%) is the student's t value for the 99% confidence interval. It depends on the number of trials used in calculating the sample standard deviation, so choose the appropriate value according to the number of trials.

Number of Trials	t(99%)
6	3.36
7	3.14
8	3.00
9	2.90

The calculated MDL must not be less than 10 times the spiked amount or the study must be performed again with a lower concentration.

The PQL is significant because different laboratories can produce different MDLs although they may employ the same analytical procedures, instruments and sample matrices. The PQL is about two to five times the MDL and represents a practical,

and routinely achievable, reporting level with a good certainty that the reported value is reliable. It is often determined by regulatory limits. The reported PQL for a sample is dependent on the dilution factor utilized during sample analysis.

Quality Control Parameter Calculations

Mean

The sample mean is also known as the arithmetic average. It can be calculated by adding all of the appropriate values together, and dividing this sum by the number of values.

$$\text{Average} = (\Sigma x_i) / n$$

x_i = the value x in the i^{th} trial
n = the number of trials

Standard Deviation

The sample standard deviation, represented by s, is a measure of dispersion. The dispersion is considered to be the difference between the average and each of the values x_i. The variance, s^2, can be calculated by summing the squares of the differences and dividing by the number of differences. The sample standard deviation, s, can be found by taking the square root of the variance.

$$\text{Standard deviation} = s = [\Sigma (x_i - \text{average})^2 / (n - 1)]^{1/2}$$

Percent Recovery (MS, MSD, LCS and LCSD)

$$\text{Percent Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{(\text{Spike Added})} \times 100$$

Confidence Intervals

Confidence intervals are calculated using the average (x), the sample standard deviation (s), and the Student's t distribution (s-dist), which depends on the number of values used to calculate the average and sample standard deviation.

The formula is: confidence interval = $x \pm s * \text{s-dist}$

Student's t Distribution

n-1	10	15	20	25	31	41	61	121	> 121
95 %	2.262	2.145	2.093	2.064	2.042	2.021	2.000	1.980	1.960
99%	3.250	2.977	2.861	2.797	2.750	2.704	2.660	2.617	2.576

Unless there is insufficient data, at least 20 values will always be used in calculating the confidence intervals.

RPD (Relative Percent Difference)

Analytical precision is expressed as a percentage of the difference between the results of duplicate samples for a given analyst. Relative percent difference (RPD) is calculated as follows:

$$RPD = \frac{2 \times (\text{Sample Result} - \text{Duplicate Result})}{(\text{Sample Result} + \text{Duplicate Result})} \times 100$$

Uncertainty Measurements

All procedures allow for some uncertainty. For most analyses the components and estimates of uncertainty are reduced by following well established test methods. To further reduce uncertainty, results are generally not reported below the lowest calibration point (PQL) and above the highest calibration point (UQL). Ranges of uncertainty are also calculated using LCS recoveries. These are kept on file with the QAO and are updated annually.

Calibration Calculations

1. Response Factor or Calibration Factor:

$$RF = ((A_x)(C_{is}))/((A_{is})(C_x)) \qquad CF = (A_x)/(C_x)$$

   a. Average RF or CF

$$RF_{AVE} = RF_i / n$$

   b. Standard Deviation

$$s = SQRT \{ [\Sigma (RF_i - RF_{AVE})^2] / (n-1) \}$$

   c. Relative Standard Deviation

$$RSD = s / RF_{AVE}$$

Where:
A_x = Area of the compound
C_x = Concentration of the compound
A_{is} = Area of the internal standard
C_{is} = Concentration of the internal standard
n = number of pairs of data
RF_i = Response Factor (or other determined value)
RF_{AVE} = Average of all the response factors
Σ = the sum of all the individual values

2. Linear Regression

$y=mx+b$

a. Slope (m)

$m = (n\Sigma x_i y_i - (n\Sigma x_i)*(n\Sigma y_i)) / (n\Sigma x_i^2 - (\Sigma x_i)^2)$

b. Intercept (b)

$b = y_{AVE} - m*(x_{AVE})$

c. Correlation Coefficient (cc)

$CC\ (r) = \{ \Sigma((x_i-x_{ave})*(y_i-y_{ave})) \} / \{ SQRT((\Sigma(x_i-x_{ave})^2)*(\Sigma(y_i-y_{ave})^2)) \}$

Or

$CC\ (r) = [(\Sigma w * \Sigma wxy) - (\Sigma wx * \Sigma wy)] / (sqrt(([(\Sigma w * \Sigma wx^2) - (\Sigma wx * \Sigma wx)] * [(\Sigma w * \Sigma wy^2) - (\Sigma wy * \Sigma wy)])))$

d. Coefficient of Determination

$COD\ (r^2) = CC*CC$

Where:
y = Response (Area) Ratio A_x/A_{is}
x = Concentration Ratio C_x/C_{is}
m = slope
b = intercept
n = number of replicate x,y pairs
x_i = individual values for independent variable
y_i = individual values for dependent variable
Σ = the sum of all the individual values
x_{ave} = average of the x values
y_{ave} = average of the y values
w = weighting factor, for equal weighting w=1
Σ = the sum of the values indicated

3. Quadratic Regression

$y = ax^2 + bx + c$

a. Coefficient of Determination

$$COD\ (r^2) = \left(\Sigma(y_i - y_{ave})^2 - \{[(n-1)/(n-p)] * [\Sigma(y_i - Y_i)^2]\} \right) / \Sigma(y_i - y_{ave})^2$$

Where:
y = Response (Area) Ratio A_x/A_{is}
x = Concentration Ratio C_x/C_{is}
a = x^2 coefficient
b = x coefficient
c = intercept
y_i = individual values for each dependent variable
x_i = individual values for each independent variable
y_{ave} = average of the y values
y_{ave} = average of the y values
n = number of pairs of data
p = number of parameters in the polynomial equation (i.e., 3 for third order, 2 for second order)
Yi = ((2*a*(Cx/Cis)^2)-b^2+b+(4*a*c))/(4a)

b. Coefficients (a,b,c) of a Quadratic Regression

$$a = S_{(x2y)}S_{(xx)} - S_{(xy)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$b = S_{(xy)}S_{(x2x2)} - S_{(x2y)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$c = [(\Sigma yw)/n] - b*[(\Sigma xw)/n] - a*[\Sigma(x^2w)/n]$$

Where:
n = number of replicate x,y pairs
x = x values
y = y values
$w = S^{-2} / (\Sigma S^{-2}/n)$
$S_{(xx)} = (\Sigma x^2 w) - [(\Sigma xw)^2 / n]$
$S_{(xy)} = (\Sigma xyw) - [(\Sigma xw)*(\Sigma yw) / n]$
$S_{(xx2)} = (\Sigma x^3 w) - [(\Sigma xw)*(\Sigma x^2 w) / n]$
$S_{(x2y)} = (\Sigma x^2 yw) - [(\Sigma x^2 w)*(\Sigma yw) / n]$
$S_{(x2x2)} = (\Sigma x^4 w) - [(\Sigma x^2 w)^2 / n]$
Or If unweighted calibration, w=1
S(xx) = (Sx2) - [(Sx)2 / n]
S(xy) = (Sxy) - [(Sx)*(Sy) / n]
S(xx2) = (Sx3) - [(Sx)*(Sx2) / n]
S(x2y) = (Sx2y) - [(Sx2)*(Sy) / n]
S(x2x2) = (Sx4) - [(Sx2)2 / n]

10.0 Data Reduction, Validation, Reporting, and Record Keeping

All data reported must be of the highest possible accuracy and quality. During the processes of data reduction, validation, and report generation, the work is thoroughly checked to insure that error is minimized.

Data Reduction

The analyst who generated the data usually performs the data reduction. The calculations include evaluation of surrogate recoveries (where applicable), response factor calculations for manual calculations, and other miscellaneous calculations related to the sample quantitation.

If the results are computer generated, then the formulas must be confirmed by hand calculations.

Validation

A senior analyst, most often the section supervisor, validates the data. All data undergoes peer review. If an error is detected it is brought to the analyst attention to rectify and further checks ensure that all data for that batch is sound. Previous and/or common mistake are stringently monitored throughout the validation process. Data is reported using appropriate significant figure criteria. In most cases, two significant digits are utilized, but three significant digits can be used in QC calculations. Significant digits are not rounded until after the last step of a sample calculation. All final reports undergo a review by the management to provide a logical review of all the results before they are released to the client.

If data is to be manually transferred from one medium to another, the transcribed data is checked by a peer. This includes data typing, computer data entry, chromatographic data transfer, data table inclusion to a cover letter, or when data results are combined with other data fields.

All hand written data from run logs, analytical standard logbooks, hand entered data logbooks, or on instrument generated chromatograms, are systematically archived should the need for future retrieval arise.

Data that is being reported is treated with the utmost respect and care to help eliminate errors. Unethical practices will be detected through peer review and be dealt with the utmost severity.

Reports and Records

The reports are compiled by the Laboratory Information Management System (LIMS). Most data is transferred directly from the instruments to the LIMS. After being processed by the analyst and reviewed by the section supervisor, reports are approved and signed by the senior laboratory management. A comparative analysis of the data is performed at this point. For example, if TKN and NH3 are analyzed on the same sample the NH3 result should never be greater than the TKN result. Lab results and reports are released only to appropriately designated individuals. Release of the data can be by fax, email, diskette deliverables, or mailed hard copy.

When a project is completed, the project file folder is stored with a hard copy of the report, relevant supporting data, and the quality assurance/control worksheets. These folders are kept on file and are arranged by project number. Additionally, all electronic data is backed up daily on the HEAL main server. The backup includes raw data, chromatograms and report documents. Hard copies of chromatograms are stored separately according to the instrument and the analysis date. All records and analytical data reports are retained in a secure location as permanent records for a minimum period of five years (unless specified otherwise in a client contract). Access to archived information shall be documented with an access log. Access to archived electronic reports and data will be protected by a project manager password. In the event that HEAL transfers ownership or terminates business practices, complete records will be maintained or transferred according to the client's instructions.

After issuance, the original report shall remain unchanged. If a correction to the report is necessary, then an additional document shall be issued. This document shall have a title of "Addendum to Test Report or Correction to Original Report", or equivalent. Demonstration of original report integrity comes in two forms. First, the report date is included on each page of the final report. Second, each page is numbered in sequential order, making the addition or omission of any data page(s) readily detectable.

11.0 Corrective Action

The limits that have been defined for data acceptability also form the basis for corrective action initiation. Initiation of corrective action occurs when the data generated from continuing calibration standard, sample surrogate recovery, laboratory control spike, matrix spike or sample duplicates exceed acceptance criteria. If corrective action is necessary, the analyst or the section supervisor will coordinate to take the following steps to determine and correct the measurement system deficiency:

Check all calculations and data measurements systems (Calibrations, reagents, instrument performance checks etc.).

Assure that proper procedures were followed.

Unforeseen problems that arise during sample preparation and/or sample analysis that lead to treating a sample differently from documented procedures shall be documented with a corrective action report. The section supervisor and lab manager shall be made aware of the problem at the time of the occurrence. See the SOP regarding departures from documented procedures.

Continuing calibration standards below acceptance criteria can not be used for reporting analytical data unless method specific criteria states otherwise.

An analyte above control limits in a Continuing Calibration may be acceptable if the previous continuing calibration standard was acceptable for that analyte. Further, the target analyte in the samples analyzed after the acceptable calibration standard and before calibration standard with the high bias, are reported as non-detected. Finally, the samples following an analyte that is above control limits for a continuing calibration standard can not be reported for that analyte.

Samples with non-compliant surrogate recoveries should be reanalyzed unless deemed un-necessary by the supervisor for matrix, historical data, or other analysis related anomalies.

Laboratory and Matrix Spike acceptance criteria vary significantly depending on method and matrix. Analysts and supervisors meet and discuss appropriate corrective action measures as spike failures occur.

Sample duplicates with RPD values outside control limits require supervisor evaluation and possible reanalysis.

A second mechanism for initiation of corrective action is that resulting from Quality Assurance performance audits, system audits, inter and intra-laboratory comparison studies. Corrective Actions initiated through this mechanism will be monitored and coordinated by the laboratory QA officer.

All corrective action forms are entered in the LIMs and included with the raw data for peer review, signed by the technical director of the section and included in the case narrative to the client whose samples were affected. All Corrective action forms in the LIMs are reviewed by the QA Officer.

12.0 Quality Assurance Audits, Reports and Complaints

Internal/External Systems' Audits, Performance Evaluations, and Complaints

Several procedures are used to assess the effectiveness of the quality control system. One of the methods includes internal performance evaluations, which are conducted by the use of control samples, replicate measurements and use control charts. Another method is external performance audits, which are conducted by the use of inter-laboratory checks, such as participation in laboratory evaluation programs and performance evaluation samples available from a NELAC accredited Proficiency Standard Vendor.

Proficiency samples will be obtained twice per year from the appropriate vendor. We also participate in soil and water Underground Storage Tank PT studies. Copies of our results are available upon request.

Quality Assurance Audits are performed annually by the Quality Assurance Officer. They are performed using the guidelines outlined below:

The system audit consists of a qualitative inspection of the QA system in the laboratory and an assessment of the adequacy of the physical facilities for sampling, calibration, and measurement. This audit includes a careful evaluation and review of laboratory quality control procedures. Including but not limited to:

1. Review of staff qualifications, demonstration of capability, and personnel training programs
2. Storage and handling of reagents, standards and samples
3. Standard preparation logbook and LIMS procedures
4. Extraction logbooks
5. Raw data logbooks
6. Analytical logbooks or batch printouts and instrument maintenance logbooks
7. Data review procedures
8. Corrective action procedures
9. Review of data packages is performed regularly by the lab manager/QA Officer.

The Quality Assurance Officer will conduct these audits on an annual basis. Performance evaluation will, in part, be based upon the results obtained on the proficiency results.

Complaints

Complaints from clients are documented and given to the laboratory manager. The lab manager shall review the information and contact the client. If doubt is raised concerning the laboratories policies or procedures, then an audit of the section or sections may be performed. All records of complaints and subsequent actions shall be maintained for 3 years unless otherwise stated.

Internal and External Reports

The Quality Assurance Officer is responsible for preparation and submission of quality assurance reports to the appropriate management personnel as problems and issues arise. These reports include the assessment of measurement systems, data precision and accuracy, and the results of performance and system audits. Additionally, they also include significant QA problems, corrective actions, and recommended resolution measures. Reports of these Quality Assurance Audits describe the particular activities audited, procedures utilized in the examination and evaluation of laboratory records, and data validation procedures. Finally, there are procedures for evaluating the performance of Quality Control and Quality Assurance activities, and laboratory deficiencies and the implementation of corrective actions with the review requirements.

13.0 Analytical Protocols Utilized at Hall Environmental Analysis Laboratory, Inc.

1. Standard Methods for the Examination of Water and Wastewater: AOHA, AWWA, and WPCG; 20th Edition, 1999.

2. Methods for Chemical Analysis of Water and Wastes, USEPA, EPA-600/4-79-020, March 1979 and as amended December, 1982 (EPA-600/4-82-055)

3. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, USEPA SW-846, 3rd Edition, Updates I, II, IIA, IIB, III, December, 1996.

4. Methods of Soil Analysis: Parts 1 & 2, 2nd Edition, Agronomy Society of America, Monograph 9

5. Diagnosis & Improvement of Saline & Alkali Soils, Agriculture Handbook No. 60, USDA, 1954

6. Handbook on Reference Methods for Soil Testing, The Council on Soil Testing & Plant Analysis, 1980 and 1992

7. Field and Laboratory Methods Applicable to Overburdens and Mine Soils, USEPA, EPA-600/2-78-054, March 1978

8. Laboratory Procedures for Analyses of Oilfield Waste. Department of Natural Resources, Office of Conservation, Injection and Mining Division, Louisiana, August 1988

9. Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity, Technical Bulletin LT B88-2 January, 1988

10. Manual of Operating Procedures for the Analysis of Selected Soil, Water, Plant Tissue and Wastes Chemical and physical Parameter. Soil, Water, and Plant Analysis Laboratory, Dept. of Soil and Water Science, The University of Arizona, August 1989

11. Sampling Procedures and Chemical Methods in Use at the U.S. Salinity Laboratory for Characterizing Salt-Affected Soils and Water. USDA Salinity Laboratory.

12. Procedures for Collecting Soil Samples and Methods of Analysis for Soil Survey. USDA Soil Conservation Service, SSIR No. 1.

13. Soil Survey Laboratory Methods Manual. Soil Survey Laboratory Staff. Soil Survey Investigations Report No. 42, version 2.0, August 1992.

14. Methods for the Determination of Metals in Environmental Samples, USEPA, EPA-600/4-91-010, June 1991

15. The Merck Index, Eleventh Edition, Merck & Co., Inc. 1989.

16. Handbook of Chemistry and Physics, 62nd Edition, CRC Press, Inc. 1981-1982.

17. Analytical Chemistry of PCB's. Erickson, Mitchell D., CRC Press, Inc. 1992.

18. Environmental Perspective on the Emerging Oil Shale Industry, EPA Oil & Shale Research Group.

19. Polycyclic Aromatic Hydrocarbons in Water Systems, CRC Press, Inc.

Appendix A

OREGON

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

NELAP Recognized

Hall Environmental Analysis Laboratory, Inc.

NM100001
4901 Hawkins Rd. NE, Suite D
Albuquerque, NM 87109

IS GRANTED APPROVAL BY ORELAP UNDER THE 2003 NELAC STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW:

Air	Drinking Water	Non Potable Water	Solids and Chem. Waste	Tissue
	Chemistry	Chemistry	Chemistry	

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTIC TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Irene E. Ronning, Ph.D.
ORELAP Administrator
1717 SW 10th
Portland, OR 97201

ISSUE DATE: 3/1/2007
EXPIRATION DATE: 2/29/2008
Certificate No: NM100001-005

Oregon

Environmental Laboratory Accreditation Program

Public Health Laboratory
1717 SW 10th Avenue
Portland, OR 97201
(503) 229-5505
FAX (503) 229-5682
TTY (503) 731-4031

Department of Agriculture, Laboratory Division
Department of Environmental Quality, Laboratory Division
Department of Human Services, Public Health Laboratory

NELAP Recognized

ORELAP Fields of Accreditation

ORELAP ID: NM100001
EPA Code: NM00001

Hall Environmental Analysis Laboratory, Inc.

Certificate: NM100001-005

4901 Hawkins Rd. NE, Suite D
Albuquerque, NM, 87109

Issue Date: 3/1/2007 ***Expiration Date:*** 2/29/2008

As of 3/1/2007 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

MATRIX: Drinking Water

Reference		*Code*	*Description*
EPA 160.1		10009208	Total Dissolved Solids, dried @ 180 C.
Analyte Code	*Analyte*		
1955	Residue-filterable (TDS)		
EPA 200.7		10014003	ICP - metals
Analyte Code	*Analyte*		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		
1025	Boron		
1030	Cadmium		
1040	Chromium		
1055	Copper		
1070	Iron		
1075	Lead		
1090	Manganese		
1100	Molybdenum		
1105	Nickel		
1140	Selenium		
1150	Silver		
1175	Tin		
1180	Titanium		
1185	Vanadium		
1190	Zinc		
EPA 245.1		10036609	Mercury by Cold Vapor Atomic Absorption
Analyte Code	*Analyte*		
1095	Mercury		
EPA 300.0		10053006	Ion chromatography - anions.
Analyte Code	*Analyte*		
1575	Chloride		
1730	Fluoride		
1810	Nitrate as N		
1835	Nitrite		
1870	Orthophosphate as P		
2000	Sulfate		

ORELAP Fields of Accreditation

ORELAPID: NM100001
EPACode: NM00001

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Hall Environmental Analysis Laboratory, Inc.

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Customers: Please verify the current accreditation standing with ORELAP.

EPA 415.1		10078407	Organic carbon - Combustion or Oxidation
Analyte Code	*Analyte*		
2040	Total Organic Carbon		
EPA 5030B		10153409	Purge and trap for aqueous samples
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 504.1		10083006	EDB/DBCP/TCP micro-extraction, GC/ECD
Analyte Code	*Analyte*		
4570	1,2-Dibromo-3-chloropropane (DBCP)		
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)		
EPA 524.2		10088809	Volatile Organic Compounds GC/MS Capillary Column
Analyte Code	*Analyte*		
5105	1,1,1,2-Tetrachloroethane		
5160	1,1,1-Trichloroethane		
5110	1,1,2,2-Tetrachloroethane		
5165	1,1,2-Trichloroethane		
4630	1,1-Dichloroethane		
4640	1,1-Dichloroethylene		
4670	1,1-Dichloropropene		
5155	1,2,4-Trichlorobenzene		
5210	1,2,4-Trimethylbenzene		
4610	1,2-Dichlorobenzene		
4635	1,2-Dichloroethane		
4655	1,2-Dichloropropane		
5215	1,3,5-Trimethylbenzene		
4615	1,3-Dichlorobenzene		
4660	1,3-Dichloropropane		
4620	1,4-Dichlorobenzene		
4535	2-Chlorotoluene		
4540	4-Chlorotoluene		
5870	4-Isopropyltoluene		
4375	Benzene		
4390	Bromochloromethane		
4395	Bromodichloromethane		
4400	Bromoform		
4950	Bromomethane (Methyl bromide)		
4455	Carbon tetrachloride		
4475	Chlorobenzene		
4485	Chloroethane		
4505	Chloroform		
105	Chloromethane		
4645	cis-1,2-Dichloroethylene		
4575	Dibromochloromethane		
4595	Dibromomethane		
4765	Ethylbenzene		
4835	Hexachlorobutadiene		
4900	Isopropylbenzene		
5000	Methyl tert-butyl ether (MTBE)		
4435	n-Butylbenzene		
5090	n-Propylbenzene		
4440	sec-Butylbenzene		

ORELAPID: NM100001
EPACode: NM00001

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5100	Styrene
5115	Tetrachloroethylene (Perchloroethylene)
5120	Tetrahydrofuran (THF)
5140	Toluene
4700	trans-1,2-Dicloroethylene
4695	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride

ORELAP Fields of Accreditation

ORELAPID: NM100001
EPACode: NM000001

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MATRIX: Non-Potable Water

Reference		Code	Description
EPA 150.1		10008409	pH - Electrometric Measurement
Analyte Code	*Analyte*		
1900	pH		
EPA 160.1		10009208	Total Dissolved Solids, dried @ 180 C.
Analyte Code	*Analyte*		
1955	Residue-filterable (TDS)		
EPA 300.0		10053006	Ion chromatography - anions.
Analyte Code	*Analyte*		
1540	Bromide		
1575	Chloride		
1730	Fluoride		
1810	Nitrate as N		
1840	Nitrite as N		
1870	Orthophosphate as P		
2000	Sulfate		
EPA 3005A		10133207	Acid Digestion of waters for Total Recoverable or Dissolved Metals
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 3510C		10138202	Separatory Funnel Liquid-liquid extraction
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 5030B		10153409	Purge and trap for aqueous samples
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 6010B		10155609	ICP - AES
Analyte Code	*Analyte*		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		
1025	Boron		
1030	Cadmium		
1035	Calcium		
1040	Chromium		
1050	Cobalt		
1070	Iron		
1075	Lead		
1085	Magnesium		
1090	Manganese		
1100	Molybdenum		
1105	Nickel		
1125	Potassium		
1140	Selenium		
1150	Silver		
1155	Sodium		
1165	Thallium		
1175	Tin		
1180	Titanium		

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Customers: Please verify the current accreditation standing with ORELAP.

3035	Uranium		
1185	Vanadium		
1190	Zinc		
EPA 8015B		10173601	Non-halogenated organics using GC/FID
Analyte Code	*Analyte*		
9369	Diesel range organics (DRO)		
9408	Gasoline range organics (GRO)		
EPA 8021B		10174606	Aromatic and Halogenated Volatiles by GC with PID and/or ECD Purge &
Analyte Code	*Analyte*		
5210	1,2,4-Trimethylbenzene		
5215	1,3,5-Trimethylbenzene		
4375	Benzene		
4765	Ethylbenzene		
5240	m+p-xylene		
5000	Methyl tert-butyl ether (MTBE)		
5250	o-Xylene		
5140	Toluene		
EPA 8081A		10178606	Organochlorine Pesticides by GC/ECD
Analyte Code	*Analyte*		
7355	4,4'-DDD		
7360	4,4'-DDE		
7365	4,4'-DDT		
7025	Aldrin		
7110	alpha-BHC (alpha-Hexachlorocyclohexane)		
7115	beta-BHC (beta-Hexachlorocyclohexane)		
7105	delta-BHC		
7470	Dieldrin		
7510	Endosulfan I		
7515	Endosulfan II		
7520	Endosulfan sulfate		
7540	Endrin		
7530	Endrin aldehyde		
7120	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)		
7685	Heptachlor		
7690	Heptachlor epoxide		
7810	Methoxychlor		
EPA 8082		10179007	Polychlorinated Biphenyls (PCBs) by GC/ECD
Analyte Code	*Analyte*		
8880	Aroclor-1016 (PCB-1016)		
8885	Aroclor-1221 (PCB-1221)		
8890	Aroclor-1232 (PCB-1232)		
8895	Aroclor-1242 (PCB-1242)		
8900	Aroclor-1248 (PCB-1248)		
8905	Aroclor-1254 (PCB-1254)		
8910	Aroclor-1260 (PCB-1260)		
EPA 8260B		10184002	Volatile Organic Compounds by purge and trap GC/MS
Analyte Code	*Analyte*		
5105	1,1,1,2-Tetrachloroethane		
5160	1,1,1-Trichloroethane		
5110	1,1,2,2-Tetrachloroethane		
5165	1,1,2-Trichloroethane		

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4630	1,1-Dichloroethane
4640	1,1-Dichloroethylene
4670	1,1-Dichloropropene
5150	1,2,3-Trichlorobenzene
5180	1,2,3-Trichloropropane
5155	1,2,4-Trichlorobenzene
5210	1,2,4-Trimethylbenzene
4570	1,2-Dibromo-3-chloropropane (DBCP)
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)
4510	1,2-Dichlorobenzene
4535	1,2-Dichloroethane
4655	1,2-Dichloropropane
5215	1,3,5-Trimethylbenzene
4615	1,3-Dichlorobenzene
4660	1,3-Dichloropropane
4620	1,4-Dichlorobenzene
6380	1-Methylnaphthalene
4665	2,2-Dichloropropane
4410	2-Butanone (Methyl ethyl ketone, MEK)
4535	2-Chlorotoluene
4860	2-Hexanone
6385	2-Methylnaphthalene
4540	4-Chlorotoluene
4995	4-Methyl-2-pentanone (MIBK)
4315	Acetone
4375	Benzene
4385	Bromobenzene
4390	Bromochloromethane
4395	Bromodichloromethane
4400	Bromoform
4950	Bromomethane (Methyl bromide)
4450	Carbon disulfide
4455	Carbon tetrachloride
4475	Chlorobenzene
4485	Chloroethane
4505	Chloroform
105	Chloromethane
4645	cis-1,2-Dichloroethylene
4680	cis-1,3-Dichloropropene
4575	Dibromochloromethane
4595	Dibromomethane
4625	Dichlorodifluoromethane
4650	Dichloromethane (DCM, Methylene chloride)
4765	Ethylbenzene
4835	Hexachlorobutadiene
4900	Isopropylbenzene
5240	m+p-xylene
5000	Methyl tert-butyl ether (MTBE)
5005	Naphthalene
4435	n-Butylbenzene
5090	n-Propylbenzene

5250	o-Xylene
4910	p-Isopropyltoluene
4440	sec-Butylbenzene
5100	Styrene
4445	tert-Butylbenzene
5115	Tetrachloroethylene (Perchloroethylene)
5140	Toluene
4700	trans-1,2-Dichloroethylene
4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride
5260	Xylene (total)

EPA 8270C 10185805 SemiVolitile Organic compounds by GC/MS

Analyte Code	Analyte
5155	1,2,4-Trichlorobenzene
4610	1,2-Dichlorobenzene
4615	1,3-Dichlorobenzene
4620	1,4-Dichlorobenzene
6835	2,4,5-Trichlorophenol
6840	2,4,6-Trichlorophenol
6000	2,4-Dichlorophenol
6130	2,4-Dimethylphenol
6175	2,4-Dinitrophenol
6185	2,4-Dinitrotoluene (2,4-DNT)
6190	2,6-Dinitrotoluene (2,6-DNT)
5795	2-Chloronaphthalene
5800	2-Chlorophenol
6385	2-Methylnaphthalene
6400	2-Methylphenol (o-Cresol)
6460	2-Nitroaniline
6490	2-Nitrophenol
6412	3 & 4 Methylphenol
5945	3,3'-Dichlorobenzidine
6465	3-Nitroaniline
6140	4,6-Dinitro-2-methylphenol
5660	4-Bromophenyl phenyl ether
5700	4-Chloro-3-methylphenol
5745	4-Chloroaniline
5825	4-Chlorophenyl phenylether
6470	4-Nitroaniline
6500	4-Nitrophenol
5500	Acenaphthene
5505	Acenaphthylene
5545	Aniline
5555	Anthracene
123	Azobenzene
5575	Benzo(a)anthracene
5580	Benzo(a)pyrene
5585	Benzo(b)fluoranthene
5590	Benzo(g,h,i)perylene

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Customers: Please verify the current accreditation standing with ORELAP.

5600	Benzo[k]fluoranthene
482	Benzofluoranthene
5610	Benzoic acid
5630	Benzyl alcohol
5765	bis(2-Chloroethyl)ether
5770	bis(2-Chloroethyloxymethane)
5780	bis(2-Chloroisopropyl)ether
6255	bis(2-Ethylhexyl)phthalate (DEHP)
5670	Butyl benzyl phthalate
5680	Carbazole
5855	Chrysene
5895	Dibenz[a,h]anthracene
5905	Dibenzofuran
6070	Diethyl phthalate
6135	Dimethyl phthalate
5925	Di-n-butyl phthalate
6200	Di-n-octyl phthalate
6265	Fluoranthene
6270	Fluorene
6275	Hexachlorobenzene
4835	Hexachlorobutadiene
6285	Hexachlorocyclopentadiene
4840	Hexachloroethane
6315	Indeno[1,2,3-cd]pyrene
6320	Isophorone
5005	Naphthalene
5015	Nitrobenzene
6535	n-Nitrosodiphenylamine
6540	n-Nitrosodipropylamine
6605	Pentachlorophenol
6615	Phenanthrene
6625	Phenol
6665	Pyrene
5095	Pyridine

EPA 8310 10187607 Polynuclear Aromatic Hydrocarbons by HPLC/UV-VIS

Analyte Code	Analyte
6380	1-Methylnaphthalene
6385	2-Methylnaphthalene
5500	Acenaphthene
5505	Acenaphthylene
5555	Anthracene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5600	Benzo[k]fluoranthene
5855	Chrysene
5895	Dibenz[a,h]anthracene
6265	Fluoranthene
6270	Fluorene
6315	Indeno[1,2,3-cd]pyrene

ORELAPID: NM100001
EPACode: NM00001

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5005	Naphthalene
6515	Phenanthrene
6565	Pyrene

ORELAP Fields of Accreditation

ORELAPID: NM100001
EPACode: NM00001

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MATRIX: Solids

Reference	Code	Description
EPA 3050A	10135407	Acid Digestion of Sediments, Sludges, and soils
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 3540C	10140202	Soxhlet Extraction
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 3545	10140804	Pressurized Fluid Extraction (PFE)
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 5035	10154004	Closed-System Purge-and-Trap and Extraction for Volatile Organics in So
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 6010B	10155609	ICP - AES
Analyte Code *Analyte*		
1000 Aluminum		
1005 Antimony		
1010 Arsenic		
1015 Barium		
1020 Beryllium		
1025 Boron		
1030 Cadmium		
1035 Calcium		
1040 Chromium		
1050 Cobalt		
1055 Copper		
1070 Iron		
1075 Lead		
1085 Magnesium		
1090 Manganese		
1100 Molybdenum		
1105 Nickel		
1125 Potassium		
1140 Selenium		
1145 Silicon		
1150 Silver		
1155 Sodium		
1165 Thallium		
1175 Tin		
1180 Titanium		
3035 Uranium		
1185 Vanadium		
1190 Zinc		
EPA 7471A	10166208	Mercury in Solid Waste by Cold Vapor Atomic Absorption
Analyte Code *Analyte*		
1095 Mercury		
EPA 8015B	10173601	Non-halogenated organics using GC/FID
Analyte Code *Analyte*		
9369 Diesel range organics (DRO)		
9408 Gasoline range organics (GRO)		

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EPA 8021B		10174808	Aromatic and Halogenated Volatiles by GC with PID and/or ECD Purge &
	Analyte Code	*Analyte*	
	5210	1,2,4-Trimethylbenzene	
	5215	1,3,5-Trimethylbenzene	
	4375	Benzene	
	4765	Ethylbenzene	
	5240	m+p-xylene	
	5000	Methyl tert-butyl ether (MTBE)	
	5250	o-Xylene	
	5140	Toluene	
	5260	Xylene (total)	
EPA 8081A		10176606	Organochlorine Pesticides by GC/ECD
	Analyte Code	*Analyte*	
	7355	4,4'-DDD	
	7360	4,4'-DDE	
	7365	4,4'-DDT	
	7025	Aldrin	
	7110	alpha-BHC (alpha-Hexachlorocyclohexane)	
	7115	beta-BHC (beta-Hexachlorocyclohexane)	
	7105	delta-BHC	
	7470	Dieldrin	
	7510	Endosulfan I	
	7515	Endosulfan II	
	7520	Endosulfan sulfate	
	7540	Endrin	
	7530	Endrin aldehyde	
	7120	gamma-BHC (Lindane, gamma-Hexachlorocyclonexane)	
	7685	Heptachlor	
	7690	Heptachlor epoxide	
	7810	Methoxychlor	
EPA 8082		10179007	Polychlorinated Biphenyls (PCBs) by GC/ECD
	Analyte Code	*Analyte*	
	8880	Aroclor-1016 (PCB-1016)	
	8885	Aroclor-1221 (PCB-1221)	
	8890	Aroclor-1232 (PCB-1232)	
	8895	Aroclor-1242 (PCB-1242)	
	8900	Aroclor-1248 (PCB-1248)	
	8905	Aroclor-1254 (PCB-1254)	
	8910	Aroclor-1260 (PCB-1260)	
EPA 8260B		10184802	Volatile Organic Compounds by purge and trap GC/MS
	Analyte Code	*Analyte*	
	5105	1,1,1,2-Tetrachloroethane	
	5160	1,1,1-Trichloroethane	
	5110	1,1,2,2-Tetrachloroethane	
	5165	1,1,2-Trichloroethane	
	4630	1,1-Dichloroethane	
	4640	1,1-Dichloroethylene	
	4670	1,1-Dichloropropene	
	5150	1,2,3-Trichlorobenzene	
	5180	1,2,3-Trichloropropane	
	5155	1,2,4-Trichlorobenzene	

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5210	1,2,4-Trimethylbenzene
4570	1,2-Dibromo-3-chloropropane (DBCP)
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)
4610	1,2-Dichlorobenzene
4635	1,2-Dichloroethane
4655	1,2-Dichloropropane
5215	1,3,5-Trimethylbenzene
4615	1,3-Dichlorobenzene
4660	1,3-Dichloropropane
4620	1,4-Dichlorobenzene
6380	1-Methylnaphthalene
4665	2,2-Dichloropropane
4410	2-Butanone (Methyl ethyl ketone, MEK)
4535	2-Chlorotoluene
4850	2-Hexanone
6385	2-Methylnaphthalene
4540	4-Chlorotoluene
4995	4-Methyl-2-pentanone (MIBK)
4315	Acetone
4375	Benzene
4385	Bromobenzene
4390	Bromochloromethane
4395	Bromodichloromethane
4400	Bromoform
4950	Bromomethane (Methyl bromide)
4450	Carbon disulfide
4455	Carbon tetrachloride
4475	Chlorobenzene
4485	Chloroethane
4505	Chloroform
105	Chloromethane
4645	cis-1,2-Dichloroethylene
4680	cis-1,3-Dichloropropene
4575	Dibromochloromethane
4595	Dibromomethane
4625	Dichlorodifluoromethane
4650	Dichloromethane (DCM, Methylene chloride)
4765	Ethylbenzene
4835	Hexachlorobutadiene
4900	Isopropylbenzene
5240	m+p-xylene
5000	Methyl tert-butyl ether (MTBE)
5005	Naphthalene
4435	n-Butylbenzene
5090	n-Propylbenzene
5250	o-Xylene
4910	p-Isopropyltoluene
4440	sec-Butylbenzene
5100	Styrene
4445	tert-Butylbenzene
5115	Tetrachloroethylene (Perchloroethylene)

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5140	Toluene
4700	trans-1,2-Dichloroethylene
4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride
5260	Xylene (total)

EPA 8270C 10185805 SemiVolitile Organic compounds by GC/MS

Analyte Code	Analyte
5155	1,2,4-Trichlorobenzene
4610	1,2-Dichlorobenzene
4615	1,3-Dichlorobenzene
4620	1,4-Dichlorobenzene
6835	2,4,5-Trichlorophenol
6840	2,4,6-Trichlorophenol
6000	2,4-Dichlorophenol
6130	2,4-Dimethylphenol
6175	2,4-Dinitrophenol
6185	2,4-Dinitrotoluene (2,4-DNT)
6190	2,6-Dinitrotoluene (2,6-DNT)
5795	2-Chloronaphthalene
5800	2-Chlorophenol
6385	2-Methylnaphthalene
6400	2-Methylphenol (o-Cresol)
6460	2-Nitroaniline
6490	2-Nitrophenol
6412	3 & 4 Methylphenol
5945	3,3'-Dichlorobenzidine
6465	3-Nitroaniline
6140	4,6-Dinitro-2-methylphenol
5650	4-Bromophenyl phenyl ether
5700	4-Chloro-3-methylphenol
5745	4-Chloroaniline
5825	4-Chlorophenyl phenylether
6470	4-Nitroaniline
6500	4-Nitrophenol
5500	Acenaphthene
5505	Acenaphthylene
5545	Aniline
5555	Anthracene
123	Azobenzene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5610	Benzoic acid
5630	Benzyl alcohol
5760	bis(2-Chloroethoxy)methane
5765	bis(2-Chloroethyl)ether
5780	bis(2-Chloroisopropyl)ether
6255	bis(2-Ethylhexyl)phthalate (DEHP)

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Albuquerque, NM, 87109

Issue Date: 3/1/2007 *Expiration Date:* 2/29/2008

As of 3/1/2007 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

5670	Butyl benzyl phthalate
5680	Carbazole
5855	Chrysene
5895	Dibenz[a,h]anthracene
5905	Dibenzofuran
6070	Diethyl phthalate
6135	Dimethyl phthalate
5925	Di-n-butyl phthalate
6200	Di-n-octyl phthalate
6265	Fluoranthene
6270	Fluorene
6275	Hexachlorobenzene
4835	Hexachlorobutadiene
6285	Hexachlorocyclopentadiene
4840	Hexachloroethane
6315	Indeno[1,2,3-cd]pyrene
6320	Isophorone
5005	Naphthalene
5015	Nitrobenzene
6530	n-Nitrosodimethylamine
6535	n-Nitrosodiphenylamine
6540	n-Nitrosodipropylamine
6605	Pentachlorophenol
6615	Phenanthrene
6625	Phenol
6665	Pyrene
5095	Pyridine

EPA 8310 10187607 Polynuclear Aromatic Hydrocarbons by HPLC/UV-VIS

Analyte Code	*Analyte*
6380	1-Methylnaphthalene
6385	2-Methylnaphthalene
5500	Acenaphthene
5505	Acenaphthylene
5555	Anthracene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5600	Benzo[k]fluoranthene
5855	Chrysene
5895	Dibenz[a,h]anthracene
6265	Fluoranthene
6270	Fluorene
6315	Indeno[1,2,3-cd]pyrene
5005	Naphthalene
6615	Phenanthrene
6665	Pyrene

Arizona Department of Health Services

ENVIRONMENTAL LABORATORY LICENSE

Issued to:

Laboratory Director: Scott Hallenbeck
Owner/Representative: Scott Hallenbeck

Hall Environmental Analysis Laboratory
AZ0682

is in compliance with Environmental Laboratory's applicable standards for the State of Arizona and maintains on file a List of Parameters for which the laboratory is certified to perform analysis.

PERIOD OF LICENSURE FROM: 10/20/2006 TO: 10/19/2007

GREAT SEAL OF THE STATE OF ARIZONA 1912

Steven D. Baker, Chief
Office of Laboratory Services
Bureau of State Laboratory Services

License: AZ0682

Lab Director: Mr. Scott Hallenbeck

Lab Name: Hall Environmental Analysis Laboratory
Phone: (505) 345-3975
Fax: (505) 345-4107

Program HW

Parameter	EPA Method	Billing Code	Cert Date
Aluminum	EPA 6010B	MTL3	10/20/05
Arsenic	EPA 6010B	MTL3	10/20/05
Barium	EPA 6010B	MTL3	10/20/05
Beryllium	EPA 6010B	MTL3	10/20/05
C10-C32 Hydrocarbons	8015AZ	VOC4	
Cadmium	EPA 6010B	MTL3	10/20/05
Calcium	EPA 6010B	MTL3	10/20/05
Chromium Total	EPA 6010B	MTL3	10/20/05
Copper	EPA 6010B	MTL3	10/20/05
Funnel Liquid-Liquid Extraction	EPA 3510C	-	
Iron	EPA 6010B	MTL3	10/20/05
Lead	EPA 6010B	MTL3	10/20/05
Magnesium	EPA 6010B	MTL3	10/20/05
Manganese	EPA 6010B	MTL3	10/20/05
Mercury	EPA 7470A	MTL5	10/20/05
Mercury	EPA 7471A	MTL5	10/20/05
Nickel	EPA 6010B	MTL3	10/20/05
Nonhalogenated Volatile Organics	EPA 8015B	VOC3	10/20/05
Polynuclear Aromatic Hydrocarbons	EPA 8310	SOC13	
Potassium	EPA 6010B	MTL3	10/20/05
Pressurized Fluid Extraction	EPA 3545	-	
Purge And Trap	EPA 5030B	-	10/20/05
Purge And Trap	EPA 5035	-	10/20/05
Sediments, Sludges And Soils	EPA 3050B	-	10/20/05
Selenium	EPA 6010B	MTL3	
Silver	EPA 6010B	MTL3	10/20/05
Sodium	EPA 6010B	MTL3	10/20/05
Total Recoverable In Water	EPA 3005A	-	10/20/05
Volatile Organics	EPA 8021B	VOC1	10/20/05
Volatile Organics	EPA 8260B	VOC8	10/20/05
Zinc	EPA 6010B	MTL3	10/20/05

Total Licensed Parameters in this Program: 31

Instruments	Quantity	Date
GAS CHROMATOGRAPH	2	09/06/06
GAS CHROMATOGRAPH/MASS SPECTROMETER	1	08/11/05
INDUCTIVELY COUPLED PLASMA SPECTROMETER	1	08/11/05
MERCURY ANALYZER	1	08/11/05

AZ License: AZ0682

Lab Name: Hall Environmental Analysis Laboratory

Softwares
VARIAN STAR - GCMS
PERKIN ELMER - ICP
VARIAN GALAXIE AND CUSTOM WRITTEN-GC

Section 11.0 Chemical Analytical Reports

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HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007

Order No.: 0702319

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 2/27/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0702319	**Collection Date:**	2/26/2007 9:40:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	2/28/2007 10:49:01 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 10:49:01 AM
Surr: DNOP	113	58-140		%REC	1	2/28/2007 10:49:01 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	70	0.50		mg/L	10	2/27/2007 8:50:26 PM
Surr: BFB	120	79.2-121		%REC	10	2/27/2007 8:50:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	2/27/2007 8:50:26 PM
Benzene	ND	10		µg/L	10	2/27/2007 8:50:26 PM
Toluene	ND	10		µg/L	10	2/27/2007 8:50:26 PM
Ethylbenzene	1300	100		µg/L	100	2/27/2007 8:17:42 PM
Xylenes, Total	13000	200		µg/L	100	2/27/2007 8:17:42 PM
Surr: 4-Bromofluorobenzene	95.6	70.2-105		%REC	10	2/27/2007 8:50:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0702319	**Collection Date:**	2/26/2007 10:20:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 11:23:27 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 11:23:27 AM
Surr: DNOP	118	58-140		%REC	1	2/28/2007 11:23:27 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	85	5.0		mg/L	100	3/1/2007 9:55:06 AM
Surr: BFB	113	79.2-121		%REC	100	3/1/2007 9:55:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	2/28/2007 1:53:21 PM
Benzene	ND	10		µg/L	10	2/28/2007 1:53:21 PM
Toluene	ND	10		µg/L	10	2/28/2007 1:53:21 PM
Ethylbenzene	1300	50		µg/L	50	2/27/2007 9:55:37 PM
Xylenes, Total	18000	200		µg/L	100	3/1/2007 9:55:06 AM
Surr: 4-Bromofluorobenzene	91.2	70.2-105		%REC	50	2/27/2007 9:55:37 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0702319	**Collection Date:**	2/26/2007 10:45:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	2/28/2007 11:57:38 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 11:57:38 AM
Surr: DNOP	93.8	58-140		%REC	1	2/28/2007 11:57:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	94	5.0		mg/L	100	2/27/2007 10:28:23 PM
Surr: BFB	115	79.2-121		%REC	100	2/27/2007 10:28:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	2/27/2007 10:28:23 PM
Benzene	4300	100		µg/L	100	2/27/2007 10:28:23 PM
Toluene	ND	100		µg/L	100	2/27/2007 10:28:23 PM
Ethylbenzene	4300	100		µg/L	100	2/27/2007 10:28:23 PM
Xylenes, Total	19000	200		µg/L	100	2/28/2007 3:23:25 PM
Surr: 4-Bromofluorobenzene	92.1	70.2-105		%REC	100	2/27/2007 10:28:23 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0702319	**Collection Date:**	2/26/2007 12:45:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 12:32:01 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 12:32:01 PM
Surr: DNOP	114	58-140		%REC	1	2/28/2007 12:32:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.28	0.050		mg/L	1	2/28/2007 4:53:51 PM
Surr: BFB	122	79.2-121	S	%REC	1	2/28/2007 4:53:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 4:53:51 PM
Benzene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Toluene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 4:53:51 PM
Surr: 4-Bromofluorobenzene	91.4	70.2-105		%REC	1	2/28/2007 4:53:51 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0702319	**Collection Date:**	2/26/2007 1:10:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	3.0	1.0		mg/L	1	2/28/2007 1:06:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 1:06:25 PM
Surr: DNOP	111	58-140		%REC	1	2/28/2007 1:06:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	160	5.0		mg/L	100	2/27/2007 11:31:21 PM
Surr: BFB	117	79.2-121		%REC	100	2/27/2007 11:31:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	2/27/2007 11:31:21 PM
Benzene	2000	100		µg/L	100	2/27/2007 11:31:21 PM
Toluene	ND	100		µg/L	100	2/27/2007 11:31:21 PM
Ethylbenzene	6300	100		µg/L	100	2/27/2007 11:31:21 PM
Xylenes, Total	32000	500		µg/L	250	2/28/2007 5:23:57 PM
Surr: 4-Bromofluorobenzene	91.5	70.2-105		%REC	100	2/27/2007 11:31:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0702319	**Collection Date:**	2/26/2007 1:35:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 1:40:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 1:40:47 PM
Surr: DNOP	116	58-140		%REC	1	2/28/2007 1:40:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/28/2007 12:31:30 AM
Surr: BFB	108	79.2-121		%REC	1	2/28/2007 12:31:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 12:31:30 AM
Benzene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Toluene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 12:31:30 AM
Surr: 4-Bromofluorobenzene	88.1	70.2-105		%REC	1	2/28/2007 12:31:30 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0702319	**Collection Date:**	2/26/2007 2:30:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 2:15:13 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 2:15:13 PM
Surr: DNOP	117	58-140		%REC	1	2/28/2007 2:15:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/28/2007 1:01:30 AM
Surr: BFB	110	79.2-121		%REC	1	2/28/2007 1:01:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 1:01:30 AM
Benzene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Toluene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 1:01:30 AM
Surr: 4-Bromofluorobenzene	92.0	70.2-105		%REC	1	2/28/2007 1:01:30 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12403		*MBLK*			Batch ID: **12403**		Analysis Date:	2/28/2007 9:05:32 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12403		*LCS*			Batch ID: **12403**		Analysis Date:	2/28/2007 9:39:57 AM	
Diesel Range Organics (DRO)	5.097	mg/L	1.0	102	74	157			
Sample ID: LCSD-12403		*LCSD*			Batch ID: **12403**		Analysis Date:	2/28/2007 10:14:36 AM	
Diesel Range Organics (DRO)	5.797	mg/L	1.0	116	74	157	12.8	23	
Method: SW8015									
Sample ID: 0702319-06A MSD		*MSD*			Batch ID: **R22620**		Analysis Date:	2/28/2007 8:31:46 AM	
Gasoline Range Organics (GRO)	0.5526	mg/L	0.050	104	80	115	1.83	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22620**		Analysis Date:	2/27/2007 7:35:36 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22643**		Analysis Date:	2/28/2007 11:19:47 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:	3/1/2007 7:58:58 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 9:03:38 AM	
Gasoline Range Organics (GRO)	0.5236	mg/L	0.050	105	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22643**		Analysis Date:	2/28/2007 11:24:49 PM	
Gasoline Range Organics (GRO)	0.5418	mg/L	0.050	108	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:	3/2/2007 6:37:59 AM	
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Sample ID: 0702319-06A MS		*MS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 7:58:54 AM	
Gasoline Range Organics (GRO)	0.5426	mg/L	0.050	102	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0702319-07A MSD		*MSD*			Batch ID: **R22620**		Analysis Date:	2/28/2007 2:01:31 AM	
Methyl tert-butyl ether (MTBE)	23.45	µg/L	2.5	109	51.2	138	10.4	28	
Benzene	22.07	µg/L	1.0	110	85.9	113	9.47	27	
Toluene	22.03	µg/L	1.0	110	86.4	113	10.6	19	
Ethylbenzene	22.38	µg/L	1.0	112	83.5	118	11.7	10	R
Xylenes, Total	68.38	µg/L	2.0	112	83.4	122	11.6	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22620**		Analysis Date:	2/27/2007 7:35:36 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22643**		Analysis Date:	2/28/2007 11:19:47 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22663**		Analysis Date:	3/1/2007 7:58:58 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: RB-II		*MBLK*			Batch ID: **R22664**		Analysis Date:	3/2/2007 2:07:52 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 2:31:28 AM	
Methyl tert-butyl ether (MTBE)	20.25	µg/L	2.5	101	51.2	138			
Benzene	21.06	µg/L	1.0	105	85.9	113			
Toluene	20.87	µg/L	1.0	104	86.4	113			
Ethylbenzene	21.02	µg/L	1.0	105	83.5	118			
Xylenes, Total	64.49	µg/L	2.0	107	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22643**		Analysis Date:	3/1/2007 4:25:10 AM	
Methyl tert-butyl ether (MTBE)	19.44	µg/L	2.5	97.2	51.2	138			
Benzene	19.50	µg/L	1.0	97.5	85.9	113			
Toluene	20.10	µg/L	1.0	100	86.4	113			
Ethylbenzene	19.74	µg/L	1.0	98.7	83.5	118			
Xylenes, Total	60.40	µg/L	2.0	101	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22663**		Analysis Date:	3/1/2007 6:29:17 PM	
Methyl tert-butyl ether (MTBE)	19.97	µg/L	2.5	99.8	51.2	138			
Benzene	20.54	µg/L	1.0	103	85.9	113			
Toluene	20.39	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.63	µg/L	1.0	103	83.5	118			
Xylenes, Total	63.04	µg/L	2.0	105	83.4	122			
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:	3/2/2007 2:37:53 AM	
Methyl tert-butyl ether (MTBE)	19.85	µg/L	2.5	99.2	51.2	138			
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			
1,2,4-Trimethylbenzene	20.48	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.34	µg/L	1.0	102	85.2	113			
Sample ID: 0702319-07A MS		*MS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 1:31:29 AM	
Methyl tert-butyl ether (MTBE)	21.12	µg/L	2.5	97.2	51.2	138			
Benzene	20.08	µg/L	1.0	100	85.9	113			
Toluene	19.81	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	19.91	µg/L	1.0	99.6	83.5	118			
Xylenes, Total	60.90	µg/L	2.0	99.8	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/27/2007

Work Order Number 0702319 | Received by TLS

Checklist completed by _____ Signature _____ Date Feb 27, 07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refinery

Project Name: River Terrace - 1st QTR-2007

Address: #50 Rd 4990 Bloomfield NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Krakow

Fax #: 505-632-3911

Sample Temperature: 4°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HL	HEAL No. HL 0702319	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
2-22/07	940am	H2O	TP-8	4-VOA			✓	1	X		X													
	1020am		TP-5				✓	2	X		X													
	1045		TP-2				✓	3	X		X													
	1245		TP-6				✓	4	X		X													
	110pm		TP-1				✓	5	X		X													
	135pm		TP-9				✓	6	X		X													
	230pm		TP-12				✓	7	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Remarks:
2/26/07	310pm	Cindy Hurtado	2/27/07 1004	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 08, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007

Order No.: 0702368

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0702368	**Collection Date:**	2/27/2007 9:10:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 4:50:22 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 4:50:22 PM
Surr: DNOP	116	58-140		%REC	1	3/1/2007 4:50:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 11:37:46 PM
Surr: BFB	111	79.2-121		%REC	1	3/1/2007 11:37:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/1/2007 11:37:46 PM
Benzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 11:37:46 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Surr: 4-Bromofluorobenzene	92.6	70.2-105		%REC	1	3/1/2007 11:37:46 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0702368	**Collection Date:**	2/27/2007 9:40:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 5:24:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 5:24:47 PM
Surr: DNOP	116	58-140		%REC	1	3/1/2007 5:24:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 12:07:53 AM
Surr: BFB	111	79.2-121		%REC	1	3/2/2007 12:07:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 12:07:53 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 12:07:53 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Surr: 4-Bromofluorobenzene	92.2	70.2-105		%REC	1	3/2/2007 12:07:53 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0702368	**Collection Date:**	2/27/2007 10:05:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 5:59:14 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 5:59:14 PM
Surr: DNOP	102	58-140		%REC	1	3/1/2007 5:59:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 12:37:57 AM
Surr: BFB	113	79.2-121		%REC	1	3/2/2007 12:37:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 12:37:57 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 12:37:57 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Surr: 4-Bromofluorobenzene	94.8	70.2-105		%REC	1	3/2/2007 12:37:57 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0702368	**Collection Date:**	2/27/2007 10:35:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 6:33:18 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 6:33:18 PM
Surr: DNOP	112	58-140		%REC	1	3/1/2007 6:33:18 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 1:07:48 AM
Surr: BFB	111	79.2-121		%REC	1	3/2/2007 1:07:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 1:07:48 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 1:07:48 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Surr: 4-Bromofluorobenzene	92.2	70.2-105		%REC	1	3/2/2007 1:07:48 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0702368	**Collection Date:**	2/27/2007 12:50:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 7:41:31 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 7:41:31 PM
Surr: DNOP	109	58-140		%REC	1	3/1/2007 7:41:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.054	0.050		mg/L	1	3/2/2007 1:37:54 AM
Surr: BFB	113	79.2-121		%REC	1	3/2/2007 1:37:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 1:37:54 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 1:37:54 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Surr: 4-Bromofluorobenzene	91.6	70.2-105		%REC	1	3/2/2007 1:37:54 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	3/7/2007 11:14:58 AM
Lead	ND	0.0050		mg/L	1	3/7/2007 11:14:58 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0702368	**Collection Date:**	2/27/2007 1:45:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 8:15:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 8:15:35 PM
Surr: DNOP	111	58-140		%REC	1	3/1/2007 8:15:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.29	0.050		mg/L	1	3/2/2007 4:08:00 AM
Surr: BFB	114	79.2-121		%REC	1	3/2/2007 4:08:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 4:08:00 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Xylenes, Total	8.3	2.0		µg/L	1	3/2/2007 4:08:00 AM
1,2,4-Trimethylbenzene	52	1.0		µg/L	1	3/2/2007 4:08:00 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Surr: 4-Bromofluorobenzene	93.2	70.2-105		%REC	1	3/2/2007 4:08:00 AM
EPA METHOD 7470: MERCURY						Analyst: **CMS**
Mercury	0.0015	0.00020		mg/L	1	3/2/2007
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	3/7/2007 11:16:40 AM
Lead	ND	0.0050		mg/L	1	3/7/2007 11:16:40 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007
Work Order: 070236

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12410		*MBLK*			Batch ID: **12410**		Analysis Date:		3/1/2007 1:58:25 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12410		*LCS*			Batch ID: **12410**		Analysis Date:		3/1/2007 2:32:49 PM
Diesel Range Organics (DRO)	5.603	mg/L	1.0	112	74	157			
Sample ID: LCSD-12410		*LCSD*			Batch ID: **12410**		Analysis Date:		3/1/2007 3:07:09 PM
Diesel Range Organics (DRO)	5.623	mg/L	1.0	112	74	157	0.362	23	
Method: SW8015									
Sample ID: 0702368-02A MSD		*MSD*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:08:04 AM
Gasoline Range Organics (GRO)	0.4970	mg/L	0.050	99.4	80	115	1.17	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/1/2007 7:58:58 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:37:59 AM
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Sample ID: 0702368-02A MS		*MS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 5:38:03 AM
Gasoline Range Organics (GRO)	0.4912	mg/L	0.050	98.2	80	115			
Method: SW8021									
Sample ID: RB-II		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:07:52
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:37:53 AM
Methyl tert-butyl ether (MTBE)	19.85	µg/L	2.5	99.2	51.2	138			
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			
1,2,4-Trimethylbenzene	20.48	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.34	µg/L	1.0	102	85.2	113			
Method: SW7470									
Sample ID: LCS-12426		*LCS*			Batch ID: **12426**		Analysis Date:		3/2/2007
Mercury	0.005014	mg/L	0.00020	100	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	%Rec recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702368

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW6010A									
Sample ID: MB-12415		*MBLK*			Batch ID: **12415**		Analysis Date:	3/7/2007 11:09:22 AM	
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-12415		*LCS*			Batch ID: **12415**		Analysis Date:	3/7/2007 11:10:57 AM	
Chromium	0.5043	mg/L	0.0060	101	80	120			
Lead	0.4878	mg/L	0.0050	97.6	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702368 | Received by TLS

Checklist completed by [signature] (Signature) Feb 28, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990, Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 1st QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado, Bob Krakow
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0702368	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr	Total Pb, Cr, Hg			Air Bubbles or Headspace (Y or N)
2-27-07	910A	H2O	TP-13	4-40A			✓	1	✓		✓														
	940		TP-11				✓	2	✓		✓														
	1005		TP-3				✓	3	✓		✓														
	1035		TP-10				✓	4	✓		✓														
	1250		MW #4 9	4-VOA			✓	5	✓		✓														
	"		"	1-250		✓		5													X				
	145pm		DW #1	4-VOA			✓	6	✓		✓														
	"		"	1-250		✓		6														X			

Date: 2/27/07 Time: 235pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 2128167 959

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, July 05, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Water

Order No.: 0706320

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #7
Lab Order:	0706320	**Collection Date:**	6/20/2007 8:20:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/21/2007
Lab ID:	0706320-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 4:41:42 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 4:41:42 PM
Surr: DNOP	109	58-140		%REC	1	6/27/2007 4:41:42 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.052	0.050		mg/L	1	7/1/2007 2:47:15 AM
Surr: BFB	106	79.2-121		%REC	1	7/1/2007 2:47:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 2:47:15 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Xylenes, Total	ND	2.0		µg/L	1	7/1/2007 2:47:15 AM
Surr: 4-Bromofluorobenzene	89.6	70.2-105		%REC	1	7/1/2007 2:47:15 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.075	0.020		mg/L	1	7/3/2007 3:43:49 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:43:49 PM
Lead	ND	0.0050		mg/L	1	7/3/2007 3:43:49 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0706320	**Collection Date:**	6/20/2007 8:45:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/21/2007
Lab ID:	0706320-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 5:17:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 5:17:03 PM
Surr: DNOP	116	58-140		%REC	1	6/27/2007 5:17:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.15	0.050		mg/L	1	7/1/2007 3:17:17 AM
Surr: BFB	107	79.2-121		%REC	1	7/1/2007 3:17:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 3:17:17 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Xylenes, Total	2.6	2.0		µg/L	1	7/1/2007 3:17:17 AM
Surr: 4-Bromofluorobenzene	91.9	70.2-105		%REC	1	7/1/2007 3:17:17 AM
EPA METHOD 7470: MERCURY						Analyst: **IC**
Mercury	ND	0.00020		mg/L	1	6/28/2007 9:42:30 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.93	0.10		mg/L	1	7/3/2007 3:47:56 PM
Chromium	ND	0.030		mg/L	1	7/3/2007 3:47:56 PM
Lead	ND	0.025		mg/L	1	7/3/2007 3:47:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water
Work Order: 070632

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13262		*MBLK*			Batch ID: **13262**		Analysis Date: 6/27/2007 1:10:07 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13262		*LCS*			Batch ID: **13262**		Analysis Date: 6/27/2007 1:45:10 PM		
Diesel Range Organics (DRO)	5.722	mg/L	1.0	114	74	157			
Sample ID: LCSD-13262		*LCSD*			Batch ID: **13262**		Analysis Date: 6/27/2007 2:20:34 PM		
Diesel Range Organics (DRO)	5.745	mg/L	1.0	115	74	157	0.392	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24198**		Analysis Date: 6/30/2007 6:59:05 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24198**		Analysis Date: 6/30/2007 11:14:32 PM		
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24198**		Analysis Date: 6/30/2007 6:59:05 PM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R24198**		Analysis Date: 6/30/2007 11:44:25 P		
Methyl tert-butyl ether (MTBE)	18.69	µg/L	2.5	93.5	51.2	138			
Benzene	19.42	µg/L	1.0	97.1	85.9	113			
Toluene	19.80	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	20.03	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.67	µg/L	2.0	99.4	83.4	122			
Method: SW7470									
Sample ID: MB-13285		*MBLK*			Batch ID: **13285**		Analysis Date: 6/28/2007 8:57:40 PM		
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-13285		*LCS*			Batch ID: **13285**		Analysis Date: 6/28/2007 8:59:24 PM		
Mercury	0.004858	mg/L	0.00020	97.2	80	120			
Method: SW6010A									
Sample ID: MB-13241		*MBLK*			Batch ID: **13241**		Analysis Date: 7/3/2007 2:42:57 PM		
Barium	ND	mg/L	0.020						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13241		*LCS*			Batch ID: **13241**		Analysis Date: 7/3/2007 2:36:54 PM		
Barium	0.5090	mg/L	0.020	102	80	120			
Chromium	0.5194	mg/L	0.0060	104	80	120			
Lead	0.5088	mg/L	0.0050	102	80	120			

Qualifiers:

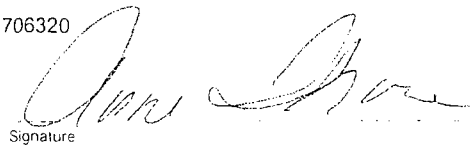
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706320 | Received by TLS

Checklist completed by  Signature | Date 6/21/07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☑	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2007 - Water

Project #:

Project Manager:

Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 6°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
6/20/07	820 AM	H_2O	TP #7	5-VOA			HCl	706320 -1
				1-500ml		✓		
	845 AM		DW #1	~~4~~ VOA			✓	-2
				1-500ml		✓		

ANALYSIS REQUEST

BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr, Ba	Total Hg			Air Bubbles or Headspace (Y or N)
✓		✓														
												X				
✓		✓										X	X			

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/20/07	947A	Cindy Hurtado	[signature]	6/20/07 1355
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, July 05, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Water

Order No.: 0706281

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 12 sample(s) on 6/20/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0706281	**Collection Date:**	6/18/2007 10:25:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 3:23:46 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 3:23:46 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 3:23:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/27/2007 7:27:46 PM
Surr: BFB	94.6	79.2-121		%REC	1	6/27/2007 7:27:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/27/2007 7:27:46 PM
Benzene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Toluene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Ethylbenzene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Xylenes, Total	ND	2.0		µg/L	1	6/27/2007 7:27:46 PM
Surr: 4-Bromofluorobenzene	86.4	70.2-105		%REC	1	6/27/2007 7:27:46 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.064	0.020		mg/L	1	7/3/2007 2:59:00 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 2:59:00 PM
Lead	ND	0.0050		mg/L	1	7/3/2007 2:59:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#6
Lab Order:	0706281	**Collection Date:**	6/18/2007 1:30:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 5:44:45 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 5:44:45 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 5:44:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	6/28/2007 2:33:13 AM
Surr: BFB	99.9	79.2-121		%REC	1	6/28/2007 2:33:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 2:33:13 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 2:33:13 AM
Surr: 4-Bromofluorobenzene	93.0	70.2-105		%REC	1	6/28/2007 2:33:13 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.38	0.020		mg/L	1	7/3/2007 3:08:54 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:08:54 PM
Lead	0.027	0.0050		mg/L	1	7/3/2007 3:08:54 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#5
Lab Order:	0706281	**Collection Date:**	6/18/2007 1:50:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 6:20:05 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 6:20:05 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 6:20:05 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	78	5.0		mg/L	100	6/28/2007 3:05:44 AM
Surr: BFB	112	79.2-121		%REC	100	6/28/2007 3:05:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/28/2007 3:05:44 AM
Benzene	340	100		µg/L	100	6/28/2007 3:05:44 AM
Toluene	ND	100		µg/L	100	6/28/2007 3:05:44 AM
Ethylbenzene	3500	100		µg/L	100	6/28/2007 3:05:44 AM
Xylenes, Total	21000	1000		µg/L	500	6/28/2007 3:32:47 PM
Surr: 4-Bromofluorobenzene	90.3	70.2-105		%REC	500	6/28/2007 3:32:47 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.21	0.020		mg/L	1	7/3/2007 3:11:28 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:11:28 PM
Lead	0.092	0.0050		mg/L	1	7/3/2007 3:11:28 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#2
Lab Order:	0706281	**Collection Date:**	6/18/2007 2:20:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 6:55:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 6:55:03 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 6:55:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	47	5.0		mg/L	100	6/28/2007 4:40:49 AM
Surr: BFB	106	79.2-121		%REC	100	6/28/2007 4:40:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/28/2007 4:40:49 AM
Benzene	1400	100		µg/L	100	6/28/2007 4:40:49 AM
Toluene	320	100		µg/L	100	6/28/2007 4:40:49 AM
Ethylbenzene	3800	100		µg/L	100	6/28/2007 4:40:49 AM
Xylenes, Total	15000	200		µg/L	100	6/28/2007 4:40:49 AM
Surr: 4-Bromofluorobenzene	100	70.2-105		%REC	100	6/28/2007 4:40:49 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.29	0.020		mg/L	1	7/3/2007 3:13:55 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:13:55 PM
Lead	0.067	0.0050		mg/L	1	7/3/2007 3:13:55 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#13
Lab Order:	0706281	**Collection Date:**	6/19/2007 10:40:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 7:30:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 7:30:03 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 7:30:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/27/2007 9:27:55 PM
Surr: BFB	94.7	79.2-121		%REC	1	6/27/2007 9:27:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/27/2007 9:27:55 PM
Benzene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Toluene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Ethylbenzene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Xylenes, Total	ND	2.0		µg/L	1	6/27/2007 9:27:55 PM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	1	6/27/2007 9:27:55 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.42	0.020		mg/L	1	7/3/2007 3:16:25 PM
Chromium	0.019	0.0060		mg/L	1	7/3/2007 3:16:25 PM
Lead	0.011	0.0050		mg/L	1	7/3/2007 3:16:25 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#12
Lab Order:	0706281	**Collection Date:**	6/19/2007 11:05:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-08	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 8:04:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 8:04:58 PM
Surr: DNOP	108	58-140		%REC	1	6/21/2007 8:04:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 5:12:02 AM
Surr: BFB	98.3	79.2-121		%REC	1	6/28/2007 5:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	2.9	2.5		µg/L	1	6/28/2007 4:02:46 PM
Benzene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Toluene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 4:02:46 PM
Surr: 4-Bromofluorobenzene	87.7	70.2-105		%REC	1	6/28/2007 4:02:46 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.21	0.020		mg/L	1	7/3/2007 3:18:53 PM
Chromium	0.0095	0.0060		mg/L	1	7/3/2007 3:18:53 PM
Lead	0.016	0.0050		mg/L	1	7/3/2007 3:18:53 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#11
Lab Order:	0706281	**Collection Date:**	6/19/2007 11:30:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 8:39:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 8:39:58 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 8:39:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 5:42:04 AM
Surr: BFB	95.4	79.2-121		%REC	1	6/28/2007 5:42:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 4:32:44 PM
Benzene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Toluene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 4:32:44 PM
Surr: 4-Bromofluorobenzene	89.9	70.2-105		%REC	1	6/28/2007 4:32:44 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.33	0.020		mg/L	1	7/3/2007 3:21:22 PM
Chromium	0.013	0.0060		mg/L	1	7/3/2007 3:21:22 PM
Lead	0.015	0.0050		mg/L	1	7/3/2007 3:21:22 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#10
Lab Order:	0706281	**Collection Date:**	6/19/2007 9:45:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-10	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 9:14:59 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 9:14:59 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 9:14:59 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 6:12:01 AM
Surr: BFB	94.2	79.2-121		%REC	1	6/28/2007 6:12:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 6:12:01 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 6:12:01 AM
Surr: 4-Bromofluorobenzene	86.5	70.2-105		%REC	1	6/28/2007 6:12:01 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.41	0.020		mg/L	1	7/3/2007 3:23:51 PM
Chromium	0.024	0.0060		mg/L	1	7/3/2007 3:23:51 PM
Lead	0.0089	0.0050		mg/L	1	7/3/2007 3:23:51 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#3
Lab Order:	0706281	**Collection Date:**	6/19/2007 10:05:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-11	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 9:49:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 9:49:58 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 9:49:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 6:41:56 AM
Surr: BFB	96.5	79.2-121		%REC	1	6/28/2007 6:41:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 6:41:56 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 6:41:56 AM
Surr: 4-Bromofluorobenzene	88.8	70.2-105		%REC	1	6/28/2007 6:41:56 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.20	0.020		mg/L	1	7/3/2007 3:31:19 PM
Chromium	0.0083	0.0060		mg/L	1	7/3/2007 3:31:19 PM
Lead	0.0073	0.0050		mg/L	1	7/3/2007 3:31:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#9
Lab Order:	0706281	**Collection Date:**	6/19/2007 1:15:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-12	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 10:59:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 10:59:58 PM
Surr: DNOP	109	58-140		%REC	1	6/21/2007 10:59:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 7:12:02 AM
Surr: BFB	95.1	79.2-121		%REC	1	6/28/2007 7:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 7:12:02 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 7:12:02 AM
Surr: 4-Bromofluorobenzene	87.7	70.2-105		%REC	1	6/28/2007 7:12:02 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.91	0.020		mg/L	1	7/3/2007 3:33:52 PM
Chromium	0.018	0.0060		mg/L	1	7/3/2007 3:33:52 PM
Lead	0.020	0.0050		mg/L	1	7/3/2007 3:33:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water

Work Order: 070628

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13223		*MBLK*			Batch ID:	13223	Analysis Date:	6/21/2007 10:07:39 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-13224		*MBLK*			Batch ID:	13224	Analysis Date:	6/21/2007 11:52:15 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13223		*LCS*			Batch ID:	13223	Analysis Date:	6/21/2007 10:42:20 AM	
Diesel Range Organics (DRO)	4.532	mg/L	1.0	90.6	74	157			
Sample ID: LCS-13224		*LCS*			Batch ID:	13224	Analysis Date:	6/21/2007 12:27:31 PM	
Diesel Range Organics (DRO)	4.861	mg/L	1.0	97.2	74	157			
Sample ID: LCSD-13223		*LCSD*			Batch ID:	13223	Analysis Date:	6/21/2007 11:17:17 AM	
Diesel Range Organics (DRO)	5.076	mg/L	1.0	102	74	157	11.3	23	
Sample ID: LCSD-13224		*LCSD*			Batch ID:	13224	Analysis Date:	6/21/2007 1:02:34 PM	
Diesel Range Organics (DRO)	4.850	mg/L	1.0	97.0	74	157	0.227	23	
Method: SW8015									
Sample ID: 0706281-07A MSD		*MSD*			Batch ID:	R24153	Analysis Date:	6/27/2007 10:28:03 PM	
Gasoline Range Organics (GRO)	0.4618	mg/L	0.050	92.4	80	115	0.0433	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	R24153	Analysis Date:	6/27/2007 9:15:37 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	R24163	Analysis Date:	6/28/2007 9:59:41 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24153	Analysis Date:	6/27/2007 10:57:56 PM	
Gasoline Range Organics (GRO)	0.5052	mg/L	0.050	101	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24163	Analysis Date:	6/28/2007 11:29:57 AM	
Gasoline Range Organics (GRO)	0.4870	mg/L	0.050	97.4	80	115			
Sample ID: 0706281-07A MS		*MS*			Batch ID:	R24153	Analysis Date:	6/27/2007 9:58:02 PM	
Gasoline Range Organics (GRO)	0.4620	mg/L	0.050	92.4	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water **Work Order:** 0706281

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0706281-07A MSD		*MSD*			Batch ID: **R24153**		Analysis Date:	6/27/2007 10:28:03 PM	
Methyl tert-butyl ether (MTBE)	8.330	µg/L	2.5	101	51.2	138	3.84	28	
Benzene	6.186	µg/L	1.0	110	85.9	113	0.194	27	
Toluene	41.38	µg/L	1.0	103	86.4	113	0.0532	19	
Ethylbenzene	8.278	µg/L	1.0	105	83.5	118	0.434	10	
Xylenes, Total	48.02	µg/L	2.0	104	83.4	122	0.677	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24153**		Analysis Date:	6/27/2007 9:15:37 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24163**		Analysis Date:	6/28/2007 9:59:41 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R24153**		Analysis Date:	6/27/2007 11:57:52 PM	
Methyl tert-butyl ether (MTBE)	22.31	µg/L	2.5	112	51.2	138			
Benzene	21.32	µg/L	1.0	107	85.9	113			
Toluene	21.33	µg/L	1.0	107	86.4	113			
Ethylbenzene	21.45	µg/L	1.0	107	83.5	118			
Xylenes, Total	63.41	µg/L	2.0	106	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R24163**		Analysis Date:	6/28/2007 11:59:59 AM	
Methyl tert-butyl ether (MTBE)	21.70	µg/L	2.5	109	51.2	138			
Benzene	21.38	µg/L	1.0	107	85.9	113			
Toluene	20.71	µg/L	1.0	104	86.4	113			
Ethylbenzene	20.80	µg/L	1.0	104	83.5	118			
Xylenes, Total	61.60	µg/L	2.0	102	83.4	122			
Sample ID: 0706281-07A MS		*MS*			Batch ID: **R24153**		Analysis Date:	6/27/2007 9:58:02 PM	
Methyl tert-butyl ether (MTBE)	8.656	µg/L	2.5	105	51.2	138			
Benzene	6.198	µg/L	1.0	111	85.9	113			
Toluene	41.40	µg/L	1.0	103	86.4	113			
Ethylbenzene	8.314	µg/L	1.0	105	83.5	118			
Xylenes, Total	47.70	µg/L	2.0	103	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water
Work Order: 070628

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW6010A									
Sample ID: MB-13241		*MBLK*			Batch ID: 13241		Analysis Date: 7/3/2007 2:42:57 PM		
Barium	ND	mg/L	0.020						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13241		*LCS*			Batch ID: 13241		Analysis Date: 7/3/2007 2:36:54 PM		
Barium	0.5090	mg/L	0.020	102	80	120			
Chromium	0.5194	mg/L	0.0060	104	80	120			
Lead	0.5088	mg/L	0.0050	102	80	120			

Qualifiers:

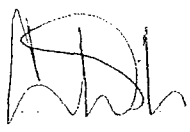
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/20/2007

Work Order Number 0706281 | Received by TLS

Checklist completed by  6/20/07
Signature Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	2°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments: Added Added 1 ml HNO_3 to #2

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2007 - WATER
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakor
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative Hcl	HEAL No. 0706281	BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr, Ba				Air Bubbles or Headspace (Y or N)
6/18/07	1025A	H_2O	MW#4	5-VOA			✓	1	X		X														
				1-500mL		X		1													X				
	1115		TP-#1	5-VOA			X	2	X		X														
				1-500		X		2													X				
	1pm		TP-#8	5-VOA			X	3	X		X														
				1-500		X		3													X				
	130pm		TP-#6	5-VOA			X	4	X		X														
				1-500		X		4													X				
	150pm		TP-#5	5-VOA			X	5	X		X														
				1-500		X		5													X				
	220pm		TP-#2	5-VOA			X	6	X		X														
				1-500		X		6													X				

Date: 6/18/07 Time: 3pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 6/20/07 1036

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Project Name: River Terrace - 2nd QTR 2007 - water

Address: #50 Rd 4990 Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Kreiton

Fax #: 505-632-3911

Sample Temperature: 2°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0706281	BTEX + MTBE + TPH's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr, Ba				Air Bubbles or Headspace (Y or N)
6/15/07	1040A	H2O	TP-#13	5-VOA			HCl	7	X		X														
				1-500		✓		7													X				
	1105A		TP-#12	5-VOA			✓	8	X		X														
				1-500		✓		8													X				
	1130A		TP-#11	5-VOA			✓	9	X		X														
				1-500		✓		9													X				
	945A		TP#10	5-VOA			✓	10	X		X														
				1-500		✓		10													X				
	1005A		TP-#3	5-VOA			X	11	X		X														
				1-500		X		11													X				
	115PM		TP-#9	5-VOA			X	12	X		X														
				1-500		X		12													X				

Date: 6/19/07 Time: 215pm Relinquished By: (Signature) Cindy Hurtado Received By: (Signature) Jamie Sz 6/20/07 1026

Date: Time: Relinquished By: (Signature) Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, September 13, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 3rd Qtr-2007

Order No.: 0708308

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 9 sample(s) on 8/23/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT: San Juan Refining
Project: River Terrace - 3rd Qtr-2007
Lab Order: 0708308

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0708308-01A	TP-13	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 8:28:00 AM
0708308-01A	TP-13	13697	EPA Method 8015B: Diesel Range	8/21/2007 8:28:00 AM
0708308-01A	TP-13	R24905	EPA Method 8021B: Volatiles	8/21/2007 8:28:00 AM
0708308-01B	TP-13	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 8:28:00 AM
0708308-02A	TP-12	R24905	EPA Method 8021B: Volatiles	8/21/2007 8:40:00 AM
0708308-02A	TP-12	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 8:40:00 AM
0708308-02A	TP-12	13697	EPA Method 8015B: Diesel Range	8/21/2007 8:40:00 AM
0708308-02B	TP-12	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 8:40:00 AM
0708308-03A	TP-11	13697	EPA Method 8015B: Diesel Range	8/21/2007 9:00:00 AM
0708308-03A	TP-11	R24905	EPA Method 8021B: Volatiles	8/21/2007 9:00:00 AM
0708308-03A	TP-11	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 9:00:00 AM
0708308-03B	TP-11	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 9:00:00 AM
0708308-04A	TP-10	R24905	EPA Method 8021B: Volatiles	8/21/2007 9:25:00 AM
0708308-04A	TP-10	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 9:25:00 AM
0708308-04A	TP-10	13697	EPA Method 8015B: Diesel Range	8/21/2007 9:25:00 AM
0708308-04B	TP-10	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 9:25:00 AM
0708308-05A	TP-3	13697	EPA Method 8015B: Diesel Range	8/21/2007 9:42:00 AM
0708308-05A	TP-3	R24905	EPA Method 8021B: Volatiles	8/21/2007 9:42:00 AM
0708308-05A	TP-3	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 9:42:00 AM
0708308-05B	TP-3	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 9:42:00 AM
0708308-06A	DW-#1	R24905	EPA Method 8021B: Volatiles	8/21/2007 10:30:00 AM
0708308-06A	DW-#1	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 10:30:00 AM
0708308-06A	DW-#1	13697	EPA Method 8015B: Diesel Range	8/21/2007 10:30:00 AM
0708308-06B	DW-#1	13768	EPA Method 7470: Mercury	8/21/2007 10:30:00 AM
0708308-06B	DW-#1	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 10:30:00 AM
0708308-07A	TP-7	R24905	EPA Method 8021B: Volatiles	8/21/2007 10:45:00 AM
0708308-07A	TP-7	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 10:45:00 AM
0708308-07A	TP-7	13697	EPA Method 8015B: Diesel Range	8/21/2007 10:45:00 AM
0708308-07B	TP-7	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 10:45:00 AM
0708308-08A	TP-9	R24905	EPA Method 8021B: Volatiles	8/21/2007 11:05:00 AM
0708308-08A	TP-9	R24905	EPA Method 8015B: Gasoline Range	8/21/2007 11:05:00 AM
0708308-08A	TP-9	13697	EPA Method 8015B: Diesel Range	8/21/2007 11:05:00 AM
0708308-08B	TP-9	13788	EPA 6010B: Total Recoverable Metals	8/21/2007 11:05:00 AM
0708308-09A	Trip Blank	R24905	EPA Method 8015B: Gasoline Range	
0708308-09A	Trip Blank	R24905	EPA Method 8021B: Volatiles	

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0708308	**Collection Date:**	8/21/2007 8:28:00 AM
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 3:38:46 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 3:38:46 AM
Surr: DNOP	130	58-140		%REC	1	9/2/2007 3:38:46 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 2:30:32 AM
Surr: BFB	103	79.2-121		%REC	1	8/25/2007 2:30:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 2:30:32 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 2:30:32 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 2:30:32 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 2:30:32 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 2:30:32 AM
Surr: 4-Bromofluorobenzene	88.0	70.2-105		%REC	1	8/25/2007 2:30:32 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.012	0.0050		mg/L	1	9/11/2007 12:06:15 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0708308	**Collection Date:**	8/21/2007 8:40:00 AM
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 4:09:46 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 4:09:46 AM
Surr: DNOP	130	58-140		%REC	1	9/2/2007 4:09:46 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 4:00:39 AM
Surr: BFB	101	79.2-121		%REC	1	8/25/2007 4:00:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 4:00:39 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 4:00:39 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 4:00:39 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 4:00:39 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 4:00:39 AM
Surr: 4-Bromofluorobenzene	86.4	70.2-105		%REC	1	8/25/2007 4:00:39 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.021	0.0050		mg/L	1	9/11/2007 12:08:47 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0708308	**Collection Date:**	8/21/2007 9:00:00 AM
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 4:40:45 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 4:40:45 AM
Surr: DNOP	139	58-140		%REC	1	9/2/2007 4:40:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 4:30:30 AM
Surr: BFB	98.2	79.2-121		%REC	1	8/25/2007 4:30:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 4:30:30 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 4:30:30 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 4:30:30 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 4:30:30 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 4:30:30 AM
Surr: 4-Bromofluorobenzene	83.7	70.2-105		%REC	1	8/25/2007 4:30:30 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.010	0.0050		mg/L	1	9/11/2007 12:11:18 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0708308	**Collection Date:**	8/21/2007 9:25:00 AM
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 5:11:45 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 5:11:45 AM
Surr: DNOP	134	58-140		%REC	1	9/2/2007 5:11:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 5:30:20 AM
Surr: BFB	100	79.2-121		%REC	1	8/25/2007 5:30:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 5:30:20 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 5:30:20 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 5:30:20 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 5:30:20 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 5:30:20 AM
Surr: 4-Bromofluorobenzene	84.9	70.2-105		%REC	1	8/25/2007 5:30:20 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.0059	0.0050		mg/L	1	9/11/2007 12:13:48 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0708308	**Collection Date:**	8/21/2007 9:42:00 AM
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 5:42:46 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 5:42:46 AM
Surr: DNOP	138	58-140		%REC	1	9/2/2007 5:42:46 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 6:00:11 AM
Surr: BFB	101	79.2-121		%REC	1	8/25/2007 6:00:11 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 6:00:11 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 6:00:11 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 6:00:11 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 6:00:11 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 6:00:11 AM
Surr: 4-Bromofluorobenzene	85.4	70.2-105		%REC	1	8/25/2007 6:00:11 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.010	0.0050		mg/L	1	9/11/2007 12:16:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Sep-07

CLIENT: San Juan Refining
Lab Order: 0708308
Project: River Terrace - 3rd Qtr-2007
Lab ID: 0708308-06

Client Sample ID: DW-#1
Collection Date: 8/21/2007 10:30:00 AM
Date Received: 8/23/2007
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 6:13:46 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 6:13:46 AM
Surr: DNOP	138	58-140		%REC	1	9/2/2007 6:13:46 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	0.29	0.050		mg/L	1	8/25/2007 6:30:15 AM
Surr: BFB	113	79.2-121		%REC	1	8/25/2007 6:30:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 6:30:15 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 6:30:15 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 6:30:15 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 6:30:15 AM
Xylenes, Total	6.9	2.0		µg/L	1	8/25/2007 6:30:15 AM
Surr: 4-Bromofluorobenzene	96.6	70.2-105		%REC	1	8/25/2007 6:30:15 AM
EPA METHOD 7470: MERCURY						Analyst: **SLB**
Mercury	ND	0.00020		mg/L	1	9/6/2007 3:30:20 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.0089	0.0050		mg/L	1	9/11/2007 12:18:46 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Sep-07

CLIENT: San Juan Refining
Client Sample ID: TP-7
Lab Order: 0708308
Collection Date: 8/21/2007 10:45:00 AM
Project: River Terrace - 3rd Qtr-2007
Date Received: 8/23/2007
Lab ID: 0708308-07
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 7:15:44 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 7:15:44 AM
Surr: DNOP	139	58-140		%REC	1	9/2/2007 7:15:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 7:30:14 AM
Surr: BFB	100	79.2-121		%REC	1	8/25/2007 7:30:14 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 7:30:14 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 7:30:14 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 7:30:14 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 7:30:14 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 7:30:14 AM
Surr: 4-Bromofluorobenzene	85.1	70.2-105		%REC	1	8/25/2007 7:30:14 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.0059	0.0050		mg/L	1	9/11/2007 12:21:14 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 13-Sep-07

CLIENT: [illegible]
Lab Order: 0708308
Project: River Terrace - 2nd Qtr 2007
Lab ID: 0708308-08

Collection Date: 8/17/2007 10:00:00 AM
Date Received: 8/23/2007
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/2/2007 7:46:44 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/2/2007 7:46:44 AM
Surr: DNOP	134	58-140		%REC	1	9/2/2007 7:46:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 8:00:24 AM
Surr: BFB	105	79.2-121		%REC	1	8/25/2007 8:00:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 8:00:24 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 8:00:24 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 8:00:24 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 8:00:24 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 8:00:24 AM
Surr: 4-Bromofluorobenzene	89.8	70.2-105		%REC	1	8/25/2007 8:00:24 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Lead	0.013	0.0050		mg/L	1	9/11/2007 12:23:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Trip Blank
Lab Order:	0708308	**Collection Date:**	
Project:	River Terrace - 3rd Qtr-2007	**Date Received:**	8/23/2007
Lab ID:	0708308-09	**Matrix:**	TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/25/2007 8:30:19 AM
Surr: BFB	99.9	79.2-121		%REC	1	8/25/2007 8:30:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/25/2007 8:30:19 AM
Benzene	ND	1.0		µg/L	1	8/25/2007 8:30:19 AM
Toluene	ND	1.0		µg/L	1	8/25/2007 8:30:19 AM
Ethylbenzene	ND	1.0		µg/L	1	8/25/2007 8:30:19 AM
Xylenes, Total	ND	2.0		µg/L	1	8/25/2007 8:30:19 AM
Surr: 4-Bromofluorobenzene	85.2	70.2-105		%REC	1	8/25/2007 8:30:19 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

13-Sep-07

Lab Order: 0708308
Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0708308-01A	TP-13	8/21/2007 8:28:00 AM	Aqueous	EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-01B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-02A	TP-12	8/21/2007 8:40:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-02B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-03A	TP-11	8/21/2007 9:00:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-03B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-04A	TP-10	8/21/2007 9:25:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-04B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-05A	TP-3	8/21/2007 9:42:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-05B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-06A	DW-#1	8/21/2007 10:30:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-06B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
				EPA Method 7470: Mercury	13768	9/6/2007	9/6/2007

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Hall Environmental Analysis Laboratory, Inc.

13-Sep-07

Lab Order: 0708308
Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0708308-07A	TP-7	8/21/2007 10:45:00 AM	Aqueous	EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-07B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-08A	TP-9	8/21/2007 11:05:00 AM		EPA Method 8015B: Diesel Range	13697	8/27/2007	9/2/2007
				EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007
0708308-08B				EPA 6010B: Total Recoverable Metals	13788	9/7/2007	9/11/2007
0708308-09A	Trip Blank		Trip Blank	EPA Method 8015B: Gasoline Range	R24905		8/25/2007
				EPA Method 8021B: Volatiles	R24905		8/25/2007

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QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007
Work Order: 0708308

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13697		*MBLK*			Batch ID:	**13697**	Analysis Date:	8/31/2007 5:16:50 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-13697		*MBLK*			Batch ID:	**13697**	Analysis Date:	9/2/2007 1:34:30 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13697		*LCS*			Batch ID:	**13697**	Analysis Date:	8/31/2007 5:47:51 AM	
Diesel Range Organics (DRO)	6.812	mg/L	1.0	136	74	157			
Sample ID: JC #1		*LCS*			Batch ID:	**13697**	Analysis Date:	8/31/2007 12:30:21 PM	
Diesel Range Organics (DRO)	7.049	mg/L	1.0	141	74	157			
Sample ID: JC #2		*LCS*			Batch ID:	**13697**	Analysis Date:	8/31/2007 1:01:57 PM	
Diesel Range Organics (DRO)	6.774	mg/L	1.0	135	74	157			
Sample ID: JC #3		*LCS*			Batch ID:	**13697**	Analysis Date:	8/31/2007 1:34:09 PM	
Diesel Range Organics (DRO)	6.529	mg/L	1.0	131	74	157			
Sample ID: JC #4		*LCS*			Batch ID:	**13697**	Analysis Date:	8/31/2007 2:06:01 PM	
Diesel Range Organics (DRO)	5.821	mg/L	1.0	116	74	157			
Sample ID: LCS-13697		*LCS*			Batch ID:	**13697**	Analysis Date:	9/2/2007 2:05:45 AM	
Diesel Range Organics (DRO)	6.400	mg/L	1.0	128	74	157			
Sample ID: LCSD-13697		*LCSD*			Batch ID:	**13697**	Analysis Date:	8/31/2007 6:18:47 AM	
Diesel Range Organics (DRO)	6.970	mg/L	1.0	139	74	157	2.30	23	
Sample ID: LCSD-13697		*LCSD*			Batch ID:	**13697**	Analysis Date:	9/2/2007 2:36:45 AM	
Diesel Range Organics (DRO)	5.985	mg/L	1.0	120	74	157	6.70	23	
Method: SW8015									
Sample ID: B		*MBLK*			Batch ID:	**R24905**	Analysis Date:	8/24/2007 6:25:38 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS B		*LCS*			Batch ID:	**R24905**	Analysis Date:	8/25/2007 11:32:52 PM	
Gasoline Range Organics (GRO)	0.4954	mg/L	0.050	94.7	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24905**	Analysis Date:	8/24/2007 10:01:20 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R24905**	Analysis Date:	8/24/2007 11:31:32 AM	
Methyl tert-butyl ether (MTBE)	18.11	µg/L	2.5	90.6	51.2	138			
Benzene	17.89	µg/L	1.0	89.4	85.9	113			
Toluene	17.92	µg/L	1.0	89.6	86.4	113			
Ethylbenzene	18.15	µg/L	1.0	90.3	83.5	118			
Xylenes, Total	54.67	µg/L	2.0	90.5	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 Work Order: 0708308

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW7470									
Sample ID: MB-13768		*MBLK*			Batch ID:	**13768**	Analysis Date:	9/6/2007 3:19:47 PM	
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-13768		*LCS*			Batch ID:	**13768**	Analysis Date:	9/6/2007 3:21:32 PM	
Mercury	0.004954	mg/L	0.00020	99.1	80	120			
Method: SW6010A									
Sample ID: MB-13788		*MBLK*			Batch ID:	**13788**	Analysis Date:	9/10/2007 8:41:34 AM	
Lead	ND	mg/L	0.0050						
Sample ID: MB-13788		*MBLK*			Batch ID:	**13788**	Analysis Date:	9/11/2007 1:29:23 PM	
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13788		*LCS*			Batch ID:	**13788**	Analysis Date:	9/10/2007 8:44:36 AM	
Lead	0.5129	mg/L	0.0050	103	80	120			
Sample ID: LCS-13788		*LCS*			Batch ID:	**13788**	Analysis Date:	9/11/2007 12:02:04 PM	
Lead	0.5014	mg/L	0.0050	100	80	120			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/23/2007

Work Order Number 0708308 | Received by ARS

Checklist completed by _____ Signature | 8/23/07 Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☑	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package: Std ☐ Level 4 ☐
Other:

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace-3rd QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0708308	BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb	Total Pb & Hg			Air Bubbles or Headspace (Y or N)
8-21-07	820A	H2O	TP 13	4-VOA			HCL	-1	X		X														
	/		/	1-500		X		-1													X				
	840A		TP-12	4-VOA			HCL	-2	X		X														
	/		/	1-500		X		-2													X				
	9AM		TP-11	4-VOA			HCL	-3	X		X														
	/		/	1-500		X		-3													X				
	925A		TP-10	4-VOA			HCL	-4	X		X														
	/		/	1.500		X		-4													X				
	942		TP-3	4-VOA			HCL	-5	X		X														
	/		/	1-500		X		-5													X				
	1030A		DW-#1	4-VOA			HCL	-6	X		X														
	/		/	1-500		X		-6														X	•		

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
8-22-07	0747A	Cindy Hurtado	9:35 8/23/07
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

Client: San Juan Rotating

Project Name: River Terrace - 3rd QTR-2007

Address: #50 Rd 4990 Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Krakow

Fax #: 505-632-3911

Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
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www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0708308	BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
8-21-07	1045	H2O	TP-7	4-VOA			HCl	-7	X		X														
				1-500		X		-7													X				
	1105		TP-9	4-VOA			HCl	-8	X		X														
				1-500		X		-8													X				
			Trip Blank					-9	X																

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
8-22-07	847A	Cindy Hurtado	9:35 8/23/07
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, September 18, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX: (505) 632-3911

RE: River Terrace – 3rd Qtr 2007 Order No.: 0708272

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 9 samples on 8/21/07 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab #9425
AZ License #AZ0682
ORELAP Lab #NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
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Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0708272	Collection Date:	8/20/2007 10:40:00 AM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.0	1.0		mg/L	1	9/1/2007 3:36:52 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 3:36:52 PM
Surr: DNOP	127	58-140		%REC	1	9/1/2007 3:36:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	28	1.0		mg/L	20	8/23/2007 5:10:28 PM
Surr: BFB	122	79.2-121	S	%REC	20	8/23/2007 5:10:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	8/23/2007 5:10:28 PM
Benzene	640	20		µg/L	20	8/23/2007 5:10:28 PM
Toluene	ND	20		µg/L	20	8/23/2007 5:10:28 PM
Ethylbenzene	2000	20		µg/L	20	8/23/2007 5:10:28 PM
Xylenes, Total	4800	200		µg/L	100	8/22/2007 11:44:18 PM
Surr: 4-Bromofluorobenzene	103	70.2-105		%REC	20	8/23/2007 5:10:28 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.019	0.0050		mg/L	1	9/6/2007 4:00:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0708272	Collection Date:	8/20/2007 11:05:00 AM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	3.3	1.0		mg/L	1	9/1/2007 4:08:26 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 4:08:26 PM
Surr: DNOP	129	58-140		%REC	1	9/1/2007 4:08:26 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	80	5.0		mg/L	100	8/23/2007 12:16:51 AM
Surr: BFB	114	79.2-121		%REC	100	8/23/2007 12:16:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	8/23/2007 12:16:51 AM
Benzene	1200	100		µg/L	100	8/23/2007 12:16:51 AM
Toluene	ND	100		µg/L	100	8/23/2007 12:16:51 AM
Ethylbenzene	4200	100		µg/L	100	8/23/2007 12:16:51 AM
Xylenes, Total	20000	400		µg/L	200	8/23/2007 6:10:23 PM
Surr: 4-Bromofluorobenzene	100	70.2-105		%REC	100	8/23/2007 12:16:51 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.074	0.0050		mg/L	1	9/6/2007 4:04:38 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8
Lab Order:	0708272	Collection Date:	8/20/2007 12:50:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.7	1.0		mg/L	1	9/1/2007 4:40:02 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 4:40:02 PM
Surr: DNOP	130	58-140		%REC	1	9/1/2007 4:40:02 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	31	0.50		mg/L	10	8/24/2007 5:20:16 PM
Surr: BFB	126	79.2-121	S	%REC	10	8/24/2007 5:20:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	8/24/2007 5:20:16 PM
Benzene	ND	10		µg/L	10	8/24/2007 5:20:16 PM
Toluene	ND	10		µg/L	10	8/24/2007 5:20:16 PM
Ethylbenzene	480	10		µg/L	10	8/24/2007 5:20:16 PM
Xylenes, Total	3700	100		µg/L	50	8/24/2007 4:47:39 PM
Surr: 4-Bromofluorobenzene	94.4	70.2-105		%REC	50	8/24/2007 4:47:39 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.027	0.0050		mg/L	1	9/6/2007 4:08:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- MCL Maximum Contaminant Level
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8 FD
Lab Order:	0708272	Collection Date:	8/20/2007 1:05:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-04	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	2.2	1.0		mg/L	1	9/1/2007 5:11:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 5:11:39 PM
Surr: DNOP	131	58-140		%REC	1	9/1/2007 5:11:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	12	0.50		mg/L	10	8/27/2007 11:34:28 AM
Surr: BFB	122	79.2-121	S	%REC	10	8/27/2007 11:34:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	8/27/2007 11:34:28 AM
Benzene	ND	10		µg/L	10	8/27/2007 11:34:28 AM
Toluene	ND	10		µg/L	10	8/27/2007 11:34:28 AM
Ethylbenzene	230	10		µg/L	10	8/27/2007 11:34:28 AM
Xylenes, Total	1500	20		µg/L	10	8/27/2007 11:34:28 AM
Surr: 4-Bromofluorobenzene	106	70.2-105	S	%REC	10	8/27/2007 11:34:28 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.030	0.0050		mg/L	1	9/6/2007 4:12:49 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	MW#49
Lab Order:	0708272	Collection Date:	8/20/2007 1:40:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-05	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/1/2007 5:43:14 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 5:43:14 PM
Surr: DNOP	133	58-140		%REC	1	9/1/2007 5:43:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2007 1:52:06 AM
Surr: BFB	99.3	79.2-121		%REC	1	8/23/2007 1:52:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/23/2007 1:52:06 AM
Benzene	ND	1.0		µg/L	1	8/23/2007 1:52:06 AM
Toluene	ND	1.0		µg/L	1	8/23/2007 1:52:06 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2007 1:52:06 AM
Xylenes, Total	ND	2.0		µg/L	1	8/23/2007 1:52:06 AM
Surr: 4-Bromofluorobenzene	84.3	70.2-105		%REC	1	8/23/2007 1:52:06 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	ND	0.0050		mg/L	1	9/6/2007 4:21:55 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	Field Blank
Lab Order:	0708272	Collection Date:	8/20/2007 1:45:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-06	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2007 2:51:55 AM
Surr: BFB	98.3	79.2-121		%REC	1	8/23/2007 2:51:55 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/23/2007 2:51:55 AM
Benzene	ND	1.0		µg/L	1	8/23/2007 2:51:55 AM
Toluene	ND	1.0		µg/L	1	8/23/2007 2:51:55 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2007 2:51:55 AM
Xylenes, Total	ND	2.0		µg/L	1	8/23/2007 2:51:55 AM
Surr: 4-Bromofluorobenzene	83.4	70.2-105		%REC	1	8/23/2007 2:51:55 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-6
Lab Order:	0708272	Collection Date:	8/20/2007 2:05:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-07	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/1/2007 6:14:49 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 6:14:49 PM
Surr: DNOP	128	58-140		%REC	1	9/1/2007 6:14:49 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	0.19	0.050		mg/L	1	8/23/2007 3:21:59 AM
Surr: BFB	108	79.2-121		%REC	1	8/23/2007 3:21:59 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/23/2007 3:21:59 AM
Benzene	ND	1.0		µg/L	1	8/23/2007 3:21:59 AM
Toluene	ND	1.0		µg/L	1	8/23/2007 3:21:59 AM
Ethylbenzene	ND	1.0		µg/L	1	8/23/2007 3:21:59 AM
Xylenes, Total	ND	2.0		µg/L	1	8/23/2007 3:21:59 AM
Surr: 4-Bromofluorobenzene	90.6	70.2-105		%REC	1	8/23/2007 3:21:59 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.0093	0.0050		mg/L	1	9/6/2007 4:24:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-5
Lab Order:	0708272	Collection Date:	8/20/2007 2:40:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-08	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	9/1/2007 6:46:24 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	9/1/2007 6:46:24 PM
Surr: DNOP	131	58-140		%REC	1	9/1/2007 6:46:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	69	2.5		mg/L	50	8/23/2007 3:54:40 AM
Surr: BFB	118	79.2-121		%REC	50	8/23/2007 3:54:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	8/23/2007 3:54:40 AM
Benzene	300	50		µg/L	50	8/23/2007 3:54:40 AM
Toluene	ND	50		µg/L	50	8/23/2007 3:54:40 AM
Ethylbenzene	3000	50		µg/L	50	8/23/2007 3:54:40 AM
Xylenes, Total	22000	400		µg/L	200	8/24/2007 4:14:58 PM
Surr: 4-Bromofluorobenzene	104	70.2-105		%REC	50	8/23/2007 3:54:40 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: TES
Lead	0.044	0.0050		mg/L	1	9/6/2007 4:27:51 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	Trip Blank
Lab Order:	0708272	Collection Date:	
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-09	Matrix:	TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/23/2007 4:24:40 AM
Surr: BFB	101	79.2-121		%REC	1	8/23/2007 4:24:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: SMP
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	8/24/2007 3:44:53 PM
Benzene	ND	1.0		µg/L	1	8/24/2007 3:44:53 PM
Toluene	ND	1.0		µg/L	1	8/24/2007 3:44:53 PM
Ethylbenzene	ND	1.0		µg/L	1	8/24/2007 3:44:53 PM
Xylenes, Total	ND	2.0		µg/L	1	8/24/2007 3:44:53 PM
Surr: 4-Bromofluorobenzene	83.6	70.2-105		%REC	1	8/24/2007 3:44:53 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 Work Order: 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13694		*MBLK*			Batch ID:	13694	Analysis Date:	8/28/2007 3:13:26 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-13694		*MBLK*			Batch ID:	13694	Analysis Date:	8/30/2007 5:12:49 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-13694		*MBLK*			Batch ID:	13694	Analysis Date:	9/1/2007 2:00:39 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13694		*LCS*			Batch ID:	13694	Analysis Date:	8/28/2007 3:49:35 PM	
Diesel Range Organics (DRO)	6.735	mg/L	1.0	135	74	157			
Sample ID: LCS-13694		*LCS*			Batch ID:	13694	Analysis Date:	8/30/2007 5:44:23 PM	
Diesel Range Organics (DRO)	7.466	mg/L	1.0	149	74	157			
Sample ID: LCS-13694		*LCS*			Batch ID:	13694	Analysis Date:	9/1/2007 2:32:52 PM	
Diesel Range Organics (DRO)	5.878	mg/L	1.0	118	74	157			
Sample ID: LCSD-13694		*LCSD*			Batch ID:	13694	Analysis Date:	8/28/2007 4:25:47 PM	
Diesel Range Organics (DRO)	7.021	mg/L	1.0	140	74	157	4.15	23	
Sample ID: LCSD-13694		*LCSD*			Batch ID:	13694	Analysis Date:	8/30/2007 6:15:59 PM	
Diesel Range Organics (DRO)	6.595	mg/L	1.0	132	74	157	12.4	23	
Sample ID: LCSD-13694		*LCSD*			Batch ID:	13694	Analysis Date:	9/1/2007 3:05:03 PM	
Diesel Range Organics (DRO)	6.300	mg/L	1.0	126	74	157	6.93	23	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S [illegible]overy outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 **Work Order:** 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24885		**Analysis Date:** 8/23/2007 9:10:07 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: B		*MBLK*			**Batch ID:** R24905		**Analysis Date:** 8/24/2007 6:25:38 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24919		**Analysis Date:** 8/27/2007 10:01:29 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24937		**Analysis Date:** 8/27/2007 2:00:37 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24916		**Analysis Date:** 8/24/2007 2:21:10 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24869		**Analysis Date:** 8/22/2007 10:46:52 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5mL rb 1		*MBLK*			**Batch ID:** R24847		**Analysis Date:** 8/21/2007 12:53:28 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			**Batch ID:** R24886		**Analysis Date:** 8/23/2007 12:16:03 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24885		**Analysis Date:** 8/23/2007 3:37:51 PM		
Gasoline Range Organics (GRO)	0.4696	mg/L	0.050	90.6	80	115			
Sample ID: 2.5UG GRO LCS B		*LCS*			**Batch ID:** R24905		**Analysis Date:** 8/25/2007 11:32:52 PM		
Gasoline Range Organics (GRO)	0.4954	mg/L	0.050	94.7	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24919		**Analysis Date:** 8/27/2007 6:39:05 PM		
Gasoline Range Organics (GRO)	0.5258	mg/L	0.050	100	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24847		**Analysis Date:** 8/21/2007 1:54:46 PM		
Gasoline Range Organics (GRO)	0.4560	mg/L	0.050	86.8	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24869		**Analysis Date:** 8/22/2007 11:47:53 AM		
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	89.6	80	115			
Sample ID: 2.25UG GRO LCS		*LCS*			**Batch ID:** R24886		**Analysis Date:** 8/23/2007 1:17:08 PM		
Gasoline Range Organics (GRO)	0.4580	mg/L	0.050	91.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24916		**Analysis Date:** 8/24/2007 3:22:28 PM		
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	89.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			**Batch ID:** R24937		**Analysis Date:** 8/27/2007 3:01:49 PM		
Gasoline Range Organics (GRO)	0.4600	mg/L	0.050	88.0	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S [illegible]covery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 **Work Order:** 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24885	Analysis Date:	8/23/2007 9:10:07 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24905	Analysis Date:	8/24/2007 10:01:20 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24919	Analysis Date:	8/27/2007 10:01:29 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	R24885	Analysis Date:	8/23/2007 2:37:33 PM	
Methyl tert-butyl ether (MTBE)	19.11	µg/L	2.5	95.6	51.2	138			
Benzene	17.77	µg/L	1.0	88.9	85.9	113			
Toluene	17.37	µg/L	1.0	86.9	86.4	113			
Ethylbenzene	18.05	µg/L	1.0	90.2	83.5	118			
Xylenes, Total	54.72	µg/L	2.0	90.9	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	R24905	Analysis Date:	8/24/2007 11:31:32 AM	
Methyl tert-butyl ether (MTBE)	18.11	µg/L	2.5	90.6	51.2	138			
Benzene	17.89	µg/L	1.0	89.4	85.9	113			
Toluene	17.92	µg/L	1.0	89.6	86.4	113			
Ethylbenzene	18.15	µg/L	1.0	90.3	83.5	118			
Xylenes, Total	54.67	µg/L	2.0	90.5	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	R24919	Analysis Date:	8/27/2007 6:06:58 PM	
Methyl tert-butyl ether (MTBE)	19.08	µg/L	2.5	95.4	51.2	138			
Benzene	19.04	µg/L	1.0	95.2	85.9	113			
Toluene	20.03	µg/L	1.0	100	86.4	113			
Ethylbenzene	20.43	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.35	µg/L	2.0	104	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	R24885	Analysis Date:	8/23/2007 3:07:41 PM	
Methyl tert-butyl ether (MTBE)	19.24	µg/L	2.5	96.2	51.2	138	0.688	28	
Benzene	18.32	µg/L	1.0	91.6	85.9	113	3.04	27	
Toluene	18.12	µg/L	1.0	90.6	86.4	113	4.23	19	
Ethylbenzene	18.75	µg/L	1.0	93.7	83.5	118	3.81	10	
Xylenes, Total	56.41	µg/L	2.0	93.7	83.4	122	3.04	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S [illegible]covery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 **Work Order:** 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: R24875		Analysis Date: 8/22/2007 10:33:28 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24875		Analysis Date: 8/22/2007 11:40:20 AM		
Benzene	19.57	µg/L	1.0	97.9	82.4	128			
Toluene	19.11	µg/L	1.0	95.6	77.2	115			
Method: SW8260B									
Sample ID: 5ml rb-II		*MBLK*			Batch ID: R24875		Analysis Date: 8/22/2007 10:38:08 PM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Tetrachloroethene (PCE)	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs-II		*LCS*			Batch ID: R24875		Analysis Date: 8/23/2007 12:52:04 AM		
Benzene	19.01	µg/L	1.0	95.0	82.4	128			
Toluene	18.72	µg/L	1.0	93.6	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: R24888		Analysis Date: 8/23/2007 10:57:01 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24888		Analysis Date: 8/23/2007 12:15:05 PM		
Benzene	19.33	µg/L	1.0	96.6	82.4	128			
Toluene	18.78	µg/L	1.0	93.9	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: R24888		Analysis Date: 8/23/2007 10:57:01 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Tetrachloroethene (PCE)	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24888		Analysis Date: 8/23/2007 12:15:05 PM		
Benzene	19.33	µg/L	1.0	96.6	82.4	128			
Toluene	18.78	µg/L	1.0	93.9	77.2	115			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S [illegible]overy outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 **Work Order:** 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW6010A									
Sample ID: 0708272-08B MSD		*MSD*			Batch ID: 13757		Analysis Date: 9/6/2007 6:19:48 PM		
Lead	0.5203	mg/L	0.0050	95.2	75	125	7.18	20	
Sample ID: MB-13757		*MBLK*			Batch ID: 13757		Analysis Date: 9/6/2007 3:54:12 PM		
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13757		*LCS*			Batch ID: 13757		Analysis Date: 9/6/2007 3:57:14 PM		
Lead	0.4854	mg/L	0.0050	97.1	80	120			
Sample ID: 0708272-08B MS		*MS*			Batch ID: 13757		Analysis Date: 9/6/2007 6:16:47 PM		
Lead	0.5591	mg/L	0.0050	103	75	125			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

CHAIN-OF-CUSTODY RECORD

QA/QC Package: Std ☐ Level 4 ☒ Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990 Bloom field, NM 87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: River Terrace 3rd QTR-2007

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado/Bob Kralow

Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0708272	BTEX + MTBE + ~~TMB's~~ (8021) +MTBE	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
8/2/07	1040A	H2O	TP-#2	4-VOA			HCl	-1	X		X														
	/		/	1-500		X		-1													X				
	1105A		TP-#1	4-VOA			HCl	-2	X		X														
	/		/	1-500		X		-2													X				
	1250		TP-#8	4-VOA			HCl	-3	X		X														
	/		/	1-500		X		-3													X				
	105pm		TP-#8 FD	4-VOA			HCl	-4	X		X														
	/		/	1-500		X		-4													X				
	140pm		MW#49	4-VOA			HCl	-5	X		X														
	/		/	1-500		X		-5													X				
	145pm		Field Blank	3-VOA			HCl	-6	X																

Date: 8/20/07 Time: 340pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature)

Date: Time: Relinquished By: (Signature)

Received By: (Signature) 8/21/07 1005

Remarks: Pls CH analyze for MTBE/MT 8/21/07

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace-3rd QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 3

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0708272	BTEX + MTBE + TMB's (8021) 4 MTBE	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
8-2007	205	H2O	TP-6	4-VOA			HCl	-7	X	X															
/	/	/	/	1-500		X		-7													X				
/	240p	/	TP-5	4-VOA			HCl	-8	X	X															
	/		/	1-500		X		-8													X				
			Trip Blank	3x40ml/VOA			X	-9	X	X															

Date: 8/20/07 Time: 340pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature)
Date: Time: Relinquished By: (Signature)
Received By: (Signature) 8/21/07 1005

Remarks: Per CH analyze for MTBE/TMB 8/21/07

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, November 14, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 4th Qtr 2007

Order No.: 0710548

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 9 sample(s) on 10/30/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT: San Juan Refining
Project: River Terrace 4th Qtr 2007
Lab Order: 0710548

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710548-01A	TP-2	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 9:50:00 AM
0710548-01A	TP-2	R25871	EPA Method 8021B: Volatiles	10/29/2007 9:50:00 AM
0710548-01A	TP-2	R25871	EPA Method 8015B: Gasoline Range	10/29/2007 9:50:00 AM
0710548-01A	TP-2	R25907	EPA Method 8021B: Volatiles	10/29/2007 9:50:00 AM
0710548-01A	TP-2	R25907	EPA Method 8015B: Gasoline Range	10/29/2007 9:50:00 AM
0710548-01A	TP-2	14307	EPA Method 8015B: Diesel Range	10/29/2007 9:50:00 AM
0710548-01A	TP-2	R25852	EPA Method 8021B: Volatiles	10/29/2007 9:50:00 AM
0710548-01B	TP-2	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 9:50:00 AM
0710548-02A	TP-1	R25871	EPA Method 8015B: Gasoline Range	10/29/2007 10:15:00 AM
0710548-02A	TP-1	14307	EPA Method 8015B: Diesel Range	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25907	EPA Method 8015B: Gasoline Range	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25907	EPA Method 8015B: Gasoline Range	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25907	EPA Method 8021B: Volatiles	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25871	EPA Method 8021B: Volatiles	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25852	EPA Method 8021B: Volatiles	10/29/2007 10:15:00 AM
0710548-02A	TP-1	R25907	EPA Method 8021B: Volatiles	10/29/2007 10:15:00 AM
0710548-02B	TP-1	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 10:15:00 AM
0710548-03A	TP-6	R25852	EPA Method 8021B: Volatiles	10/29/2007 10:40:00 AM
0710548-03A	TP-6	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 10:40:00 AM
0710548-03A	TP-6	R25871	EPA Method 8021B: Volatiles	10/29/2007 10:40:00 AM
0710548-03A	TP-6	R25871	EPA Method 8015B: Gasoline Range	10/29/2007 10:40:00 AM
0710548-03A	TP-6	14307	EPA Method 8015B: Diesel Range	10/29/2007 10:40:00 AM
0710548-03B	TP-6	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 10:40:00 AM
0710548-04A	TP-8	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 11:10:00 AM
0710548-04A	TP-8	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 11:10:00 AM
0710548-04A	TP-8	14307	EPA Method 8015B: Diesel Range	10/29/2007 11:10:00 AM
0710548-04A	TP-8	R25852	EPA Method 8021B: Volatiles	10/29/2007 11:10:00 AM
0710548-04A	TP-8	R25852	EPA Method 8021B: Volatiles	10/29/2007 11:10:00 AM
0710548-04B	TP-8	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 11:10:00 AM
0710548-05A	TP-8 FD	R25852	EPA Method 8021B: Volatiles	10/29/2007 11:15:00 AM
0710548-05A	TP-8 FD	R25852	EPA Method 8021B: Volatiles	10/29/2007 11:15:00 AM
0710548-05A	TP-8 FD	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 11:15:00 AM
0710548-05A	TP-8 FD	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 11:15:00 AM
0710548-05A	TP-8 FD	14307	EPA Method 8015B: Diesel Range	10/29/2007 11:15:00 AM
0710548-05B	TP-8 FD	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 11:15:00 AM
0710548-06A	TP-5	R25852	EPA Method 8021B: Volatiles	10/29/2007 1:50:00 PM
0710548-06A	TP-5	14307	EPA Method 8015B: Diesel Range	10/29/2007 1:50:00 PM

CLIENT:	San Juan Refining
Project:	River Terrace 4th Qtr 2007
Lab Order:	0710548

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710548-06A	TP-5	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 1:50:00 PM
0710548-06A	TP-5	R25852	EPA Method 8021B: Volatiles	10/29/2007 1:50:00 PM
0710548-06A	TP-5	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 1:50:00 PM
0710548-06B	TP-5	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 1:50:00 PM
0710548-07A	TP-9	R25852	EPA Method 8021B: Volatiles	10/29/2007 2:15:00 PM
0710548-07A	TP-9	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 2:15:00 PM
0710548-07A	TP-9	14307	EPA Method 8015B: Diesel Range	10/29/2007 2:15:00 PM
0710548-07B	TP-9	14361	EPA 6010B: Total Recoverable Metals	10/29/2007 2:15:00 PM
0710548-08A	Field Blank	R25852	EPA Method 8021B: Volatiles	10/29/2007 2:30:00 PM
0710548-08A	Field Blank	R25852	EPA Method 8015B: Gasoline Range	10/29/2007 2:30:00 PM
0710548-08A	Field Blank	14307	EPA Method 8015B: Diesel Range	10/29/2007 2:30:00 PM
0710548-09A	TRIP BLANK	R25852	EPA Method 8015B: Gasoline Range	
0710548-09A	TRIP BLANK	R25852	EPA Method 8021B: Volatiles	

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0710548	**Collection Date:**	10/29/2007 9:50:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.4	1.0		mg/L	1	11/5/2007 11:55:53 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/5/2007 11:55:53 PM
Surr: DNOP	130	58-140		%REC	1	11/5/2007 11:55:53 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	22	1.0		mg/L	20	11/2/2007 11:46:24 AM
Surr: BFB	111	79.2-121		%REC	20	11/2/2007 11:46:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	11/2/2007 11:46:24 AM
Benzene	1500	20		µg/L	20	11/2/2007 11:46:24 AM
Toluene	ND	20		µg/L	20	11/2/2007 11:46:24 AM
Ethylbenzene	2400	100		µg/L	100	10/31/2007 12:43:21 PM
Xylenes, Total	3700	200		µg/L	100	10/31/2007 12:43:21 PM
Surr: 4-Bromofluorobenzene	101	70.2-105		%REC	20	11/2/2007 11:46:24 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	0.0071	0.0050		mg/L	1	11/13/2007 12:47:35 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0710548	**Collection Date:**	10/29/2007 10:15:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.8	1.0		mg/L	1	11/6/2007 12:30:00 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 12:30:00 AM
Surr: DNOP	125	58-140		%REC	1	11/6/2007 12:30:00 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	64	2.5		mg/L	50	11/2/2007 1:16:27 PM
Surr: BFB	112	79.2-121		%REC	50	11/2/2007 1:16:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	11/2/2007 1:16:27 PM
Benzene	1500	50		µg/L	50	11/2/2007 1:16:27 PM
Toluene	ND	50		µg/L	50	11/2/2007 1:16:27 PM
Ethylbenzene	3800	50		µg/L	50	11/2/2007 1:16:27 PM
Xylenes, Total	18000	400		µg/L	200	11/2/2007 12:46:23 PM
Surr: 4-Bromofluorobenzene	103	70.2-105		%REC	50	11/2/2007 1:16:27 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	0.044	0.0050		mg/L	1	11/13/2007 12:52:29 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0710548	**Collection Date:**	10/29/2007 10:40:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 1:04:10 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 1:04:10 AM
Surr: DNOP	118	58-140		%REC	1	11/6/2007 1:04:10 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.069	0.050		mg/L	1	11/1/2007 1:52:07 PM
Surr: BFB	94.2	79.2-121		%REC	1	11/1/2007 1:52:07 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 1:52:07 PM
Benzene	ND	1.0		µg/L	1	11/1/2007 1:52:07 PM
Toluene	ND	1.0		µg/L	1	11/1/2007 1:52:07 PM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 1:52:07 PM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 1:52:07 PM
Surr: 4-Bromofluorobenzene	83.7	70.2-105		%REC	1	11/1/2007 1:52:07 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	ND	0.0050		mg/L	1	11/13/2007 12:57:24 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0710548	**Collection Date:**	10/29/2007 11:10:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.6	1.0		mg/L	1	11/6/2007 1:38:15 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 1:38:15 AM
Surr: DNOP	138	58-140		%REC	1	11/6/2007 1:38:15 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	14	0.50		mg/L	10	10/31/2007 2:51:25 PM
Surr: BFB	116	79.2-121		%REC	10	10/31/2007 2:51:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	10/31/2007 2:51:25 PM
Benzene	ND	10		µg/L	10	10/31/2007 2:51:25 PM
Toluene	ND	10		µg/L	10	10/31/2007 2:51:25 PM
Ethylbenzene	380	10		µg/L	10	10/31/2007 2:51:25 PM
Xylenes, Total	1500	20		µg/L	10	10/31/2007 2:51:25 PM
Surr: 4-Bromofluorobenzene	105	70.2-105	S	%REC	10	10/31/2007 2:51:25 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	0.030	0.0050		mg/L	1	11/13/2007 1:01:09 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8 FD
Lab Order:	0710548	**Collection Date:**	10/29/2007 11:15:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.5	1.0		mg/L	1	11/6/2007 2:12:20 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 2:12:20 AM
Surr: DNOP	125	58-140		%REC	1	11/6/2007 2:12:20 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	19	0.50		mg/L	10	10/31/2007 4:26:56 PM
Surr: BFB	119	79.2-121		%REC	10	10/31/2007 4:26:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	10/31/2007 4:26:56 PM
Benzene	ND	10		µg/L	10	10/31/2007 4:26:56 PM
Toluene	ND	10		µg/L	10	10/31/2007 4:26:56 PM
Ethylbenzene	510	10		µg/L	10	10/31/2007 4:26:56 PM
Xylenes, Total	1800	20		µg/L	10	10/31/2007 4:26:56 PM
Surr: 4-Bromofluorobenzene	108	70.2-105	S	%REC	10	10/31/2007 4:26:56 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	0.029	0.0050		mg/L	1	11/13/2007 1:06:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0710548	**Collection Date:**	10/29/2007 1:50:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.2	1.0		mg/L	1	11/6/2007 2:46:26 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 2:46:26 AM
Surr: DNOP	136	58-140		%REC	1	11/6/2007 2:46:26 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	56	2.5		mg/L	50	10/31/2007 5:56:43 PM
Surr: BFB	109	79.2-121		%REC	50	10/31/2007 5:56:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	120		µg/L	50	10/31/2007 5:56:43 PM
Benzene	ND	50		µg/L	50	10/31/2007 5:56:43 PM
Toluene	ND	50		µg/L	50	10/31/2007 5:56:43 PM
Ethylbenzene	2600	50		µg/L	50	10/31/2007 5:56:43 PM
Xylenes, Total	17000	1000		µg/L	500	10/31/2007 5:26:49 PM
Surr: 4-Bromofluorobenzene	101	70.2-105		%REC	50	10/31/2007 5:56:43 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	0.032	0.0050		mg/L	1	11/13/2007 1:18:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0710548	**Collection Date:**	10/29/2007 2:15:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 3:20:35 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 3:20:35 AM
Surr: DNOP	131	58-140		%REC	1	11/6/2007 3:20:35 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/31/2007 9:56:41 PM
Surr: BFB	92.4	79.2-121		%REC	1	10/31/2007 9:56:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/31/2007 9:56:41 PM
Benzene	ND	1.0		µg/L	1	10/31/2007 9:56:41 PM
Toluene	ND	1.0		µg/L	1	10/31/2007 9:56:41 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2007 9:56:41 PM
Xylenes, Total	ND	2.0		µg/L	1	10/31/2007 9:56:41 PM
Surr: 4-Bromofluorobenzene	81.7	70.2-105		%REC	1	10/31/2007 9:56:41 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **SLB**
Lead	ND	0.0050		mg/L	1	11/13/2007 1:21:47 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Field Blank
Lab Order:	0710548	**Collection Date:**	10/29/2007 2:30:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-08	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 4:29:35 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 4:29:35 AM
Surr: DNOP	127	58-140		%REC	1	11/6/2007 4:29:35 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/31/2007 10:26:41 PM
Surr: BFB	91.5	79.2-121		%REC	1	10/31/2007 10:26:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/31/2007 10:26:41 PM
Benzene	ND	1.0		µg/L	1	10/31/2007 10:26:41 PM
Toluene	ND	1.0		µg/L	1	10/31/2007 10:26:41 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2007 10:26:41 PM
Xylenes, Total	ND	2.0		µg/L	1	10/31/2007 10:26:41 PM
Surr: 4-Bromofluorobenzene	81.0	70.2-105		%REC	1	10/31/2007 10:26:41 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TRIP BLANK
Lab Order:	0710548	**Collection Date:**	
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/30/2007
Lab ID:	0710548-09	**Matrix:**	TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/31/2007 10:56:41 PM
Surr: BFB	91.4	79.2-121		%REC	1	10/31/2007 10:56:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/31/2007 10:56:41 PM
Benzene	ND	1.0		µg/L	1	10/31/2007 10:56:41 PM
Toluene	ND	1.0		µg/L	1	10/31/2007 10:56:41 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2007 10:56:41 PM
Xylenes, Total	ND	2.0		µg/L	1	10/31/2007 10:56:41 PM
Surr: 4-Bromofluorobenzene	80.7	70.2-105		%REC	1	10/31/2007 10:56:41 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

14-Nov-07

Lab Order: 0710548
Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710548-01A	TP-2	10/29/2007 9:50:00 AM	Aqueous	EPA Method 8015B: Diesel Range	14307	11/5/2007	11/5/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25871		11/1/2007
				EPA Method 8015B: Gasoline Range	R25907		11/2/2007
				EPA Method 8021B: Volatiles	R25871		11/1/2007
				EPA Method 8021B: Volatiles	R25907		11/2/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-01B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-02A	TP-1	10/29/2007 10:15:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25907		11/2/2007
				EPA Method 8015B: Gasoline Range	R25907		11/2/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25871		11/1/2007
				EPA Method 8021B: Volatiles	R25907		11/2/2007
				EPA Method 8021B: Volatiles	R25907		11/2/2007
				EPA Method 8021B: Volatiles	R25871		11/1/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-02B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-03A	TP-6	10/29/2007 10:40:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25871		11/1/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25871		11/1/2007
0710548-03B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-04A	TP-8	10/29/2007 11:10:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007

Lab Order: 0710548
Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710548-04A	TP-8	10/29/2007 11:10:00 AM	Aqueous	EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-04B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-05A	TP-8 FD	10/29/2007 11:15:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-05B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-06A	TP-5	10/29/2007 1:50:00 PM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-06B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-07A	TP-9	10/29/2007 2:15:00 PM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-07B				EPA 6010B: Total Recoverable Metals	14361	11/12/2007	11/13/2007
0710548-08A	Field Blank	10/29/2007 2:30:00 PM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710548-09A	TRIP BLANK		Trip Blank	EPA Method 8015B: Gasoline Range	R25852		10/31/2007

Lab Order: 0710548
Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710548-09A	TRIP BLANK		Trip Blank	EPA Method 8021B: Volatiles	R25852		10/31/2007

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007 **Work Order:** 0710548

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range									
Sample ID: MB-14307		*MBLK*			Batch ID:	**14307**	Analysis Date:	11/5/2007 10:12:38 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Surr: DNOP	1.234	mg/L	0	123	58	140			
Sample ID: LCS-14307		*LCS*			Batch ID:	**14307**	Analysis Date:	11/5/2007 10:47:02 PM	
Diesel Range Organics (DRO)	5.000	mg/L	1.0	100	74	157			
Surr: DNOP	0.5923	mg/L	0	118	58	140			
Sample ID: LCSD-14307		*LCSD*			Batch ID:	**14307**	Analysis Date:	11/5/2007 11:21:27 PM	
Diesel Range Organics (DRO)	5.193	mg/L	1.0	104	74	157	3.79	23	
Surr: DNOP	0.6087	mg/L	0	122	58	140	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0710548-07A MSD		*MSD*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 7:26:39 PM	
Gasoline Range Organics (GRO)	0.4050	mg/L	0.050	96.4	80	115	3.11	8.39	
Surr: BFB	19.77	mg/L	0	98.8	79.2	121	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 9:10:13 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	18.19	mg/L	0	91.0	79.2	121			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25871**	Analysis Date:	11/1/2007 9:16:30 A	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	18.42	mg/L	0	92.1	79.2	121			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25907**	Analysis Date:	11/2/2007 9:13:15 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	19.27	mg/L	0	96.4	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 7:56:41 PM	
Gasoline Range Organics (GRO)	0.4336	mg/L	0.050	83.0	80	115			
Surr: BFB	20.71	mg/L	0	104	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25871**	Analysis Date:	11/1/2007 8:52:09 PM	
Gasoline Range Organics (GRO)	0.4240	mg/L	0.050	81.3	80	115			
Surr: BFB	20.01	mg/L	0	100	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25907**	Analysis Date:	11/2/2007 8:46:25 PM	
Gasoline Range Organics (GRO)	0.4458	mg/L	0.050	85.5	80	115			
Surr: BFB	20.35	mg/L	0	102	79.2	121			
Sample ID: 0710548-07A MS		*MS*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 6:56:40 PM	
Gasoline Range Organics (GRO)	0.4178	mg/L	0.050	99.6	80	115			
Surr: BFB	20.59	mg/L	0	103	79.2	121			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007 **Work Order:** 0710548

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 9:10:13 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.28	µg/L	0	81.4	70.2	105			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25871**	Analysis Date:	11/1/2007 9:16:30 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.36	µg/L	0	81.8	70.2	105			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25907**	Analysis Date:	11/2/2007 9:13:15 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	17.33	µg/L	0	86.6	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 8:56:39 PM	
Methyl tert-butyl ether (MTBE)	19.72	µg/L	2.5	98.6	51.2	138			
Benzene	19.94	µg/L	1.0	99.7	85.9	113			
Toluene	19.42	µg/L	1.0	97.1	86.4	113			
Ethylbenzene	18.95	µg/L	1.0	93.9	83.5	118			
Xylenes, Total	55.95	µg/L	2.0	92.7	83.4	122			
Surr: 4-Bromofluorobenzene	17.92	µg/L	0	89.6	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25871**	Analysis Date:	11/1/2007 9:52:00 PM	
Methyl tert-butyl ether (MTBE)	20.43	µg/L	2.5	102	51.2	138			
Benzene	20.71	µg/L	1.0	104	85.9	113			
Toluene	20.05	µg/L	1.0	100	86.4	113			
Ethylbenzene	19.56	µg/L	1.0	97.4	83.5	118			
Xylenes, Total	57.87	µg/L	2.0	96.5	83.4	122			
Surr: 4-Bromofluorobenzene	18.17	µg/L	0	90.9	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25907**	Analysis Date:	11/2/2007 9:46:17 PM	
Methyl tert-butyl ether (MTBE)	19.71	µg/L	2.5	98.6	51.2	138			
Benzene	21.25	µg/L	1.0	106	85.9	113			
Toluene	20.75	µg/L	1.0	104	86.4	113			
Ethylbenzene	20.32	µg/L	1.0	102	83.5	118			
Xylenes, Total	60.12	µg/L	2.0	100	83.4	122			
Surr: 4-Bromofluorobenzene	18.68	µg/L	0	93.4	70.2	105			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

Work Order: 0710548

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals									
Sample ID: 0710548-03B MSD		*MSD*			Batch ID: **14361**		Analysis Date: 11/13/2007 1:29:00 PM		
Lead	0.5774	mg/L	0.0050	115	75	125	0.636	20	
Sample ID: MB-14361		*MBLK*			Batch ID: **14361**		Analysis Date: 11/13/2007 12:32:48 PM		
Lead	ND	mg/L	0.0050						
Sample ID: LCS-14361		*LCS*			Batch ID: **14361**		Analysis Date: 11/13/2007 12:36:41 PM		
Lead	0.5633	mg/L	0.0050	113	80	120			
Sample ID: 0710548-03B MS		*MS*			Batch ID: **14361**		Analysis Date: 11/13/2007 1:25:30 PM		
Lead	0.5738	mg/L	0.0050	115	75	125			

Qualifiers:

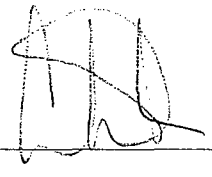
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SJR** Date and Time Received: **10/30/2007**

Work Order Number **0710548** Received by ARS

Checklist completed b  10/30/07
Signature Date

Matrix Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	

Container/Temp Blank temperature? **3°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: Added 1ml HNO_3 to sample 0710548-2(TP-1) for acceptable ph. AB 10/30/07

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

Client: San Juan Refinery

Project Name: River Terrace 4th QTR-2007

Address: #50 Rd 4990
Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: CM, RMK

Fax #: 505-632-3911

Sample Temperature: 3°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCL	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
10/29/07	950A	H2O	TP-2	4-VOA			X	01	X		X										X				
	✓		✓	1-500ml		X		1													X				
	1015A		TP-1	4-VOA			X	2	X		X														
	✓		✓	1-500ml		X		2													X				
	1040A		TP-6	4-VOA			X	3	X		X														
	✓		✓	1-500ml		X		3													X				
	1110A		TP-8	4-VOA			X	4	X		X														
	✓		✓	1-500ml		X		4													X				
	1115A		TP-8 FD	4-VOA			X	5	X		X														
	✓		✓	1-500ml		X		5													X				
	1130A		TP-5	4-VOA			X	6	X		X														
	✓		✓	1-500ml		X		6													X				

Date: 10-29-07 Time: 3pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 10:17 10/30/07

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

pg 1 of 2

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, Nm 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace 4th QTR - 2007
Project #:
Project Manager:
Sampler: GH / RnK
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0710548	BTEX + MTBE + ~~TPH~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
10/29/07	215pm	H2O	TP-9	4-VOA			X	7	X		X														
/	/	/	/	1-500ml		X		7													X				
/	230pm	/	Field Blank	4-VOA			X	8	X		X														
			trip blank					9	X		X														

Remarks:
PAGE 2 of 2

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
10-29-07	3pm	Cindy Hurtado	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature) 10/30/07 10:17

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, November 29, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 4th Qtr 2007

Order No.: 0710559

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 10 sample(s) on 10/31/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT: San Juan Refining
Project: River Terrace 4th Qtr 2007
Lab Order: 0710559

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710559-01A	TP-13	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 8:35:00 AM
0710559-01A	TP-13	14307	EPA Method 8015B: Diesel Range	10/30/2007 8:35:00 AM
0710559-01A	TP-13	R25852	EPA Method 8021B: Volatiles	10/30/2007 8:35:00 AM
0710559-01B	TP-13	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 8:35:00 AM
0710559-02A	TP-12	R25852	EPA Method 8021B: Volatiles	10/30/2007 9:00:00 AM
0710559-02A	TP-12	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 9:00:00 AM
0710559-02A	TP-12	14307	EPA Method 8015B: Diesel Range	10/30/2007 9:00:00 AM
0710559-02B	TP-12	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 9:00:00 AM
0710559-03A	TP-11	R25852	EPA Method 8021B: Volatiles	10/30/2007 9:25:00 AM
0710559-03A	TP-11	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 9:25:00 AM
0710559-03A	TP-11	14307	EPA Method 8015B: Diesel Range	10/30/2007 9:25:00 AM
0710559-03B	TP-11	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 9:25:00 AM
0710559-04A	TP-10	R25852	EPA Method 8021B: Volatiles	10/30/2007 10:25:00 AM
0710559-04A	TP-10	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 10:25:00 AM
0710559-04A	TP-10	14307	EPA Method 8015B: Diesel Range	10/30/2007 10:25:00 AM
0710559-04B	TP-10	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 10:25:00 AM
0710559-05A	TP-3	14307	EPA Method 8015B: Diesel Range	10/30/2007 10:40:00 AM
0710559-05A	TP-3	R25852	EPA Method 8021B: Volatiles	10/30/2007 10:40:00 AM
0710559-05A	TP-3	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 10:40:00 AM
0710559-05B	TP-3	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 10:40:00 AM
0710559-06A	TP-7	R25852	EPA Method 8021B: Volatiles	10/30/2007 11:00:00 AM
0710559-06A	TP-7	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 11:00:00 AM
0710559-06A	TP-7	14307	EPA Method 8015B: Diesel Range	10/30/2007 11:00:00 AM
0710559-06B	TP-7	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 11:00:00 AM
0710559-07A	DW #1	14307	EPA Method 8015B: Diesel Range	10/30/2007 1:20:00 PM
0710559-07A	DW #1	R25852	EPA Method 8021B: Volatiles	10/30/2007 1:20:00 PM
0710559-07A	DW #1	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 1:20:00 PM
0710559-07B	DW #1	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 1:20:00 PM
0710559-07B	DW #1	14433	EPA Method 7470: Mercury	10/30/2007 1:20:00 PM
0710559-08A	MW #49	R25852	EPA Method 8021B: Volatiles	10/30/2007 2:05:00 PM
0710559-08A	MW #49	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 2:05:00 PM
0710559-08A	MW #49	14307	EPA Method 8015B: Diesel Range	10/30/2007 2:05:00 PM
0710559-08B	MW #49	14339	EPA 6010B: Total Recoverable Metals	10/30/2007 2:05:00 PM
0710559-09A	Field Blank	R25852	EPA Method 8021B: Volatiles	10/30/2007 2:15:00 PM
0710559-09A	Field Blank	R25852	EPA Method 8015B: Gasoline Range	10/30/2007 2:15:00 PM
0710559-10A	Trip Blank	R25852	EPA Method 8015B: Gasoline Range	
0710559-10A	Trip Blank	R25852	EPA Method 8021B: Volatiles	

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0710559	**Collection Date:**	10/30/2007 8:35:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 5:04:14 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 5:04:14 AM
Surr: DNOP	127	58-140		%REC	1	11/6/2007 5:04:14 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/31/2007 11:26:35 PM
Surr: BFB	92.8	79.2-121		%REC	1	10/31/2007 11:26:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/31/2007 11:26:35 PM
Benzene	ND	1.0		µg/L	1	10/31/2007 11:26:35 PM
Toluene	ND	1.0		µg/L	1	10/31/2007 11:26:35 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2007 11:26:35 PM
Xylenes, Total	ND	2.0		µg/L	1	10/31/2007 11:26:35 PM
Surr: 4-Bromofluorobenzene	81.8	70.2-105		%REC	1	10/31/2007 11:26:35 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 8:55:55 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0710559	**Collection Date:**	10/30/2007 9:00:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 5:38:54 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 5:38:54 AM
Surr: DNOP	129	58-140		%REC	1	11/6/2007 5:38:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/31/2007 11:56:28 PM
Surr: BFB	95.5	79.2-121		%REC	1	10/31/2007 11:56:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	10/31/2007 11:56:28 PM
Benzene	ND	1.0		µg/L	1	10/31/2007 11:56:28 PM
Toluene	ND	1.0		µg/L	1	10/31/2007 11:56:28 PM
Ethylbenzene	ND	1.0		µg/L	1	10/31/2007 11:56:28 PM
Xylenes, Total	ND	2.0		µg/L	1	10/31/2007 11:56:28 PM
Surr: 4-Bromofluorobenzene	84.5	70.2-105		%REC	1	10/31/2007 11:56:28 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	0.010	0.0050		mg/L	1	11/12/2007 8:58:47 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0710559	**Collection Date:**	10/30/2007 9:25:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 8:51:16 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 8:51:16 AM
Surr: DNOP	145	58-140	S	%REC	1	11/6/2007 8:51:16 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 12:26:27 AM
Surr: BFB	92.3	79.2-121		%REC	1	11/1/2007 12:26:27 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 12:26:27 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 12:26:27 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 12:26:27 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 12:26:27 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 12:26:27 AM
Surr: 4-Bromofluorobenzene	81.4	70.2-105		%REC	1	11/1/2007 12:26:27 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	0.0063	0.0050		mg/L	1	11/12/2007 9:01:43 AM

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level	
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit	
	S	Spike recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0710559	**Collection Date:**	10/30/2007 10:25:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 9:25:40 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 9:25:40 AM
Surr: DNOP	140	58-140		%REC	1	11/6/2007 9:25:40 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 12:56:34 AM
Surr: BFB	92.8	79.2-121		%REC	1	11/1/2007 12:56:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 12:56:34 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 12:56:34 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 12:56:34 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 12:56:34 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 12:56:34 AM
Surr: 4-Bromofluorobenzene	81.3	70.2-105		%REC	1	11/1/2007 12:56:34 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 9:04:46 AM

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0710559	**Collection Date:**	10/30/2007 10:40:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 10:00:03 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 10:00:03 AM
Surr: DNOP	130	58-140		%REC	1	11/6/2007 10:00:03 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 1:26:33 AM
Surr: BFB	93.1	79.2-121		%REC	1	11/1/2007 1:26:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 1:26:33 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 1:26:33 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 1:26:33 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 1:26:33 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 1:26:33 AM
Surr: 4-Bromofluorobenzene	81.8	70.2-105		%REC	1	11/1/2007 1:26:33 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 9:07:52 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-7
Lab Order:	0710559	**Collection Date:**	10/30/2007 11:00:00 AM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 10:34:47 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 10:34:47 AM
Surr: DNOP	134	58-140		%REC	1	11/6/2007 10:34:47 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 1:56:32 AM
Surr: BFB	92.3	79.2-121		%REC	1	11/1/2007 1:56:32 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 1:56:32 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 1:56:32 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 1:56:32 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 1:56:32 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 1:56:32 AM
Surr: 4-Bromofluorobenzene	81.4	70.2-105		%REC	1	11/1/2007 1:56:32 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 9:13:03 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0710559	**Collection Date:**	10/30/2007 1:20:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 11:09:31 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 11:09:31 AM
Surr: DNOP	138	58-140		%REC	1	11/6/2007 11:09:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.064	0.050		mg/L	1	11/1/2007 2:26:33 AM
Surr: BFB	96.8	79.2-121		%REC	1	11/1/2007 2:26:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 2:26:33 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 2:26:33 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 2:26:33 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 2:26:33 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 2:26:33 AM
Surr: 4-Bromofluorobenzene	85.5	70.2-105		%REC	1	11/1/2007 2:26:33 AM
EPA METHOD 7470: MERCURY						Analyst: **SLB**
Mercury	ND	0.00020		mg/L	1	11/19/2007 3:12:05 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 10:13:03 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0710559	**Collection Date:**	10/30/2007 2:05:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-08	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/6/2007 11:44:16 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/6/2007 11:44:16 AM
Surr: DNOP	124	58-140		%REC	1	11/6/2007 11:44:16 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.050	0.050		mg/L	1	11/1/2007 4:56:17 AM
Surr: BFB	97.6	79.2-121		%REC	1	11/1/2007 4:56:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 4:56:17 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 4:56:17 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 4:56:17 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 4:56:17 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 4:56:17 AM
Surr: 4-Bromofluorobenzene	82.6	70.2-105		%REC	1	11/1/2007 4:56:17 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Lead	ND	0.0050		mg/L	1	11/12/2007 10:14:41 AM

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank	
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level	
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit	
	S	Spike recovery outside accepted recovery limits			

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Field Blank
Lab Order:	0710559	**Collection Date:**	10/30/2007 2:15:00 PM
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 5:26:13 AM
Surr: BFB	97.4	79.2-121		%REC	1	11/1/2007 5:26:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	11/1/2007 5:26:13 AM
Benzene	ND	1.0		µg/L	1	11/1/2007 5:26:13 AM
Toluene	ND	1.0		µg/L	1	11/1/2007 5:26:13 AM
Ethylbenzene	ND	1.0		µg/L	1	11/1/2007 5:26:13 AM
Xylenes, Total	ND	2.0		µg/L	1	11/1/2007 5:26:13 AM
Surr: 4-Bromofluorobenzene	86.4	70.2-105		%REC	1	11/1/2007 5:26:13 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *29-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Trip Blank
Lab Order:	0710559	**Collection Date:**	
Project:	River Terrace 4th Qtr 2007	**Date Received:**	10/31/2007
Lab ID:	0710559-10	**Matrix:**	TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/1/2007 5:56:15 AM
Surr: BFB	90.5	79.2-121		%REC	1	11/1/2007 5:56:15 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

29-Nov-07

Lab Order: 0710559
Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710559-01A	TP-13	10/30/2007 8:35:00 AM	Aqueous	EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710559-01B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-02A	TP-12	10/30/2007 9:00:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		10/31/2007
				EPA Method 8021B: Volatiles	R25852		10/31/2007
0710559-02B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-03A	TP-11	10/30/2007 9:25:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-03B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-04A	TP-10	10/30/2007 10:25:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-04B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-05A	TP-3	10/30/2007 10:40:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-05B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-06A	TP-7	10/30/2007 11:00:00 AM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-06B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-07A	DW #1	10/30/2007 1:20:00 PM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007

Lab Order: 0710559
Client: San Juan Refining
Project: River Terrace 4th Qtr 2007

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710559-07A	DW #1	10/30/2007 1:20:00 PM	Aqueous	EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-07B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
				EPA Method 7470: Mercury	14433	11/19/2007	11/19/2007
0710559-08A	MW #49	10/30/2007 2:05:00 PM		EPA Method 8015B: Diesel Range	14307	11/5/2007	11/6/2007
				EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-08B				EPA 6010B: Total Recoverable Metals	14339	11/8/2007	11/12/2007
0710559-09A	Field Blank	10/30/2007 2:15:00 PM		EPA Method 8015B: Gasoline Range	R25852		11/1/2007
				EPA Method 8021B: Volatiles	R25852		11/1/2007
0710559-10A	Trip Blank		Trip Blank	EPA Method 8015B: Gasoline Range	R25852		11/1/2007

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QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007 **Work Order:** 0710559

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range									
Sample ID: MB-14307		*MBLK*			Batch ID:	**14307**	Analysis Date:	11/5/2007 10:12:38 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Surr: DNOP	1.234	mg/L	0	123	58	140			
Sample ID: LCS-14307		*LCS*			Batch ID:	**14307**	Analysis Date:	11/5/2007 10:47:02 PM	
Diesel Range Organics (DRO)	5.000	mg/L	1.0	100	74	157			
Surr: DNOP	0.5923	mg/L	0	118	58	140			
Sample ID: LCSD-14307		*LCSD*			Batch ID:	**14307**	Analysis Date:	11/5/2007 11:21:27 PM	
Diesel Range Organics (DRO)	5.193	mg/L	1.0	104	74	157	3.79	23	
Surr: DNOP	0.6087	mg/L	0	122	58	140	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 9:10:13 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	18.19	mg/L	0	91.0	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 7:56:41 PM	
Gasoline Range Organics (GRO)	0.4336	mg/L	0.050	83.0	80	115			
Surr: BFB	20.71	mg/L	0	104	79.2	121			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007 **Work Order:** 0710559

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0710559-05A MSD		*MSD*			Batch ID:	**R25852**	Analysis Date:	11/1/2007 3:26:26 AM	
Methyl tert-butyl ether (MTBE)	18.45	µg/L	2.5	92.3	51.2	138	0.433	28	
Benzene	19.87	µg/L	1.0	99.4	85.9	113	1.30	27	
Toluene	18.96	µg/L	1.0	94.8	86.4	113	0.819	19	
Ethylbenzene	18.63	µg/L	1.0	93.1	83.5	118	1.95	10	
Xylenes, Total	54.54	µg/L	2.0	90.9	83.4	122	1.63	13	
Surr: 4-Bromofluorobenzene	17.87	µg/L	0	89.3	70.2	105	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 9:10:13 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.28	µg/L	0	81.4	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25852**	Analysis Date:	10/31/2007 8:56:39 PM	
Methyl tert-butyl ether (MTBE)	19.72	µg/L	2.5	98.6	51.2	138			
Benzene	19.94	µg/L	1.0	99.7	85.9	113			
Toluene	19.42	µg/L	1.0	97.1	86.4	113			
Ethylbenzene	18.95	µg/L	1.0	93.9	83.5	118			
Xylenes, Total	55.95	µg/L	2.0	92.7	83.4	122			
Surr: 4-Bromofluorobenzene	17.92	µg/L	0	89.6	70.2	105			
Sample ID: 0710559-05A MS		*MS*			Batch ID:	**R25852**	Analysis Date:	11/1/2007 2:56:30 AM	
Methyl tert-butyl ether (MTBE)	18.53	µg/L	2.5	92.7	51.2	138			
Benzene	20.13	µg/L	1.0	101	85.9	113			
Toluene	19.12	µg/L	1.0	95.6	86.4	113			
Ethylbenzene	18.99	µg/L	1.0	95.0	83.5	118			
Xylenes, Total	55.44	µg/L	2.0	92.4	83.4	122			
Surr: 4-Bromofluorobenzene	18.16	µg/L	0	90.8	70.2	105			
Method: EPA Method 7470: Mercury									
Sample ID: 0710559-07B MSD		*MSD*			Batch ID:	**14433**	Analysis Date:	11/19/2007 3:31:59 PM	
Mercury	0.004172	mg/L	0.00020	81.5	75	125	0.356	20	
Sample ID: MB-14433		*MBLK*			Batch ID:	**14433**	Analysis Date:	11/19/2007 2:58:00 PM	
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-14433		*LCS*			Batch ID:	**14433**	Analysis Date:	11/19/2007 2:59:44 PM	
Mercury	0.005056	mg/L	0.00020	99.3	80	120			
Sample ID: 0710559-07B MS		*MS*			Batch ID:	**14433**	Analysis Date:	11/19/2007 3:30:15 PM	
Mercury	0.004157	mg/L	0.00020	81.2	75	125			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr 2007 **Work Order:** 0710559

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA 6010B: Total Recoverable Metals									
Sample ID: 0710559-08B MSD		*MSD*			Batch ID:	**14339**	Analysis Date:	11/12/2007 10:11:07 AM	
Lead	0.5087	mg/L	0.0050	102	75	125	0.589	20	
Sample ID: MB-14339		*MBLK*			Batch ID:	**14339**	Analysis Date:	11/12/2007 8:43:31 AM	
Lead	ND	mg/L	0.0050	0	0	0			
Sample ID: LCS-14339		*LCS*			Batch ID:	**14339**	Analysis Date:	11/12/2007 8:46:34 AM	
Lead	0.5187	mg/L	0.0050	104	80	120			
Sample ID: 0710559-08B MS		*MS*			Batch ID:	**14339**	Analysis Date:	11/12/2007 10:09:21 AM	
Lead	0.5058	mg/L	0.0050	101	75	125			

Qualifiers:

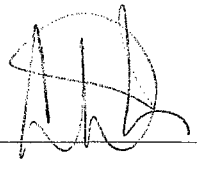
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SJR** Date and Time Received: **10/31/2007**

Work Order Number **0710559** Received by **ARS**

Checklist completed b  Signature 10/31/07 Date

Matrix Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐				
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐			
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑				
Chain of custody present?	Yes ☑	No ☐					
Chain of custody signed when relinquished and received?	Yes ☑	No ☐					
Chain of custody agrees with sample labels?	Yes ☑	No ☐					
Samples in proper container/bottle?	Yes ☑	No ☐					
Sample containers intact?	Yes ☑	No ☐					
Sufficient sample volume for indicated test?	Yes ☑	No ☐					
All samples received within holding time?	Yes ☑	No ☐					
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐				
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐				
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐				

Container/Temp Blank temperature? **5°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package: Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace 4th QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: GH / RMK
Sample Temperature: 5°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0710559	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb				Air Bubbles or Headspace (Y or N)
10-30-07	835A	H2O	TP-13	4-VOA			X	1	X		X														
	✓		✓	1-500ml		X		1													X				
	9AM		TP-12	4-VOA			X	2	X		X														
	✓		✓	1-500ml		X		2													X				
	925A		TP-11	4-VOA			X	3	X		X														
	✓		✓	1-500ml		X		3													X				
	1025A		TP-10	4-VOA			X	4	X		X														
	✓		✓	1-500ml		X		4													X				
	1040A		TP-3	4-VOA			X	5	X		X														
	✓		✓	1-500ml		X		5													X				
	11AM		TP-7	4-VOA			X	6	X		X														
	✓		✓	1-500l		X		6													X				

Date: 10-30-07 Time: 245pm Relinquished By: (Signature) Cindy Hurtado Received By: (Signature) 10/31/07 9:30
Date: Time: Relinquished By: (Signature) Received By: (Signature)

Remarks:

Page 1 of 2

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace 4th QTR-2007
Project #:
Project Manager:
Sampler: CH / RMK
Sample Temperature: 5°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCL	HEAL No. 07110559
10-30-07	120pm	H2O	DW #1	4-VOA			X	7
				1-500 ml		X		7
	305p		MW #49	4-VOA			X	8
				1-500 ml		X		8
	215pm		Field Blank	4-VOA			X	9
			Trip Blank AS					10

ANALYSIS REQUEST

BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb & Hg	Total Pb			Air Bubbles or Headspace (Y or N)
X	X															
												X				
X	X															
													X			
X	X															

Date: 10/30/07 Time: 245pm Relinquished By: (Signature) Cindy Montado
Received By: (Signature) 10/31/07 9:30
Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks: PAGE 2 of 2

Analyze EDC/DCE on all samples as only of 11/14

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 01, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007-VS

Order No.: 0702317

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 2/27/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CLIENT:	San Juan Refining
Project:	River Terrace - 1st Quarter 2007-VS
Lab Order:	0702317

CASE NARRATIVE

"S" flags denote that the surrogate was not recoverable due to sample dilution or matrix interferences.

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0702317	**Collection Date:**	2/26/2007 9:30:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7100	500		µg/L	100	2/27/2007 7:32:37 PM
Surr: BFB	122	84.5-129		%REC	100	2/27/2007 7:32:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	5.0		µg/L	50	2/27/2007 2:55:54 PM
Toluene	9.5	5.0		µg/L	50	2/27/2007 2:55:54 PM
Ethylbenzene	130	5.0		µg/L	50	2/27/2007 2:55:54 PM
Xylenes, Total	1400	30		µg/L	100	2/27/2007 7:32:37 PM
Surr: 4-Bromofluorobenzene	99.4	70.2-105		%REC	50	2/27/2007 2:55:54 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0702317	**Collection Date:**	2/26/2007 10:10:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6100	250		µg/L	50	2/27/2007 3:56:28 PM
Surr: BFB	133	84.5-129	S	%REC	50	2/27/2007 3:56:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	5.0		µg/L	50	2/27/2007 3:56:28 PM
Toluene	9.8	5.0		µg/L	50	2/27/2007 3:56:28 PM
Ethylbenzene	23	5.0		µg/L	50	2/27/2007 3:56:28 PM
Xylenes, Total	1000	15		µg/L	50	2/27/2007 3:56:28 PM
Surr: 4-Bromofluorobenzene	96.6	70.2-105		%REC	50	2/27/2007 3:56:28 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0702317	**Collection Date:**	2/26/2007 10:35:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	88	5.0		µg/L	1	2/27/2007 11:52:07 AM
Surr: BFB	131	84.5-129	S	%REC	1	2/27/2007 11:52:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 11:52:07 AM
Toluene	ND	0.10		µg/L	1	2/27/2007 11:52:07 AM
Ethylbenzene	1.1	0.10		µg/L	1	2/27/2007 11:52:07 AM
Xylenes, Total	17	0.30		µg/L	1	2/27/2007 11:52:07 AM
Surr: 4-Bromofluorobenzene	98.7	70.2-105		%REC	1	2/27/2007 11:52:07 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0702317	**Collection Date:**	2/26/2007 12:35:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	98	10		µg/L	2	2/27/2007 6:31:47 PM
Surr: BFB	198	84.5-129	S	%REC	2	2/27/2007 6:31:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.20		µg/L	2	2/27/2007 6:31:47 PM
Toluene	ND	0.20		µg/L	2	2/27/2007 6:31:47 PM
Ethylbenzene	1.0	0.20		µg/L	2	2/27/2007 6:31:47 PM
Xylenes, Total	13	0.60		µg/L	2	2/27/2007 6:31:47 PM
Surr: 4-Bromofluorobenzene	94.6	70.2-105		%REC	2	2/27/2007 6:31:47 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0702317	**Collection Date:**	2/26/2007 1:00:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7300	250		µg/L	50	2/27/2007 4:27:21 PM
Surr: BFB	130	84.5-129	S	%REC	50	2/27/2007 4:27:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	6.1	5.0		µg/L	50	2/27/2007 4:27:21 PM
Toluene	8.2	5.0		µg/L	50	2/27/2007 4:27:21 PM
Ethylbenzene	150	5.0		µg/L	50	2/27/2007 4:27:21 PM
Xylenes, Total	1200	30		µg/L	100	2/28/2007 11:08:28 AM
Surr: 4-Bromofluorobenzene	97.8	70.2-105		%REC	50	2/27/2007 4:27:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0702317	**Collection Date:**	2/26/2007 1:30:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	290	5.0		µg/L	1	2/27/2007 12:22:22 PM
Surr: BFB	168	84.5-129	S	%REC	1	2/27/2007 12:22:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 12:22:22 PM
Toluene	0.15	0.10		µg/L	1	2/27/2007 12:22:22 PM
Ethylbenzene	4.3	0.10		µg/L	1	2/27/2007 12:22:22 PM
Xylenes, Total	41	1.5		µg/L	5	2/27/2007 7:02:24 PM
Surr: 4-Bromofluorobenzene	104	70.2-105		%REC	1	2/27/2007 12:22:22 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0702317	**Collection Date:**	2/26/2007 2:20:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	61	5.0		µg/L	1	2/27/2007 12:52:43 PM
Surr: BFB	128	84.5-129		%REC	1	2/27/2007 12:52:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 12:52:43 PM
Toluene	ND	0.10		µg/L	1	2/27/2007 12:52:43 PM
Ethylbenzene	1.1	0.10		µg/L	1	2/27/2007 12:52:43 PM
Xylenes, Total	11	0.30		µg/L	1	2/27/2007 12:52:43 PM
Surr: 4-Bromofluorobenzene	97.2	70.2-105		%REC	1	2/27/2007 12:52:43 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007-VS
Work Order: 070231

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22631**		Analysis Date:	2/27/2007 7:28:51 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22631**		Analysis Date:	2/27/2007 9:04:06 PM	
Gasoline Range Organics (GRO)	0.5120	mg/L	0.050	102	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22631**		Analysis Date:	2/27/2007 7:28:51 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22631**		Analysis Date:	2/27/2007 8:02:49 PM	
Benzene	20.88	µg/L	1.0	104	85.9	113			
Toluene	20.77	µg/L	1.0	104	86.4	113			
Ethylbenzene	21.09	µg/L	1.0	105	83.5	118			
Xylenes, Total	43.04	µg/L	2.0	108	83.4	122			
1,2,4-Trimethylbenzene	20.33	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.93	µg/L	1.0	105	85.2	113			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 4:43:18 PM	
Gasoline Range Organics (GRO)	0.5440	mg/L	0.050	109	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 3:42:30 PM	
Benzene	21.61	µg/L	1.0	108	85.9	113			
Toluene	21.25	µg/L	1.0	106	86.4	113			
Ethylbenzene	21.37	µg/L	1.0	107	83.5	118			
Xylenes, Total	45.32	µg/L	2.0	113	83.4	122			
1,2,4-Trimethylbenzene	21.13	µg/L	1.0	106	83.5	115			
1,3,5-Trimethylbenzene	21.80	µg/L	1.0	109	85.2	113			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/27/2007

Work Order Number 0702317 | Received by TLS

Checklist completed by _____ Signature _____ Date 2/27/07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted	☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87410

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: River Terrace - 1st QTR-2007-VS

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Bob Krakow

Sample Temperature: 4°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0702317	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)
2-26-07	930A	Soil	TP-8	1-Tedlar			1	X		X										
	~~1010A~~ 1011		TP-5				2	X		X										
	~~1035A~~ 1036		TP-2				3	X		X										
	1235A		TP-6				4	X		X										
	1pm		TP-1				5	X		X										
	120pm		TP-9				6	X		X										
	220pm		TP-12				7	X		X										

Date: 2/26/07 Time: 3:15 PM Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) 2/27/07 1002

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 01, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007- VS

Order No.: 0702369

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0702369	**Collection Date:**	2/27/2007 9:00:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	24	5.0		µg/L	1	2/28/2007 11:38:42 AM
Surr: BFB	130	84.5-129	S	%REC	1	2/28/2007 11:38:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 11:38:42 AM
Toluene	ND	0.10		µg/L	1	2/28/2007 11:38:42 AM
Ethylbenzene	0.20	0.10		µg/L	1	2/28/2007 11:38:42 AM
Xylenes, Total	2.9	0.30		µg/L	1	2/28/2007 11:38:42 AM
Surr: 4-Bromofluorobenzene	95.4	70.2-105		%REC	1	2/28/2007 11:38:42 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0702369	**Collection Date:**	2/27/2007 9:30:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	2/28/2007 12:08:57 PM
Surr: BFB	119	84.5-129		%REC	1	2/28/2007 12:08:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 12:08:57 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 12:08:57 PM
Ethylbenzene	0.11	0.10		µg/L	1	2/28/2007 12:08:57 PM
Xylenes, Total	1.4	0.30		µg/L	1	2/28/2007 12:08:57 PM
Surr: 4-Bromofluorobenzene	89.2	70.2-105		%REC	1	2/28/2007 12:08:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0702369	**Collection Date:**	2/27/2007 10:00:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	13	5.0		µg/L	1	2/28/2007 12:39:08 PM
Surr: BFB	117	84.5-129		%REC	1	2/28/2007 12:39:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 12:39:08 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 12:39:08 PM
Ethylbenzene	0.11	0.10		µg/L	1	2/28/2007 12:39:08 PM
Xylenes, Total	1.2	0.30		µg/L	1	2/28/2007 12:39:08 PM
Surr: 4-Bromofluorobenzene	85.7	70.2-105		%REC	1	2/28/2007 12:39:08 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0702369	**Collection Date:**	2/27/2007 10:30:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.0	5.0		µg/L	1	2/28/2007 1:09:21 PM
Surr: BFB	116	84.5-129		%REC	1	2/28/2007 1:09:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Xylenes, Total	0.94	0.30		µg/L	1	2/28/2007 1:09:21 PM
Surr: 4-Bromofluorobenzene	86.5	70.2-105		%REC	1	2/28/2007 1:09:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0702369	**Collection Date:**	2/27/2007 12:40:00 PM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	2/28/2007 1:39:39 PM
Surr: BFB	116	84.5-129		%REC	1	2/28/2007 1:39:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Xylenes, Total	ND	0.30		µg/L	1	2/28/2007 1:39:39 PM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	1	2/28/2007 1:39:39 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0702369	**Collection Date:**	2/27/2007 1:30:00 PM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	2/28/2007 2:10:11 PM
Surr: BFB	117	84.5-129		%REC	1	2/28/2007 2:10:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Xylenes, Total	ND	0.30		µg/L	1	2/28/2007 2:10:11 PM
Surr: 4-Bromofluorobenzene	87.0	70.2-105		%REC	1	2/28/2007 2:10:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007- VS **Work Order:** 070236

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 4:43:18 PM	
Gasoline Range Organics (GRO)	0.5440	mg/L	0.050	109	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 3:42:30 PM	
Benzene	21.61	µg/L	1.0	108	85.9	113			
Toluene	21.25	µg/L	1.0	106	86.4	113			
Ethylbenzene	21.37	µg/L	1.0	107	83.5	118			
Xylenes, Total	45.32	µg/L	2.0	113	83.4	122			
1,2,4-Trimethylbenzene	21.13	µg/L	1.0	106	83.5	115			
1,3,5-Trimethylbenzene	21.80	µg/L	1.0	109	85.2	113			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702369 | Received by TLS

Checklist completed by [signature] Signature | Feb 28, 07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Project Name: River Terrace - 1st QTR 2007 - VS

Address: #50 Rd 4990
Bloomfield, NM
87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Kraker

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0702369	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)
2-26-07	9AM	Vapor	TP-13	1-Tedlar			1	X		X										
	9:30A		TP-11				2	X		X										
	10AM		TP-3				3	X		X										
	10:30A		TP-10				4	X		X										
	12:40pm		MW #49				5	X		X										
	1:30pm		DW #1				6	X		X										

ANALYSIS REQUEST

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
2/27/07	2:30pm	Cindy Hurtado		2/28/07	9:50
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)		

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace-2nd Qtr-2007-Vapor

Order No.: 0706279

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 13 sample(s) on 6/20/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0706279	**Collection Date:**	6/18/2007 10:10:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	6/24/2007 8:50:07 PM
Surr: BFB	124	84.5-129		%REC	1	6/24/2007 8:50:07 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 8:56:06 AM
Surr: 1,2-Dichloroethane-d4	101	50.9-168		%REC	1	6/25/2007 8:56:06 AM
Surr: 4-Bromofluorobenzene	106	71.2-123		%REC	1	6/25/2007 8:56:06 AM
Surr: Dibromofluoromethane	91.5	64.7-142		%REC	1	6/25/2007 8:56:06 AM
Surr: Toluene-d8	104	81.9-122		%REC	1	6/25/2007 8:56:06 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP- #1
Lab Order:	0706279	Collection Date:	6/18/2007 11:00:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	Date Received:	6/20/2007
Lab ID:	0706279-02	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.4	5.0		µg/L	1	6/25/2007 10:51:09 AM
Surr: BFB	106	84.5-129		%REC	1	6/25/2007 10:51:09 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 9:33:15 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 9:33:15 AM
Ethylbenzene	0.28	0.10		µg/L	1	6/25/2007 9:33:15 AM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 9:33:15 AM
Surr: 1,2-Dichloroethane-d4	99.4	50.9-168		%REC	1	6/25/2007 9:33:15 AM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	6/25/2007 9:33:15 AM
Surr: Dibromofluoromethane	93.1	64.7-142		%REC	1	6/25/2007 9:33:15 AM
Surr: Toluene-d8	106	81.9-122		%REC	1	6/25/2007 9:33:15 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#8
Lab Order:	0706279	**Collection Date:**	6/18/2007 12:55:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/25/2007 11:21:30 AM
Surr: BFB	107	84.5-129		%REC	1	6/25/2007 11:21:30 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 10:08:45 AM
Surr: 1,2-Dichloroethane-d4	104	50.9-168		%REC	1	6/25/2007 10:08:45 AM
Surr: 4-Bromofluorobenzene	107	71.2-123		%REC	1	6/25/2007 10:08:45 AM
Surr: Dibromofluoromethane	97.3	64.7-142		%REC	1	6/25/2007 10:08:45 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 10:08:45 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #6
Lab Order:	0706279	**Collection Date:**	6/18/2007 1:20:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/24/2007 9:20:37 PM
Surr: BFB	109	84.5-129		%REC	1	6/24/2007 9:20:37 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 10:44:22 AM
Surr: 1,2-Dichloroethane-d4	99.0	50.9-168		%REC	1	6/25/2007 10:44:22 AM
Surr: 4-Bromofluorobenzene	108	71.2-123		%REC	1	6/25/2007 10:44:22 AM
Surr: Dibromofluoromethane	93.1	64.7-142		%REC	1	6/25/2007 10:44:22 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 10:44:22 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #5
Lab Order:	0706279	**Collection Date:**	6/18/2007 1:45:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	9000	250		µg/L	50	6/24/2007 11:23:21 PM
Surr: BFB	118	84.5-129		%REC	50	6/24/2007 11:23:21 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Toluene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Ethylbenzene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Xylenes, Total	1500	30		µg/L	100	6/25/2007 12:31:50 PM
Surr: 1,2-Dichloroethane-d4	100	50.9-168		%REC	50	6/25/2007 11:20:06 AM
Surr: 4-Bromofluorobenzene	99.2	71.2-123		%REC	50	6/25/2007 11:20:06 AM
Surr: Dibromofluoromethane	99.4	64.7-142		%REC	50	6/25/2007 11:20:06 AM
Surr: Toluene-d8	100	81.9-122		%REC	50	6/25/2007 11:20:06 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #2
Lab Order:	0706279	**Collection Date:**	6/18/2007 2:10:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	10	5.0		µg/L	1	6/24/2007 9:51:12 PM
Surr: BFB	108	84.5-129		%REC	1	6/24/2007 9:51:12 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Xylenes, Total	1.4	0.30		µg/L	1	6/25/2007 12:22:36 PM
Surr: 1,2-Dichloroethane-d4	99.7	50.9-168		%REC	1	6/25/2007 12:22:36 PM
Surr: 4-Bromofluorobenzene	104	71.2-123		%REC	1	6/25/2007 12:22:36 PM
Surr: Dibromofluoromethane	104	64.7-142		%REC	1	6/25/2007 12:22:36 PM
Surr: Toluene-d8	94.7	81.9-122		%REC	1	6/25/2007 12:22:36 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #13
Lab Order:	0706279	**Collection Date:**	6/19/2007 10:30:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5.8	5.0		µg/L	1	6/25/2007 11:52:01 AM
Surr: BFB	113	84.5-129		%REC	1	6/25/2007 11:52:01 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Xylenes, Total	0.60	0.30		µg/L	1	6/25/2007 11:49:12 AM
Surr: 1,2-Dichloroethane-d4	100	50.9-168		%REC	1	6/25/2007 11:49:12 AM
Surr: 4-Bromofluorobenzene	102	71.2-123		%REC	1	6/25/2007 11:49:12 AM
Surr: Dibromofluoromethane	105	64.7-142		%REC	1	6/25/2007 11:49:12 AM
Surr: Toluene-d8	95.3	81.9-122		%REC	1	6/25/2007 11:49:12 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #12
Lab Order:	0706279	**Collection Date:**	6/19/2007 11:00:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-08	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.0	5.0		µg/L	1	6/25/2007 12:22:44 PM
Surr: BFB	114	84.5-129		%REC	1	6/25/2007 12:22:44 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Xylenes, Total	0.56	0.30		µg/L	1	6/25/2007 11:15:47 AM
Surr: 1,2-Dichloroethane-d4	98.4	50.9-168		%REC	1	6/25/2007 11:15:47 AM
Surr: 4-Bromofluorobenzene	99.1	71.2-123		%REC	1	6/25/2007 11:15:47 AM
Surr: Dibromofluoromethane	105	64.7-142		%REC	1	6/25/2007 11:15:47 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 11:15:47 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#11
Lab Order:	0706279	**Collection Date:**	6/19/2007 11:25:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-09	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.2	5.0		µg/L	1	6/25/2007 12:53:19 PM
Surr: BFB	116	84.5-129		%REC	1	6/25/2007 12:53:19 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Xylenes, Total	0.74	0.30		µg/L	1	6/25/2007 10:42:24 AM
Surr: 1,2-Dichloroethane-d4	101	50.9-168		%REC	1	6/25/2007 10:42:24 AM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	6/25/2007 10:42:24 AM
Surr: Dibromofluoromethane	106	64.7-142		%REC	1	6/25/2007 10:42:24 AM
Surr: Toluene-d8	98.1	81.9-122		%REC	1	6/25/2007 10:42:24 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #10
Lab Order:	0706279	**Collection Date:**	6/19/2007 9:40:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-10	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	6/25/2007 1:23:52 PM
Surr: BFB	124	84.5-129		%REC	1	6/25/2007 1:23:52 PM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 12:17:48 PM
Surr: 1,2-Dichloroethane-d4	94.6	50.9-168		%REC	1	6/25/2007 12:17:48 PM
Surr: 4-Bromofluorobenzene	89.1	71.2-123		%REC	1	6/25/2007 12:17:48 PM
Surr: Dibromofluoromethane	91.9	64.7-142		%REC	1	6/25/2007 12:17:48 PM
Surr: Toluene-d8	85.4	81.9-122		%REC	1	6/25/2007 12:17:48 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#3
Lab Order:	0706279	**Collection Date:**	6/19/2007 9:55:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-11	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.6	5.0		µg/L	1	6/25/2007 2:25:24 PM
Surr: BFB	117	84.5-129		%REC	1	6/25/2007 2:25:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 12:56:35 PM
Surr: 1,2-Dichloroethane-d4	93.6	50.9-168		%REC	1	6/25/2007 12:56:35 PM
Surr: 4-Bromofluorobenzene	90.4	71.2-123		%REC	1	6/25/2007 12:56:35 PM
Surr: Dibromofluoromethane	89.6	64.7-142		%REC	1	6/25/2007 12:56:35 PM
Surr: Toluene-d8	86.3	81.9-122		%REC	1	6/25/2007 12:56:35 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace-2nd Qtr-2007-Vapor
Work Order: 0706279

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24087**		Analysis Date:	6/24/2007 6:46:06 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24087**		Analysis Date:	6/25/2007 1:56:59 AM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	94.8	80	115			
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: **R24110**		Analysis Date:	6/25/2007 7:09:46 AM	
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Xylenes, Total	ND	mg/Kg	0.10						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24110**		Analysis Date:	6/25/2007 8:20:35 AM	
Benzene	1.031	mg/Kg	0.050	103	78.2	123			
Toluene	0.9916	mg/Kg	0.050	99.2	72.6	128			
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: **R24110**		Analysis Date:	6/25/2007 7:09:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24110**		Analysis Date:	6/25/2007 8:20:35 AM	
Benzene	20.62	µg/L	1.0	103	82.4	128			
Toluene	19.83	µg/L	1.0	99.2	77.2	115			
Method: SW8260B									
Sample ID: b1		*MBLK*			Batch ID: **R24111**		Analysis Date:	6/25/2007 8:59:20 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24111**		Analysis Date:	6/25/2007 10:09:00 AM	
Benzene	19.81	µg/L	1.0	99.0	82.4	128			
Toluene	20.75	µg/L	1.0	104	77.2	115			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24112**		Analysis Date:	6/25/2007 8:38:52 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24112**		Analysis Date:	6/25/2007 10:20:52 AM	
Gasoline Range Organics (GRO)	0.5100	mg/L	0.050	97.6	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #9
Lab Order:	0706279	**Collection Date:**	6/19/2007 1:10:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-13	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.6	5.0		µg/L	1	6/28/2007 10:52:02 AM
Surr: BFB	95.8	84.5-129		%REC	1	6/28/2007 10:52:02 AM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Xylenes, Total	0.93	0.30		µg/L	1	6/25/2007 2:14:12 PM
Surr: 1,2-Dichloroethane-d4	93.0	50.9-168		%REC	1	6/25/2007 2:14:12 PM
Surr: 4-Bromofluorobenzene	91.3	71.2-123		%REC	1	6/25/2007 2:14:12 PM
Surr: Dibromofluoromethane	88.7	64.7-142		%REC	1	6/25/2007 2:14:12 PM
Surr: Toluene-d8	85.4	81.9-122		%REC	1	6/25/2007 2:14:12 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/20/2007

Work Order Number 0706279 | Received by TLS

Checklist completed by (Signature) | 6/20/07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted	☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? | *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990
Bloomfield, NM
87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR-2007 - Vapor
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0706079
6/18/07	1010Am	Vapor	MW#49	1-Tedlar				1
	11 AM		TP-#1					2
	1255pm		TP-#8					3
	120pm		TP-#6					4
	145pm		TP-#5					5
	210pm		TP-#2					6

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas / Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Remarks:
6/18/07	255pm	Cindy Hurtado	6/20/07 0709	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Project Name: River Terrace - 2nd Qtr 2007 - VAPOR

Project #:

Project Manager:

Sampler: Cindy Hurtado / Bob Krakow

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0706027
6/19/07	1030A	VAPOR	TP-#13	1-Tedlar			7
	11AM		TP-#12				8
	1125A		TP-#11				9
	940A		TP-#10				10
	955A		TP-#3				11
	1250pm		TP-#7				12
	110pm		TP-#9				13

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
6/19/07	220pm	Cindy Hurtado		
				6/20/07 905
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Vapor

Order No.: 0706317

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0706317	**Collection Date:**	6/20/2007 8:30:00 AM
Project:	River Terrace 2nd Qtr 2007-Vapor	**Date Received:**	6/21/2007
Lab ID:	0706317-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/28/2007 11:22:26 AM
Surr: BFB	99.8	84.5-129		%REC	1	6/28/2007 11:22:26 AM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Xylenes, Total	0.32	0.30		µg/L	1	6/25/2007 2:52:58 PM
Surr: 1,2-Dichloroethane-d4	92.8	50.9-168		%REC	1	6/25/2007 2:52:58 PM
Surr: 4-Bromofluorobenzene	89.2	71.2-123		%REC	1	6/25/2007 2:52:58 PM
Surr: Dibromofluoromethane	90.5	64.7-142		%REC	1	6/25/2007 2:52:58 PM
Surr: Toluene-d8	88.1	81.9-122		%REC	1	6/25/2007 2:52:58 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Vapor Work Order: 0706317

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24112**		Analysis Date:	6/25/2007 8:38:52 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24112**		Analysis Date:	6/25/2007 10:20:52 AM	
Gasoline Range Organics (GRO)	0.5100	mg/L	0.050	97.6	80	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24178**		Analysis Date:	6/28/2007 9:29:44 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24178**		Analysis Date:	6/28/2007 5:30:21 PM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	99.2	80	115			

Qualifiers:

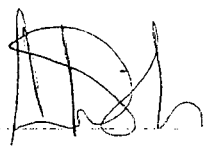
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706317 | Received by TLS

Checklist completed by  6/21/07
Signature Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: 50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd Qtr 2007 - Vapor
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
								0706317
6/20/07	8:30AM	Vapor	DW #1	1-Tedlar				1

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/20/07	950A	Cindy Hurtado		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	6/21/07 1355

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, August 28, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 3rd Qtr-2007-VS

Order No.: 0708290

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 8/22/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0708290	**Collection Date:**	8/21/2007 8:20:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	30	5.0		µg/L	1	8/23/2007 10:43:37 AM
Surr: BFB	124	84.5-129		%REC	1	8/23/2007 10:43:37 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 10:43:37 AM
Toluene	ND	0.10		µg/L	1	8/23/2007 10:43:37 AM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 10:43:37 AM
Xylenes, Total	1.3	0.30		µg/L	1	8/23/2007 10:43:37 AM
Surr: 4-Bromofluorobenzene	96.8	70.2-105		%REC	1	8/23/2007 10:43:37 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0708290	**Collection Date:**	8/21/2007 8:35:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	14	5.0		µg/L	1	8/23/2007 11:12:31 AM
Surr: BFB	111	84.5-129		%REC	1	8/23/2007 11:12:31 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 11:12:31 AM
Toluene	ND	0.10		µg/L	1	8/23/2007 11:12:31 AM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 11:12:31 AM
Xylenes, Total	1.0	0.30		µg/L	1	8/23/2007 11:12:31 AM
Surr: 4-Bromofluorobenzene	90.7	70.2-105		%REC	1	8/23/2007 11:12:31 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0708290	**Collection Date:**	8/21/2007 8:55:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	39	5.0		µg/L	1	8/23/2007 11:42:54 AM
Surr: BFB	126	84.5-129		%REC	1	8/23/2007 11:42:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 11:42:54 AM
Toluene	ND	0.10		µg/L	1	8/23/2007 11:42:54 AM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 11:42:54 AM
Xylenes, Total	1.4	0.30		µg/L	1	8/23/2007 11:42:54 AM
Surr: 4-Bromofluorobenzene	94.5	70.2-105		%REC	1	8/23/2007 11:42:54 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0708290	**Collection Date:**	8/21/2007 9:15:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	16	5.0		µg/L	1	8/23/2007 12:11:49 PM
Surr: BFB	115	84.5-129		%REC	1	8/23/2007 12:11:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 12:11:49 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 12:11:49 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 12:11:49 PM
Xylenes, Total	1.0	0.30		µg/L	1	8/23/2007 12:11:49 PM
Surr: 4-Bromofluorobenzene	92.2	70.2-105		%REC	1	8/23/2007 12:11:49 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0708290	**Collection Date:**	8/21/2007 9:35:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	19	5.0		µg/L	1	8/23/2007 1:09:42 PM
Surr: BFB	114	84.5-129		%REC	1	8/23/2007 1:09:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 1:09:42 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 1:09:42 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 1:09:42 PM
Xylenes, Total	1.3	0.30		µg/L	1	8/23/2007 1:09:42 PM
Surr: 4-Bromofluorobenzene	90.9	70.2-105		%REC	1	8/23/2007 1:09:42 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0708290	**Collection Date:**	8/21/2007 10:15:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	9.0	5.0		µg/L	1	8/23/2007 1:38:38 PM
Surr: BFB	105	84.5-129		%REC	1	8/23/2007 1:38:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 1:38:38 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 1:38:38 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 1:38:38 PM
Xylenes, Total	0.48	0.30		µg/L	1	8/23/2007 1:38:38 PM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	8/23/2007 1:38:38 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0708290	**Collection Date:**	8/21/2007 11:00:00 AM
Project:	River Terrace 3rd Qtr-2007-VS	**Date Received:**	8/22/2007
Lab ID:	0708290-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **SMP**
Gasoline Range Organics (GRO)	65	5.0		µg/L	1	8/23/2007 2:07:27 PM
Surr: BFB	131	84.5-129	S	%REC	1	8/23/2007 2:07:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	8/23/2007 2:07:27 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 2:07:27 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 2:07:27 PM
Xylenes, Total	ND	0.30		µg/L	1	8/23/2007 2:07:27 PM
Surr: 4-Bromofluorobenzene	98.4	70.2-105		%REC	1	8/23/2007 2:07:27 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 3rd Qtr-2007-VS
Work Order: 0708290

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24885**	Analysis Date:	8/23/2007 9:10:07 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R24885**	Analysis Date:	8/23/2007 3:37:51 PM	
Gasoline Range Organics (GRO)	0.4696	mg/L	0.050	90.6	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24885**	Analysis Date:	8/23/2007 9:10:07 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R24885**	Analysis Date:	8/23/2007 2:37:33 PM	
Benzene	17.77	µg/L	1.0	88.9	85.9	113			
Toluene	17.37	µg/L	1.0	86.9	86.4	113			
Ethylbenzene	18.05	µg/L	1.0	90.2	83.5	118			
Xylenes, Total	54.72	µg/L	2.0	90.9	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	**R24885**	Analysis Date:	8/23/2007 3:07:41 PM	
Benzene	18.32	µg/L	1.0	91.6	85.9	113	3.04	27	
Toluene	18.12	µg/L	1.0	90.6	86.4	113	4.23	19	
Ethylbenzene	18.75	µg/L	1.0	93.7	83.5	118	3.81	10	
Xylenes, Total	56.41	µg/L	2.0	93.7	83.4	122	3.04	13	

Qualifiers:

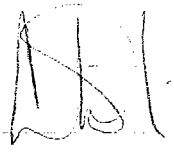
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/22/2007

Work Order Number 0708290 | Received by TLS

Checklist completed by  8/22/07
Signature Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace-3rd QTR-2007 - VS

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado/Bob Krakow

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0708290	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
8-21-07	820A	Vapor	TP-13	1-Tedlar			1	X		X														
	835A		TP-12				2	X		X														
	855A		TP-11				3	X		X														
	915A		TP-10				4	X		X														
	935A		TP-3				5	X		X														
	1045AM		DW #1				6	X		X														
	11AM		TP-9				7	X		X														

Remarks:

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
8-21-07	310pm	Cindy Hurtado	Tonya Thomas 8/22/07 1030
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, September 18, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX: (505) 632-3911

RE: River Terrace – 3rd Qtr 2007 Order No.: 0708272-A

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory received 8 samples on 8/21/07 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab #9425
AZ License #AZ0682
ORELAP Lab #NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#2
Lab Order:	0708272	Collection Date:	8/20/2007 10:30:00 AM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-10	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	8/21/2007 2:37:43 PM
Surr: BFB	101	84.5-129		%REC	1	8/21/2007 2:37:43 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/22/2007 1:42:26 PM
Toluene	ND	0.10		µg/L	1	8/22/2007 1:42:26 PM
Ethylbenzene	ND	0.10		µg/L	1	8/22/2007 1:42:26 PM
Xylenes, Total	ND	0.30		µg/L	1	8/22/2007 1:42:26 PM
Surr: 4-Bromofluorobenzene	97.8	66.5-128		%REC	1	8/22/2007 1:42:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#1
Lab Order:	0708272	Collection Date:	8/20/2007 10:55:00 AM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-11	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	1300	250		µg/L	50	8/21/2007 4:41:34 PM
Surr: BFB	120	84.5-129		%REC	50	8/21/2007 4:41:34 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	23	2.0		µg/L	20	8/22/2007 2:15:56 PM
Toluene	ND	2.0		µg/L	20	8/22/2007 2:15:56 PM
Ethylbenzene	75	2.0		µg/L	20	8/22/2007 2:15:56 PM
Xylenes, Total	390	6.0		µg/L	20	8/22/2007 2:15:56 PM
Surr: 4-Bromofluorobenzene	100	66.5-128		%REC	20	8/22/2007 2:15:56 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8
Lab Order:	0708272	Collection Date:	8/20/2007 12:45:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-12	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	6.2	5.0		µg/L	1	8/23/2007 1:47:36 PM
Surr: BFB	89.9	84.5-129		%REC	1	8/23/2007 1:47:36 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/23/2007 1:34:07 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 1:34:07 PM
Ethylbenzene	0.10	0.10		µg/L	1	8/23/2007 1:34:07 PM
Xylenes, Total	0.78	0.30		µg/L	1	8/23/2007 1:34:07 PM
Surr: 4-Bromofluorobenzene	95.4	66.5-128		%REC	1	8/23/2007 1:34:07 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-#8-FD
Lab Order:	0708272	Collection Date:	8/20/2007 12:48:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-13	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	8/24/2007 3:53:13 PM
Surr: BFB	88.2	84.5-129		%REC	1	8/24/2007 3:53:13 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/22/2007 3:56:19 PM
Toluene	ND	0.10		µg/L	1	8/22/2007 3:56:19 PM
Ethylbenzene	ND	0.10		µg/L	1	8/22/2007 3:56:19 PM
Xylenes, Total	0.89	0.30		µg/L	1	8/22/2007 3:56:19 PM
Surr: 4-Bromofluorobenzene	96.2	66.5-128		%REC	1	8/22/2007 3:56:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	MW#49
Lab Order:	0708272	Collection Date:	8/20/2007 1:25:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-14	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	8/27/2007 3:33:07 PM
Surr: BFB	92.5	84.5-129		%REC	1	8/27/2007 3:33:07 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/23/2007 2:11:08 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 2:11:08 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 2:11:08 PM
Xylenes, Total	0.39	0.30		µg/L	1	8/23/2007 2:11:08 PM
Surr: 4-Bromofluorobenzene	97.7	66.5-128		%REC	1	8/23/2007 2:11:08 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-6
Lab Order:	0708272	Collection Date:	8/20/2007 1:55:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-15	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	8/22/2007 12:18:22 PM
Surr: BFB	90.8	84.5-129		%REC	1	8/22/2007 12:18:22 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/23/2007 2:44:37 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 2:44:37 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 2:44:37 PM
Xylenes, Total	0.44	0.30		µg/L	1	8/23/2007 2:44:37 PM
Surr: 4-Bromofluorobenzene	95.9	66.5-128		%REC	1	8/23/2007 2:44:37 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-7
Lab Order:	0708272	Collection Date:	8/20/2007 2:15:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-16	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	8/21/2007 3:39:32 PM
Surr: BFB	85.2	84.5-129		%REC	1	8/21/2007 3:39:32 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	0.10		µg/L	1	8/23/2007 3:18:06 PM
Toluene	ND	0.10		µg/L	1	8/23/2007 3:18:06 PM
Ethylbenzene	ND	0.10		µg/L	1	8/23/2007 3:18:06 PM
Xylenes, Total	ND	0.30		µg/L	1	8/23/2007 3:18:06 PM
Surr: 4-Bromofluorobenzene	98.5	66.5-128		%REC	1	8/23/2007 3:18:06 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *18-Sep-07*

CLIENT:	San Juan Refining	Client Sample ID:	TP-5
Lab Order:	0708272	Collection Date:	8/20/2007 2:30:00 PM
Project:	River Terrace - 3rd Qtr-2007	Date Received:	8/21/2007
Lab ID:	0708272-17	Matrix:	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: SMP
Gasoline Range Organics (GRO)	13000	250		µg/L	50	8/21/2007 5:12:28 PM
Surr: BFB	270	84.5-129	S	%REC	50	8/21/2007 5:12:28 PM
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: NSB
Benzene	ND	1.0		µg/L	10	8/23/2007 4:25:07 PM
Toluene	ND	1.0		µg/L	10	8/23/2007 4:25:07 PM
Ethylbenzene	ND	1.0		µg/L	10	8/23/2007 4:25:07 PM
Xylenes, Total	910	15		µg/L	50	8/23/2007 12:55:29 PM
Surr: 4-Bromofluorobenzene	113	66.5-128		%REC	10	8/23/2007 4:25:07 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 Work Order: 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24885	Analysis Date:	8/23/2007 9:10:07 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: B		*MBLK*			Batch ID:	R24905	Analysis Date:	8/24/2007 6:25:38 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24919	Analysis Date:	8/27/2007 10:01:29 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24937	Analysis Date:	8/27/2007 2:00:37 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24916	Analysis Date:	8/24/2007 2:20:10 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24869	Analysis Date:	8/22/2007 10:46:52 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5mL rb 1		*MBLK*			Batch ID:	R24847	Analysis Date:	8/21/2007 12:53:28 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	R24886	Analysis Date:	8/23/2007 12:16:03 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24885	Analysis Date:	8/23/2007 3:37:51 PM	
Gasoline Range Organics (GRO)	0.4696	mg/L	0.050	90.6	80	115			
Sample ID: 2.5UG GRO LCS B		*LCS*			Batch ID:	R24905	Analysis Date:	8/25/2007 11:32:52 PM	
Gasoline Range Organics (GRO)	0.4954	mg/L	0.050	94.7	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24919	Analysis Date:	8/27/2007 6:39:05 PM	
Gasoline Range Organics (GRO)	0.5258	mg/L	0.050	100	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24847	Analysis Date:	8/21/2007 1:54:46 PM	
Gasoline Range Organics (GRO)	0.4560	mg/L	0.050	86.8	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24869	Analysis Date:	8/22/2007 11:47:53 AM	
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	89.6	80	115			
Sample ID: 2.25UG GRO LCS		*LCS*			Batch ID:	R24886	Analysis Date:	8/23/2007 1:17:08 PM	
Gasoline Range Organics (GRO)	0.4580	mg/L	0.050	91.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24916	Analysis Date:	8/24/2007 3:22:28 PM	
Gasoline Range Organics (GRO)	0.4700	mg/L	0.050	89.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	R24937	Analysis Date:	8/27/2007 3:01:49 PM	
Gasoline Range Organics (GRO)	0.4600	mg/L	0.050	88.0	80	115			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S 9 / 11 overy outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 Work Order: 0708272

Analyte	Result	Units	POL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID: R24885		Analysis Date	8/23/2007 910:07 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID: R24905		Analysis Date	8/24/2007 1001:20 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID: R24919		Analysis Date	8/27/2007 1001:29 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R24885		Analysis Date	8/23/2007 237:33 PM	
Methyl tert-butyl ether (MTBE)	19.11	µg/L	2.5	95.6	51.2	138			
Benzene	17.77	µg/L	1.0	88.9	85.9	113			
Toluene	17.37	µg/L	1.0	86.9	86.4	113			
Ethylbenzene	18.05	µg/L	1.0	90.2	83.5	118			
Xylenes, Total	54.72	µg/L	2.0	90.9	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R24905		Analysis Date	8/24/2007 1131:32 AM	
Methyl tert-butyl ether (MTBE)	18.11	µg/L	2.5	90.6	51.2	136			
Benzene	17.89	µg/L	1.0	89.4	85.9	113			
Toluene	17.92	µg/L	1.0	89.6	86.4	113			
Ethylbenzene	18.15	µg/L	1.0	90.3	83.5	118			
Xylenes, Total	54.67	µg/L	2.0	90.5	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R24919		Analysis Date	8/27/2007 606:58 PM	
Methyl tert-butyl ether (MTBE)	19.08	µg/L	2.5	95.4	51.2	138			
Benzene	19.04	µg/L	1.0	95.2	85.9	113			
Toluene	20.03	µg/L	1.0	100	86.4	113			
Ethylbenzene	20.43	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.35	µg/L	2.0	104	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: R24885		Analysis Date	8/23/2007 307:41 PM	
Methyl tert-butyl ether (MTBE)	19.24	µg/L	2.5	96.2	51.2	138	0.688	28	
Benzene	18.32	µg/L	1.0	91.6	85.9	113	3.04	27	
Toluene	18.12	µg/L	1.0	90.6	86.4	113	4.23	19	
Ethylbenzene	18.75	µg/L	1.0	93.7	83.5	118	3.81	10	
Xylenes, Total	56.41	µg/L	2.0	93.7	83.4	122	3.04	13	

Qualifiers:

E Value above quantitation range
H Holding times for preparation or analysis exceeded
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S [illegible]overy outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 3rd Qtr-2007 Work Order: 0708272

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: R24875		Analysis Date: 8/22/2007 10:33:28 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24875		Analysis Date: 8/22/2007 11:40:20 AM		
Benzene	19.57	µg/L	1.0	97.9	82.4	128			
Toluene	19.11	µg/L	1.0	95.6	77.2	115			
Method: SW8260B									
Sample ID: 5ml rb-II		*MBLK*			Batch ID: R24875		Analysis Date: 8/22/2007 10:38:08 PM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Tetrachloroethene (PCE)	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs-II		*LCS*			Batch ID: R24875		Analysis Date: 8/23/2007 12:52:04 AM		
Benzene	19.01	µg/L	1.0	95.0	82.4	128			
Toluene	18.72	µg/L	1.0	93.6	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: R24888		Analysis Date: 8/23/2007 10:57:01 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24888		Analysis Date: 8/23/2007 12:15:05 PM		
Benzene	19.33	µg/L	1.0	96.6	82.4	128			
Toluene	18.78	µg/L	1.0	93.9	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: R24888		Analysis Date: 8/23/2007 10:57:01 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Tetrachloroethene (PCE)	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: R24888		Analysis Date: 8/23/2007 12:15:05 PM		
Benzene	19.33	µg/L	1.0	96.6	82.4	128			
Toluene	18.78	µg/L	1.0	93.9	77.2	115			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S 11/11 very outside accepted recovery limits

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Project Name: River Terrace - 3rd QTR 2007 - VS

Address: #50 Rd 4990
Bloomfield, NM
87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505 632-4161

Sampler: Cindy Hurtado / Bob Kratow

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0708272
8/20/07	1030A	Vapor	TP-#2	1-Tedlar				-10
	1055		TP-#1					-11
	1245		TP-#8					-12
	1248		TP-#8-FD					-13
	125pm		MW#49					-14
	155pm		TP-6					-15
	215pm		TP-7					-16
	230pm		TP-5					-17

ANALYSIS REQUEST

	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F^-, Cl^-, NO_3^-, NO_2^-, PO_4^{3-}, SO_4^{2-})	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
-10	X		X														
-11	X		X														
-12	X		X														
-13	X		X														
-14	X		X														
-15	X		X														
-16	X		X														
-17	X		X														

Date: 8/20/07 Time: 320pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 8/21/07 9:30

Date: Time: Relinquished By: (Signature)
Received By: (Signature) 8/21/07 1005

Remarks: Pls CC1 and analyze for MTBE/AT
also plot #1
8/21/07

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, November 14, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 4th Qtr-2007-VS

Order No.: 0710547

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 8 sample(s) on 10/30/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS
Lab Order: 0710547

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710547-01A	TP-2	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 9:45:00 AM
0710547-01A	TP-2	R25851	EPA Method 8021B: Volatiles	10/29/2007 9:45:00 AM
0710547-02A	TP-1	R25851	EPA Method 8021B: Volatiles	10/29/2007 10:10:00 AM
0710547-02A	TP-1	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 10:10:00 AM
0710547-03A	TP-6	R25851	EPA Method 8021B: Volatiles	10/29/2007 10:35:00 AM
0710547-03A	TP-6	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 10:35:00 AM
0710547-04A	TP-8	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 11:00:00 AM
0710547-04A	TP-8	R25851	EPA Method 8021B: Volatiles	10/29/2007 11:00:00 AM
0710547-05A	TP-8 FD	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 11:04:00 AM
0710547-05A	TP-8 FD	R25851	EPA Method 8021B: Volatiles	10/29/2007 11:04:00 AM
0710547-06A	TP-7	R25851	EPA Method 8021B: Volatiles	10/29/2007 11:20:00 AM
0710547-06A	TP-7	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 11:20:00 AM
0710547-07A	TP-5	R25851	EPA Method 8021B: Volatiles	10/29/2007 1:45:00 PM
0710547-07A	TP-5	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 1:45:00 PM
0710547-08A	TP-9	R25851	EPA Method 8015B: Gasoline Range	10/29/2007 2:10:00 PM
0710547-08A	TP-9	R25851	EPA Method 8021B: Volatiles	10/29/2007 2:10:00 PM

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0710547	**Collection Date:**	10/29/2007 9:45:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	10/31/2007 11:38:10 AM
Surr: BFB	102	84.5-129		%REC	1	10/31/2007 11:38:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 11:38:10 AM
Toluene	ND	0.10		µg/L	1	10/31/2007 11:38:10 AM
Ethylbenzene	ND	0.10		µg/L	1	10/31/2007 11:38:10 AM
Xylenes, Total	ND	0.30		µg/L	1	10/31/2007 11:38:10 AM
Surr: 4-Bromofluorobenzene	92.3	70.2-105		%REC	1	10/31/2007 11:38:10 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0710547	**Collection Date:**	10/29/2007 10:10:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	95	5.0		µg/L	1	10/31/2007 12:08:35 PM
Surr: BFB	114	84.5-129		%REC	1	10/31/2007 12:08:35 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	6.1	0.10		µg/L	1	10/31/2007 12:08:35 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 12:08:35 PM
Ethylbenzene	9.0	0.10		µg/L	1	10/31/2007 12:08:35 PM
Xylenes, Total	12	0.30		µg/L	1	10/31/2007 12:08:35 PM
Surr: 4-Bromofluorobenzene	112	70.2-105	S	%REC	1	10/31/2007 12:08:35 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0710547	**Collection Date:**	10/29/2007 10:35:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.6	5.0		µg/L	1	10/31/2007 12:38:58 PM
Surr: BFB	104	84.5-129		%REC	1	10/31/2007 12:38:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 12:38:58 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 12:38:58 PM
Ethylbenzene	0.39	0.10		µg/L	1	10/31/2007 12:38:58 PM
Xylenes, Total	2.3	0.30		µg/L	1	10/31/2007 12:38:58 PM
Surr: 4-Bromofluorobenzene	96.5	70.2-105		%REC	1	10/31/2007 12:38:58 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0710547	**Collection Date:**	10/29/2007 11:00:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	10/31/2007 1:09:13 PM
Surr: BFB	102	84.5-129		%REC	1	10/31/2007 1:09:13 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 1:09:13 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 1:09:13 PM
Ethylbenzene	0.11	0.10		µg/L	1	10/31/2007 1:09:13 PM
Xylenes, Total	0.57	0.30		µg/L	1	10/31/2007 1:09:13 PM
Surr: 4-Bromofluorobenzene	93.2	70.2-105		%REC	1	10/31/2007 1:09:13 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8 FD
Lab Order:	0710547	**Collection Date:**	10/29/2007 11:04:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5.4	5.0		µg/L	1	10/31/2007 2:10:01 PM
Surr: BFB	108	84.5-129		%REC	1	10/31/2007 2:10:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 2:10:01 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 2:10:01 PM
Ethylbenzene	0.19	0.10		µg/L	1	10/31/2007 2:10:01 PM
Xylenes, Total	1.2	0.30		µg/L	1	10/31/2007 2:10:01 PM
Surr: 4-Bromofluorobenzene	98.9	70.2-105		%REC	1	10/31/2007 2:10:01 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-7
Lab Order:	0710547	**Collection Date:**	10/29/2007 11:20:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	9.4	5.0		µg/L	1	10/31/2007 2:40:42 PM
Surr: BFB	106	84.5-129		%REC	1	10/31/2007 2:40:42 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 2:40:42 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 2:40:42 PM
Ethylbenzene	0.14	0.10		µg/L	1	10/31/2007 2:40:42 PM
Xylenes, Total	0.85	0.30		µg/L	1	10/31/2007 2:40:42 PM
Surr: 4-Bromofluorobenzene	96.6	70.2-105		%REC	1	10/31/2007 2:40:42 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0710547	**Collection Date:**	10/29/2007 1:45:00 PM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	180	25		µg/L	5	10/31/2007 4:11:10 PM
Surr: BFB	112	84.5-129		%REC	5	10/31/2007 4:11:10 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.50		µg/L	5	10/31/2007 4:11:10 PM
Toluene	ND	0.50		µg/L	5	10/31/2007 4:11:10 PM
Ethylbenzene	9.8	0.50		µg/L	5	10/31/2007 4:11:10 PM
Xylenes, Total	46	1.5		µg/L	5	10/31/2007 4:11:10 PM
Surr: 4-Bromofluorobenzene	106	70.2-105	S	%REC	5	10/31/2007 4:11:10 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0710547	**Collection Date:**	10/29/2007 2:10:00 PM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/30/2007
Lab ID:	0710547-08	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	49	5.0		µg/L	1	10/31/2007 3:10:52 PM
Surr: BFB	113	84.5-129		%REC	1	10/31/2007 3:10:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 3:10:52 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 3:10:52 PM
Ethylbenzene	0.56	0.10		µg/L	1	10/31/2007 3:10:52 PM
Xylenes, Total	4.0	0.30		µg/L	1	10/31/2007 3:10:52 PM
Surr: 4-Bromofluorobenzene	105	70.2-105	S	%REC	1	10/31/2007 3:10:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Lab Order: 0710547
Client: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710547-01A	TP-2	10/29/2007 9:45:00 AM	Air	EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-02A	TP-1	10/29/2007 10:10:00 AM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-03A	TP-6	10/29/2007 10:35:00 AM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-04A	TP-8	10/29/2007 11:00:00 AM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-05A	TP-8 FD	10/29/2007 11:04:00 AM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-06A	TP-7	10/29/2007 11:20:00 AM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-07A	TP-5	10/29/2007 1:45:00 PM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710547-08A	TP-9	10/29/2007 2:10:00 PM		EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS **Work Order:** 0710547

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0710547-01A DUP		*DUP*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 1:39:28 PM	
Gasoline Range Organics (GRO)	ND	µg/L	5.0				0	27.8	
Surr: BFB	2117	µg/L	0	106	84.5	129	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 9:30:17 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	20.75	mg/L	0	104	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 6:12:20 PM	
Gasoline Range Organics (GRO)	0.5360	mg/L	0.050	104	80	115			
Surr: BFB	21.87	mg/L	0	109	79.2	121			
Method: EPA Method 8021B: Volatiles									
Sample ID: 0710547-01A DUP		*DUP*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 1:39:28 PM	
Benzene	ND	µg/L	0.10				0	25	
Toluene	ND	µg/L	0.10				0	25	
Ethylbenzene	ND	µg/L	0.10				0	25	
Xylenes, Total	ND	µg/L	0.30				0	25	
Surr: 4-Bromofluorobenzene	1.896	µg/L	0	94.8	70.2	105	0	0	
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 9:30:17 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	18.74	µg/L	0	93.7	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25851**	Analysis Date:	10/31/2007 5:11:46 PM	
Benzene	19.99	µg/L	1.0	100	85.9	113			
Toluene	21.05	µg/L	1.0	105	86.4	113			
Ethylbenzene	21.26	µg/L	1.0	106	83.5	118			
Xylenes, Total	61.46	µg/L	2.0	102	83.4	122			
Surr: 4-Bromofluorobenzene	20.81	µg/L	0	104	70.2	105			

Qualifiers:

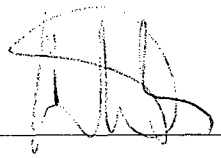
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SJR** Date and Time Received: **10/30/2007**

Work Order Number **0710547** Received by ARS

Checklist completed b  Signature 10/30/07 Date

Matrix Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 X
Other:

Client: San Juan Refining

Project Name: River Terrace 4th QTR-2007 - VS

Address: #50 Rd 4990
Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: BH / RMK

Fax #: 505-632-3911

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0710547	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)
10/29/07	945A	Vapor	TP-2	1-Tedlar			1	X		X										
	1010A		TP-1				2	X		X										
	1036A		TP-6				3	X		X										
	11AM		TP-8				4	X		X										
	1104AM		TP-8 FD				5	X		X										
	1120AM		TP-7				6	X		X										
	145PM		TP-5				7	X		X										
	210PM		TP-9				8	X		X										

Date: 10-29-07 Time: 350pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 10/30/07 10:17

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, November 14, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 4th Qtr-2007-VS

Order No.: 0710557

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 10/31/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS
Lab Order: 0710557

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710557-01A	TP-13	R25851	EPA Method 8015B: Gasoline Range	10/30/2007 8:25:00 AM
0710557-01A	TP-13	R25851	EPA Method 8021B: Volatiles	10/30/2007 8:25:00 AM
0710557-02A	TP-12	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 8:50:00 AM
0710557-02A	TP-12	R25869	EPA Method 8021B: Volatiles	10/30/2007 8:50:00 AM
0710557-03A	TP-11	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 9:15:00 AM
0710557-03A	TP-11	R25869	EPA Method 8021B: Volatiles	10/30/2007 9:15:00 AM
0710557-04A	TP-10	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 10:15:00 AM
0710557-04A	TP-10	R25869	EPA Method 8021B: Volatiles	10/30/2007 10:15:00 AM
0710557-05A	TP-3	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 10:35:00 AM
0710557-05A	TP-3	R25869	EPA Method 8021B: Volatiles	10/30/2007 10:35:00 AM
0710557-06A	DW #1	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 11:15:00 AM
0710557-06A	DW #1	R25869	EPA Method 8021B: Volatiles	10/30/2007 11:15:00 AM
0710557-07A	MW #49	R25869	EPA Method 8015B: Gasoline Range	10/30/2007 1:45:00 PM
0710557-07A	MW #49	R25869	EPA Method 8021B: Volatiles	10/30/2007 1:45:00 PM

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0710557	**Collection Date:**	10/30/2007 8:25:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	10/31/2007 3:41:01 PM
Surr: BFB	88.3	84.5-129		%REC	1	10/31/2007 3:41:01 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	10/31/2007 3:41:01 PM
Toluene	ND	0.10		µg/L	1	10/31/2007 3:41:01 PM
Ethylbenzene	ND	0.10		µg/L	1	10/31/2007 3:41:01 PM
Xylenes, Total	ND	0.30		µg/L	1	10/31/2007 3:41:01 PM
Surr: 4-Bromofluorobenzene	79.0	70.2-105		%REC	1	10/31/2007 3:41:01 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0710557	**Collection Date:**	10/30/2007 8:50:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 11:36:04 AM
Surr: BFB	105	84.5-129		%REC	1	11/1/2007 11:36:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 11:36:04 AM
Toluene	ND	0.10		µg/L	1	11/1/2007 11:36:04 AM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 11:36:04 AM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 11:36:04 AM
Surr: 4-Bromofluorobenzene	91.8	70.2-105		%REC	1	11/1/2007 11:36:04 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0710557	**Collection Date:**	10/30/2007 9:15:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 12:06:44 PM
Surr: BFB	102	84.5-129		%REC	1	11/1/2007 12:06:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 12:06:44 PM
Toluene	ND	0.10		µg/L	1	11/1/2007 12:06:44 PM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 12:06:44 PM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 12:06:44 PM
Surr: 4-Bromofluorobenzene	91.7	70.2-105		%REC	1	11/1/2007 12:06:44 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0710557	**Collection Date:**	10/30/2007 10:15:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 12:37:38 PM
Surr: BFB	103	84.5-129		%REC	1	11/1/2007 12:37:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 12:37:38 PM
Toluene	ND	0.10		µg/L	1	11/1/2007 12:37:38 PM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 12:37:38 PM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 12:37:38 PM
Surr: 4-Bromofluorobenzene	92.4	70.2-105		%REC	1	11/1/2007 12:37:38 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0710557	**Collection Date:**	10/30/2007 10:35:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 1:38:59 PM
Surr: BFB	110	84.5-129		%REC	1	11/1/2007 1:38:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 1:38:59 PM
Toluene	ND	0.10		µg/L	1	11/1/2007 1:38:59 PM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 1:38:59 PM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 1:38:59 PM
Surr: 4-Bromofluorobenzene	98.1	70.2-105		%REC	1	11/1/2007 1:38:59 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0710557	**Collection Date:**	10/30/2007 11:15:00 AM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 2:09:41 PM
Surr: BFB	107	84.5-129		%REC	1	11/1/2007 2:09:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 2:09:41 PM
Toluene	ND	0.10		µg/L	1	11/1/2007 2:09:41 PM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 2:09:41 PM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 2:09:41 PM
Surr: 4-Bromofluorobenzene	96.3	70.2-105		%REC	1	11/1/2007 2:09:41 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0710557	**Collection Date:**	10/30/2007 1:45:00 PM
Project:	River Terrace 4th Qtr-2007-VS	**Date Received:**	10/31/2007
Lab ID:	0710557-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	11/1/2007 2:40:24 PM
Surr: BFB	101	84.5-129		%REC	1	11/1/2007 2:40:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	11/1/2007 2:40:24 PM
Toluene	ND	0.10		µg/L	1	11/1/2007 2:40:24 PM
Ethylbenzene	ND	0.10		µg/L	1	11/1/2007 2:40:24 PM
Xylenes, Total	ND	0.30		µg/L	1	11/1/2007 2:40:24 PM
Surr: 4-Bromofluorobenzene	90.0	70.2-105		%REC	1	11/1/2007 2:40:24 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Lab Order: 0710557
Client: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710557-01A	TP-13	10/30/2007 8:25:00 AM	Air	EPA Method 8015B: Gasoline Range	R25851		10/31/2007
				EPA Method 8021B: Volatiles	R25851		10/31/2007
0710557-02A	TP-12	10/30/2007 8:50:00 AM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007
0710557-03A	TP-11	10/30/2007 9:15:00 AM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007
0710557-04A	TP-10	10/30/2007 10:15:00 AM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007
0710557-05A	TP-3	10/30/2007 10:35:00 AM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007
0710557-06A	DW #1	10/30/2007 11:15:00 AM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007
0710557-07A	MW #49	10/30/2007 1:45:00 PM		EPA Method 8015B: Gasoline Range	R25869		11/1/2007
				EPA Method 8021B: Volatiles	R25869		11/1/2007

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS **Work Order:** 0710557

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0710547-01A DUP		*DUP*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 1:39:28 PM
Gasoline Range Organics (GRO)	ND	µg/L	5.0				0	27.8	
Surr: BFB	2117	µg/L	0	106	84.5	129	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 9:30:17 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	20.75	mg/L	0	104	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 6:12:20 PM
Gasoline Range Organics (GRO)	0.5360	mg/L	0.050	104	80	115			
Surr: BFB	21.87	mg/L	0	109	79.2	121			
Method: EPA Method 8021B: Volatiles									
Sample ID: 0710547-01A DUP		*DUP*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 1:39:28 PM
Benzene	ND	µg/L	0.10				0	25	
Toluene	ND	µg/L	0.10				0	25	
Ethylbenzene	ND	µg/L	0.10				0	25	
Xylenes, Total	ND	µg/L	0.30				0	25	
Surr: 4-Bromofluorobenzene	1.896	µg/L	0	94.8	70.2	105	0	0	
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 9:30:17 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	18.74	µg/L	0	93.7	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25851**	Analysis Date:		10/31/2007 5:11:46 PM
Benzene	19.99	µg/L	1.0	100	85.9	113			
Toluene	21.05	µg/L	1.0	105	86.4	113			
Ethylbenzene	21.26	µg/L	1.0	106	83.5	118			
Xylenes, Total	61.46	µg/L	2.0	102	83.4	122			
Surr: 4-Bromofluorobenzene	20.81	µg/L	0	104	70.2	105			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 4th Qtr-2007-VS **Work Order:** 0710557

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0710557-02A DUP		*DUP*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 1:08:20 PM
Gasoline Range Organics (GRO)	ND	µg/L	5.0				0	27.8	
Surr: BFB	2183	µg/L	0	109	84.5	129	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 9:27:08 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	21.39	mg/L	0	107	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 5:28:52 PM
Gasoline Range Organics (GRO)	0.5320	mg/L	0.050	103	80	115			
Surr: BFB	22.52	mg/L	0	113	79.2	121			
Method: EPA Method 8021B: Volatiles									
Sample ID: 0710557-02A DUP		*DUP*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 1:08:20 PM
Benzene	ND	µg/L	0.10				0	25	
Toluene	ND	µg/L	0.10				0	25	
Ethylbenzene	ND	µg/L	0.10				0	25	
Xylenes, Total	ND	µg/L	0.30				0	25	
Surr: 4-Bromofluorobenzene	1.941	µg/L	0	97.0	70.2	105	0	0	
Method: EPA Method 8021B: Volatiles									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 9:27:08 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	19.34	µg/L	0	96.7	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25869**	Analysis Date:		11/1/2007 3:58:00 PM
Benzene	20.97	µg/L	1.0	105	85.9	113			
Toluene	20.95	µg/L	1.0	104	86.4	113			
Ethylbenzene	21.39	µg/L	1.0	105	83.5	118			
Xylenes, Total	61.20	µg/L	2.0	101	83.4	122			
Surr: 4-Bromofluorobenzene	18.70	µg/L	0	93.5	70.2	105			

Qualifiers:

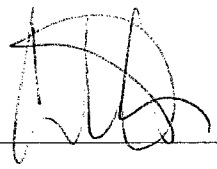
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SJR** Date and Time Received: **10/31/2007**

Work Order Number **0710557** Received by ARS

Checklist completed b  10/31/07

Signature Date

Matrix Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted	☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace 4th QTR-2007-VS
Project #:
Project Manager: Cindy Hurtado
Sampler: GM / RMK
Sample Temperature:

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0710557	BTEX + ~~MTBE~~ + ~~TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
10-30-07	825A	Vapor	TP-13	1-Tedlar				1	X		X														
	850A		TP-12					2	X		X														
	915A		TP-11					3	X		X														
	1015A		TP-10					4	X		X														
	1035A		TP-3					5	X		X														
	1115A		DW#1					6	X		X														
	1450		MW#49					7	X		X														

Date: 10-30-07 Time: 2:40pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 10/31/07 9:30

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, January 10, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 1-3-07

Order No.: 0701033

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 1/4/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *10-Jan-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0701033	**Collection Date:**	1/3/2007 12:30:00 PM
Project:	GAC 1-3-07	**Date Received:**	1/4/2007
Lab ID:	0701033-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	6.2	1.0		mg/L	1	1/9/2007 12:17:01 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/9/2007 12:17:01 PM
Surr: DNOP	91.4	58-140		%REC	1	1/9/2007 12:17:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	0.093	0.050		mg/L	1	1/5/2007 1:23:03 PM
Surr: BFB	101	79.2-121		%REC	1	1/5/2007 1:23:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Toluene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Ethylbenzene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Xylenes, Total	ND	3.0		µg/L	1	1/5/2007 1:23:03 PM
Surr: 4-Bromofluorobenzene	81.5	70.2-105		%REC	1	1/5/2007 1:23:03 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 1-3-07 **Work Order:** 0701033

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12086		*MBLK*			Batch ID: **12086**		Analysis Date:		1/9/2007 9:26:30 AM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12086		*LCS*			Batch ID: **12086**		Analysis Date:		1/9/2007 10:00:35 AM
Diesel Range Organics (DRO)	5.093	mg/L	1.0	102	74	157			
Sample ID: LCSD-12086		*LCSD*			Batch ID: **12086**		Analysis Date:		1/9/2007 10:23:49 AM
Diesel Range Organics (DRO)	4.417	mg/L	1.0	88.3	74	157	14.2	23	
Method: SW8015									
Sample ID: 0701033-01A MSD		*MSD*			Batch ID: **R22023**		Analysis Date:		1/5/2007 2:23:09 PM
Gasoline Range Organics (GRO)	0.5960	mg/L	0.050	101	80	115	2.03	8.39	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22023**		Analysis Date:		1/5/2007 9:36:07 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22023**		Analysis Date:		1/5/2007 11:36:27 AM
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	99.2	80	115			
Sample ID: 0701033-01A MS		*MS*			Batch ID: **R22023**		Analysis Date:		1/5/2007 1:53:05 PM
Gasoline Range Organics (GRO)	0.5840	mg/L	0.050	98.1	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22023**		Analysis Date:		1/5/2007 9:36:07 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22023**		Analysis Date:		1/5/2007 11:06:27 AM
Benzene	17.80	µg/L	1.0	89.0	85.9	113			
Toluene	17.87	µg/L	1.0	89.3	86.4	113			
Ethylbenzene	17.69	µg/L	1.0	88.4	83.5	118			
Xylenes, Total	53.20	µg/L	3.0	88.7	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/4/2007

Work Order Number 0701033 | Received by TLS

Checklist completed by [signature] Signature | Jan 4, 07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☐	No ☑		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	5°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 1-3-07
Project #:
Project Manager:
Sampler: Bob Krakow
Sample Temperature: 50

HEAL No. 0701033

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			BTEX + ~~MTBE~~ + ~~TMB's (8021)~~	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
					$HgCl_2$	HNO_3																	
1-03-07	1230pm	H_2O	GAC 1 EFF	3-40A			HCl	1	X		X												

Remarks:

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
1-03-07	155pm	Cindy Hurtado	Jamye Thom	1/4/07 1015
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, January 15, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 1/10/07

Order No.: 0701139

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 1/11/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Jan-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0701139	**Collection Date:**	1/10/2007 9:30:00 AM
Project:	GAC Analysis 1/10/07	**Date Received:**	1/11/2007
Lab ID:	0701139-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/12/2007 1:38:36 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/12/2007 1:38:36 AM
Surr: DNOP	129	58-140		%REC	1	1/12/2007 1:38:36 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/13/2007 2:16:05 AM
Surr: BFB	103	79.2-121		%REC	1	1/13/2007 2:16:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Toluene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Ethylbenzene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Xylenes, Total	ND	3.0		µg/L	1	1/13/2007 2:16:05 AM
Surr: 4-Bromofluorobenzene	86.2	70.2-105		%REC	1	1/13/2007 2:16:05 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 1/10/07
Work Order: 0701139

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12103		*MBLK*			Batch ID: **12103**		Analysis Date:	1/11/2007 10:15:38 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12103		*LCS*			Batch ID: **12103**		Analysis Date:	1/11/2007 10:49:27 PM	
Diesel Range Organics (DRO)	5.396	mg/L	1.0	108	74	157			
Sample ID: LCSD-12103		*LCSD*			Batch ID: **12103**		Analysis Date:	1/11/2007 11:57:08 PM	
Diesel Range Organics (DRO)	5.637	mg/L	1.0	113	74	157	4.37	23	
Method: SW8015									
Sample ID: 0701139-01A MSD		*MSD*			Batch ID: **R22096**		Analysis Date:	1/13/2007 3:16:24 AM	
Gasoline Range Organics (GRO)	0.5182	mg/L	0.050	104	80	115	1.99	8.39	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22096**		Analysis Date:	1/12/2007 12:13:27 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22096**		Analysis Date:	1/12/2007 2:14:10 PM	
Gasoline Range Organics (GRO)	0.5570	mg/L	0.050	111	80	115			
Sample ID: 0701139-01A MS		*MS*			Batch ID: **R22096**		Analysis Date:	1/13/2007 2:46:14 AM	
Gasoline Range Organics (GRO)	0.5286	mg/L	0.050	106	80	115			
Method: SW8021									
Sample ID: 0701139-01A MSD		*MSD*			Batch ID: **R22096**		Analysis Date:	1/13/2007 3:16:24 AM	
Benzene	5.712	µg/L	1.0	95.2	85.9	113	2.80	27	
Toluene	35.37	µg/L	1.0	95.6	86.4	113	3.46	19	
Ethylbenzene	8.384	µg/L	1.0	93.2	83.5	118	2.82	10	
Xylenes, Total	41.97	µg/L	3.0	105	83.4	122	3.38	13	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22096**		Analysis Date:	1/12/2007 12:13:27 PM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22096**		Analysis Date:	1/12/2007 1:44:01 PM	
Benzene	18.15	µg/L	1.0	90.8	85.9	113			
Toluene	18.72	µg/L	1.0	93.6	86.4	113			
Ethylbenzene	18.94	µg/L	1.0	94.7	83.5	118			
Xylenes, Total	56.60	µg/L	3.0	94.3	83.4	122			
Sample ID: 0701139-01A MS		*MS*			Batch ID: **R22096**		Analysis Date:	1/13/2007 2:46:14 AM	
Benzene	5.874	µg/L	1.0	97.9	85.9	113			
Toluene	36.62	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	8.624	µg/L	1.0	95.8	83.5	118			
Xylenes, Total	43.42	µg/L	3.0	109	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/11/2007

Work Order Number 0701139 | Received by TLS

Checklist completed by _____ Jan 11, 07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? 5° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 1-10-07
Project #:
Project Manager:
Sampler: Cindy Hurtado
Sample Temperature: 5°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative:	HEAL No.
1-10-07	9:30	H_2O	GAC 1 Eff	4 VOA			HCl	0701139 1

BTEX + ~~TMBE~~ + ~~TBA~~s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
1-10-07	10AM	Cindy Hurtado	Tonya Shaw	1/11/07	1035
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)		

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, February 13, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 2-08-07

Order No.: 0702097

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 2/9/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702097	**Collection Date:**	2/8/2007 8:30:00 AM
Project:	GAC 2-08-07	**Date Received:**	2/9/2007
Lab ID:	0702097-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/12/2007 5:50:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/12/2007 5:50:32 PM
Surr: DNOP	115	58-140		%REC	1	2/12/2007 5:50:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/9/2007 9:03:33 PM
Surr: BFB	107	79.2-121		%REC	1	2/9/2007 9:03:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/9/2007 9:03:33 PM
Benzene	2.9	1.0		µg/L	1	2/9/2007 9:03:33 PM
Toluene	ND	1.0		µg/L	1	2/9/2007 9:03:33 PM
Ethylbenzene	ND	1.0		µg/L	1	2/9/2007 9:03:33 PM
Xylenes, Total	ND	3.0		µg/L	1	2/9/2007 9:03:33 PM
Surr: 4-Bromofluorobenzene	88.9	70.2-105		%REC	1	2/9/2007 9:03:33 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 2-08-07
Work Order: 0702097

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12299		*MBLK*			Batch ID: **12299**		Analysis Date:	2/12/2007 4:08:22 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12299		*LCS*			Batch ID: **12299**		Analysis Date:	2/12/2007 4:42:25 PM	
Diesel Range Organics (DRO)	5.505	mg/L	1.0	110	74	157			
Sample ID: LCSD-12299		*LCSD*			Batch ID: **12299**		Analysis Date:	2/12/2007 5:16:29 PM	
Diesel Range Organics (DRO)	5.045	mg/L	1.0	101	74	157	8.71	23	
Method: SW8015									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22431**		Analysis Date:	2/9/2007 10:01:19 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22440**		Analysis Date:	2/12/2007 8:59:23 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22431**		Analysis Date:	2/9/2007 12:01:44 PM	
Gasoline Range Organics (GRO)	0.5348	mg/L	0.050	102	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22440**		Analysis Date:	2/12/2007 11:19:44 AM	
Gasoline Range Organics (GRO)	0.5266	mg/L	0.050	101	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22431**		Analysis Date:	2/9/2007 10:01:19 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22440**		Analysis Date:	2/12/2007 8:59:23 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22431**		Analysis Date:	2/9/2007 11:31:36 AM	
Benzene	18.22	µg/L	1.0	91.1	85.9	113			
Toluene	19.06	µg/L	1.0	95.3	86.4	113			
Ethylbenzene	19.12	µg/L	1.0	95.6	83.5	118			
Xylenes, Total	57.11	µg/L	2.0	95.2	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22440**		Analysis Date:	2/12/2007 10:49:36 AM	
Benzene	19.95	µg/L	1.0	99.8	85.9	113			
Toluene	20.13	µg/L	1.0	101	86.4	113			
Ethylbenzene	19.94	µg/L	1.0	99.7	83.5	118			
Xylenes, Total	59.87	µg/L	2.0	99.8	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/9/2007

Work Order Number 0702097 | Received by TLS

Checklist completed by D Schlappa (Signature) 2-9-07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	5°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: GAC 2/08/07

Project #:

Project Manager: Cindy Hurtado

Sampler: Bob Krakow

Sample Temperature: 5°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
2-8-07	8:36	H_2O	GAC 1 Eff	4-VOA			HCl	070297 -1

ANALYSIS REQUEST

BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
02/08/07	1:30pm	Cindy Hurtado	Tonya Shan	2/9/07 1015
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, February 26, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 2-20-07

Order No.: 0702230

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 2/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *26-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702230	**Collection Date:**	2/20/2007 8:55:00 AM
Project:	GAC Analysis 2-20-07	**Date Received:**	2/21/2007
Lab ID:	0702230-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2007 12:25:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2007 12:25:39 PM
Surr: DNOP	118	58-140		%REC	1	2/23/2007 12:25:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/21/2007 11:59:49 AM
Surr: BFB	104	79.2-121		%REC	1	2/21/2007 11:59:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.0	1.0		µg/L	1	2/21/2007 11:59:49 AM
Toluene	ND	1.0		µg/L	1	2/21/2007 11:59:49 AM
Ethylbenzene	ND	1.0		µg/L	1	2/21/2007 11:59:49 AM
Xylenes, Total	ND	3.0		µg/L	1	2/21/2007 11:59:49 AM
Surr: 4-Bromofluorobenzene	88.2	70.2-105		%REC	1	2/21/2007 11:59:49 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *26-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 2 Eff
Lab Order:	0702230	**Collection Date:**	2/20/2007 9:00:00 AM
Project:	GAC Analysis 2-20-07	**Date Received:**	2/21/2007
Lab ID:	0702230-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2007 1:00:06 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2007 1:00:06 PM
Surr: DNOP	121	58-140		%REC	1	2/23/2007 1:00:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/21/2007 12:30:02 PM
Surr: BFB	107	79.2-121		%REC	1	2/21/2007 12:30:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Toluene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Ethylbenzene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Xylenes, Total	ND	3.0		µg/L	1	2/21/2007 12:30:02 PM
Surr: 4-Bromofluorobenzene	88.4	70.2-105		%REC	1	2/21/2007 12:30:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 2-20-07 **Work Order:** 070223

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12370		*MBLK*			Batch ID: **12370**		Analysis Date:	2/23/2007 10:43:54 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12370		*LCS*			Batch ID: **12370**		Analysis Date:	2/23/2007 11:16:51 AM	
Diesel Range Organics (DRO)	5.880	mg/L	1.0	118	74	157			
Sample ID: LCSD-12370		*LCSD*			Batch ID: **12370**		Analysis Date:	2/23/2007 11:51:15 AM	
Diesel Range Organics (DRO)	5.742	mg/L	1.0	115	74	157	2.39	23	
Method: SW8015									
Sample ID: 0702230-02A MSD		*MSD*			Batch ID: **R22553**		Analysis Date:	2/21/2007 4:00:33 PM	
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115	1.77	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22553**		Analysis Date:	2/21/2007 7:53:59 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 4:30:44 PM	
Gasoline Range Organics (GRO)	0.5068	mg/L	0.050	101	80	115			
Sample ID: 0702230-02A MS		*MS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 3:30:24 PM	
Gasoline Range Organics (GRO)	0.5134	mg/L	0.050	103	80	115			
Method: SW8021									
Sample ID: 0702230-01A MSD		*MSD*			Batch ID: **R22553**		Analysis Date:	2/21/2007 2:29:59 PM	
Benzene	22.09	µg/L	1.0	100	85.9	113	1.80	27	
Toluene	20.12	µg/L	1.0	101	86.4	113	1.98	19	
Ethylbenzene	20.26	µg/L	1.0	101	83.5	118	1.76	10	
Xylenes, Total	60.96	µg/L	2.0	102	83.4	122	2.04	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22553**		Analysis Date:	2/21/2007 7:53:59 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 3:00:13 PM	
Benzene	20.89	µg/L	1.0	104	85.9	113			
Toluene	20.78	µg/L	1.0	104	86.4	113			
Ethylbenzene	20.89	µg/L	1.0	104	83.5	118			
Xylenes, Total	63.43	µg/L	2.0	106	83.4	122			
Sample ID: 0702230-01A MS		*MS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 2:00:01 PM	
Benzene	22.49	µg/L	1.0	102	85.9	113			
Toluene	20.52	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.62	µg/L	1.0	103	83.5	118			
Xylenes, Total	62.22	µg/L	2.0	104	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/21/2007

Work Order Number 0702230 | Received by GLS

Checklist completed by [signature] (Signature) 2-21-07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 Rd 4990
Bloomfield NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC Analysis 2-20-07
Project #:
Project Manager: Cindy Hurtado
Sampler:
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.	BTEX + [redacted]'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
					$HgCl_2$	HNO_3	HCl	0702230																
2-20-07	8:55	H_2O	GAC 1 Eff	4-VOA			X	1	X		X													
2-20-07	9:00	H_2O	GAC 2 Eff	4-VOA			X	2	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Date:	Time:	Remarks:
2-20-07	9:40 AM	Robert Graham		2-21-07	1005	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)			

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis- 2/27/07

Order No.: 0702367

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702367	**Collection Date:**	2/27/2007 11:20:00 AM
Project:	GAC Analysis- 2/27/07	**Date Received:**	2/28/2007
Lab ID:	0702367-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 3:41:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 3:41:34 PM
Surr: DNOP	117	58-140		%REC	1	3/1/2007 3:41:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 10:37:27 PM
Surr: BFB	111	79.2-121		%REC	1	3/1/2007 10:37:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 10:37:27 PM
Surr: 4-Bromofluorobenzene	91.7	70.2-105		%REC	1	3/1/2007 10:37:27 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 2 Eff
Lab Order:	0702367	**Collection Date:**	2/27/2007 11:30:00 AM
Project:	GAC Analysis- 2/27/07	**Date Received:**	2/28/2007
Lab ID:	0702367-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 4:15:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 4:15:58 PM
Surr: DNOP	118	58-140		%REC	1	3/1/2007 4:15:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 11:07:38 PM
Surr: BFB	114	79.2-121		%REC	1	3/1/2007 11:07:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 11:07:38 PM
Surr: 4-Bromofluorobenzene	94.2	70.2-105		%REC	1	3/1/2007 11:07:38 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis- 2/27/07 **Work Order:** 070236

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12410		*MBLK*			Batch ID: **12410**		Analysis Date:		3/1/2007 1:58:25 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12410		*LCS*			Batch ID: **12410**		Analysis Date:		3/1/2007 2:32:49 PM
Diesel Range Organics (DRO)	5.603	mg/L	1.0	112	74	157			
Sample ID: LCSD-12410		*LCSD*			Batch ID: **12410**		Analysis Date:		3/1/2007 3:07:09 PM
Diesel Range Organics (DRO)	5.623	mg/L	1.0	112	74	157	0.362	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/1/2007 7:58:58 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:37:59 AM
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Method: SW8021									
Sample ID: RB-II		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:07:52 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:37:53
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702367 | Received by TLS

Checklist completed by _____ Feb 28, 07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Rafting

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: GAC Analysis - 2/27/07

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado Bob Kakeow

Sample Temperature: 3°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: Ice	HEAL No. 07023067
2/27/07	1120A	H2O	GAC1 Eff	4-VOA			✓	1
2/27/07	1130A	H2O	GA2 Eff	4-VOA			✓	2

ANALYSIS REQUEST

BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
2/27/07	235pm	Cindy Hurtado	[signature]	2/28/07	959
		Relinquished By: (Signature)	Received By: (Signature)		

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 20, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3-13-07

Order No.: 0703192

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 3/14/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	1-Inlet
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:35:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 5:59:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 5:59:35 PM
Surr: DNOP	122	58-140		%REC	1	3/15/2007 5:59:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	12	0.50		mg/L	10	3/15/2007 2:43:21 PM
Surr: BFB	110	79.2-121		%REC	10	3/15/2007 2:43:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	230	10		µg/L	10	3/15/2007 2:43:21 PM
Toluene	39	10		µg/L	10	3/15/2007 2:43:21 PM
Ethylbenzene	860	10		µg/L	10	3/15/2007 2:43:21 PM
Xylenes, Total	2900	40		µg/L	20	3/16/2007 11:22:50 AM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	10	3/15/2007 2:43:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-1
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:30:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 6:34:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 6:34:35 PM
Surr: DNOP	123	58-140		%REC	1	3/15/2007 6:34:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2007 3:43:24 PM
Surr: BFB	108	79.2-121		%REC	1	3/15/2007 3:43:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.7	1.0		µg/L	1	3/15/2007 3:43:24 PM
Toluene	ND	1.0		µg/L	1	3/15/2007 3:43:24 PM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2007 3:43:24 PM
Xylenes, Total	ND	2.0		µg/L	1	3/15/2007 3:43:24 PM
Surr: 4-Bromofluorobenzene	85.8	70.2-105		%REC	1	3/15/2007 3:43:24 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-2
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:25:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 7:09:17 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 7:09:17 PM
Surr: DNOP	131	58-140		%REC	1	3/15/2007 7:09:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2007 4:13:29 PM
Surr: BFB	110	79.2-121		%REC	1	3/15/2007 4:13:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Toluene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Xylenes, Total	ND	2.0		µg/L	1	3/15/2007 4:13:29 PM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	3/15/2007 4:13:29 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-13-07 **Work Order:** 0703192

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12514		*MBLK*			Batch ID: **12514**		Analysis Date:	3/15/2007 3:39:45 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12514		*LCS*			Batch ID: **12514**		Analysis Date:	3/15/2007 4:14:41 PM	
Diesel Range Organics (DRO)	5.808	mg/L	1.0	116	74	157			
Sample ID: LCSD-12514		*LCSD*			Batch ID: **12514**		Analysis Date:	3/15/2007 4:49:41 PM	
Diesel Range Organics (DRO)	6.117	mg/L	1.0	122	74	157	5.18	23	
Method: SW8015									
Sample ID: 0703192-02A MSD		*MSD*			Batch ID: **R22853**		Analysis Date:	3/15/2007 5:13:46 PM	
Gasoline Range Organics (GRO)	0.5084	mg/L	0.050	92.3	80	115	0.592	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22853**		Analysis Date:	3/15/2007 7:25:08 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22868**		Analysis Date:	3/16/2007 9:49:32 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22853**		Analysis Date:	3/15/2007 5:43:56 PM	
Gasoline Range Organics (GRO)	0.5016	mg/L	0.050	100	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22868**		Analysis Date:	3/16/2007 10:01:18 PM	
Gasoline Range Organics (GRO)	0.5152	mg/L	0.050	99.6	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID: **R22868**		Analysis Date:	3/16/2007 10:31:24 PM	
Gasoline Range Organics (GRO)	0.4586	mg/L	0.050	88.2	80	115	11.6	15	
Sample ID: 0703192-02A MS		*MS*			Batch ID: **R22853**		Analysis Date:	3/15/2007 4:43:37 PM	
Gasoline Range Organics (GRO)	0.5054	mg/L	0.050	91.7	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S 4 / 6ecovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-13-07 **Work Order:** 0703192

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0703192-03A MSD		*MSD*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:14:08 PM
Benzene	19.57	µg/L	1.0	97.8	85.9	113	0.102	27	
Toluene	20.01	µg/L	1.0	100	86.4	113	0.409	19	
Ethylbenzene	20.17	µg/L	1.0	101	83.5	118	0.338	10	
Xylenes, Total	59.76	µg/L	2.0	99.6	83.4	122	0.936	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:25:08 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22868**		Analysis Date:		3/16/2007 9:49:32 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:44:14 PM
Benzene	20.17	µg/L	1.0	101	85.9	113			
Toluene	20.54	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.61	µg/L	1.0	103	83.5	118			
Xylenes, Total	61.78	µg/L	2.0	103	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22868**		Analysis Date:		3/16/2007 7:59:16 PM
Benzene	19.76	µg/L	1.0	98.8	85.9	113			
Toluene	20.11	µg/L	1.0	101	86.4	113			
Ethylbenzene	20.25	µg/L	1.0	101	83.5	118			
Xylenes, Total	60.50	µg/L	2.0	101	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: **R22868**		Analysis Date:		3/16/2007 8:30:58 PM
Benzene	19.38	µg/L	1.0	96.9	85.9	113	1.92	27	
Toluene	19.67	µg/L	1.0	98.4	86.4	113	2.22	19	
Ethylbenzene	19.88	µg/L	1.0	99.4	83.5	118	1.88	10	
Xylenes, Total	59.09	µg/L	2.0	98.5	83.4	122	2.36	13	
Sample ID: 0703192-03A MS		*MS*			Batch ID: **R22853**		Analysis Date:		3/15/2007 6:44:11 PM
Benzene	19.59	µg/L	1.0	98.0	85.9	113			
Toluene	20.09	µg/L	1.0	100	86.4	113			
Ethylbenzene	20.10	µg/L	1.0	101	83.5	118			
Xylenes, Total	60.32	µg/L	2.0	101	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/14/2007

Work Order Number 0703192 | Received by TLS

Checklist completed by _____ 3/14/07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
#50 CR 4990
Address: Bloomfield, NM 87413

Project Name: GAC 3-13-07
Project #: 1st. Quarter 2007
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 3°

Phone #: 505-632-4161
Fax #: 505-632-3911

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.	BTEX + [illegible] (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
					$HgCl_2$	HNO_3	HCl	0703192																
3-13-07	9:35	H_2O	1-Inlet	4-VOA			X	1	X		X													
	9:30	H_2O	Eff-1	4-VOA			X	2	X		X													
	9:25	H_2O	Eff-2	4-VOA			X	3	X		X													

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3-13-07	10:00 AM	[signature]	[signature] 3/14/07 1357
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, March 28, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3-21-07

Order No.: 0703335

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 3/22/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	EFF-1
Lab Order:	0703335	**Collection Date:**	3/21/2007 8:55:00 AM
Project:	GAC 3-21-07	**Date Received:**	3/22/2007
Lab ID:	0703335-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.2	1.0		mg/L	1	3/27/2007 2:10:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/27/2007 2:10:39 PM
Surr: DNOP	123	58-140		%REC	1	3/27/2007 2:10:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.051	0.050		mg/L	1	3/23/2007 1:08:47 AM
Surr: BFB	112	79.2-121		%REC	1	3/23/2007 1:08:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	3.4	1.0		µg/L	1	3/23/2007 1:08:47 AM
Toluene	ND	1.0		µg/L	1	3/23/2007 1:08:47 AM
Ethylbenzene	ND	1.0		µg/L	1	3/23/2007 1:08:47 AM
Xylenes, Total	ND	2.0		µg/L	1	3/23/2007 1:08:47 AM
Surr: 4-Bromofluorobenzene	88.6	70.2-105		%REC	1	3/23/2007 1:08:47 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-21-07 **Work Order:** 0703335

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12590		*MBLK*			Batch ID: **12590**		Analysis Date:	3/27/2007 11:53:27 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12590		*LCS*			Batch ID: **12590**		Analysis Date:	3/27/2007 1:01:56 PM	
Diesel Range Organics (DRO)	4.535	mg/L	1.0	90.7	74	157			
Sample ID: LCSD-12590		*LCSD*			Batch ID: **12590**		Analysis Date:	3/27/2007 1:36:17 PM	
Diesel Range Organics (DRO)	5.484	mg/L	1.0	110	74	157	18.9	23	
Method: SW8015									
Sample ID: 0703335-01A MSD		*MSD*			Batch ID: **R22935**		Analysis Date:	3/23/2007 2:08:59 AM	
Gasoline Range Organics (GRO)	0.4996	mg/L	0.050	89.7	80	115	0.758	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22935**		Analysis Date:	3/22/2007 7:57:21 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22935**		Analysis Date:	3/23/2007 4:09:12 AM	
Gasoline Range Organics (GRO)	0.4128	mg/L	0.050	82.6	80	115			
Sample ID: 0703335-01A MS		*MS*			Batch ID: **R22935**		Analysis Date:	3/23/2007 1:38:49 AM	
Gasoline Range Organics (GRO)	0.5034	mg/L	0.050	90.4	80	115			
Method: SW8021									
Sample ID: 0703335-01A MSD		*MSD*			Batch ID: **R22935**		Analysis Date:	3/23/2007 2:08:59 AM	
Benzene	9.290	µg/L	1.0	105	85.9	113	0.921	27	
Toluene	41.43	µg/L	1.0	103	86.4	113	0.261	19	
Ethylbenzene	8.016	µg/L	1.0	101	83.5	118	0.448	10	
Xylenes, Total	47.07	µg/L	2.0	102	83.4	122	0.0722	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22935**		Analysis Date:	3/22/2007 7:57:21 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22935**		Analysis Date:	3/23/2007 2:38:58 AM	
Benzene	20.19	µg/L	1.0	101	85.9	113			
Toluene	20.63	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.52	µg/L	1.0	103	83.5	118			
Xylenes, Total	61.53	µg/L	2.0	103	83.4	122			
Sample ID: 0703335-01A MS		*MS*			Batch ID: **R22935**		Analysis Date:	3/23/2007 1:38:49 AM	
Benzene	9.376	µg/L	1.0	107	85.9	113			
Toluene	41.32	µg/L	1.0	102	86.4	113			
Ethylbenzene	8.052	µg/L	1.0	102	83.5	118			
Xylenes, Total	47.10	µg/L	2.0	102	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/22/2007

Work Order Number 0703335 | Received by TLS

Checklist completed by [signature] Signature 3-22-07 Date

Matrix | Carrier name Client drop-off

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☐	Not Shipped ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 3-21-07
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Knakow
Sample Temperature: 71.3 6°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0703335
3-21-07	8:55 8:57	H_2O	EFF-1	4-VOA			X	-1

ANALYSIS REQUEST

BTEX + [redacted] (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3-21-07	9:35	Bob Knakow	3/22/07 912
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, April 11, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 4/03/07

Order No.: 0704053

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/4/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff #1
Lab Order:	0704053	**Collection Date:**	4/3/2007 2:05:00 PM
Project:	GAC 4/03/07	**Date Received:**	4/4/2007
Lab ID:	0704053-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/4/2007 10:58:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/4/2007 10:58:34 PM
Surr: DNOP	114	58-140		%REC	1	4/4/2007 10:58:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	0.071	0.050		mg/L	1	4/7/2007 9:20:29 PM
Surr: BFB	114	79.2-121		%REC	1	4/7/2007 9:20:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	14	1.0		µg/L	1	4/7/2007 9:20:29 PM
Toluene	ND	1.0		µg/L	1	4/7/2007 9:20:29 PM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2007 9:20:29 PM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2007 9:20:29 PM
Surr: 4-Bromofluorobenzene	89.7	70.2-105		%REC	1	4/7/2007 9:20:29 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff #2
Lab Order:	0704053	**Collection Date:**	4/3/2007 2:15:00 PM
Project:	GAC 4/03/07	**Date Received:**	4/4/2007
Lab ID:	0704053-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/4/2007 11:32:43 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/4/2007 11:32:43 PM
Surr: DNOP	126	58-140		%REC	1	4/4/2007 11:32:43 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/6/2007 10:29:23 PM
Surr: BFB	109	79.2-121		%REC	1	4/6/2007 10:29:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Toluene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Ethylbenzene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Xylenes, Total	ND	2.0		µg/L	1	4/6/2007 10:29:23 PM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	4/6/2007 10:29:23 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/03/07

Work Order: 0704053

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12656		*MBLK*			Batch ID: **12656**		Analysis Date:		4/4/2007 8:40:44 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12656		*LCS*			Batch ID: **12656**		Analysis Date:		4/4/2007 9:15:09 PM
Diesel Range Organics (DRO)	5.371	mg/L	1.0	107	74	157			
Sample ID: LCSD-12656		*LCSD*			Batch ID: **12656**		Analysis Date:		4/4/2007 9:49:34 PM
Diesel Range Organics (DRO)	5.376	mg/L	1.0	108	74	157	0.0912	23	
Method: SW8015									
Sample ID: 0704053-02A MSD		*MSD*			Batch ID: **R23139**		Analysis Date:		4/6/2007 11:29:22 PM
Gasoline Range Organics (GRO)	0.4268	mg/L	0.050	82.6	80	115	0.188	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23139**		Analysis Date:		4/6/2007 9:30:14 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23144**		Analysis Date:		4/7/2007 3:11:02 PM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R23139**		Analysis Date:		4/6/2007 11:42:13 AM
Gasoline Range Organics (GRO)	0.4978	mg/L	0.050	99.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R23144**		Analysis Date:		4/7/2007 5:11:52 PM
Gasoline Range Organics (GRO)	0.4782	mg/L	0.050	95.6	80	115			
Sample ID: 0704053-02A MS		*MS*			Batch ID: **R23139**		Analysis Date:		4/6/2007 10:59:21 P
Gasoline Range Organics (GRO)	0.4260	mg/L	0.050	82.4	80	115			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/03/07 **Work Order:** 0704053

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0704053-02A MSD		*MSD*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 11:29:22 PM
Benzene	5.442	µg/L	1.0	109	85.9	113	0.738	27	
Toluene	38.99	µg/L	1.0	100	86.4	113	1.02	19	
Ethylbenzene	7.522	µg/L	1.0	100	83.5	118	0.240	10	
Xylenes, Total	44.23	µg/L	2.0	111	83.4	122	1.38	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 9:30:14 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23144**	Analysis Date:		4/7/2007 3:11:02 PM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 11:12:13 AM
Benzene	18.88	µg/L	1.0	94.4	85.9	113			
Toluene	19.42	µg/L	1.0	97.1	86.4	113			
Ethylbenzene	19.64	µg/L	1.0	98.2	83.5	118			
Xylenes, Total	59.10	µg/L	2.0	98.5	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23144**	Analysis Date:		4/7/2007 4:41:35 PM
Benzene	19.18	µg/L	1.0	95.9	85.9	113			
Toluene	19.60	µg/L	1.0	98.0	86.4	113			
Ethylbenzene	19.77	µg/L	1.0	98.9	83.5	118			
Xylenes, Total	59.26	µg/L	2.0	98.8	83.4	122			
Sample ID: 0704053-02A MS		*MS*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 10:59:21 PM
Benzene	5.402	µg/L	1.0	108	85.9	113			
Toluene	38.60	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	7.504	µg/L	1.0	100	83.5	118			
Xylenes, Total	43.62	µg/L	2.0	109	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/4/2007

Work Order Number 0704053 | Received by GLS

Checklist completed by _____ (Signature) 4-4-07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Road 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC-4/03/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 4°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0704053	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
4/03/07	2:05pm	H_2O	Eff #1	4-VOA			HCl	1	X		X														
4/03/07	2:15pm	H_2O	Eff #2	4-VOA			HCl	2	X		X														

Date: 4/03/07 Time: 3:30pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) D Ichlippe 4-4-07 @ 1115

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, April 23, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 4/16/07

Order No.: 0704251

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/18/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Eff #1
Lab Order:	0704251	**Collection Date:**	4/16/2007 11:00:00 AM
Project:	GAC 4/16/07	**Date Received:**	4/18/2007
Lab ID:	0704251-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2007 9:47:19 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2007 9:47:19 PM
Surr: DNOP	121	58-140		%REC	1	4/19/2007 9:47:19 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	4/21/2007 1:54:28 AM
Surr: BFB	112	79.2-121		%REC	1	4/21/2007 1:54:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	28	1.0		µg/L	1	4/21/2007 1:54:28 AM
Toluene	ND	1.0		µg/L	1	4/21/2007 1:54:28 AM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2007 1:54:28 AM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2007 1:54:28 AM
Surr: 4-Bromofluorobenzene	89.5	70.2-105		%REC	1	4/21/2007 1:54:28 AM

Qualifiers:				
	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Eff #2
Lab Order:	0704251	**Collection Date:**	4/16/2007 11:05:00 AM
Project:	GAC 4/16/07	**Date Received:**	4/18/2007
Lab ID:	0704251-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2007 10:21:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2007 10:21:47 PM
Surr: DNOP	123	58-140		%REC	1	4/19/2007 10:21:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/21/2007 2:24:22 AM
Surr: BFB	111	79.2-121		%REC	1	4/21/2007 2:24:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Toluene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2007 2:24:22 AM
Surr: 4-Bromofluorobenzene	87.6	70.2-105		%REC	1	4/21/2007 2:24:22 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/16/07 **Work Order:** 0704251

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12765		*MBLK*			Batch ID: **12765**		Analysis Date:	4/19/2007 8:04:08 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12765		*LCS*			Batch ID: **12765**		Analysis Date:	4/19/2007 8:38:31 PM	
Diesel Range Organics (DRO)	4.783	mg/L	1.0	95.7	74	157			
Sample ID: LCSD-12765		*LCSD*			Batch ID: **12765**		Analysis Date:	4/19/2007 9:12:55 PM	
Diesel Range Organics (DRO)	5.149	mg/L	1.0	103	74	157	7.37	23	
Method: SW8015									
Sample ID: 5ml rb-II 24		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/20/2007 8:23:53 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS-II		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 6:09:47 PM	
Gasoline Range Organics (GRO)	0.4208	mg/L	0.050	84.2	80	115			
Method: SW8021									
Sample ID: 5ML RB-II		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/20/2007 8:23:53 PM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB-III		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/21/2007 10:35:58 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 2:54:23 AM	
Benzene	18.80	µg/L	1.0	94.0	85.9	113			
Toluene	19.18	µg/L	1.0	95.9	86.4	113			
Ethylbenzene	19.30	µg/L	1.0	96.5	83.5	118			
Xylenes, Total	57.44	µg/L	2.0	95.7	83.4	122			
Sample ID: 100NG BTEX LCS-iii		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 4:39:25 PM	
Benzene	18.62	µg/L	1.0	93.1	85.9	113			
Toluene	19.04	µg/L	1.0	95.2	86.4	113			
Ethylbenzene	19.13	µg/L	1.0	95.6	83.5	118			
Xylenes, Total	56.54	µg/L	2.0	94.2	83.4	122			
Sample ID: 100NG BTEX LCSD-I		*LCSD*			Batch ID: **R23317**		Analysis Date:	4/21/2007 5:09:27 PM	
Benzene	18.92	µg/L	1.0	94.6	85.9	113	1.56	27	
Toluene	19.27	µg/L	1.0	96.4	86.4	113	1.18	19	
Ethylbenzene	19.29	µg/L	1.0	96.5	83.5	118	0.864	10	
Xylenes, Total	57.53	µg/L	2.0	95.9	83.4	122	1.73	13	

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/18/2007

Work Order Number 0704251 | Received by TLS

Checklist completed by (Signature) Tanya Shomin Date APR. 18, 07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	1°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 4/16/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 1°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0704251	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
4/16/07	11Am	H_2O	GAC Eff #1	3-VOA			HCL	1	X		X													
4/16/07	1105Am	H_2O	GAC Eff #2	3-VOA			HCL	2	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Remarks:
4/17/07	812am	Cindy Hurtado	4/18/07 915	
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 03, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC

Order No.: 0704400

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/26/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *03-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-1
Lab Order:	0704400	**Collection Date:**	4/25/2007 11:10:00 AM
Project:	GAC	**Date Received:**	4/26/2007
Lab ID:	0704400-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/1/2007 11:26:30 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/1/2007 11:26:30 AM
Surr: DNOP	123	58-140		%REC	1	5/1/2007 11:26:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.074	0.050		mg/L	1	4/26/2007 11:28:59 PM
Surr: BFB	114	79.2-121		%REC	1	4/26/2007 11:28:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	14	1.0		µg/L	1	4/26/2007 11:28:59 PM
Toluene	ND	1.0		µg/L	1	4/26/2007 11:28:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2007 11:28:59 PM
Xylenes, Total	ND	2.0		µg/L	1	4/26/2007 11:28:59 PM
Surr: 4-Bromofluorobenzene	89.1	70.2-105		%REC	1	4/26/2007 11:28:59 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *03-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-2
Lab Order:	0704400	**Collection Date:**	4/25/2007 11:00:00 AM
Project:	GAC	**Date Received:**	4/26/2007
Lab ID:	0704400-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/1/2007 12:01:11 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/1/2007 12:01:11 PM
Surr: DNOP	117	58-140		%REC	1	5/1/2007 12:01:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2007 11:58:57 PM
Surr: BFB	113	79.2-121		%REC	1	4/26/2007 11:58:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Toluene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Xylenes, Total	ND	2.0		µg/L	1	4/26/2007 11:58:57 PM
Surr: 4-Bromofluorobenzene	88.0	70.2-105		%REC	1	4/26/2007 11:58:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC
Work Order: 0704400

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12841		*MBLK*			Batch ID:	**12841**	Analysis Date:	5/1/2007 9:43:01 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12841		*LCS*			Batch ID:	**12841**	Analysis Date:	5/1/2007 10:17:23 AM	
Diesel Range Organics (DRO)	5.138	mg/L	1.0	103	74	157			
Sample ID: LCSD-12841		*LCSD*			Batch ID:	**12841**	Analysis Date:	5/1/2007 10:40:36 AM	
Diesel Range Organics (DRO)	5.250	mg/L	1.0	105	74	157	2.16	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23375**	Analysis Date:	4/26/2007 9:26:05 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23375**	Analysis Date:	4/26/2007 8:58:36 PM	
Gasoline Range Organics (GRO)	0.4986	mg/L	0.050	94.4	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23375**	Analysis Date:	4/26/2007 9:26:05 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23375**	Analysis Date:	4/26/2007 6:58:00 PM	
Benzene	18.93	µg/L	1.0	94.6	85.9	113			
Toluene	19.52	µg/L	1.0	97.6	86.4	113			
Ethylbenzene	19.78	µg/L	1.0	98.9	83.5	118			
Xylenes, Total	59.08	µg/L	2.0	98.5	83.4	122			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/26/2007

Work Order Number 0704400 | Received by TLS

Checklist completed by Signature Tanya Shone Date APR 26 07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Client: SAN JUAN Refining
Address: #50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC
Project #:
Project Manager:
Sampler: Bob Krakow
Sample Temperature: 4°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No.
								0704400
4-25-07	11:10	H_2O	Eff-1	3-VOA			X	1
4-25-07	11:00	H_2O	Eff-2	3-VOA			X	2

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
4-25-07	1:45	Robert Krakow	Tonya Sho	4/26/07 1103
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 10, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC

Order No.: 0705063

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/3/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *10-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705063	**Collection Date:**	5/2/2007 8:33:00 AM
Project:	GAC	**Date Received:**	5/3/2007
Lab ID:	0705063-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/9/2007 10:45:27 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/9/2007 10:45:27 AM
Surr: DNOP	120	58-140		%REC	1	5/9/2007 10:45:27 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2007 12:30:39 PM
Surr: BFB	115	79.2-121		%REC	1	5/4/2007 12:30:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Toluene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Ethylbenzene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Xylenes, Total	ND	2.0		µg/L	1	5/4/2007 12:30:39 PM
Surr: 4-Bromofluorobenzene	88.5	70.2-105		%REC	1	5/4/2007 12:30:39 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC
Work Order: 0705063

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12887		*MBLK*			Batch ID:	**12887**	Analysis Date:	5/9/2007 9:03:08 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12887		*LCS*			Batch ID:	**12887**	Analysis Date:	5/9/2007 9:37:14 AM	
Diesel Range Organics (DRO)	5.077	mg/L	1.0	102	74	157			
Sample ID: LCSD-12887		*LCSD*			Batch ID:	**12887**	Analysis Date:	5/9/2007 10:11:19 AM	
Diesel Range Organics (DRO)	4.826	mg/L	1.0	96.5	74	157	5.08	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 8:54:18 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 6:32:01 PM	
Gasoline Range Organics (GRO)	0.4776	mg/L	0.050	92.2	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 7:02:09 PM	
Gasoline Range Organics (GRO)	0.4738	mg/L	0.050	91.4	80	115	0.799	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 8:54:18 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 1:30:50 PM	
Benzene	18.60	µg/L	1.0	93.0	85.9	113			
Toluene	19.31	µg/L	1.0	96.5	86.4	113			
Ethylbenzene	19.67	µg/L	1.0	98.3	83.5	118			
Xylenes, Total	58.34	µg/L	2.0	97.2	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	**R23473**	Analysis Date:	5/4/2007 2:00:51 PM	
Benzene	18.64	µg/L	1.0	93.2	85.9	113	0.226	27	
Toluene	19.27	µg/L	1.0	96.4	86.4	113	0.187	19	
Ethylbenzene	19.57	µg/L	1.0	97.8	83.5	118	0.500	10	
Xylenes, Total	58.14	µg/L	2.0	96.9	83.4	122	0.343	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/3/2007

Work Order Number 0705063 | Received by TLS

Checklist completed by Tonya SL (Signature) May 3, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	14°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 14°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0705063
5-2-07	8:33	H_2O	GAC-B	3-40A			X	1

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
5-2-07	8:50	Robert Krakow		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	5/3/07 1452

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 17, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 5/9/07

Order No.: 0705154

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/11/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *17-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705154	**Collection Date:**	5/9/2007 1:45:00 PM
Project:	GAC 5/9/07	**Date Received:**	5/11/2007
Lab ID:	0705154-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/15/2007 7:05:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2007 7:05:38 PM
Surr: DNOP	117	58-140		%REC	1	5/15/2007 7:05:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/14/2007 2:58:26 PM
Surr: BFB	121	79.2-121	S	%REC	1	5/14/2007 2:58:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Toluene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Ethylbenzene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Xylenes, Total	ND	2.0		µg/L	1	5/14/2007 2:58:26 PM
Surr: 4-Bromofluorobenzene	92.7	70.2-105		%REC	1	5/14/2007 2:58:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 5/9/07 **Work Order:** 0705154

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12932		*MBLK*			Batch ID: **12932**		Analysis Date:		5/15/2007 3:04:39 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12932		*LCS*			Batch ID: **12932**		Analysis Date:		5/15/2007 3:39:15 PM
Diesel Range Organics (DRO)	4.810	mg/L	1.0	96.2	74	157			
Sample ID: LCSD-12932		*LCSD*			Batch ID: **12932**		Analysis Date:		5/15/2007 4:13:40 PM
Diesel Range Organics (DRO)	4.860	mg/L	1.0	97.2	74	157	1.03	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23590**		Analysis Date:		5/14/2007 8:19:39 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R23590**		Analysis Date:		5/14/2007 5:04:15 PM
Gasoline Range Organics (GRO)	0.4702	mg/L	0.050	91.1	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID: **R23590**		Analysis Date:		5/14/2007 5:34:20 PM
Gasoline Range Organics (GRO)	0.4792	mg/L	0.050	92.9	80	115	1.90	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23590**		Analysis Date:		5/14/2007 8:19:39 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS 0		*LCS*			Batch ID: **R23590**		Analysis Date:		5/14/2007 9:50:01 AM
Benzene	19.25	µg/L	1.0	96.2	85.9	113			
Toluene	19.55	µg/L	1.0	97.7	86.4	113			
Ethylbenzene	19.66	µg/L	1.0	98.3	83.5	118			
Xylenes, Total	58.63	µg/L	2.0	97.7	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R23590**		Analysis Date:		5/14/2007 3:58:46 PM
Benzene	19.65	µg/L	1.0	98.2	85.9	113			
Toluene	19.76	µg/L	1.0	98.8	86.4	113			
Ethylbenzene	20.01	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.06	µg/L	2.0	98.4	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: **R23590**		Analysis Date:		5/14/2007 4:31:21 PM
Benzene	19.56	µg/L	1.0	97.8	85.9	113	0.449	27	
Toluene	19.69	µg/L	1.0	98.4	86.4	113	0.385	19	
Ethylbenzene	19.80	µg/L	1.0	99.0	83.5	118	1.04	10	
Xylenes, Total	58.82	µg/L	2.0	98.0	83.4	122	0.414	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/11/2007

Work Order Number 0705154 | Received by TLS

Checklist completed by Tanya SL (Signature) May 11,07 (Date)

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	8°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN REFINING
Address: #50 CR 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 5-9-07
Project #:
Project Manager:
Sampler: Bob KRAKOW
Sample Temperature: 80

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0705154
5-9-07	1:45	H_2O	GAC-B	3-VOA			X	1

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
5-9-07	2:45	Robert Krakow	Tonya Shone 5/11/07 1052
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, May 23, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC- 5/15/07

Order No.: 0705220

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/16/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *23-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705220	**Collection Date:**	5/15/2007 12:15:00 PM
Project:	GAC- 5/15/07	**Date Received:**	5/16/2007
Lab ID:	0705220-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/22/2007 8:50:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/22/2007 8:50:51 PM
Surr: DNOP	118	58-140		%REC	1	5/22/2007 8:50:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/16/2007 8:34:41 PM
Surr: BFB	109	79.2-121		%REC	1	5/16/2007 8:34:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Toluene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Ethylbenzene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Xylenes, Total	ND	2.0		µg/L	1	5/16/2007 8:34:41 PM
Surr: 4-Bromofluorobenzene	84.3	70.2-105		%REC	1	5/16/2007 8:34:41 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC- 5/15/07 **Work Order:** 0705220

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13003		*MBLK*			Batch ID: **13003**		Analysis Date:	5/22/2007 6:32:11 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13003		*LCS*			Batch ID: **13003**		Analysis Date:	5/22/2007 7:06:50 PM	
Diesel Range Organics (DRO)	4.973	mg/L	1.0	99.5	74	157			
Sample ID: LCSD-13003		*LCSD*			Batch ID: **13003**		Analysis Date:	5/22/2007 7:41:33 PM	
Diesel Range Organics (DRO)	5.046	mg/L	1.0	101	74	157	1.47	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23622**		Analysis Date:	5/16/2007 8:18:09 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R23622**		Analysis Date:	5/16/2007 7:34:35 PM	
Gasoline Range Organics (GRO)	0.4916	mg/L	0.050	95.2	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID: **R23622**		Analysis Date:	5/16/2007 8:04:40 PM	
Gasoline Range Organics (GRO)	0.4758	mg/L	0.050	92.1	80	115	3.27	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23622**		Analysis Date:	5/16/2007 8:18:09 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R23622**		Analysis Date:	5/16/2007 6:34:27 PM	
Benzene	19.52	µg/L	1.0	97.6	85.9	113			
Toluene	19.54	µg/L	1.0	97.7	86.4	113			
Ethylbenzene	19.86	µg/L	1.0	99.3	83.5	118			
Xylenes, Total	58.81	µg/L	2.0	98.0	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: **R23622**		Analysis Date:	5/16/2007 7:04:37 PM	
Benzene	19.07	µg/L	1.0	95.3	85.9	113	2.35	27	
Toluene	19.40	µg/L	1.0	97.0	86.4	113	0.729	19	
Ethylbenzene	19.52	µg/L	1.0	97.6	83.5	118	1.71	10	
Xylenes, Total	58.09	µg/L	2.0	96.8	83.4	122	1.23	13	

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/16/2007

Work Order Number 0705220 | Received by TLS

Checklist completed by _____ May 16, 07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	2°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC-5/15/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 2°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3		
5/15/07	1215p	H2O	GAC - B	3-VOA			HCL	0705220 1

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
5/15/07	1PM	Cindy Hurtado	Tonya Shomin	5/16/07 944
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 2nd QTR-2007

Order No.: 0706319

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	GAC Influent
Lab Order:	0706319	Collection Date:	6/20/2007 9:05:00 AM
Project:	GAC 2nd QTR-2007	Date Received:	6/21/2007
Lab ID:	0706319-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.4	1.0		mg/L	1	6/27/2007 2:55:52 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 2:55:52 PM
Surr: DNOP	112	58-140		%REC	1	6/27/2007 2:55:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4.8	1.0		mg/L	20	7/1/2007 12:17:06 AM
Surr: BFB	106	79.2-121		%REC	20	7/1/2007 12:17:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	7/1/2007 12:17:06 AM
Benzene	350	20		µg/L	20	7/1/2007 12:17:06 AM
Toluene	ND	20		µg/L	20	7/1/2007 12:17:06 AM
Ethylbenzene	730	20		µg/L	20	7/1/2007 12:17:06 AM
Xylenes, Total	700	40		µg/L	20	7/1/2007 12:17:06 AM
Surr: 4-Bromofluorobenzene	90.8	70.2-105		%REC	20	7/1/2007 12:17:06 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- E Value above quantitation range
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- MCL Maximum Contaminant Level
- RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	GAC #1
Lab Order:	0706319	Collection Date:	6/20/2007 9:15:00 AM
Project:	GAC 2nd QTR-2007	Date Received:	6/21/2007
Lab ID:	0706319-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 3:31:08 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 3:31:08 PM
Surr: DNOP	111	58-140		%REC	1	6/27/2007 3:31:08 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/1/2007 12:47:13 AM
Surr: BFB	96.7	79.2-121		%REC	1	7/1/2007 12:47:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 12:47:13 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Xylenes, Total	ND	2.0		µg/L	1	7/1/2007 12:47:13 AM
Surr: 4-Bromofluorobenzene	82.4	70.2-105		%REC	1	7/1/2007 12:47:13 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	GAC #2
Lab Order:	0706319	Collection Date:	6/20/2007 9:25:00 AM
Project:	GAC 2nd QTR-2007	Date Received:	6/21/2007
Lab ID:	0706319-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 4:06:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 4:06:25 PM
Surr: DNOP	112	58-140		%REC	1	6/27/2007 4:06:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/1/2007 1:17:12 AM
Surr: BFB	96.5	79.2-121		%REC	1	7/1/2007 1:17:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 1:17:12 AM
Benzene	2.5	1.0		µg/L	1	7/1/2007 1:17:12 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 1:17:12 AM
Ethylbenzene	1.5	1.0		µg/L	1	7/1/2007 1:17:12 AM
Xylenes, Total	2.2	2.0		µg/L	1	7/1/2007 1:17:12 AM
Surr: 4-Bromofluorobenzene	82.0	70.2-105		%REC	1	7/1/2007 1:17:12 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 2nd QTR-2007 **Work Order:** 0706319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13262		*MBLK*			Batch ID: 13262		Analysis Date: 6/27/2007 1:10:07 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13262		*LCS*			Batch ID: 13262		Analysis Date: 6/27/2007 1:45:10 PM		
Diesel Range Organics (DRO)	5.722	mg/L	1.0	114	74	157			
Sample ID: LCSD-13262		*LCSD*			Batch ID: 13262		Analysis Date: 6/27/2007 2:20:34 PM		
Diesel Range Organics (DRO)	5.745	mg/L	1.0	115	74	157	0.392	23	
Method: SW8015									
Sample ID: 0706319-03A MSD		*MSD*			Batch ID: R24198		Analysis Date: 7/1/2007 2:17:17 AM		
Gasoline Range Organics (GRO)	0.5070	mg/L	0.050	95.5	80	115	2.07	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: R24198		Analysis Date: 6/30/2007 6:59:05 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: R24198		Analysis Date: 6/30/2007 11:14:32 PM		
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115			
Sample ID: 0706319-03A MS		*MS*			Batch ID: R24198		Analysis Date: 7/1/2007 1:47:18 AM		
Gasoline Range Organics (GRO)	0.4966	mg/L	0.050	93.4	80	115			
Method: SW8021									
Sample ID: 0706319-03A MSD		*MSD*			Batch ID: R24198		Analysis Date: 7/1/2007 2:17:17 AM		
Methyl tert-butyl ether (MTBE)	6.924	µg/L	2.5	83.9	51.2	138	2.19	28	
Benzene	7.290	µg/L	1.0	87.1	85.9	113	0.633	27	
Toluene	39.31	µg/L	1.0	97.4	86.4	113	2.74	19	
Ethylbenzene	8.948	µg/L	1.0	93.6	83.5	118	3.16	10	
Xylenes, Total	47.49	µg/L	2.0	98.3	83.4	122	1.81	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: R24198		Analysis Date: 6/30/2007 6:59:05 PM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R24198		Analysis Date: 6/30/2007 11:44:25 PM		
Methyl tert-butyl ether (MTBE)	18.69	µg/L	2.5	93.5	51.2	138			
Benzene	19.42	µg/L	1.0	97.1	85.9	113			
Toluene	19.80	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	20.03	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.67	µg/L	2.0	99.4	83.4	122			
Sample ID: 0706319-03A MS		*MS*			Batch ID: R24198		Analysis Date: 7/1/2007 1:47:18 AM		
Methyl tert-butyl ether (MTBE)	6.774	µg/L	2.5	82.1	51.2	138			
Benzene	7.244	µg/L	1.0	86.3	85.9	113			
Toluene	38.25	µg/L	1.0	94.8	86.4	113			
Ethylbenzene	8.670	µg/L	1.0	90.1	83.5	118			
Xylenes, Total	46.63	µg/L	2.0	96.4	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706319 | Received by TLS

Checklist completed by _____ Signature 6/21/07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC - 2nd QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 6°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCL	HEAL No. 0706319
6/20/07	905A	H2O	GAC Influent	4-VOA			✓	1
"	915A	"	GAC #1	4-VOA			✓	2
"	925A	"	GAC #2	4-VOA			✓	3

ANALYSIS REQUEST

Sample	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
1	X		X														
2	X		X														
3	X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	Date:	Time:
6/20/07	945A	Cindy Hurtado	Tanya S.	6/21/07	1355

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, July 19, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3rd QTR-2007

Order No.: 0707182

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 7/13/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Jul-07*

CLIENT: San Juan Refining
Project: GAC 3rd QTR-2007
Lab Order: 0707182

CASE NARRATIVE

"S" flags denote that the surrogate was poor due to sample dilution or matrix interferences.

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Inlet
Lab Order:	0707182	**Collection Date:**	7/12/2007 2:30:00 PM
Project:	GAC 3rd QTR-2007	**Date Received:**	7/13/2007
Lab ID:	0707182-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/17/2007 12:56:21 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/17/2007 12:56:21 PM
Surr: DNOP	105	58-140		%REC	1	7/17/2007 12:56:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	17	0.50		mg/L	10	7/17/2007 3:13:44 PM
Surr: BFB	148	79.2-121	S	%REC	10	7/17/2007 3:13:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BDH**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	7/17/2007 3:13:44 PM
Benzene	55	10		µg/L	10	7/17/2007 3:13:44 PM
Toluene	ND	10		µg/L	10	7/17/2007 3:13:44 PM
Ethylbenzene	830	10		µg/L	10	7/17/2007 3:13:44 PM
Xylenes, Total	4100	100		µg/L	50	7/18/2007 1:02:31 PM
Surr: 4-Bromofluorobenzene	137	70.2-105	S	%REC	10	7/17/2007 3:13:44 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	EFF-1
Lab Order:	0707182	**Collection Date:**	7/12/2007 2:20:00 PM
Project:	GAC 3rd QTR-2007	**Date Received:**	7/13/2007
Lab ID:	0707182-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/17/2007 1:31:56 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/17/2007 1:31:56 PM
Surr: DNOP	103	58-140		%REC	1	7/17/2007 1:31:56 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	0.28	0.050		mg/L	1	7/17/2007 4:13:48 PM
Surr: BFB	130	79.2-121	S	%REC	1	7/17/2007 4:13:48 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BDH**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/17/2007 4:13:48 PM
Benzene	2.3	1.0		µg/L	1	7/17/2007 4:13:48 PM
Toluene	ND	1.0		µg/L	1	7/17/2007 4:13:48 PM
Ethylbenzene	12	1.0		µg/L	1	7/17/2007 4:13:48 PM
Xylenes, Total	78	2.0		µg/L	1	7/17/2007 4:13:48 PM
Surr: 4-Bromofluorobenzene	119	70.2-105	S	%REC	1	7/17/2007 4:13:48 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *19-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	EFF-2
Lab Order:	0707182	**Collection Date:**	7/12/2007 2:25:00 PM
Project:	GAC 3rd QTR-2007	**Date Received:**	7/13/2007
Lab ID:	0707182-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	7/17/2007 2:07:52 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/17/2007 2:07:52 PM
Surr: DNOP	96.8	58-140		%REC	1	7/17/2007 2:07:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **BDH**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/17/2007 4:43:46 PM
Surr: BFB	116	79.2-121		%REC	1	7/17/2007 4:43:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **BDH**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/17/2007 4:43:46 PM
Benzene	ND	1.0		µg/L	1	7/17/2007 4:43:46 PM
Toluene	ND	1.0		µg/L	1	7/17/2007 4:43:46 PM
Ethylbenzene	ND	1.0		µg/L	1	7/17/2007 4:43:46 PM
Xylenes, Total	ND	2.0		µg/L	1	7/17/2007 4:43:46 PM
Surr: 4-Bromofluorobenzene	104	70.2-105		%REC	1	7/17/2007 4:43:46 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3rd QTR-2007
Work Order: 0707182

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13403		*MBLK*			Batch ID:	**13403**	Analysis Date:	7/17/2007 11:11:07 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13403		*LCS*			Batch ID:	**13403**	Analysis Date:	7/17/2007 11:46:03 AM	
Diesel Range Organics (DRO)	5.424	mg/L	1.0	95.6	74	157			
Sample ID: LCSD-13403		*LCSD*			Batch ID:	**13403**	Analysis Date:	7/17/2007 12:21:02 PM	
Diesel Range Organics (DRO)	5.912	mg/L	1.0	105	74	157	8.62	23	
Method: SW8015									
Sample ID: 0707182-03A MSD		*MSD*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 5:43:45 PM	
Gasoline Range Organics (GRO)	0.4530	mg/L	0.050	85.2	80	115	1.11	8.39	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 8:50:32 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24435**	Analysis Date:	7/18/2007 9:57:03 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG LCS		*LCS*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 9:18:52 PM	
Gasoline Range Organics (GRO)	0.4442	mg/L	0.050	83.3	80	115			
Sample ID: 2.0UG GRO CCV		*LCS*			Batch ID:	**R24435**	Analysis Date:	7/18/2007 3:13:05 PM	
Gasoline Range Organics (GRO)	0.3804	mg/L	0.050	88.2	80	115			
Sample ID: 0707182-03A MS		*MS*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 5:13:43 PM	
Gasoline Range Organics (GRO)	0.4480	mg/L	0.050	84.2	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3rd QTR-2007 **Work Order:** 0707182

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0707182-03A MSD		*MSD*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 5:43:45 PM	
Methyl tert-butyl ether (MTBE)	7.828	µg/L	2.5	94.3	51.2	138	0.281	28	
Benzene	5.550	µg/L	1.0	99.1	85.9	113	0.397	27	
Toluene	36.60	µg/L	1.0	91.5	86.4	113	0.241	19	
Ethylbenzene	7.618	µg/L	1.0	96.4	83.5	118	0.732	10	
Xylenes, Total	44.07	µg/L	2.0	92.4	83.4	122	0.136	13	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 8:50:32 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24435**	Analysis Date:	7/18/2007 9:57:03 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 2.5UG LCS		*LCS*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 9:18:52 PM	
Methyl tert-butyl ether (MTBE)	8.106	µg/L	2.5	97.7	51.2	138			
Benzene	5.780	µg/L	1.0	103	85.9	113			
Toluene	37.89	µg/L	1.0	94.7	86.4	113			
Ethylbenzene	7.604	µg/L	1.0	96.3	83.5	118			
Xylenes, Total	43.98	µg/L	2.0	95.6	83.4	122			
Sample ID: 100NG BTEX CCV		*LCS*			Batch ID:	**R24435**	Analysis Date:	7/18/2007 3:43:04 PM	
Methyl tert-butyl ether (MTBE)	21.42	µg/L	2.5	53.6	51.2	138			
Benzene	19.47	µg/L	1.0	97.4	85.9	113			
Toluene	18.92	µg/L	1.0	94.6	86.4	113			
Ethylbenzene	18.63	µg/L	1.0	93.2	83.5	118			
Xylenes, Total	56.62	µg/L	2.0	94.4	83.4	122			
Sample ID: 0707182-03A MS		*MS*			Batch ID:	**R24424**	Analysis Date:	7/17/2007 5:13:43 PM	
Methyl tert-butyl ether (MTBE)	7.806	µg/L	2.5	94.0	51.2	138			
Benzene	5.528	µg/L	1.0	98.7	85.9	113			
Toluene	36.51	µg/L	1.0	91.3	86.4	113			
Ethylbenzene	7.674	µg/L	1.0	97.1	83.5	118			
Xylenes, Total	44.01	µg/L	2.0	92.3	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 7/13/2007

Work Order Number 0707182 | Received by NJM

Checklist completed by _____ Signature 7/13/07 Date

Matrix: | Carrier name UPS

Shipping container/cooler in good condition?	Yes ✓	No	Not Present	
Custody seals intact on shipping container/cooler?	Yes	No	Not Present ✓	Not Shipped
Custody seals intact on sample bottles?	Yes	No	N/A ✓	
Chain of custody present?	Yes ✓	No		
Chain of custody signed when relinquished and received?	Yes ✓	No		
Chain of custody agrees with sample labels?	Yes ✓	No		
Samples in proper container/bottle?	Yes ✓	No		
Sample containers intact?	Yes ✓	No		
Sufficient sample volume for indicated test?	Yes ✓	No		
All samples received within holding time?	Yes ✓	No		
Water - VOA vials have zero headspace?	No VOA vials submitted	Yes ✓	No	
Water - Preservation labels on bottle and cap match?	Yes	No	N/A ✓	
Water - pH acceptable upon receipt?	Yes	No	N/A ✓	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding:

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Project Name: 3rd GAC QTR - 2007
Address: #50 CR 4990 Bloomfield, NM 87413
Project #:
Project Manager:
Phone #: 505-632-4161
Fax #: 505-632-3911
Sampler: GH/RMK
Sample Temperature: 4.6 °C

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No.	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
7/12/07	230pm	H_2O	INLET	4-VOA			X	0707182-1	X		X														
	220pm	H_2O	EFF-1	4-VOA			X	-2	X		X														
	225pm	H_2O	EFF-2	4-VOA			X	-3	X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
7/12/07	316pm	Cindy Muntado	7/13/07 1210
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

ANALYSIS REQUEST

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, August 23, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 8/14/07

Order No.: 0708205

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 8/16/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Aug-07*

CLIENT: San Juan Refining
Project: GAC Analysis 8/14/07
Lab Order: 0708205

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0708205-01A	GAC Lead	13633	EPA Method 8015B: Diesel Range	8/14/2007 1:50:00 PM
0708205-01A	GAC Lead	R24867	EPA Method 8021B: Volatiles	8/14/2007 1:50:00 PM
0708205-01A	GAC Lead	R24867	EPA Method 8015B: Gasoline Range	8/14/2007 1:50:00 PM
0708205-02A	GAC Lag	13633	EPA Method 8015B: Diesel Range	8/14/2007 2:00:00 PM
0708205-02A	GAC Lag	R24867	EPA Method 8021B: Volatiles	8/14/2007 2:00:00 PM
0708205-02A	GAC Lag	R24867	EPA Method 8015B: Gasoline Range	8/14/2007 2:00:00 PM

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lead
Lab Order:	0708205	**Collection Date:**	8/14/2007 1:50:00 PM
Project:	GAC Analysis 8/14/07	**Date Received:**	8/16/2007
Lab ID:	0708205-01	**Matrix:**	AQUEOUS

Analyses		Result	Qual	MDL	PQL	Units	DF	Date Analyzed
CAS #	**EPA METHOD 8015B: DIESEL RANGE**							Analyst: **SCC**
TPH-Diesel	Diesel Range Organics (DRO)	0.66	J	0.53	1.0	mg/L	1	8/18/2007 1:26:40 AM
TPH-Motor Oil	Motor Oil Range Organics (MRO)	ND		4.0	5.0	mg/L	1	8/18/2007 1:26:40 AM
117-84-0	Surr: DNOP	124		0	58-140	%REC	1	8/18/2007 1:26:40 AM
CAS #	**EPA METHOD 8015B: GASOLINE RANGE**							Analyst: **SMP**
TPH-Gasoline	Gasoline Range Organics (GRO)	0.035	J	0.014	0.050	mg/L	1	8/22/2007 9:40:32 PM
460-00-4	Surr: BFB	102		0	79.2-121	%REC	1	8/22/2007 9:40:32 PM
CAS #	**EPA METHOD 8021B: VOLATILES**							Analyst: **SMP**
71-43-2	Benzene	0.32	J	0.047	1.0	µg/L	1	8/22/2007 9:40:32 PM
108-88-3	Toluene	ND		0.047	1.0	µg/L	1	8/22/2007 9:40:32 PM
100-41-4	Ethylbenzene	1.6		0.047	1.0	µg/L	1	8/22/2007 9:40:32 PM
1330-20-7	Xylenes, Total	5.8		0.16	2.0	µg/L	1	8/22/2007 9:40:32 PM
460-00-4	Surr: 4-Bromofluorobenzene	86.0		0	70.2-105	%REC	1	8/22/2007 9:40:32 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quanititation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Aug-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lag
Lab Order:	0708205	**Collection Date:**	8/14/2007 2:00:00 PM
Project:	GAC Analysis 8/14/07	**Date Received:**	8/16/2007
Lab ID:	0708205-02	**Matrix:**	AQUEOUS

Analyses		Result	Qual	MDL	PQL	Units	DF	Date Analyzed
CAS #	**EPA METHOD 8015B: DIESEL RANGE**							Analyst: **SCC**
TPH-Diesel	Diesel Range Organics (DRO)	0.68	J	0.53	1.0	mg/L	1	8/18/2007 2:01:55 AM
TPH-Motor Oil	Motor Oil Range Organics (MRO)	ND		4.0	5.0	mg/L	1	8/18/2007 2:01:55 AM
117-84-0	Surr: DNOP	122		0	58-140	%REC	1	8/18/2007 2:01:55 AM
CAS #	**EPA METHOD 8015B: GASOLINE RANGE**							Analyst: **SMP**
TPH-Gasoline	Gasoline Range Organics (GRO)	0.024	J	0.014	0.050	mg/L	1	8/22/2007 11:10:16 PM
460-00-4	Surr: BFB	102		0	79.2-121	%REC	1	8/22/2007 11:10:16 PM
CAS #	**EPA METHOD 8021B: VOLATILES**							Analyst: **SMP**
71-43-2	Benzene	ND		0.047	1.0	µg/L	1	8/22/2007 11:10:16 PM
108-88-3	Toluene	0.34	J	0.047	1.0	µg/L	1	8/22/2007 11:10:16 PM
100-41-4	Ethylbenzene	0.15	J	0.047	1.0	µg/L	1	8/22/2007 11:10:16 PM
1330-20-7	Xylenes, Total	0.61	J	0.16	2.0	µg/L	1	8/22/2007 11:10:16 PM
460-00-4	Surr: 4-Bromofluorobenzene	87.0		0	70.2-105	%REC	1	8/22/2007 11:10:16 PM

Qualifiers:

- ND - Not Detected at the Reporting Limit
- J - Analyte detected below quanititation limits
- B - Analyte detected in the associated Method Blank
- * - Value exceeds Maximum Contaminant Level
- S - Spike Recovery outside accepted recovery limits
- R - RPD outside accepted recovery limits
- E - Value above quantitation range

Hall Environmental Analysis Laboratory, Inc.

23-Aug-07

Lab Order: 0708205
Client: San Juan Refining
Project: GAC Analysis 8/14/07

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0708205-01A	GAC Lead	8/14/2007 1:50:00 PM	Aqueous	EPA Method 8015B: Diesel Range	13633	8/17/2007	8/18/2007
				EPA Method 8015B: Gasoline Range	R24867		8/22/2007
				EPA Method 8021B: Volatiles	R24867		8/22/2007
0708205-02A	GAC Lag	8/14/2007 2:00:00 PM		EPA Method 8015B: Diesel Range	13633	8/17/2007	8/18/2007
				EPA Method 8015B: Gasoline Range	R24867		8/22/2007
				EPA Method 8021B: Volatiles	R24867		8/22/2007

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QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 8/14/07 **Work Order:** 0708205

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13633		*MBLK*			Batch ID: **13633**		Analysis Date:	8/17/2007 11:43:11 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Surr: DNOP	1.127	mg/L	0	113	58	140			
Sample ID: LCS-13633		*LCS*			Batch ID: **13633**		Analysis Date:	8/17/2007 12:18:30 PM	
Diesel Range Organics (DRO)	4.792	mg/L	1.0	95.8	74	157			
Surr: DNOP	0.5481	mg/L	0	110	58	140			
Sample ID: LCSD-13633		*LCSD*			Batch ID: **13633**		Analysis Date:	8/17/2007 12:54:07 PM	
Diesel Range Organics (DRO)	5.484	mg/L	1.0	110	74	157	13.5	23	
Surr: DNOP	0.5807	mg/L	0	116	58	140	0	0	
Method: SW8015									
Sample ID: 0708205-01A MSD		*MSD*			Batch ID: **R24867**		Analysis Date:	8/22/2007 10:40:14 PM	
Gasoline Range Organics (GRO)	0.4708	mg/L	0.050	87.2	80	115	0.339	8.39	
Surr: BFB	22.46	mg/L	0	112	79.2	121	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R24867**		Analysis Date:	8/22/2007 7:41:34 AM	
Gasoline Range Organics (GRO)	0.01700	mg/L	0.050						J
Surr: BFB	19.32	mg/L	0	96.6	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24867**		Analysis Date:	8/22/2007 9:11:36 AM	
Gasoline Range Organics (GRO)	0.4884	mg/L	0.050	94.3	80	115			
Surr: BFB	22.18	mg/L	0	111	79.2	121			
Sample ID: 0708205-01A MS		*MS*			Batch ID: **R24867**		Analysis Date:	8/22/2007 10:10:21 PM	
Gasoline Range Organics (GRO)	0.4724	mg/L	0.050	87.5	80	115			
Surr: BFB	22.57	mg/L	0	113	79.2	121			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 8/14/07 **Work Order:** 0708205

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0708205-01A MSD		*MSD*			Batch ID:	**R24867**	Analysis Date:	8/22/2007 10:40:14 PM	
Benzene	6.032	µg/L	1.0	102	85.9	113	1.20	27	
Toluene	37.85	µg/L	1.0	94.6	86.4	113	1.08	19	
Ethylbenzene	9.502	µg/L	1.0	101	83.5	118	0.337	10	
Surr: 4-Bromofluorobenzene	19.37	µg/L	0	96.9	70.2	105	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R24867**	Analysis Date:	8/22/2007 7:41:34 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.52	µg/L	0	82.6	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R24867**	Analysis Date:	8/22/2007 9:41:42 AM	
Benzene	18.36	µg/L	1.0	91.8	85.9	113			
Toluene	18.60	µg/L	1.0	93.0	86.4	113			
Ethylbenzene	18.90	µg/L	1.0	94.5	83.5	118			
Xylenes, Total	56.47	µg/L	2.0	94.1	83.4	122			
Surr: 4-Bromofluorobenzene	18.18	µg/L	0	90.9	70.2	105			
Sample ID: 0708205-01A MS		*MS*			Batch ID:	**R24867**	Analysis Date:	8/22/2007 10:10:21 PM	
Benzene	5.960	µg/L	1.0	101	85.9	113			
Toluene	37.44	µg/L	1.0	93.6	86.4	113			
Ethylbenzene	9.470	µg/L	1.0	100	83.5	118			
Surr: 4-Bromofluorobenzene	19.49	µg/L	0	97.5	70.2	105			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 8/16/2007

Work Order Number 0708205 | Received by TLS

Checklist completed by Signature 8/16/07 Date

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	9°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☑
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 8-14-07
Project #:
Project Manager:
Sampler: Bob Krakow
Sample Temperature: 9°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0708205	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
8-14-07	1:50	H_2O	GAC Lead	4-VOA			X	1	X		X														
8-14-07	2:00	H_2O	GAG Lag	4-VOA			X	2	X		X														

Remarks:

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
8-14-07	3:15	Robert Krakow	Tonya S	8/16/07 935
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, September 14, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 9-10-07

Order No.: 0709114

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 9/11/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *14-Sep-07*

CLIENT: San Juan Refining
Project: GAC 9-10-07
Lab Order: 0709114

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0709114-01A	GAC Lead	R25145	EPA Method 8021B: Volatiles	9/10/2007 1:20:00 PM
0709114-02A	GAC Lag	R25145	EPA Method 8021B: Volatiles	9/10/2007 1:30:00 PM

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lead
Lab Order:	0709114	**Collection Date:**	9/10/2007 1:20:00 PM
Project:	GAC 9-10-07	**Date Received:**	9/11/2007
Lab ID:	0709114-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	1.0		µg/L	1	9/13/2007 2:25:02 AM
Toluene	ND	1.0		µg/L	1	9/13/2007 2:25:02 AM
Ethylbenzene	ND	1.0		µg/L	1	9/13/2007 2:25:02 AM
Xylenes, Total	ND	2.0		µg/L	1	9/13/2007 2:25:02 AM
Surr: 4-Bromofluorobenzene	82.5	70.2-105		%REC	1	9/13/2007 2:25:02 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: *17-Sep-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lag
Lab Order:	0709114	**Collection Date:**	9/10/2007 1:30:00 PM
Project:	GAC 9-10-07	**Date Received:**	9/11/2007
Lab ID:	0709114-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **SMP**
Benzene	ND	1.0		µg/L	1	9/13/2007 4:24:51 AM
Toluene	ND	1.0		µg/L	1	9/13/2007 4:24:51 AM
Ethylbenzene	ND	1.0		µg/L	1	9/13/2007 4:24:51 AM
Xylenes, Total	ND	2.0		µg/L	1	9/13/2007 4:24:51 AM
Surr: 4-Bromofluorobenzene	82.1	70.2-105		%REC	1	9/13/2007 4:24:51 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Lab Order: 0709114
Client: San Juan Refining
Project: GAC 9-10-07

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0709114-01A	GAC Lead	9/10/2007 1:20:00 PM	Aqueous	EPA Method 8021B: Volatiles	R25145		9/13/2007
0709114-02A	GAC Lag	9/10/2007 1:30:00 PM		EPA Method 8021B: Volatiles	R25145		9/13/2007

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 9-10-07
Work Order: 0709114

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0709114-01A MSD		*MSD*			Batch ID: **R25145**		Analysis Date:	9/13/2007 3:24:54 AM	
Benzene	6.092	µg/L	1.0	109	85.9	113	4.40	27	
Toluene	39.58	µg/L	1.0	99.0	86.4	113	5.40	19	
Ethylbenzene	8.484	µg/L	1.0	102	83.5	118	5.00	10	
Xylenes, Total	48.17	µg/L	2.0	102	83.4	122	5.53	13	
Surr: 4-Bromofluorobenzene	18.94	µg/L	0	94.7	70.2	105	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R25145**		Analysis Date:	9/12/2007 8:19:18 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.89	µg/L	0	84.4	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R25145**		Analysis Date:	9/12/2007 10:20:02 AM	
Benzene	19.41	µg/L	1.0	97.0	85.9	113			
Toluene	19.65	µg/L	1.0	98.2	86.4	113			
Ethylbenzene	19.83	µg/L	1.0	99.2	83.5	118			
Xylenes, Total	59.80	µg/L	2.0	99.7	83.4	122			
Surr: 4-Bromofluorobenzene	18.80	µg/L	0	94.0	70.2	105			
Sample ID: 0709114-01A MS		*MS*			Batch ID: **R25145**		Analysis Date:	9/13/2007 2:54:57 AM	
Benzene	5.830	µg/L	1.0	104	85.9	113			
Toluene	37.50	µg/L	1.0	93.8	86.4	113			
Ethylbenzene	8.070	µg/L	1.0	96.9	83.5	118			
Xylenes, Total	45.58	µg/L	2.0	96.4	83.4	122			
Surr: 4-Bromofluorobenzene	18.28	µg/L	0	91.4	70.2	105			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR

Date and Time Received: 9/11/2007

Work Order Number 0709114

Received by ARS

Checklist completed by 9/11/07
Signature Date

Matrix

Carrier name UPS

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	
Custody seals intact on shipping container/cooler?	Yes	☑	No	☐	Not Present	☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes	☐	No	☐	N/A	☑	
Chain of custody present?	Yes	☑	No	☐			
Chain of custody signed when relinquished and received?	Yes	☑	No	☐			
Chain of custody agrees with sample labels?	Yes	☑	No	☐			
Samples in proper container/bottle?	Yes	☑	No	☐			
Sample containers intact?	Yes	☑	No	☐			
Sufficient sample volume for indicated test?	Yes	☑	No	☐			
All samples received within holding time?	Yes	☑	No	☐			
Water - VOA vials have zero headspace?	No VOA vials submitted	☐	Yes	☑	No	☐	
Water - Preservation labels on bottle and cap match?	Yes	☐	No	☐	N/A	☑	
Water - pH acceptable upon receipt?	Yes	☐	No	☐	N/A	☑	

Container/Temp Blank temperature? 7° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☒
Other:

Client: SAN JUAN REFINING

Project Name: GAC 9-10-07

Address: #50 CR 4990
Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Bob Krakow

Fax #: 505-632-3911

Sample Temperature: 7°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0709114
9-10-07	1:20	H_2O	GAC Lead	3 VOA			X	1
9-10-07	1:30	H_2O	GAC Lag	3 VOA			X	2

ANALYSIS REQUEST

BTEX + [redacted] + [redacted]'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X																
X																

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)
9-10-07	2:30	Bob Krakow	10:08 9/11/07
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, October 22, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 4TH QTR

Order No.: 0710204

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 10/10/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Oct-07*

CLIENT: San Juan Refining
Project: GAC 4TH QTR
Lab Order: 0710204

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0710204-01A	GAC Inlet	14088	EPA Method 8015B: Diesel Range	10/9/2007 1:10:00 PM
0710204-01A	GAC Inlet	R25530	EPA Method 8021B: Volatiles	10/9/2007 1:10:00 PM
0710204-01A	GAC Inlet	R25530	EPA Method 8021B: Volatiles	10/9/2007 1:10:00 PM
0710204-01A	GAC Inlet	R25530	EPA Method 8015B: Gasoline Range	10/9/2007 1:10:00 PM
0710204-01A	GAC Inlet	R25530	EPA Method 8015B: Gasoline Range	10/9/2007 1:10:00 PM
0710204-02A	GAC Lead	14088	EPA Method 8015B: Diesel Range	10/9/2007 1:00:00 PM
0710204-02A	GAC Lead	R25530	EPA Method 8021B: Volatiles	10/9/2007 1:00:00 PM
0710204-02A	GAC Lead	R25530	EPA Method 8015B: Gasoline Range	10/9/2007 1:00:00 PM
0710204-03A	GAC Lag	14088	EPA Method 8015B: Diesel Range	10/9/2007 12:45:00 PM
0710204-03A	GAC Lag	R25530	EPA Method 8021B: Volatiles	10/9/2007 12:45:00 PM
0710204-03A	GAC Lag	R25530	EPA Method 8015B: Gasoline Range	10/9/2007 12:45:00 PM

Hall Environmental Analysis Laboratory, Inc. **Date:** *22-Oct-07*

CLIENT: San Juan Refining
Project: GAC 4TH QTR
Lab Order: 0710204

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0710204-01A: Elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Oct-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Inlet
Lab Order:	0710204	**Collection Date:**	10/9/2007 1:10:00 PM
Project:	GAC 4TH QTR	**Date Received:**	10/10/2007
Lab ID:	0710204-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/16/2007 3:51:11 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/16/2007 3:51:11 PM
Surr: DNOP	119	58-140		%REC	1	10/16/2007 3:51:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	16	0.50		mg/L	10	10/11/2007 2:50:00 PM
Surr: BFB	124	79.2-121	S	%REC	10	10/11/2007 2:50:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	37	10		µg/L	10	10/11/2007 2:50:00 PM
Toluene	ND	10		µg/L	10	10/11/2007 2:50:00 PM
Ethylbenzene	760	10		µg/L	10	10/11/2007 2:50:00 PM
Xylenes, Total	3900	100		µg/L	50	10/11/2007 2:17:19 PM
Surr: 4-Bromofluorobenzene	98.2	70.2-105		%REC	50	10/11/2007 2:17:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Oct-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lead
Lab Order:	0710204	**Collection Date:**	10/9/2007 1:00:00 PM
Project:	GAC 4TH QTR	**Date Received:**	10/10/2007
Lab ID:	0710204-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/16/2007 4:26:29 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/16/2007 4:26:29 PM
Surr: DNOP	117	58-140		%REC	1	10/16/2007 4:26:29 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/11/2007 3:50:04 PM
Surr: BFB	97.4	79.2-121		%REC	1	10/11/2007 3:50:04 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	10/11/2007 3:50:04 PM
Toluene	ND	1.0		µg/L	1	10/11/2007 3:50:04 PM
Ethylbenzene	ND	1.0		µg/L	1	10/11/2007 3:50:04 PM
Xylenes, Total	ND	2.0		µg/L	1	10/11/2007 3:50:04 PM
Surr: 4-Bromofluorobenzene	86.3	70.2-105		%REC	1	10/11/2007 3:50:04 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Oct-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Lag
Lab Order:	0710204	**Collection Date:**	10/9/2007 12:45:00 PM
Project:	GAC 4TH QTR	**Date Received:**	10/10/2007
Lab ID:	0710204-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	10/16/2007 5:01:46 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	10/16/2007 5:01:46 PM
Surr: DNOP	118	58-140		%REC	1	10/16/2007 5:01:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	10/11/2007 4:19:55 PM
Surr: BFB	96.1	79.2-121		%REC	1	10/11/2007 4:19:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	10/11/2007 4:19:55 PM
Toluene	ND	1.0		µg/L	1	10/11/2007 4:19:55 PM
Ethylbenzene	ND	1.0		µg/L	1	10/11/2007 4:19:55 PM
Xylenes, Total	ND	2.0		µg/L	1	10/11/2007 4:19:55 PM
Surr: 4-Bromofluorobenzene	85.8	70.2-105		%REC	1	10/11/2007 4:19:55 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

22-Oct-07

Lab Order: 0710204
Client: San Juan Refining
Project: GAC 4TH QTR

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0710204-01A	GAC Inlet	10/9/2007 1:10:00 PM	Aqueous	EPA Method 8015B: Diesel Range	14088	10/16/2007	10/16/2007
				EPA Method 8015B: Gasoline Range	R25530		10/11/2007
				EPA Method 8015B: Gasoline Range	R25530		10/11/2007
				EPA Method 8021B: Volatiles	R25530		10/11/2007
				EPA Method 8021B: Volatiles	R25530		10/11/2007
0710204-02A	GAC Lead	10/9/2007 1:00:00 PM		EPA Method 8015B: Diesel Range	14088	10/16/2007	10/16/2007
				EPA Method 8015B: Gasoline Range	R25530		10/11/2007
				EPA Method 8021B: Volatiles	R25530		10/11/2007
0710204-03A	GAC Lag	10/9/2007 12:45:00 PM		EPA Method 8015B: Diesel Range	14088	10/16/2007	10/16/2007
				EPA Method 8015B: Gasoline Range	R25530		10/11/2007
				EPA Method 8021B: Volatiles	R25530		10/11/2007

QA/QC SUMMARY REPOR

Client: San Juan Refining
Project: GAC 4TH QTR **Work Order:** 0710204

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range									
Sample ID: MB-14088		*MBLK*			Batch ID:	**14088**	Analysis Date:	10/16/2007 2:05:10 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Surr: DNOP	1.166	mg/L	0	117	58	140			
Sample ID: LCS-14088		*LCS*			Batch ID:	**14088**	Analysis Date:	10/16/2007 2:40:42 PM	
Diesel Range Organics (DRO)	5.655	mg/L	1.0	113	74	157			
Surr: DNOP	0.5484	mg/L	0	110	58	140			
Sample ID: LCSD-14088		*LCSD*			Batch ID:	**14088**	Analysis Date:	10/16/2007 3:15:59 PM	
Diesel Range Organics (DRO)	6.305	mg/L	1.0	126	74	157	10.9	23	
Surr: DNOP	0.5884	mg/L	0	118	58	140	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0710204-03A MSD		*MSD*			Batch ID:	**R25530**	Analysis Date:	10/11/2007 8:19:47 PM	
Gasoline Range Organics (GRO)	0.4132	mg/L	0.050	82.6	80	115	3.33	8.39	
Surr: BFB	21.61	mg/L	0	108	79.2	121	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25530**	Analysis Date:	10/11/2007 8:41:40 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	18.75	mg/L	0	93.8	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R25530**	Analysis Date:	10/11/2007 8:49:47 PM	
Gasoline Range Organics (GRO)	0.4718	mg/L	0.050	90.9	80	115			
Surr: BFB	22.30	mg/L	0	112	79.2	121			
Sample ID: 0710204-03A MS		*MS*			Batch ID:	**R25530**	Analysis Date:	10/11/2007 7:49:43 PM	
Gasoline Range Organics (GRO)	0.4272	mg/L	0.050	85.4	80	115			
Surr: BFB	22.01	mg/L	0	110	79.2	121			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPOR

Client: San Juan Refining
Project: GAC 4TH QTR **Work Order:** 0710204

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0710204-03A MSD		*MSD*			Batch ID:	**R25530**	Analysis Date:		10/11/2007 8:19:47 PM
Benzene	6.004	µg/L	1.0	107	85.9	113	2.08	27	
Toluene	38.42	µg/L	1.0	96.0	86.4	113	2.91	19	
Ethylbenzene	7.640	µg/L	1.0	96.7	83.5	118	3.14	10	
Xylenes, Total	43.70	µg/L	2.0	95.0	83.4	122	3.26	13	
Surr: 4-Bromofluorobenzene	19.79	µg/L	0	99.0	70.2	105	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R25530**	Analysis Date:		10/11/2007 8:41:40 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	17.09	µg/L	0	85.4	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R25530**	Analysis Date:		10/11/2007 9:49:42 PM
Benzene	20.51	µg/L	1.0	103	85.9	113			
Toluene	19.82	µg/L	1.0	99.1	86.4	113			
Ethylbenzene	19.44	µg/L	1.0	97.2	83.5	118			
Xylenes, Total	57.97	µg/L	2.0	96.6	83.4	122			
Surr: 4-Bromofluorobenzene	19.40	µg/L	0	97.0	70.2	105			
Sample ID: 0710204-03A MS		*MS*			Batch ID:	**R25530**	Analysis Date:		10/11/2007 7:49:43 PM
Benzene	6.130	µg/L	1.0	109	85.9	113			
Toluene	39.55	µg/L	1.0	98.9	86.4	113			
Ethylbenzene	7.884	µg/L	1.0	99.8	83.5	118			
Xylenes, Total	45.14	µg/L	2.0	98.1	83.4	122			
Surr: 4-Bromofluorobenzene	20.09	µg/L	0	100	70.2	105			

Qualifiers:

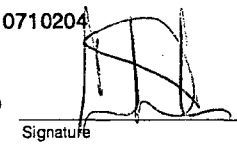
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **SJR** Date and Time Received: **10/10/2007**

Work Order Number **0710204** Received by **TLS**

Checklist completed b  Signature 10/10/07 Date

Matrix Carrier name Client drop-off

Shipping container/cooler in good condition?	Yes	☑	No	☐	Not Present	☐	
Custody seals intact on shipping container/cooler?	Yes	☐	No	☐	Not Present	☐	Not Shipped ☑
Custody seals intact on sample bottles?	Yes	☐	No	☐	N/A	☑	
Chain of custody present?	Yes	☑	No	☐			
Chain of custody signed when relinquished and received?	Yes	☑	No	☐			
Chain of custody agrees with sample labels?	Yes	☑	No	☐			
Samples in proper container/bottle?	Yes	☑	No	☐			
Sample containers intact?	Yes	☑	No	☐			
Sufficient sample volume for indicated test?	Yes	☑	No	☐			
All samples received within holding time?	Yes	☑	No	☐			
Water - VOA vials have zero headspace?	No VOA vials submitted	☐	Yes	☑	No	☐	
Water - Preservation labels on bottle and cap match?	Yes	☐	No	☐	N/A	☑	
Water - pH acceptable upon receipt?	Yes	☐	No	☐	N/A	☑	

Container/Temp Blank temperature? **4°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

_____

_____

_____

_____

Corrective Action _____

_____

_____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☑
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: ~~GIANT Re~~ SAN JUAN Refining

Project Name: GAC 4TH QTR

Address: #50 CR 4990 Bloomfield, NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Robert KRAKow

Fax #: 505-632-3911

Sample Temperature: 4°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.	BTEX + ~~MBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
					$HgCl_2$	HNO_3	HCl	0710204																
10-9-07	1:10	H_2O	GAC Inlet	4-VOA			X	1	X		X													
"	1:00	"	GAC Lead	4-VOA			X	2	X		X													
"	12:45	"	GAC Lag	4-VOA			X	3	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
10-9-07	2:10	Robert Krakow	Tonya Shoma	10/10/07 1045
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, November 15, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis

Order No.: 0711146

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 11/9/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Nov-07*

CLIENT: San Juan Refining
Project: GAC Analysis
Lab Order: 0711146

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Batch ID	Test Name	Collection Date
0711146-01A	GAC-Lead	14379	EPA Method 8015B: Diesel Range	11/8/2007 7:15:00 AM
0711146-01A	GAC-Lead	R26074	EPA Method 8021B: Volatiles	11/8/2007 7:15:00 AM
0711146-01A	GAC-Lead	R26074	EPA Method 8015B: Gasoline Range	11/8/2007 7:15:00 AM
0711146-01A	GAC-Lead	R26061	EPA Method 8021B: Volatiles	11/8/2007 7:15:00 AM
0711146-01A	GAC-Lead	R26061	EPA Method 8015B: Gasoline Range	11/8/2007 7:15:00 AM

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Nov-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-Lead
Lab Order:	0711146	**Collection Date:**	11/8/2007 7:15:00 AM
Project:	GAC Analysis	**Date Received:**	11/9/2007
Lab ID:	0711146-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/14/2007 11:56:38 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/14/2007 11:56:38 AM
Surr: DNOP	118	58-140		%REC	1	11/14/2007 11:56:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.50		mg/L	1	11/14/2007 8:56:54 PM
Surr: BFB	103	79.2-121		%REC	1	11/14/2007 8:56:54 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	11/14/2007 8:56:54 PM
Toluene	ND	1.0		µg/L	1	11/14/2007 8:56:54 PM
Ethylbenzene	ND	1.0		µg/L	1	11/14/2007 8:56:54 PM
Xylenes, Total	ND	2.0		µg/L	1	11/14/2007 8:56:54 PM
Surr: 4-Bromofluorobenzene	93.0	70.2-105		%REC	1	11/14/2007 8:56:54 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Lab Order: 0711146
Client: San Juan Refining
Project: GAC Analysis

DATES REPORT

Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	QC Batch ID	Prep Date	Analysis Date
0711146-01A	GAC-Lead	11/8/2007 7:15:00 AM	Aqueous	EPA Method 8015B: Diesel Range	14379	11/13/2007	11/14/2007
				EPA Method 8015B: Gasoline Range	R26074		11/14/2007
				EPA Method 8015B: Gasoline Range	R26061		11/13/2007
				EPA Method 8021B: Volatiles	R26074		11/14/2007
				EPA Method 8021B: Volatiles	R26061		11/13/2007

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis **Work Order:** 0711146

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range									
Sample ID: MB-14379		*MBLK*			Batch ID:	**14379**	Analysis Date:	11/13/2007 9:28:28 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Surr: DNOP	1.193	mg/L	0	119	58	140			
Sample ID: LCS-14379		*LCS*			Batch ID:	**14379**	Analysis Date:	11/13/2007 10:02:48 PM	
Diesel Range Organics (DRO)	4.615	mg/L	1.0	92.3	74	157			
Surr: DNOP	0.5554	mg/L	0	111	58	140			
Sample ID: LCSD-14379		*LCSD*			Batch ID:	**14379**	Analysis Date:	11/13/2007 10:37:01 PM	
Diesel Range Organics (DRO)	5.362	mg/L	1.0	107	74	157	15.0	23	
Surr: DNOP	0.5952	mg/L	0	119	58	140	0	0	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 0711146-01A MSD		*MSD*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 6:57:18 PM	
Gasoline Range Organics (GRO)	0.5540	mg/L	0.050	106	80	115	1.45	8.39	
Surr: BFB	22.13	mg/L	0	111	79.2	121	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 9:13:32 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	17.88	mg/L	0	89.4	79.2	121			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R26074**	Analysis Date:	11/14/2007 9:31:34 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Surr: BFB	21.09	mg/L	0	105	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 2:50:24 PM	
Gasoline Range Organics (GRO)	0.5580	mg/L	0.050	108	80	115			
Surr: BFB	16.92	mg/L	0	84.6	79.2	121			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R26074**	Analysis Date:	11/14/2007 8:26:26 PM	
Gasoline Range Organics (GRO)	0.5360	mg/L	0.050	104	80	115			
Surr: BFB	21.62	mg/L	0	108	79.2	121			
Sample ID: 0711146-01A MS		*MS*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 6:26:57 PM	
Gasoline Range Organics (GRO)	0.5460	mg/L	0.050	104	80	115			
Surr: BFB	22.25	mg/L	0	111	79.2	121			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis **Work Order:** 0711146

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8021B: Volatiles									
Sample ID: 0711146-01A MSD		*MSD*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 6:57:18 PM	
Benzene	7.220	µg/L	1.0	104	85.9	113	0.639	27	
Toluene	45.53	µg/L	1.0	113	86.4	113	1.01	19	
Ethylbenzene	10.09	µg/L	1.0	116	83.5	118	0.338	10	
Xylenes, Total	54.26	µg/L	2.0	113	83.4	122	0.536	13	
Surr: 4-Bromofluorobenzene	20.56	µg/L	0	103	70.2	105	0	0	
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 9:13:32 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	16.11	µg/L	0	80.6	70.2	105			
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R26074**	Analysis Date:	11/14/2007 9:31:34 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Surr: 4-Bromofluorobenzene	19.06	µg/L	0	95.3	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 3:24:57 PM	
Benzene	19.57	µg/L	1.0	97.8	85.9	113			
Toluene	20.65	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.29	µg/L	1.0	100	83.5	118			
Xylenes, Total	57.84	µg/L	2.0	95.1	83.4	122			
Surr: 4-Bromofluorobenzene	20.17	µg/L	0	101	70.2	105			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R26074**	Analysis Date:	11/14/2007 12:19:41 PM	
Benzene	21.01	µg/L	1.0	105	85.9	113			
Toluene	21.60	µg/L	1.0	107	86.4	113			
Ethylbenzene	21.75	µg/L	1.0	107	83.5	118			
Xylenes, Total	62.58	µg/L	2.0	103	83.4	122			
Surr: 4-Bromofluorobenzene	19.82	µg/L	0	99.1	70.2	105			
Sample ID: 0711146-01A MS		*MS*			Batch ID:	**R26061**	Analysis Date:	11/13/2007 6:26:57 PM	
Benzene	7.174	µg/L	1.0	103	85.9	113			
Toluene	45.07	µg/L	1.0	112	86.4	113			
Ethylbenzene	10.05	µg/L	1.0	116	83.5	118			
Xylenes, Total	53.97	µg/L	2.0	112	83.4	122			
Surr: 4-Bromofluorobenzene	20.70	µg/L	0	104	70.2	105			

Qualifiers:

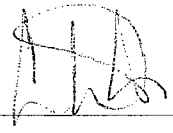
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 11/9/2007

Work Order Number 0711146 | Received by ARS

Checklist completed b  11/9/07

Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☑
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC
Project #:
Project Manager:
Sampler: Bob
Sample Temperature: 6°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
11-8-07	9:15	H_2O	GAC-Lead	4-VOA			HCl	0711146

ANALYSIS REQUEST

BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														1

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
11-8-07	9:00	Robert Krakow	9:35 11/9/07
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM SEMI-ANNUAL REPORT

January 2007 through June 2007

SAN JUAN REFINING COMPANY
GIANT – BLOOMFIELD REFINERY
SUBMITTED: AUGUST 2007

GIANT
REFINING COMPANY

August 24, 2007

Certified Mail: 7006 0810 0003 7020 6219
7006 0810 0003 7020 6226

Hope Monzeglio
New Mexico Environmental Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Bldg 1
Santa Fe, NM 87505

Wayne Price
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr
Santa Fe, NM 87505

Re: River Terrace Voluntary Corrective Measures
Bioventing System Semi-Annual Report
January 2007 through June 2007

Dear Hope and Wayne,

Giant Refining Company, Bloomfield Refinery submits the River Terrace Voluntary Corrective Measures Bioventing System Semi-Annual Report as requested by NMED. This report summarizes data gathered during the first six months of 2007(January 2007 to June 2007).

If you have questions or would like to discuss any aspect of the report, please contact me at (505) 632-4171.

Sincerely,

James R. Schmaltz
Environmental Manager
San Juan Refining Company
Bloomfield Refinery

Cc: Robert Wilkinson, USEPA – Region VI
Brandon Powell, NMOCD Aztec District Office
Ed Riege, Environmental Superintendent – Giant Refinery

RIVER TERRACE VOLUNTARY CORRECTIVE MEASURES
BIOVENTING SYSTEM
SIX MONTH REPORT

January 2007 through June 2007

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Giant Refining Company #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery	
US EPA ID	NMD089416416	
SIC Code	2911	
Submittal Date:	August 27, 2007	

CONTENTS

Section	Title
1.0	Executive Summary
2.0	Introduction
3.0	Scope of Activities
4.0	Regulatory Criteria / Groundwater Cleanup Standards
5.0	Monitoring Results
6.0	Summary
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8.0	Field Methods
9.0	Chemical Analytical Program
10.0	Chemical Analytical Reports

Section 1.0 Executive Summary

Executive Summary

River Terrace Bioventing System

On-going sampling at the River Terrace area is conducted in accordance with the approved Bioventing System Monitoring Plan, dated October 28, 2006, and in accordance with an NMED comment letter dated June 13, 2007.

A facility plot plan and river terrace project plot plan are provided in Section 7.0

The bioventing system was installed to provide oxygen to the subsurface and support aerobic biodegradation of petroleum hydrocarbons that were identified in soil along the western portion of the river terrace. The project includes a dewatering system to provide an increased vadose zone for bioremedial activity.

Quarterly analysis of the groundwater and soil gas of the TP, DW, and MW wells provide periodic progress information of the bioventing system. Performance monitoring offers periodic feedback of remediation operation and GAC filter capability. An in situ respiration test was not performed in May 2007 due to high flow rates of the San Juan River and the inability to duplicate similar conditions as the May 2006 respiration test. The in situ respiration test has been tentatively scheduled for September 2007.

Field data collected during the first six months of 2007 indicate the bioventing system is continuing to enhance bioremedial activity within the river terrace area. Soil gas concentrations collected in the field show that the bioventing system provides sufficient oxygen supply to fully oxygenate the subsurface, supporting aerobic biodegradation of hydrocarbons. These results suggest that as treatment progresses, petroleum hydrocarbon concentrations will diminish. Breakthrough of the lead GAC filter occurred in April 2007.

Section 2.0 Introduction

INTRODUCTION

Owner:	San Juan Refining Company 23733 North Scottsdale Road Scottsdale, Arizona 85255	(parent corporation)
Operator:	Giant Refining Company P.O. Box 159 Bloomfield, New Mexico 87413	(postal address)
	Giant Refining Company #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Name:	Bloomfield Refinery #50 Rd 4990 Bloomfield, New Mexico 87413	(physical address)
Facility Status	Corrective Action/Compliance	
US EPA ID	NMD089416416	
SIC Code	2911	

Purpose of Monitoring: River Terrace Voluntary Corrective Measures – Assess and Provide Periodic Progress Information

Type of Monitoring: Periodic Groundwater and Soil Vapor Monitoring

BACKGROUND INFORMATION

SITE LOCATION AND DESCRIPTION

The Bloomfield Refinery is a crude oil refining facility with a crude capacity of 18,000 barrels per day. It is located approximately 1 mile south of Bloomfield, New Mexico, in San Juan County, latitude N36 41' 87", longitude W107 58' 70". It is further located approximately ½ mile east of State Route 550 on Count Road 4990 (a.k.a. Sullivan Road).

The refinery is located on a bluff 120 feet above the south side of the San Juan River. The top of the bluff is relatively flat and is at an elevation of 5,540 feet above sea level. The geological units that comprise the site include, in order of increasing depth, San Juan River Alluvium, Quaternary apron deposits, Aeolian sand and silt, Jackson Lake Terrace, and the Tertiary Nacimiento Formation. An unnamed arroyo flows toward the San Juan River on the southern and western edges of the site. East of the site, a well-defined arroyo cuts a small canyon from the bluff to the San Juan River. Hammond Ditch lies on the bluff between the limit of the Jackson Lake Terrace and the refinery.

Refinery offices are on the western end of the facility, along with warehouse space, maintenance areas, and a storage yard containing used material (e.g., pipes, valves). Petroleum processing units, located in the northwest portion of the refinery, include the crude unit, fluidized cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. The API Separator is located in the northwestern portion of the site. The aeration lagoons are located in the north central section of the refinery.

In the central portion of the site, aboveground storage tanks (AST's) occupy a large percentage of refinery property. South of the refinery and across Sullivan Road are terminals for loading product and off-loading crude, as well as gas storage and hazardous waste storage.

Western Refining merged with San Juan Refining Company (SJRC) May 31, 2007. Currently SJRC is the parent corporation but will become Western Refining Bloomfield, Inc by the end of September 2007. The refinery is operated by Giant Refining Company. The historical and current activities conducted at the refinery are petroleum processing, crude and product storage, crude unloading and product loading, waste management (closed and existing facilities), and offices and non-petroleum material storage

HISTORY OF RIVER TERRACE

1999

Sheet piling was installed along with a bentonite slurry wall adjacent to the San Juan River, at the River Terrace, in order to intercept a small hydrocarbon seep that had been detected in the area.

2004

MW #48 & MW #49 and 8 temporary piezometers were installed to launch a River Terrace Investigation. Several temporary piezometers were drilled on the north side of Hammond Ditch to chart the Naciemento Formation. The development of a slurry wall that will be constructed on the north side of Hammond Ditch to prevent the spread of hydrocarbons to the San Juan River was initiated.

2005

The North Boundary Barrier Wall installation was completed March 2005. In April, five more temporary piezometers were installed at the River Terrace. Dewatering Wells #1 and #2 and thirteen bioventing wells were drilled in August at the River Terrace. Construction of the River Terrace Bioventing Project was initiated in August. The system was put on-line in January 2006.

2006

System monitoring began in January abiding by the guidelines from the River Terrace Voluntary Corrective Measures Monitoring Plan approved by OCD and NMED. The In-Situ Respiration test was conducted in May 2006. Quarterly performance monitoring was carried out in March, June, September, and December of 2006.

2007

The dewatering pumps failed and were replaced in February. Breakthrough in the lead GAC (V-612) was detected in April at which time it was taken out of service and V-611 became the lead GAC. V-612 was replaced and back in service in June as the lag filter. Quarterly performance monitoring for the Bioventing System occurred in February and June.

Section 3.0 Scope of Activities

Scope of Activities

The River Terrace Bioventing Project was put on-line in January 2006 at which time the Voluntary Corrective Measure Bioventing Monitoring Plan was followed. Baseline monitoring and performance monitoring that occurred before 2007 is documented in the River Terrace Voluntary Corrective Measures Bioventing System Six-Month Report January 2006 through June 2006 and also in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006.

The NMED letter from June 13, 2007 (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006) revised the monitoring plan to include additional metals analysis and incorporate quarterly sampling of TP-7. These revisions were implemented during the second quarter sampling event.

Prior to the 2006 third quarter sampling event TP-#4 was inadvertently destroyed by a trackhoe that was cleaning out the freshwater inlet pond adjacent to TP-#4's location.

Performance Monitoring

On-going performance monitoring activities continued on a quarterly basis to assess the progress of the remediation system in reducing fuel hydrocarbons. Laboratory analysis of groundwater, treated groundwater, and soil gas are included in the on-going performance monitoring. In addition, certain field parameter data are collected using portable gauges and gas meters.

Section 5.0 of this report summarizes the field parameters and samples obtained during routine performance monitoring.

Pressure Readings

Pressure readings were collected from each of the TP wells (TP-7 was not measured in the first quarter), MW #49, and DW #1 were also measured using a hand-held Magnahelic gauge connected to the sample port at the top of each well. Injection pressure and flow rates were also taken from all bioventing wells (BV wells).

This data is available in Section 5.0 Tab 1 and Tab 4 in this report.

Groundwater

First quarter groundwater samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). MW #49 and DW #1 were also analyzed

for Total Lead, Chromium, and Mercury (EPA Method 6010C and 7470). Field measurements included temperature, pH, conductivity, DO, and ORP.

Second quarter sampling occurred during the week of June 18, 2007. TP-7 was included in this sampling regimen per the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006 – Item #2). TP-7 was sampled after a 24 hour recharge time. In the same letter, NMED required additional metals analysis of all the TP Wells, MW #49, and DW #1 on a quarterly basis for lead and on an annual basis for chromium and barium. Annual analysis of chromium and barium (EPA Method 6010B) was conducted in the second quarter event. Lead analysis (EPA Method 6010B) was performed on all of the TP Wells, MW #49, and DW#1. DW #1 also received an analysis for mercury (EPA Method 7470). In addition, groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). Field measurements included temperature, pH, conductivity, DO, and ORP.

A summary of the groundwater monitoring results can be found in Section 5.0 Tab 2 and Tab 3.

Soil Gas

First quarter samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Soil gas analysis included BTEX (8021B) and GRO (8015B). Field measurements of gas hydrocarbons (using a PID) and oxygen and carbon dioxide concentrations (using a multi-gas meter) were taken. The second quarter monitoring event utilized the same collection sites (with the addition of TP-7), methods, and parameters. Second quarter samples were collected the week of June 18, 2007.

A summary of the soil gas monitoring results can be found in Section 5.0 Tab 1.

GAC Filter Monitoring

Extracted groundwater from the dewatering wells is treated prior to discharge to the raw water ponds, located within the east portion of the refinery. Extracted groundwater is pumped through two GAC filters positioned in series for removal of dissolved-phase hydrocarbons.

GAC filter sampling includes influent samples from a sample port located upstream of the GAC filters, and effluent samples collected from ports located after each of the lead and lag GAC filters. Monitoring the performance of the GAC filters is necessary to estimate GAC filter change-out frequency.

GAC filter influent samples (GAC Inf) and effluent samples collected downstream of the lag GAC filter (GAC 2 Eff) were collected quarterly. Effluent samples from the lead GAC filter (GAC 1 Eff) were obtained weekly until breakthrough was

detected. Samples were analyzed for BTEX by EPA Method 8021B, GRO and DRO by EPA Method 8015B.

Weekly samples were not available at various times throughout the six-month period from January 2007 through June 2007 due to a variety of operational issues. Causes and dates are as follows; January 11, 2007 to February 6, 2007 due to both dewatering pumps broke down and subsequent replacement of both pumps, the week of March 3, 2007 due to a break and repair of discharge piping, the week of March 26, 2007 the river pumps were down due to an extremely muddy San Juan River, and the week of April 12, 2007 the river pumps were down due to the refinery's fresh water ponds were full.

Break through in the lead GAC was detected in April through lab analysis and V-612 was bypassed and taken out of service on April 30, 2007. V-611 became the lead GAC at that time. Approximately 1,886,500 gallons of groundwater flowed through the filters before breakthrough occurred.

A summary of the GAC filter performance monitoring results is presented in Section 5.0 Tab 5 of this report. Chemical analytical reports are located in Section 10.0 Tab 10 of this report.

Field Data Collection

All water/product levels were measured to an accuracy of 0.01 foot using a Geotech Interface Probe. After determining water levels, purge volumes were calculated.

Soil gas purging and sampling were done before groundwater purging and sampling. After sufficient purging (three well volumes), soil gas samples were collected using the vacuum pump. Field measurements of vapor-phase organics (using a PID meter), oxygen, and carbon dioxide concentrations (using a multi-gas meter) were recorded using portable field instruments.

Prior to soil gas purging, a YSI 550A Dissolved Oxygen Probe was used to determine dissolved oxygen (DO) levels. At least three well volumes were purged from each well prior to groundwater sampling. Electrical conductance, pH, temperature, and oxidation reduction potential were monitored during purging using an Ultrameter 6P. The wells were considered satisfactorily purged when the pH, E.C., and temperature values did not vary by more than 10 percent for at least three measurements.

Field data and analytical results can be found in Section 5.0 – Tabs 1, 2, 3, 4 and 5.

All purged water was collected and disposed of through the refinery wastewater system.

Section 4.0 Regulatory Criteria / Groundwater Cleanup Standards

TABLE OF NEW MEXICO AND THE U. S. EPA'S GROUNDWATER STANDARDS

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
General Properties				
non-aqueous phase liquid (NAPL)	NP			
petroleum				
floating product	NP			
undesirable odor (a)	NP			
pH (units) (a)	6 - 9	6.5 - 8.5		
total dissolved solids (TDS) (a)	1000	500		
turbidity		tt		
Biological Contaminants				
giardia lambia	tt	Zero		
legionella	tt	Zero		
total coliform	<5%÷	Zero		
viruses	tt	Zero		
Inorganic Contaminants				
aluminum	5.0 (i)	0.05 - 0.2 (a)		
ammonia				30
antimony		0.006	0.006	
arsenic	0.1	0.05	0.05	
asbestos-fibers/liter (longer than 10 um)		7 million	7 million	
barium	1.0	2	2	
beryllium		0.004	0.004	
boron	0.75 (i)			0.06
bromate		0.01 (p)	Zero (p)	
cadmium	0.01	0.005	0.005	
chlorate				0.01

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
chloride (a)	250	250		0.01
chlorine				1
chlorine dioxide				0.08
chlorite		1.0 (p)	0.08 (p)	
chromium	0.05	0.1	0.1	
cobalt (i)	0.05			
copper		1.3 (al)	1.3	
cyanide	0.2	0.2	0.2	
fluoride	1.6	4.0		
fluoride (a)		2		
iron (a)	1.0	0.3		
lead	0.05	0.015 (al)	Zero	
manganese (a)	0.2	0.05		
mercury	0.002	0.002	0.002	
molybdenum	1.0 (i)			0.05
nickel	0.2 (i)	0.1	0.1	
nitrate - N	10	10	10	
nitrite - N		1	1	
nitrate + nitrite (as N)		10	10	
selenium	0.05	0.05	0.05	
silver	0.05	0.05	0.05	
silver (a)		0.1		
sodium				20
strontium				17
sulfate	600 (a)	250 (a) / 400 (p)	400	
thallium		0.002	0.0005	
vanadium				0.02
zinc (a)	10.0	5		
Radioactive Contaminants				
Gross alpha (pCi/L) *		15	Zero	
Gross beta & photon emitters (mrem/yr) **		4	Zero	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
radium 226 (pCi/L)		20 (p)	Zero	
radium 228 (pCi/L)		20 (p)	Zero	
radium 226 + 228 (pCi/L)	30	5	Zero	
radon 222 (pCi/L)		300 (p)	Zero	
uranium	5	0.02 (p)	Zero	
Benzenes				
benzene	0.01	0.005	Zero	
Alkyl Benzenes				
methylbenzene (toluene)	0.75	1 (p) / 0.04 (a)	1	
ethylbenzene	0.75	0.7 (p) / 0.03 (a)	0.7	
dimethyl benzene isomers (xylenes)	0.62	10 (p) / 0.02 (a)	10	
vinylbenzene (styrene)		0.1	0.1	
trimethyl benzene isomers				
propyl benzene isomers				
butyl benzene isomers				
Chlorinated Benzenes				
chlorobenzene	tox	0.1	0.1	
o-dichlorobenzene	tox	0.6	0.6	
m-dichlorobenzene	tox			
p-dichlorobenzene	tox	0.075 (p) / 0.005 (a)	0.075	
1,2,4-trichlorobenzene		0.07	0.07	
1,3,5-trichlorobenzene				0.04
1,2,4,5-tetrachlorobenzene	tox			
pentachlorobenzene	tox			
hexachlorobenzene	tox	0.001	Zero	
Toluenes				
o-chlorotoluene				0.1
p-chlorotoluene				0.1
2,4-dinitrotoluene (2,4-DNT)	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
2,4,6-trinitrotoluene (TNT)				0.002
isopropyltoluene				
Nitrogenated Benzenes				
aminobenzene (aniline)				
nitrobenzene	tox			
1,3-dinitrobenzene				0.001
Phenols (hydroxybenzenes)	0.005 (a)			
phenol (carbolic acid)	tox			4
2-chlorophenol				0.04
2,4-dichlorophenol	tox			0.02
2,4-dinitro-o-creosol	tox			
2,4-dimethylphenol				
2-methylphenol				
4-methylphenol				
2-nitrophenol				
dinitrophenols	tox			
2,4,5-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
2,4,6-trichlorophenol	tox			
pentachlorophenol	tox	0.001 (p) / 0.03 (a)	Zero	
p-cresol				
Polycyclics				
acenapthene				
anthracene	tox			
benz(a)anthracene		0.0001 (p)	Zero	
benzo(a)pyrene	0.0007	0.0002	Zero	
benzo(b)fluoranthene		0.0002 (p)	Zero	
benzo(k)fluoranthene	tox	0.0002 (p)	Zero	
chrysene		0.0002 (p)	Zero	
dibenz(a)anthracene		0.0003 (p)	Zero	
diphenylhydrazine	tox			

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
fluoranthene	tox			
fluorene	tox			
indeno(1,2,3-c,d)pyrene		0.0004 (p)	Zero	
naphthalene	tox			0.3
naphthalenes ****	0.03			
phenanthrene	tox			
polychlorinated biphenyls (PCBs)	0.001			
PCBs as decachlorobiphenyl		0.0005	Zero	
pyrene	tox			
Methanes				
chloromethane (methyl chloride)	tox			0.003
dichloromethane (methylene chloride)	0.1	0.005	Zero	
trichloromethane (chloroform)	0.1		Zero (p)	
tetrachloromethane (carbon tetrachloride)	0.01	0.005	Zero	
bromomethane (methyl bromide)	tox			0.01
bromochloromethane				0.09
bromodichloromethane	tox		Zero (p)	
chlorodibromomethane			Zero (p)	0.1
tribromomethane (bromoform)	tox		Zero (p)	
trihalomethanes (THMs) ***		0.1/0.08 (p)	Zero	
fluorotrichloromethane (Freon 11)	tox			2
dichlorodifluoromethane (Freon 12)	tox			1
Ethanes				
1,2-dibromoethane (ethylene dibromide, EDB)	0.0001	0.00005	Zero	
1,1-dichloroethane	0.025			
1,2-dichloroethane (ethylene dichloride, EDC)	0.01	0.005	Zero	
1,1,1-trichloroethane (TCA)	0.06	0.2	0.2	
1,1,2-trichloroethane	0.01	0.005	0.003	
1,1,1,2-tetrachloroethane				0.07

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
1,1,2,2-tetrachloroethane	0.01			
hexachloroethane	tox			
Ethenes (Ethylenes)				
chloroethane (vinyl chloride)	0.001	0.002	Zero	
1,1-dichloroethene	0.005	0.007	0.007	
cis-1,2-dichloroethene	tox	0.07	0.07	
trans-1,2-dichloroethene	tox	0.1	0.1	
trichloroethene (TCE)	0.1	0.005	Zero	
tetrachloroethene (perchloroethylene, PCE)	0.02	0.005	Zero	
Propanes & Propenes				
1,2-dichloropropane (propylene dichloride, PDC)		0.005	Zero	
1,2,3-trichloropropane				0.04
1,2-dibromo-3-chloropropane (DBCP)		0.0002	Zero	
dichloropropenes	tox			
1,3-dichloropropene	tox			0.01
Aldehydes, Ethers, Furans, & Ketones				
acetone				
bis (2-chloroethyl) ether	tox			
bis (2-chloroisopropyl) ether	tox			0.3
bis (chloromethyl) ether	tox			
dibenzofuran				
p-dioxane (diethylene dioxide)				0.568
formaldehyde (methanal)				1
isophorone	tox			0.1
methyl ethyl ketone (MEK, 2-butanone)				0.1
methyl tertiary butyl ether (MTBE)	0.1 (a)			0.04
tetrahydrofuran				

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
Nitrosamines				
N-nitrosodiethylamine	tox			
N-nitrosodimethylamine (NDMA)	tox			
N-nitrosodibutylamine	tox			
N-nitrosodiphenylamine	tox			
N-nitrosopyrrolidine	tox			
Phthalate Esters				
dibutyl phthalate	tox			
di-2-ethylhexyl phthalate	tox	0.006	Zero	
diethyl phthalate	tox			
dimethyl phthlate	tox			
Explosives				
dinitrophenols	tox			
2,4-dinitrotoluene (2,4-DNT)	tox			
hexahydro-1,3,5-trinitro-s-triazine (RDX)				0.002
HMX				0.4
nitroglycerin (glycerol trinitrate)				0.005
nitroguanidine				0.7
2,4,6-trinitrotoluene (TNT)				0.002
Other Organics				
acrolein	tox			
acrylamide		tt	Zero	
acrylonitrile	tox			0.004
benzidine	tox			
chloral hydrate		tt (p)	0.04 (p)	
chloramine				0.3

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
dibromoacetonitrile				0.02
dichloroacetic acid				0.003
dichloroacetonitrile				0.006
dichlorobenzidine	tox			
di(2-ethylhexyl)adipate		0.4	0.4	
diisopropyl methylphosphonate				0.6
epichlorohydrin (1-chlor-2,3-epoxypropane)		tt	Zero	
ethylene glycol (1,2-ethanediol)				7
Haloacetic Acids ****		0.06 (p)		
dichloroacetic acid			Zero (p)	
trichloroacetic acid			0.3 (p)	
hexachlorobutadiene	tox			0.001
hexachlorocyclopentadiene	tox	0.05 (p) / 0.008 (a)	0.05	
n-hexane				4.0
Other Pesticides				
acifluorfen				0.1
alachlor		0.002	Zero	
aldicarb		0.003 (p)	0.001	
aldicarb sulfone		0.002 (p)	0.001	
aldicarb sulfoxide		0.004 (p)	0.001	
aldrin	tox			0.001
ametryn				0.06
ammonium sulfamate				2
arsenal (imazapyr)				
atrazine		0.003	0.003	
baygon				0.003
bentazon				0.02
bromacil				0.09
butylate				0.35
carbaryl				0.7
carbofuran		0.04	0.04	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
carboxin				0.7
chloramben				0.1
chlordane	tox	0.002	Zero	
chlorothalonil				0.5
chlorpyrifos				0.02
cyanazine				0.01
2,4-D (2,4-dichlorophenoxyacetic acid)		0.07	0.07	
dacthal				4
dalapon		0.2	0.2	
DDT (dichloro diphenyl trichloroethane)	tox			
4,4'-DDD				
4,4'-DDE				
diazinon				0.0006
dicamba				0.2
dieldrin	tox			0.002
dimethrin				2
dinoseb		0.007	0.007	
dioxin		0.00000005	Zero	
diphenamid				0.2
diquat		0.02	0.02	
disulfoton				0.0003
diuron				0.01
endosulfan	tox			
endothall		0.1	0.1	
endrin	tox	0.002	0.002	
ethylene thiourea				0.001
fenamiphos				0.002
fluometuron				0.09
fonofos				0.01
glyphosate		0.7	0.7	
heptachlor	tox	0.0004	Zero	
heptachlor epoxide		0.0002	Zero	
hexazinone				0.2
lindane (gamma-BHC)	tox	0.0002	0.0002	

PARAMETER	NEW MEXICO (ppm)	EPA MCL (ppm)	EPA MCLG (ppm)	EPA HA (ppm)
alpha-BHC	tox			
beta-BHC	tox			
delta-BHC				
malathion				0.2
maleic hydrazide				4
methomyl				0.2
methoxychlor		0.04	0.04	
methyl chlorophenoxyacetic acid (MCPA)				0.011
methyl parathion				0.002
metolachlor				0.1
metribuzin				0.2
oxamyl (vydate)		0.2	0.2	
paraquat				0.03
picloram		0.5	0.5	
prometon				0.1
pronamide				0.05
propachlor				0.09
propazine				0.01
propham				0.1
simazine		0.004	0.004	
2,4,5-T (2,4,5-trichlorophenoxyacetic acid)				0.07
tebuthiuron				0.5
terbacil				0.09
terbufos				0.0009
toxaphene	tox	0.003	Zero	
2,4,5-TP (silvex)		0.05	0.05	
trifluralin				0.005

Abbreviations

al Action Level that, if exceeded, requires water treatment
BHC benzene hexachloride, also called hexachlorocyclohexane
DDD 1,1'-(2,2-dichloroethylidene) -bis/4-chlorobenzene

DDE 1,1'-(2,2-dichloroetheneylidene)-bis/4-chlorobenzene
HA Health Advisory
HMX octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine
MCL Maximum Contaminant Level
MCLG Maximum Contaminant Level Goal
mg/L milligrams per liter
mrem/yr millirem per year
mrem ede/yr dose committed over a 50-year period to a "reference man" from an annual intake rate of 2 liters drinking water per day
MTBE methyl tertiary butyl ether, a synonym for 2-methoxy-2-methyl propane (the standard includes other ether-based gasoline additives)
NP the contaminant shall Not be Present
pCi/L picocuries per liter
tox a numerical standard has not been established, but the contaminant is listed in a narrative standard of "toxic pollutant" defined in WQCC regulations
2,4,5-TP 2,4,5-trichlorophenoxypropionic acid
tt Treatment Technique that public water system operators must adhere to instead of a numerical standard
um micrometer
U.S. EPA Uniter States Environmental Protection Agency
WQCC New Mexico Water Quality Control Commission

Footnotes

* The proposed standard excludes radon 222, radium 226 and uranium activity
** This standard excludes radium 228 activity. Units for the existing standard are mrem/yr. U.S. EPA has proposed to change the units to mrem ede/yr.
*** The "THMs" standard applies to the sum of chloroform, dichlorobromomethane, dibromochloromethane, and bromoform.
**** This standard applies to the sum of naphthalene and monomethylnaphthalene isomers.
***** This standard applies to the sum of mono-, di-, and trichloroacetic acids, and mono- and dibromoacetic acids.

Use and Applicability of Standards

All New Mexico standards are adopted by the WQCC except for the MTBE and petroleum (floating product and undesirable odor) standards, which are adopted by the New Mexico Environmental Improvement Board.

U.S. EPA's MCLGs are set at levels that would result in no known or anticipated adverse health effects with an adequate margin of safety. MCLGs do not take treatment costs into considerartion and are not enforceable. Health-based proposed MCLs and final enforceable MCLs are set as close to MCLGs as feasible with use of best technology, treatment techniques and other means.

U.S. EPA's HAs serve as informal technical guidance to assist Federal, State and Local officials responsible for protecting public health when emergency spills or contamination situations occur. They are not to be construed as legally enforceable Federal standards and are subject to change as new information becomes available. All HAs listed are for lifetime exposures except for p-dioxane (10 day) and n-hexane (7 year).

NEW MEXICO ENVIRONMENT DEPARTMENT TPH SCREENING GUIDELINES
October 2006

In some instances, it may be practical to assess areas of soil contamination that are the result of releases of petroleum products such as jet fuel and diesel, using total petroleum hydrocarbon (TPH) analyses. TPH results may be used to delineate the extent of petroleum-related contamination at these sites and ascertain if the residual level of petroleum products in soil represents an unacceptable risk to future users of the site. Petroleum hydrocarbons represent complex mixtures of compounds, some of which are regulated constituents and some compounds that are not regulated. In addition, the amount and types of the constituent compounds in a petroleum hydrocarbon release differ widely depending on what type of product was spilled and how the spill has weathered. This variability makes it difficult to determine the toxicity of weathered petroleum products in soil solely from TPH results; however, these results can be used to approximate risk in some cases, depending upon the nature of the petroleum product, the release scenario, how well the site has been characterized, and anticipated potential future land uses. In some cases, site clean up cannot be based solely on results of TPH sampling. The New Mexico Environment Department (NMED) will make these determinations on a case by case basis. If NMED determines that additional data are necessary, these TPH guidelines must be used in conjunction with the screening guidelines for individual petroleum-related contaminants in Table 3 and other contaminants, as applicable.

The screening levels for each petroleum carbon range from the Massachusetts Department of Environmental Protection (MADEP) Volatile Petroleum Hydrocarbons/Extractable Petroleum Hydrocarbons (VPH/EPH) approach and the percent composition table below were used to generate screening levels corresponding to total TPH. Except for waste oil, the information in the compositional assumptions table was obtained from the Massachusetts Department of Environmental Protection guidance document *Implementation of the MADEP VPH/EPH Approach* (October 31, 2002). TPH toxicity was based only on the weighted sum of the toxicity of the hydrocarbon fractions listed in Table 1.

Table 1. TPH Compositional Assumptions in Soil

Petroleum Product	C11-C22 Aromatics	C9-C18 Aliphatics	C19-C36 Aliphatics
Diesel #2/ new crankcase oil	60%	40%	0%
#3 and #6 Fuel Oil	70%	30%	0%
Kerosene and jet fuel	30%	70%	0%
Mineral oil dielectric fluid	20%	40%	40%
Unknown oil[a]	100%	0%	0%
Waste Oil[b]	0%	0%	100%

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

A TPH screening guideline was calculated for each of the types of petroleum product based on the assumed composition from Table 1 for petroleum products and the direct soil standards incorporating ceiling concentrations given in the MADEP VPH/EPH Excel spreadsheet for each of the carbon fractions. Groundwater concentrations are based on the weighted sum of the noncarcinogenic toxicity of the petroleum fractions.

Method 1 from the MADEP VPH/EPH document was applied, which represents generic cleanup standards for soil and groundwater. Method 1 applies if contamination exists in only soil and groundwater. The MADEP VPH/EPH further divides groundwater into standards. Standard GW-1 applies when groundwater may be used for drinking water purposes. GW-1 standards are based upon ingestion and use of groundwater as a potable water supply. The TPH screening guidelines for sites with potable groundwater are presented in Table 2a.

Table 2a. TPH Screening Guidelines for Potable Groundwater (GW-1)

TPH			Concentration in Groundwater (mg/L)
Petroleum Product	**Residential Direct Exposure (mg/kg)**	**Industrial Direct Exposure (mg/kg)**	
Diesel #2/crankcase oil	520	1120	1.72
#3 and #6 Fuel Oil	440	890	1.34
Kerosene and jet fuel	760	1810	2.86
Mineral oil dielectric fluid	1440	3040	3.64
Unknown oil [a]	200	200	0.2
Waste Oil [b]	2500	5000	Petroleum-Related Contaminants
Gasoline	Not applicable	Not applicable	Petroleum-Related Contaminants

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

The second standard is GW-2, which is applicable for sites where the depth to groundwater is less than 15 feet from the ground surface and within 30 feet of an occupied structure. The structure may be either residential or industrial. GW-2 standards are based upon "inhalation exposures that could occur to occupants of the building impacted by volatile compounds, which partition from the groundwater" (MADEP 2001). The GW-2 screening guidelines ONLY apply for the evaluation of inhalation exposures. If potential ingestion or contact with contaminated soil and/or

groundwater could occur, then the screening guidelines provided in Table 2.a should be applied. Table 2.b lists the TPH screening guidelines for the inhalation scenario.

Table 2b. TPH Screening Guidelines – Vapor Migration and Inhalation of Groundwater (GW-2)

TPH			Concentration in Groundwater (mg/L)
Petroleum Product	**Residential Direct Exposure (mg/kg)**	**Industrial Direct Exposure (mg/kg)**	
Diesel #2/crankcase oil	880	2200	30.4
#3 and #6 Fuel Oil	860	2150	35.3
Kerosene and jet fuel	940	2350	15.7
Mineral oil dielectric fluid	1560	3400	10.4
Unknown oil [a]	800	2000	50.0
Waste Oil [b]	2500	5000	Petroleum-Related Contaminants
Gasoline	Not applicable	Not applicable	Petroleum-Related Contaminants

[a] Sites with oil from unknown sources must be tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs) to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

[b] Compositional assumption for waste oil developed by NMED is based on review of chromatographs of several types of waste oil. Sites with waste oil must be tested for VOCs, SVOCs, metals, and PCBs to determine if other potentially toxic constituents are present. The TPH guidelines in Table 2 are not designed to be protective of exposure to these constituents therefore they must be tested for, and compared to, their individual NMED soil screening guidelines.

Mineral oil based hydraulic fluids can be evaluated for petroleum fraction toxicity using the screening guidelines from Tables 2a and 2b specified for waste oil, because this type of hydraulic fluid is composed of approximately the same range of carbon fractions as waste oil. However, these hydraulic fluids often contain proprietary additives that may be significantly more toxic than the oil itself; these additives must be considered on a site- and product-specific basis (see ATSDR hydraulic fluids profile reference). **Use of alternate screening guideline values requires prior written approval from the New Mexico Environment Department.** TPH screening guidelines in Tables 2a and 2b must be used in conjunction with the screening levels for petroleum-related contaminants given in Table 3 because the TPH screening levels are NOT designed to be protective of exposure to these individual petroleum-related contaminants. Table 3 petroleum-related contaminants screening levels are based on the *NMED Technical Background Document for Development of Soil Screening Levels, Rev 4.0 (June 2006).*

The list of petroleum-related contaminants does not include polyaromatic hydrocarbons (PAHs) with individual screening levels that would exceed the total TPH screening levels (acenaphthene, anthracene, flouranthene, flourene, and pyrene). In addition, these TPH screening guidelines are based solely on human health, not ecological risk considerations, protection of surface water, or

potential indoor air impacts from soil vapors. Potential soil vapor impacts to structures or utilities are not addressed by these guidelines. Site-specific investigations for potential soil vapor impacts to structures or utilities must be done to assure that screenings are consistently protective of human health, welfare or use of the property. NMED believes that use of these screening guidelines will allow more efficient screenings of petroleum release sites at sites while protecting human health and the environment. Copies of the references cited below are available on the MADEP website at http://www.state.ma.us/dep/bwsc/vph_eph.htm and the NMED website at http://www.nmenv.state.nm.us/HWB/guidance.html.

Revised Table 3. Petroleum-Related Contaminants Screening Guidelines

Petroleum-Related Contaminants	Values for Direct Exposure to Soil		NMED DAF[a] 20 GW Protection (mg/kg in soil)	NMED DAF[b] 1 GW Protection (mg/kg in soil)
	NMED Residential SSL (mg/kg)	NMED Industrial SSL (mg/kg)		
Benzene	1.03E+01	2.58E+01	2.01E-02	1.00E-03
Toluene	2.52E+02	2.52E+02	2.17E+01	1.08E+00
Ethylbenzene	1.28E+02	1.28E+02	2.02E+01	1.01E+00
Xylenes[c]	8.20E+01	8.20E+01	2.06E+00	1.03E-01
Naphthalene	7.95E+01	3.00E+02	3.94E-01	1.97E-02
2-Methyl naphthalene[d]	5.00E+02	1.00E+03	---[e]	---[e]
Benzo(a)anthracene	6.21E+00	2.34E+01	1.09E+01	5.43E-01
Benzo(b)fluoranthene	6.21E+00	2.34E+01	3.35E+01	1.68E+00
Benzo(k)fluoranthene	6.21E+01	2.34E+02	3.35E+02	1.68E+01
Benzo(a)pyrene	6.21E-01	2.34E+00	2.78E+00	1.39E-01
Chrysene	6.15E+02	2.31E+03	3.48E+02	1.74E+01
Dibenz(a,h)anthracene	6.21E-01	2.34E+00	1.04E+01	5.18E-01
Indeno(1,2,3-c,d)pyrene	6.21E+00	2.34E+01	9.46E+01	4.73E+00

[a] DAF - Dilution Attenuation Factor

[b] For contaminated soil in contact with groundwater.

[c] Based upon total xylenes

[d] No NMED value available, value taken from Massachusetts Contingency Plan, 310 CMR 40.0985, 4/3/06.

[e] No NMED value available and leachability-based value for DAF =1 or 20 not established in the Massachusetts Contingency Plan, 310 CMR 40.0985, 4/3/06.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. Toxicological Profile for Hydraulic fluids.

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 1994. "Background Documentation for the Development of the MCP Numerical Standards."

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 2002. "Characterizing Risks Posed by Petroleum

Contaminated Sites: Implementation of the MADEP VPH/EPH Approach," Policy, October 31, 2002.

Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup and Office of Research and Standards. 2003. "Updated Petroleum Hydrocarbon Fraction Toxicity Values for the VPH/EPH/APH Methodology." November 2003.

New Mexico Environment Department, Hazardous Waste Bureau and Groundwater Quality Bureau Voluntary Remediation Program. 2006. "Technical Background Document for Development of Soil Screening Levels." June 2006. Revision 4.0.

Section 5.0 Monitoring Results

Title	Tab Number
Soil Gas Monitoring	1
Groundwater Monitoring	2
Groundwater Metals Analysis	3
Bioventing Wells Pressure Reading	4
GAC Analysis	5

RIVER TERRACE

Soil Gas Monitoring 2007 - Six Month Report

Sample Location	Sampling Activities	DATE	Purge Volume(L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #1	1st Quarter	Week of 2/26/07	14.2	7.79	0.11	1981.0	20.4	0.30	6.1	8.2	150	1200	7300
	2nd Quarter	Week of 6/18/07	10.3	5.67	0.00	301.0	19.0	0.4	<0.1	<0.1	0.3	1.0	7.4
TP - #2	1st Quarter	Week of 2/26/07	16.2	8.86	0.10	8.8	20.6	0.10	<0.10	<0.1	1.1	17	88
	2nd Quarter	Week of 6/18/07	13.7	7.5	0.10	112.0	20.1	0.10	<0.1	<0.1	<0.1	1.4	10.0
TP - #3	1st Quarter	Week of 2/26/07	13.7	7.52	0.00	5.2	20.4	0.10	<0.1	<0.1	0.11	1.2	13
	2nd Quarter	Week of 6/18/07	12.8	7.02	0.00	19.0	20.5	0.10	<0.1	<0.1	<0.1	1.0	7.6
TP - #5	1st Quarter	Week of 2/26/07	10.2	5.59	0.00	1268.0	19.8	0.60	<5.0	9.8	23	1,000	6,100
	2nd Quarter	Week of 6/18/07	12.1	6.62	0.00	1100.0	18.6	1.90	<5.0	<5.0	<5.0	1,500	9,000
TP - #6	1st Quarter	Week of 2/26/07	6.39	6.39	0.00	29.5	20.2	0.30	<0.2	<0.2	1.0	13	98
	2nd Quarter	Week of 6/18/07	13.4	7.32	0.00	25.0	19.2	0.70	<0.1	<0.1	<0.1	<0.3	<5.0
TP - #7	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter	Week of 6/18/07	9.9	5.4	0.00	35.0	20.6	0.00	<0.1	<0.1	<0.1	1.0	7.0
TP - #8	1st Quarter	Week of 2/26/07	15.6	8.57	0.05	1775.0	20.4	0.30	<5.0	9.5	130	1400	7100
	2nd Quarter	Week of 6/18/07	11.3	6.22	0.00	59.0	20.1	0.10	<0.1	<0.1	<0.1	<0.3	<5.0
TP - #9	1st Quarter	Week of 2/26/07	9.2	5.07	0.00	95.1	20.6	0.20	<0.1	0.15	4.3	41	290
	2nd Quarter	Week of 6/18/07	8.6	4.73	0.00	24.0	20.6	0.10	<0.1	<0.1	<0.1	0.9	6.6
TP - #10	1st Quarter	Week of 2/26/07	9.5	5.23	0.00	3.3	20.4	0.10	<0.1	<0.1	<0.1	0.94	6.0
	2nd Quarter	Week of 6/18/07	8.5	4.62	0.00	38.0	20.6	0.00	<0.1	<0.1	<0.1	1.0	11.0

NR = Not Required

RIVER TERRACE

Soil Gas Monitoring 2007 - Six Month Report

Sample Location	Sampling Activities	DATE	Purge Volume (L)	Depth to Water (ft)	Pressure (Inches of Water)	PID (PPM)	Oxygen (%)	Carbon Dioxide (%)	Benzene (ug/L)	Toluene (ug/L)	Ethylben (ug/L)	Xylene (ug/L)	GRO (ug/L)
TP - #11	1st Quarter	Week of 2/26/07	10.4	5.69	0.00	5.9	19.0	1.00	<0.1	<0.1	0.11	1.40	11
	2nd Quarter	Week of 6/18/07	9.5	5.17	0.00	45.0	20.6	0.00	<0.1	<0.1	<0.1	0.74	7.2
TP - #12	1st Quarter	Week of 2/26/07	13.5	7.4	0.00	18.10	20.4	0.20	<0.1	<0.1	1.1	11	61
	2nd Quarter	Week of 6/18/07	12.5	6.82	0.00	26.0	20.6	0.10	<0.1	<0.1	<0.1	0.56	6.0
TP - #13	1st Quarter	Week of 2/26/07	11.3	6.16	0.00	4.10	20.2	0.20	<0.1	<0.1	0.2	2.9	24
	2nd Quarter	Week of 6/18/07	10.3	5.63	0.00	97.0	20.6	0.00	<0.1	<0.1	<0.1	0.60	5.8
DW #1	1st Quarter	Week of 2/26/07	100.5	6.11	0.00	1.00	19.8	0.50	<0.1	<0.1	<0.1	<0.3	<5.0
	2nd Quarter	Week of 6/18/07	95.6	5.81	0.00	9.0	18.6	1.80	<0.1	<0.1	<0.1	0.32	<5.0
MW #49	1st Quarter	Week of 2/26/07	64.4	8.79	0.00	1.60	19.8	0.60	<0.1	<0.1	<0.1	<0.3	<5.0
	2nd Quarter	Week of 6/18/07	61.6	8.41	0.00	64.0	17.4	3.00	<0.1	<0.1	<0.1	<0.3	11.0

NR = Not Required

River Terrace

Groundwater Monitoring 2007 - Six Month Report

Field Measurements

											EPA Method 8021B					EPA Method 8015B	
											WQCC 20NMAC 6.2.3103					TPH Screening Guidelines Table 2a	
											0.01	0.75	0.75	0.62		1.72	
Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C. (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	DRO (mg/L)	GRO (mg/L)
TP #1	1st Quarter	Week of 2/26/07	7.79	NPP	9.28	3825	6.82	50.3	0.65	134	2.00	<0.1	6.30	32.00	<0.25	3.00	160.00
	2nd Quarter	Week of 6/18/07	5.67	NPP	9.28	4907	6.93	65.9	0.31	185	1.90	<0.1	4.00	19.00	<0.25	2.10	70.00
TP #2	1st Quarter	Week of 2/26/07	8.86	NPP	9.92	3783	6.82	51.4	1.45	171	4.30	<0.1	4.30	19.00	<0.25	2.10	94.00
	2nd Quarter	Week of 6/18/07	7.5	NPP	9.92	2576	6.87	67.5	0.70	191	1.40	0.32	3.80	15.00	<0.25	<1.0	47.00
TP #3	1st Quarter	Week of 2/26/07	7.52	NPP	12.35	839	6.89	47.0	1.65	248	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	7.02	NPP	12.35	560	6.85	60.8	3.12	211	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
TP #5	1st Quarter	Week of 2/26/07	5.59	NPP	8.84	1027	6.87	49.6	0.79	219	<0.01	<0.01	1.30	18.00	<0.025	<1.0	85.00
	2nd Quarter	Week of 6/18/07	6.62	NPP	8.84	884	6.87	63.9	0.80	148	0.34	<0.1	3.50	21.00	<0.25	<1.0	78.00
TP #6	1st Quarter	Week of 2/26/07	6.39	NPP	9.94	1857	6.83	47.5	0.72	253	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	0.28
	2nd Quarter	Week of 6/18/07	7.32	NPP	9.94	1361	6.89	62.2	1.19	220	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	0.11
TP #7	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
	2nd Quarter	Week of 6/18/07	5.4	NPP	9.72	2795	6.83	59.2	0.39	222	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	0.05
TP #8	1st Quarter	Week of 2/26/07	8.57	NPP	9.92	2964	6.95	50.5	2.45	208	<0.01	<0.01	1.30	13.00	<0.025	2.10	70.00
	2nd Quarter	Week of 6/18/07	6.22	NPP	9.92	2704	6.92	66..3	1.21	160	<0.01	<0.01	0.29	8.60	<0.025	1.20	35.00
TP #9	1st Quarter	Week of 2/26/07	5.07	NPP	10.97	2379	6.85	46.1	0.85	173	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	4.73	NPP	10.97	2035	6.90	58.5	0.31	224	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05

NR = Not Required

NPP = No Product Present

River Terrace

Groundwater Monitoring 2007 - Six Month Report

Field Measurements

Sample Location	Sampling Event	DATE	Depth to Water (ft below TOC)	Depth to Product (ft below TOC)	Total Well Depth (ft below TOC)	E.C (umhos/cm)	pH	TEMP (°F)	D.O (mg/L)	ORP (mV)	EPA Method 8021B WQCC 20NMAC 6.2.3103 Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	MTBE (mg/L)	EPA Method 8015B TPH Screening Guidelines Table 2a DRO (mg/L)	GRO (mg/L)
											0.01	0.75	0.75	0.62		172	
TP #10	1st Quarter	Week of 2/26/07	5.23	NPP	9.95	426	6.85	41.1	3.87	233	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	4.62	NPP	9.95	268	6.86	57.2	7.32	213	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
TP #11	1st Quarter	Week of 2/26/07	5.69	NPP	7.98	540	6.87	44.2	1.45	262	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	5.17	NPP	7.98	378	6.84	62.5	1.69	217	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
TP #12	1st Quarter	Week of 2/26/07	7.40	NPP	11.79	952	6.92	48.2	1.73	205	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	6.82	NPP	11.79	1750	6.81	56.7	2.04	242	<0.001	<0.001	<0.001	<0.002	0.00	<1.0	<0.05
TP #13	1st Quarter	Week of 2/26/07	6.16	NPP	16.09	449	6.97	46.7	1.86	236	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
	2nd Quarter	Week of 6/18/07	5.63	NPP	16.09	563	6.86	56.3	1.43	207	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05
DW #1	1st Quarter	Week of 2/26/07	6.11	NPP	15.62	3126	6.88	48.1	0.65	235	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	0.29
	2nd Quarter	Week of 6/18/07	5.81	NPP	15.62	2548	6.75	58.6	4.59	257	<0.001	<0.001	<0.001	0.0026	<0.0025	<1.0	0.15
MW #49	1st Quarter	Week of 2/26/07	8.79	NPP	16.99	2568	6.90	48.4	0.73	265	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	0.05
	2nd Quarter	Week of 6/18/07	8.41	NPP	16.99	1217	6.95	57.5	0.49	217	<0.001	<0.001	<0.001	<0.002	<0.0025	<1.0	<0.05

NR = Not Required

NPP = No Product Present

Groundwater Monitoring 2007 - Six Month Report

Total Metals			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)		EPA Method 6010 & 7470
			1.00	0.05	0.015	0.002	
Sample Location	Sampling Event	DATE	Ba (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	
TP #1	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.14	<0.006	0.24	NR	
TP #2	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.29	<0.006	0.07	NR	
TP #3	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.2	0.008	0.007	NR	
TP #5	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.21	<0.006	0.09	NR	
TP #6	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.38	<0.006	0.03	NR	
TP #7	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.075	<0.006	<0.005	NR	
TP #8	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.44	<0.006	0.054	NR	

NR = Not Required

Groundwater Monitoring 2007 - Six Month Report

Total Metals			WQCC 20NMAC 6.2.3103		40 CFR 141.62 (MCL)		EPA Method 6010 & 7470
			1.00	0.05	0.015	0.002	
Sample Location	Sampling Event	DATE	Ba (mg/L)	Cr (mg/L)	Lead (mg/L)	Mercury (mg/L)	
TP #9	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.91	0.018	0.020	NR	
TP #10	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.41	0.024	0.009	NR	
TP #11	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.33	0.013	0.015	NR	
TP #12	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.21	0.010	0.016	NR	
TP #13	1st Quarter	Week of 2/26/07	NR	NR	NR	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.42	0.019	0.011	NR	
DW #1	1st Quarter	Week of 2/26/07	NR	<0.006	<0.005	0.002	
	2nd Quarter (Annual)	Week of 6/18/07	0.93	<0.03	<0.025	<0.0002	
MW #49	1st Quarter	Week of 2/26/07	NR	<0.006	<0.005	NR	
	2nd Quarter (Annual)	Week of 6/18/07	0.064	<0.006	<0.005	NR	

NR = Not Required

River Terrace

BV Air Pressure 2007 - Six Month Report

Sample Location	Sampling Activities	Date	Time	Velocity (scfm)	Pressure (psi)
BV - 1	1st Quarter	2/26/2007	1344	10.0	2.0
	2nd Quarter	6/18/2007	1123	10.0	2.0
BV - 2	1st Quarter	2/26/2007	1345	9.0	1.9
	2nd Quarter	6/18/2007	1124	4.0	2.0
BV - 3	1st Quarter	2/26/2007	1348	12.0	1.9
	2nd Quarter	6/18/2007	1125	14.0	1.9
BV - 4	1st Quarter	2/26/2007	1347	11.0	1.9
	2nd Quarter	6/18/2007	1003	5.0	2.0
BV - 5	1st Quarter	2/26/2007	1353	12.0	1.9
	2nd Quarter	6/18/2007	1120	14.0	1.9
BV - 6	1st Quarter	2/26/2007	1346	12.0	1.9
	2nd Quarter	6/18/2007	1005	7.0	2.0
BV - 7	1st Quarter	2/26/2007	1351	12.0	2.0
	2nd Quarter	6/18/2007	1121	13.0	1.9
BV - 8	1st Quarter	2/26/2007	1352	12.0	1.9
	2nd Quarter	6/18/2007	1119	14.0	1.9
BV - 9	1st Quarter	2/26/2007	1350	10.0	1.9
	2nd Quarter	6/18/2007	1122	9.0	2.0
BV - 10	1st Quarter	2/26/2007	1354	12.0	1.9
	2nd Quarter	6/18/2007	1118	14.0	2.0
BV - 11	1st Quarter	2/26/2007	1349	12.0	1.9
	2nd Quarter	6/18/2007	1126	8.0	1.9
BV - 12	1st Quarter	2/26/2007	1355	11.0	1.9
	2nd Quarter	6/18/2007	1117	12.0	1.9
BV - 13	1st Quarter	2/26/2007	1356	12.0	2.0
	2nd Quarter	6/18/2007	1116	12	1.9

GAC Filter Monitoring 2007 Six Month Report

Sample Location	Sampling Event	DATE	EPA Method 8021B WQCC 20NMAC 6.2.3103				EPA Method 8015B TPH Screening Guidelines Table 2a	
			WQCC 20NMAC 6.2.3103					
			0.01	0.75	0.75	0.62	1.72	
			Benzene (mg/L)	Toluene (mg/L)	Ethylben (mg/L)	Xylene (mg/L)	DRO (mg/L)	GRO (mg/L)
GAC INF	*1st Quarter*	03/13/07	0.230	0.039	0.860	2.900	<1.0	12.00
	2nd Quarter	06/20/07	0.350	<0.02	0.730	0.700	1.4	4.80
GAC 2 EFF (V-611) North Filter		02/20/07	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		02/27/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/06/07	Pumps down due to Break and Repair of Discharge Piping					
Became Lead Filter on April 30, 2007 When V-612 was Taken Out of Service and replaced on June13, 2007. V-611 is now the Lead Filter	*1st Quarter*	03/13/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/26/07	Pumps down due to the San Juan River Mud Load					
		04/02/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		04/12/07	Pumps down because Fresh Water Ponds are Full					
		04/16/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		04/25/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
	Lead Filter	05/02/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		05/09/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		05/15/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
	2nd Quarter	06/20/07	0.0025	<0.001	0.0015	0.002	<1.0	<0.050
GAC 1 EFF (V-612) South Filter		01/03/07	<0.001	<0.001	<0.001	<0.003	6.2	0.093
		01/10/07	<0.001	<0.001	<0.001	<0.003	<1.0	<0.050
		01/11/07	Dewatering pumps at MW #48 and DW #2were pulled. Purchased new pumps that were installed 02/06/07					
Lead Filter Until April 30, 2007 When it was Taken Out of Service and replaced on June13, 2007. Now the Lag Filter		02/08/07	0.003	<0.001	<0.001	<0.003	<1.0	<0.050
		02/20/07	0.002	<0.001	<0.001	<0.003	<1.0	<0.050
		02/27/07	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050
		03/06/07	Pumps down due to Break and Repair of Discharge Piping					
	1st Quarter	03/13/07	0.003	<0.001	<0.001	<0.002	<1.0	<0.050
		03/21/07	0.003	<0.001	<0.001	<0.002	1.2	0.051
		03/26/07	Pumps down due to the San Juan River Mud Load					
		04/02/07	0.014	<0.001	<0.001	<0.002	<1.0	0.071
		04/12/07	Pumps down because Fresh Water Ponds are Full					
		04/16/07	0.028	<0.001	<0.001	<0.002	<1.0	0.11
		04/25/07	0.014	<0.001	<0.001	<0.002	<1.0	0.074
	2nd Quarter (Lag Filter)	6/20/087	<0.001	<0.001	<0.001	<0.002	<1.0	<0.050

Section 6.0 Summary

Summary

Construction of the River Terrace Bioventing Project was initiated in August 2005. The system was put on-line in January 2006. On-going sampling at the River Terrace area is conducted in accordance with the approved Bioventing System Monitoring Plan, dated October 28, 2006, and in accordance with an NMED comment letter dated June 13, 2007. The NMED letter revised the monitoring plan to include additional metals analysis and incorporate quarterly sampling of TP-7. These revisions were implemented during the second quarter sampling event.

First quarter groundwater samples were collected from each of the TP Wells (except TP-7), DW #1, and MW #49 during the week of February 26, 2007. Groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). MW #49 and DW #1 were also analyzed for Total Lead, Chromium, and Mercury (EPA Method 6010C and 7470). Field measurements included temperature, pH, conductivity, DO, and ORP.

Second quarter sampling occurred during the week of June 18, 2007. TP-7 was included in this sampling regimen per the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006 – Item #2). TP-7 was sampled after a 24 hour recharge time. In the same letter, NMED required additional metals analysis of all the TP Wells, MW #49, and DW #1 on a quarterly basis for lead and on an annual basis for chromium and barium. Annual analysis of chromium and barium (EPA Method 6010B) was conducted in the second quarter event. Lead analysis (EPA Method 6010B) was performed on all of the TP Wells, MW #49, and DW#1. DW #1 also received an analysis for mercury (EPA Method 7470). In addition, groundwater samples were analyzed for BTEX and MTBE (EPA Method 8021B), GRO and DRO (EPA Method 8015B). Field measurements included temperature, pH, conductivity, DO, and ORP.

An in situ respiration test was not performed in May 2007 due to high flow rates of the San Juan River and the inability to duplicate similar conditions as the May 2006 respiration test. The in situ respiration test has been tentatively scheduled for September 2007.

GAC filter influent samples (GAC Inf) and effluent samples collected downstream of the lag GAC filter (GAC 2 Eff) were collected quarterly. Effluent samples from the lead GAC filter (GAC 1 Eff) were obtained weekly until breakthrough was detected. Samples were analyzed for BTEX by EPA Method 8021B, GRO and DRO by EPA Method 8015B.

Weekly samples were not available at various times throughout the six-month period from January 2007 through June 2007 due to a variety of operational issues. Causes and dates are as follows; January 11, 2007 to February 6, 2007 due to both dewatering pumps broke down and subsequent replacement of both pumps, the week of March 3, 2007 due to a break and repair of discharge piping, the week of March 26, 2007 the river pumps were down due to an extremely muddy San Juan River, and the week of April 12, 2007 the river pumps were down due to the refinery's fresh water ponds were full.

Break through in the lead GAC was detected in April through lab analysis and V-612 was bypassed and taken out of service on April 30, 2007. V-611 became the lead GAC at that time. Approximately 1,886,500 gallons of groundwater flowed through the filters before breakthrough occurred. Refinery personnel will continue to analyze GAC 1 EFF (V-611) for BTEX, GRO, and DRO on a monthly basis. GAC INF and GAC 2 EFF (V-612) will be analyzed quarterly for BTEX, GRO, and DRO.

Analytical results of the groundwater monitoring continue to indicate that the contaminants of concern are primarily benzene, toluene, ethylbenzene, and xylene (BTEX) at TP #1, TP #2, TP #5, and TP #8. BTEX results at TP #6 were below WQCC Standards in 2007. BTEX results are still below WQCC Standards at TP #3, TP #7, TP #9, TP #10, TP #11, TP #12 and TP #13.

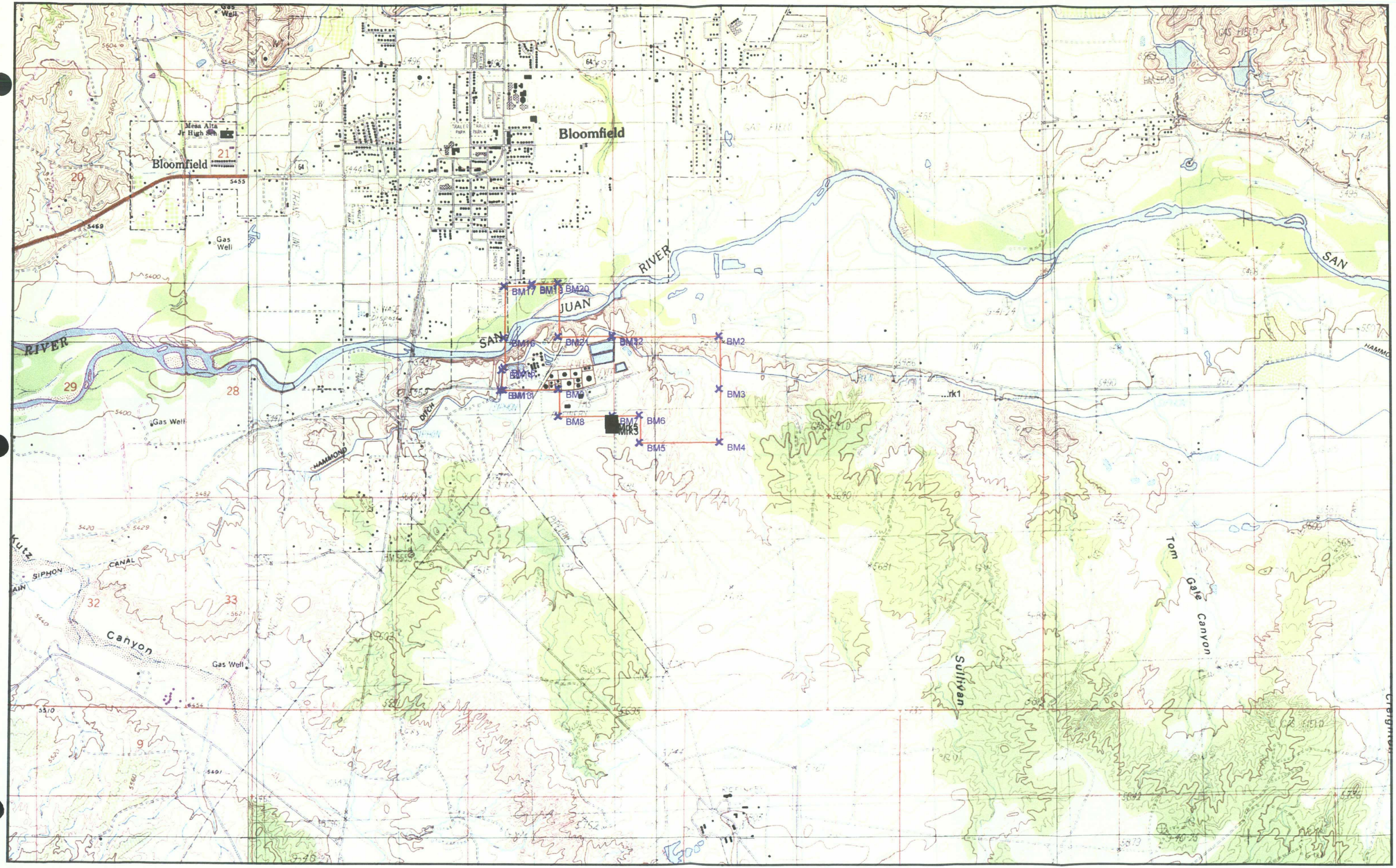
The average oxygen concentration of TP-#1, TP-#2, TP-#5, TP-#6, TP-#8 was between 19 to 20 percent by volume in soil gas, which shows that the area is well oxygenated. An adequate supply of oxygen is critical to an environment in which aerobic organisms can grow and metabolize the petroleum hydrocarbons. Measured high oxygen readings (above 10%) support the notion of a well oxygenated vadose zone that supports aerobic biodegradation activity.

Field data indicates the bioventing system is continuing to enhance bioremedial activity within the river terrace area around TP-#1, TP-#2, TP-#5, TP-#6, and TP-#8. Soil gas concentrations collected in the field show that the bioventing system provides sufficient oxygen supply to fully oxygenate the subsurface, supporting aerobic biodegradation of hydrocarbons.

Performance monitoring will continue on a quarterly basis following the guidelines from the Bioventing System Monitoring Plan and the June 13, 2007 NMED letter (Direction to Modify Future Monitoring as reported in the River Terrace Voluntary Corrective Measures Bioventing System Annual Report January 2006 through December 2006).

Section 7.0 Maps

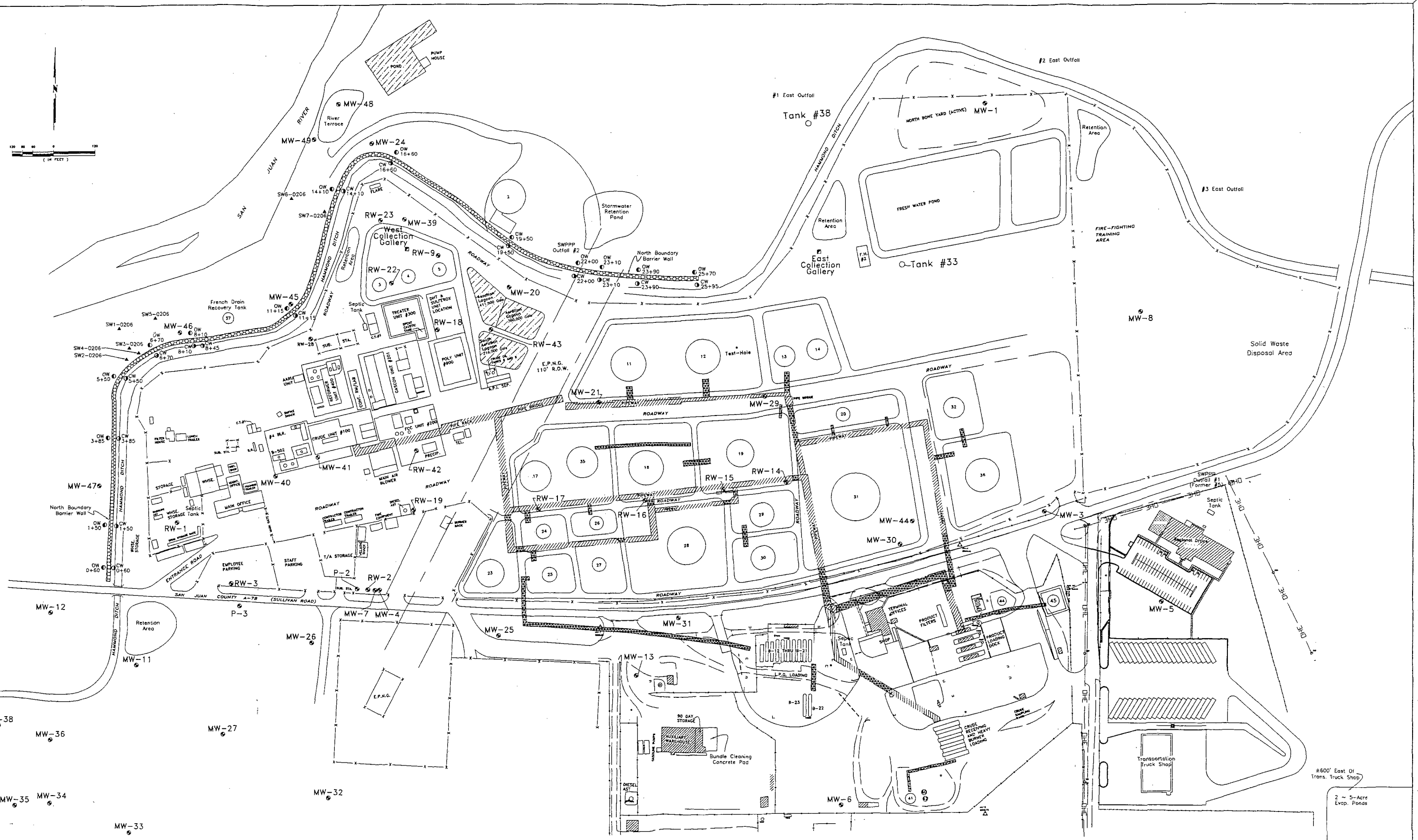
Title	Figure
Vicinity Map	Figure 1
Facility Site Plan	Figure 2
River Terrace Bioventing Project Plot Plan	Figure 3
Soil Vapor BTEX Concentration Map	Figure 4
Groundwater BTEX Concentration Map	Figure 5



N

Scale: 1 inch equals 2000 feet

GIANT



NOTES "MW-XX" – Monitoring Wells Locations
"RW-XX" – Recovery Well Locations
"P" – Piezometer
– Denotes Under Ground Pipe-Way.
– Denotes Above Ground Pipe-Way.
– Denotes Slurry Barrier Wall
"CW" – Collection Well Locations
"OW" – Observation Well Locations
"SW" – Sump Well Locations

REFERENCE DWGS.

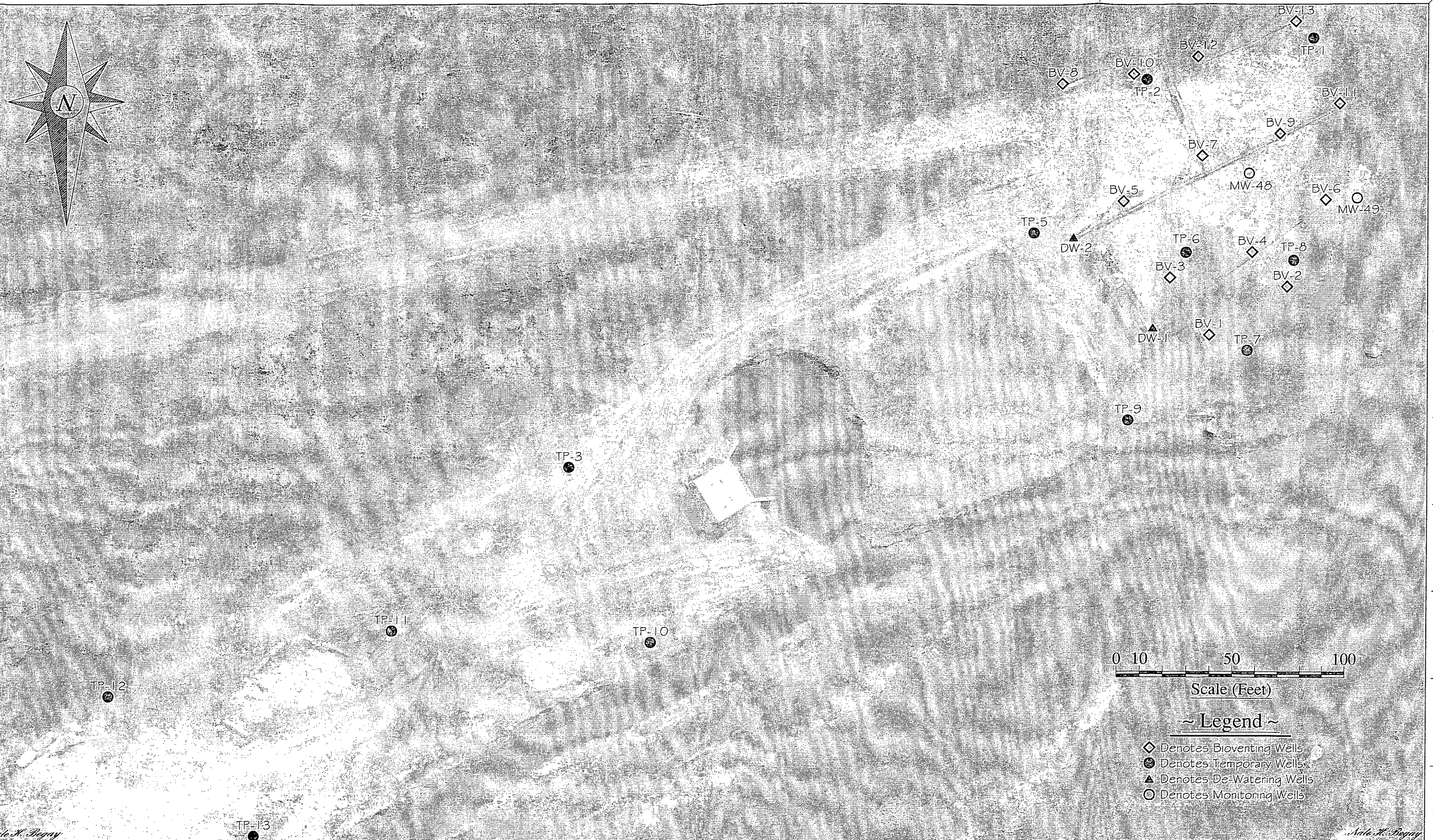
NO.	REVISION	JOB No.	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
8	Revised To Indicate Tanks 24 & 25 Addition.		NHB	3/06				
7	Observation, & Collection Wells Added As Per Enviro. Dept. Mark-Ups.		NHB	12/05				
6	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB	7/05				
5	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB	3/05				
4	Updated To Indicate Changes As Per Enviro. Dept. Red-Line Mark-Ups.		NHB	2/04				
10	Revised As Per Red-Line Mark-Ups From "C. Hurtado' Enviro. Dept.		NHB	7/03				
9	Revised To Indicate "SW" or Sump Well Locations.		NHB	5/05				
1	Updated As Per Enviromental Dept. Mark Up							

SCALE	As Noted
DRAWN BY	NHB
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	
DATE	8/29/02

Giant Bloomfield Refinery Area Plot Plan Recovery Well & Monitoring Well Locations

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

DWG. NO. D-000-900-023 — REV. 10



NOTES
Reference Drawings:
B-500-900-022
B-500-900-023

NO.	REVISION	BY	DATE	BY	DATE	BY	DATE
1	Removal Of "TP-4" As Per Instruction From Enviro. Dept.	NHB	8/07				
A	Drawn As Per Sketch From Enviro. Dept.						

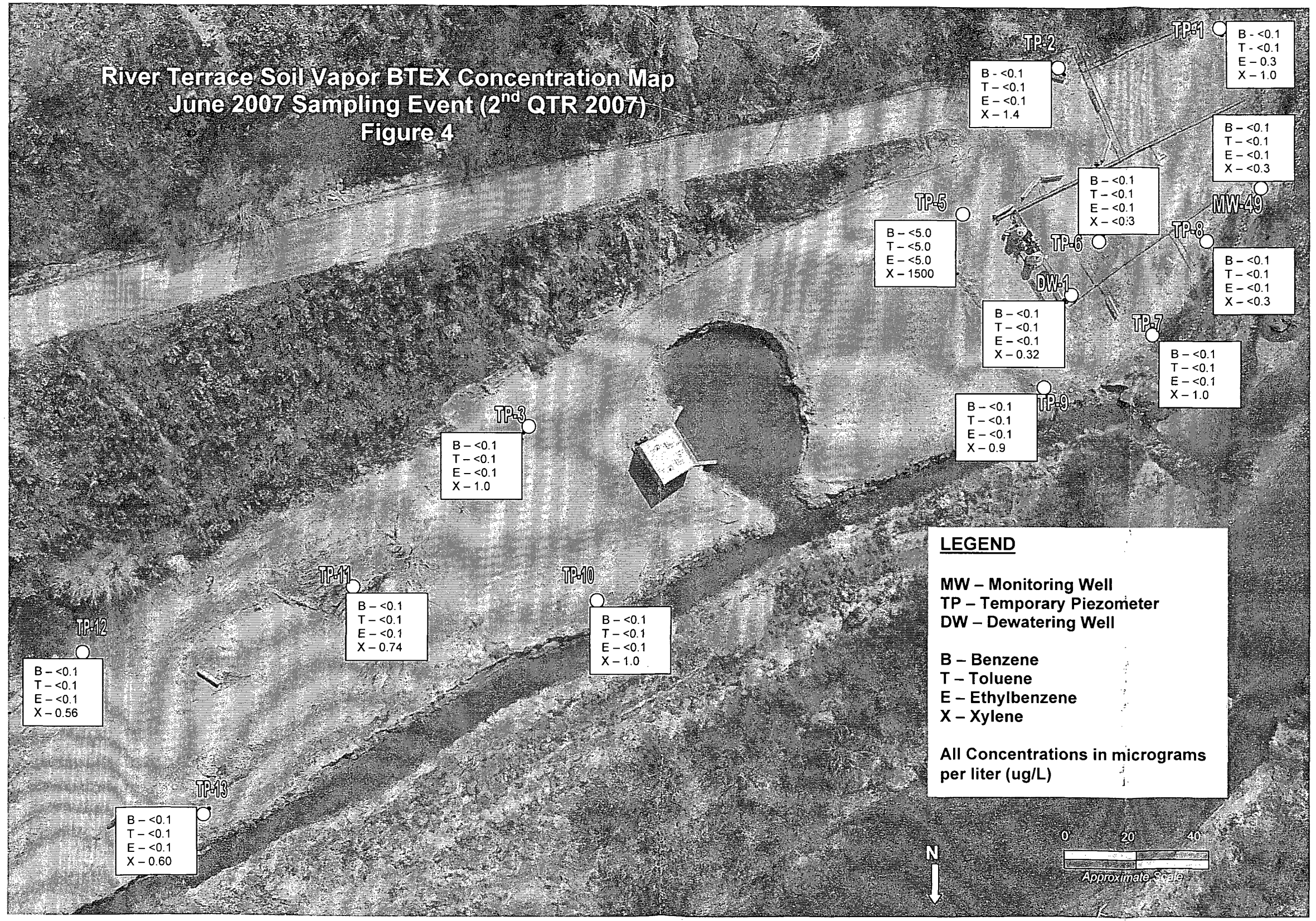
REFERENCE DWGS. | JOB No. | DRAWN | CHECKED | APPROVED

SCALE	As Noted
DATE	
DRAWN BY	NHB
DATE	1/3/07
INITIAL CHK.	
FINAL CHK.	
ENGR.	
APPR. BY	
AFE/WO No.	NONE

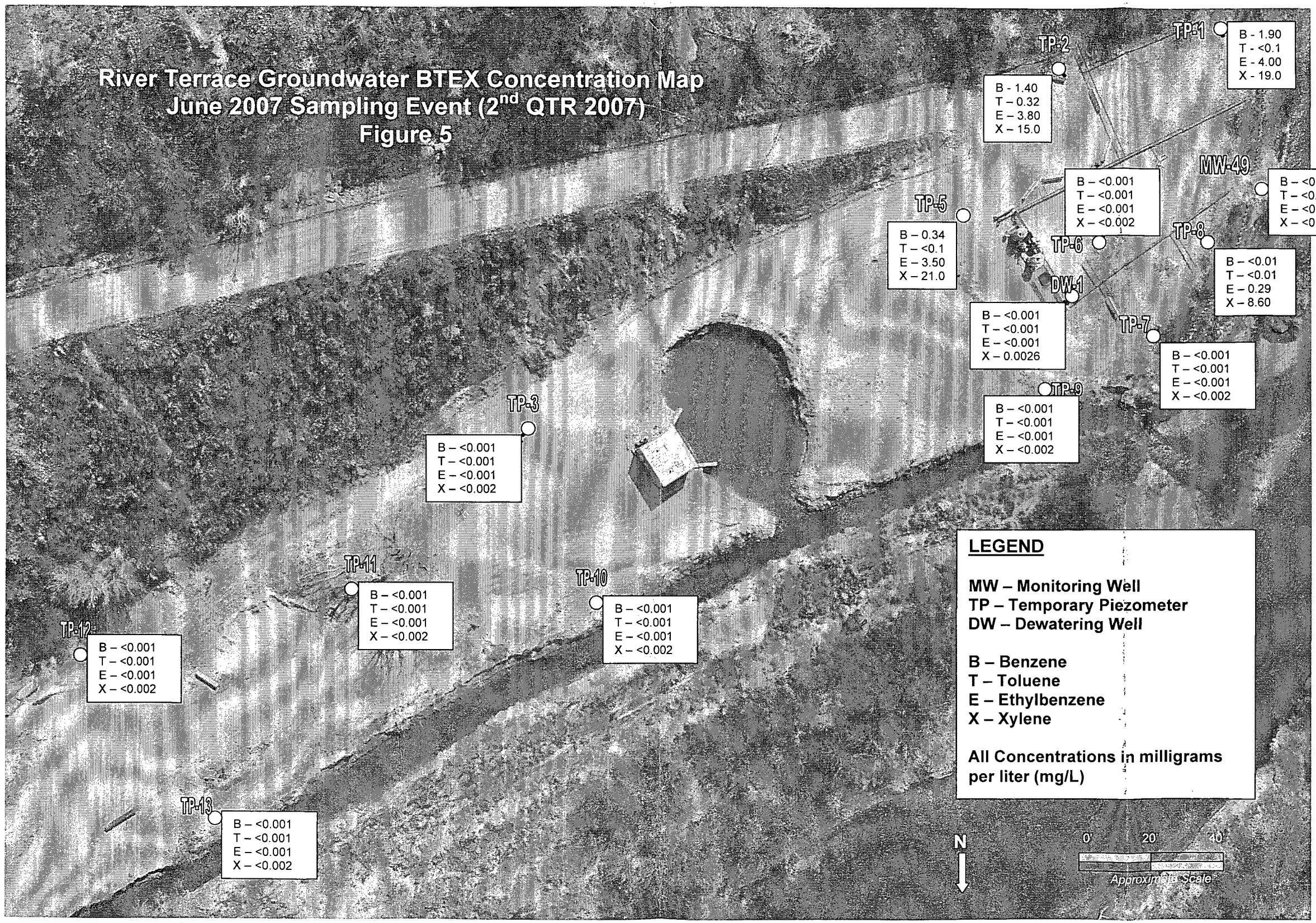
River Terrace Project
Bioventing & Temporary-
Well Location Plot Plan

GIANT REFINING CO.
BLOOMFIELD REFINERY — BLOOMFIELD NEW MEXICO

DWG. NO. B-500-900-024 | REV. 1


River Terrace Soil Vapor BTEX Concentration Map
June 2007 Sampling Event (2nd QTR 2007)
Figure 4
TP-1
B - <0.1
T - <0.1
E – 0.3
X – 1.0
TP-2
B - <0.1
T – <0.1
E – <0.1
X – 1.4
B – <0.1
T – <0.1
E – <0.1
X – <0.3
MW-49
B – <0.1
T – <0.1
E – <0.1
X – <0:3
TP-5
B – <5.0
T – <5.0
E – <5.0
X – 1500
TP-6
TP-8
B – <0.1
T – <0.1
E – <0.1
X – <0.3
DW-1
B – <0.1
T – <0.1
E – <0.1
X – 0.32
TP-7
B – <0.1
T – <0.1
E – <0.1
X – 1.0
TP-9
B – <0.1
T – <0.1
E – <0.1
X – 0.9
TP-3
B – <0.1
T – <0.1
E – <0.1
X – 1.0
TP-11
B – <0.1
T – <0.1
E – <0.1
X – 0.74
TP-10
B – <0.1
T – <0.1
E – <0.1
X – 1.0
TP-12
B – <0.1
T – <0.1
E – <0.1
X – 0.56
TP-13
B – <0.1
T – <0.1
E – <0.1
X – 0.60
LEGEND
MW – Monitoring Well
TP – Temporary Piezometer
DW – Dewatering Well
B – Benzene
T – Toluene
E – Ethylbenzene
X – Xylene
All Concentrations in micrograms per liter (ug/L)
N
0
20
40
Approximate Scale

River Terrace Groundwater BTEX Concentration Map
June 2007 Sampling Event (2nd QTR 2007)
Figure 5



Section 8.0 Field Methods

Field Methods

Soil Gas Sampling

Sampling Procedure

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. Soil gas samples are taken before groundwater purging and sampling.

Each well is equipped with an air-tight well cap for sample extraction through a sample port at the top of the well casing. Each well has dedicated flexible Teflon Food Grade tubing which extends through both sides of the sample port with one side continuing down into the well casing to approximately 1 foot above the water table. The other end (topside) protrudes from the cap and is available as a connector.

Before purging, pressure is measured by attaching a hand-held Magnahelic Pressure Gauge to the topside tubing.

A portable vacuum pump is used for purging and sample collection. The topside tubing is connected to the suction of the vacuum pump and three purge volumes are withdrawn from the well prior to sample collection. After sufficient purging, a Tedlar bag is attached to the tubing at the discharge end of the pump for sample collection. All samples are properly labeled and placed in a cooler for delivery to the off-site laboratory or for field measurements of vapor-phase organics

Well Purging Technique

A vacuum pump is used to remove stagnant air from the soil gas sampling assembly. Approximately three well volumes are purged from the well before sampling. Purged volumes are determined by using the following equation:

Conversion Factor X Depth to Water X 28L/ft3 X Three

The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	0.196L/ft
4"	0.0873L/ft
2"	0.0.0218L/ft
1"	0.0.005545L/ft

Soil Gas Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative soil gas samples include:

- Interface Probe
- Vacuum Pump
- 1 Liter Tedlar Bags
- PID Meter
- RKI Eagle Meter
- Cooler to store Tedlar Bags
- Sharpie Permanent Marker

- Field Paperwork/Logsheet
- Trash container (plastic garbage bag)

Tedlar bags and tubing dedicated for each well are used for field measurements. New Tedlar bags are used for BTEX and GRO collection and analysis.
After sufficient purging, samples are collected using the vacuum pump. Field measurements of vapor-phase organics, oxygen, and carbon dioxide concentrations are recorded using portable field instruments. BTEX and GRO samples are labeled immediately with location, date, time, analysis, and sampler and then put in a trash bag and placed in a cooler. The field logsheet is reviewed to verify all entries. Samples are then shipped to the laboratory.
To prevent cross-contamination, procedures include dedicated tubing for each of the wells sampled as well as a five minute purge time of the vacuum pump in ambient air.

Instrument Calibration

The RKI Eagle is a portable gas detection system with sensors for oxygen, carbon dioxide, and methane. Calibration of the instrument is conducted at the beginning of each day of sampling.
The meter is turned on and allowed to warm up. Fill the dedicated Tedlar bags with known calibration gas. One bag is used for the carbon dioxide calibration and the other bag contains the oxygen and methane calibration gasses. Press and hold the AIR/▲ button until a tone sounds. The Eagle automatically sets the toxics circuits to zero and the oxygen circuit to 20.9%.
Press and hold the SHIFT /▼ button, then press the DISP/ADJ button. The calibration menu is displayed. Use the AIR/▲ and SHIFT/▼ buttons to place the prompt next to the SINGLE CALIBRATION menu option. Press the POWER/ENTER button to display the Single Calibration menu. Use the AIR/▲ or SHIFT/▼ button to place the prompt next to the channel to calibrate. Press the POWER/ENTER button. Connect the tubing from the Tedlar bag to the Eagle's probe. If necessary, use the AIR/▲ (increase) and SHIFT/▼ (decrease) buttons to adjust the reading to match the concentration listed on the calibration cylinder. Press the POWER/ENTER button to set the span value. Repeat the steps for any other channels you want to calibrate.

The MiniRae 2000 Portable VOC Monitor (PID) is calibrated at the beginning of each day of sampling. Turn on the monitor and wait for the **Ready** message display. Press and hold both **(N/-)** and **(MODE)** keys for three seconds to enter programming mode. The first menu item **"Calibrate/select Gas?"** will be displayed. Press **(N/-)** to scroll to **Fresh Air Cal?** And press **(Y/-)** to select that menu item. Clean ambient air can be used for the "fresh air" calibration. Press **(Y/-)** to begin the zeroing process.
After zeroing is complete, press **(N/-)** to scroll to the next menu item. When **Span Cal?** is displayed press **(Y/-)** to select that menu item. Connect the monitor to a known calibration gas cylinder (isobutylene) after the display shows **Apply gas now!** The monitor will then perform the calibration. When calibration is

completed, turn off the flow of gas, disconnect the cylinder, and exit the programming mode by pressing the **(MODE)** key once.

Groundwater Sampling

Groundwater Elevation

All water/product levels are determined to an accuracy of 0.01 foot using a Geotech Interface Meter. The technician records separate phase hydrocarbon, depth to water, and total well depth using this probe.

Water Quality/Groundwater Sampling

Prior to purging, a YSI 550A Dissolved Oxygen Probe is used to determine dissolved oxygen (DO) levels. Water quality parameters are measured using an Ultrameter 6P by the Myron L Company. Electrical conductance, oxidation-reduction potential (ORP), pH, and temperature are monitored during purging.

Well Purging Technique

At least three well volumes are purged from the well. Purge volumes are determined using the following equation:
Well Depth – Casing Height – Depth to Liquid X Conversion Factor X Three.
The conversion factor is determined by the diameter of the well casing.

Casing	Conversion Factor
6"	1.50 gal/ft
5"	1.02 gal/ft
4"	0.74 gal/ft
3"	0.367 gal/ft
2"	0.163 gal/ft

Well Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Probe
- Ultrameter 6P
- YSI 550A Dissolved Oxygen Instrument
- Distilled Water
- Disposable Latex Gloves
- Disposable Bailers
- String/Twine
- Cooler with Ice
- Bottle kits with Preservatives (provided by the contract laboratory)
- Glass Filters and Syringes Jar (usually 4 oz.)
- Sharpie Permanent Marker
- Field Paperwork/Log sheet
- Two 5-gallon buckets
- Trash container (plastic garbage bag)

- Ziploc Bags
- Paper towels

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed.
All purged water is poured into a 55-gallon drum designated for sampling events.

After sufficient purging, samples are collected with the bailer and poured into the appropriate sample containers. Two people are usually utilized for sampling. Sampling takes place over a bucket to insure that spills are contained

Samples are labeled immediately with location, date, time, analysis, preservative, and sampler. Then they are put in a Ziploc bag and placed in a cooler holding sufficient ice to keep them cool. The field log sheet is reviewed to verify all entries.

Purge and Decontamination Water Disposal
The Ultrameter 6P, YSI 550A DO Probe, and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained.
All rinse and purge water is contained and then disposed of through the refinery wastewater system.

Instrument Calibration
Calibration of the YSI 550A Dissolved Oxygen Instrument occurs at the beginning of each day of sampling. The probe is powered on and allowed to stabilize, which usually takes 15 minutes. Enter the calibration menu. The LCD will prompt you to enter the local altitude in hundreds of feet. When the proper altitude appears on the LCD, press the **ENTER** key.
The LCD will then prompt you to enter the salinity of the water you are about to analyze. After entering the correct salinity, the instrument will return to normal operation.

The Ultrameter 6P instrument calibration occurs at the beginning of each day of sampling. For Conductivity and TDS calibration, the cell is rinsed three times with a 3000 umhos/cm NaCl Standard. The cell cup is refilled with the standard. Either the **COND** or the **TDS** button is pressed and then the **CAL** button is pushed. Press the up or down arrow until the display agrees with the standard. The **CAL** button is pressed to accept the value.
The Ultrameter 6P has an electronic ORP calibration which is automatically calibrated with the 7 pH. The pH sensor well is rinsed three times with 7.0 buffer solution and then refilled again with that buffer. The **pH** button is pressed then the **CAL** button. The up or down arrow is adjusted until the display agrees with the buffer value. The **CAL** button is pushed to accept that value. Repeat the

calibration steps using an acid buffer solution and then again with a base buffer solution.

Section 9.0 Chemical Analytical Program

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

Hall Environmental Analysis Laboratory

QUALITY ASSURANCE PLAN

Effective Date: May 2007

Revision 8.3

www.hallenvironmental.com

Control Number: 0000069

Approved By:

Nancy McDuffie Date
Laboratory Manager/QA Officer

Approved By:

Andy Freeman Date
Business Manager

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3.0 Introduction

Purpose of Document

The purpose of this Quality Assurance Manual is to formally document the quality assurance policies and procedures of Hall Environmental Analysis Laboratory, Inc. (HEAL), for the benefit of its employees, clients, and accrediting organizations. This laboratory continually implements the aspects of this plan as an essential and integral part of laboratory operations in order to assure that high quality data is produced in an efficient cost effective manner.

Objectives

The objective of HEAL is to achieve and maintain excellence in environmental testing. This is accomplished by developing, incorporating and documenting the procedures and policies specified in this manual. A laboratory staff that is analytically competent, well qualified, and highly trained carries out these activities. An experienced management team, knowledgeable in their area of expertise, monitors them. Finally, a comprehensive Quality Assurance program governs laboratory practices and assures that the analytical results are valid and defensible.

HEAL establishes and thoroughly documents its activities to ensure that all data generated and processed will be scientifically valid and of known and documented quality. Routine laboratory activities are detailed in method specific. All data reported meets the applicable requirements for NELAC, EPA and/or State Bureaus. For specific method requirements refer to Standard Operating Procedures (SOP's), EPA methods, Standard Methods 20th edition or state specific methods.

The management assures that this documentation is correct in terms of required accuracy, data reproducibility, and that the procedures contain proper Quality Control measures. The management additionally assures that all equipment is reliable, well maintained and calibrated. The procedures and practices of the laboratory are able to conform to client specifications and regulatory requirements. Meticulous records are maintained for all samples and their respective analyses so that results are well documented and defensible in a court of law.

The HEAL QA Officer is responsible for supervising and administering this quality assurance program, insuring each individual is responsible for its proper implementation. All HEAL management remains committed to the encouragement of excellence in analytical testing and will continue to provide the necessary resources and environment conducive to its achievement.

Policies

Understanding that quality cannot be mandated, it is the policy of this laboratory to provide an environment that encourages all staff members to take pride in the quality of their work. In addition to furnishing proper equipment and supplies, HEAL stresses the importance of continued training and professional development. Further, HEAL recognizes the time required

for data interpretation. Therefore, no analyst feels pressure to sacrifice data quality for data quantity. Each staff member must perform with the highest level of integrity and professional competence, always being alert to problems that could compromise the quality of technical work.

Management and senior personnel supervise analysts closely in all operations. Under no circumstance is the willful act or fraudulent manipulation of analytical data condoned. Such acts must be reported immediately to the management. Reported acts will be assessed on an individual basis and resulting actions could result in dismissal. The laboratory staff is encouraged to speak with lab managers or senior management if they feel that there are any commercial, financial, or other undo pressures, which might adversely affect the quality of their work.

All client information at HEAL is considered confidential. No information will be given out without the express verbal or written permission of the client. All reports generated will be held in the strictest of confidence.

This is a controlled document. Each copy is assigned a unique tracking number and when released to a client or accrediting agency the QA Officer keeps the tracking number on file.

4.0 Organization and Responsibility

Company

HEAL is accredited in accordance with NELAC standards (see NELAC accredited analysis list) and by the Arizona Department of Health Services. Additionally, HEAL is qualified as defined under the Petroleum Storage Tank Regulations of the State of New Mexico Environmental Improvement Board (USTR §1201), the State of New Mexico Water Quality Control Commission regulations and the New Mexico State Drinking Water Bureau. It is a locally owned small business that was established in 1991. HEAL is a full service Environmental Analysis Laboratory with analytical capabilities that include both organic and inorganic methodologies and has performed analyses of soil, water and air samples for many sites in the region. HEAL's client base includes local, state and federal governmental agencies, private consultants as well as individual homeowners. It has performed as a subcontractor to the state of New Mexico and to the New Mexico Department of Transportation. HEAL has been acclaimed by its customers as producing quality results and as being adaptive to client-specific needs.

The laboratory is divided into a volatile organic section, a semi-volatile organic section, and an inorganic section. Each section has a designated manager/technical director. The section managers report directly to the laboratory manager, who oversees all operations.

Certifications

National Environmental Laboratory Accreditation Program (NELAP) – Oregon Primary accrediting authority.

Arizona Department of Health Services

See appendix A for copies of current licenses and licensed parameters.

Personnel

All employees training certificates and diplomas are kept on file with demonstrations of capability for each method they perform. An Organizational Chart can be found on page 11.

Laboratory Director

The Laboratory Director is responsible for overall technical direction and business leadership of Hall Environmental Analysis Laboratory, Inc. The Laboratory Manager and the Business Manager report directly to the Laboratory Director. Someone with a minimum of 7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Laboratory Manager/Technical Director

The Laboratory Manager is responsible for the daily operations of the laboratory. The Laboratory Manager is the technical director of the laboratory and in conjunction with the technical directors of the sections, is responsible for coordinating activities within the laboratory with the overall goal of efficiently producing high quality data in a reasonable time.

In events where employee scheduling or current workload is such that new work cannot be incorporated with missing holdtimes, the Laboratory Manager has authority to modify employee scheduling or re-schedule projects.

Additionally, the laboratory manager reviews and approves new analytical procedures and methods, and performs a technical review of most analytical results. The Laboratory Manager provides technical support to customers and staff.

The Lab Manager also observes the performance of supervisors to ensure good laboratory practices and proper techniques are being taught and utilized, assisting in overall quality control implementation, and strategic planning for the future of the company. Other duties include assisting in establishing laboratory policies which lead to the fulfillment of requirements for various certification programs, assuring that all Quality Assurance and Quality Control documents are reviewed and approved, and assisting in conducting Quality Assurance Audits.

The lab manager addresses questions or complaints that cannot be answered by the section managers. Someone with a minimum of 7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Business/ Project Manager

The role of the business/project manager is to act as a liaison between the client and the laboratory. The business project manager reviews reports, updates clients on the status of projects in-house, prepares quotations for new work, and is responsible for the marketing effort.

All new work is assessed by the project manager and reviewed with the other managers so as the not exceed the laboratories capacity. In events where employee scheduling or current workload is such that new work cannot be incorporated with missing holdtimes, the Business Manager has authority to re-schedule projects.

It is also the duty of the project manager to work with government agencies and other clients to make certain that the laboratory is compliant on specific work plan requirements.

Additionally, the Business Manager can initiate the review of the need for new analytical procedures and methods, and performs a technical review of some analytical results. The Business Manager provides technical support to customers. Someone with a minimum of

7 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Quality Assurance Officer

The Quality Assurance Officer (QAO) is responsible for developing and carrying out the approved Quality Assurance Program, and advising and assisting management in meeting these requirements. The QAO monitors quality control activities of the laboratory in order to determine conformance with the Quality Assurance Program, performing Quality Assurance Audits, writing reports, providing follow-up action, and issuing Observation and Corrective Action Reports as needed.

Additional responsibilities include cataloged documentation of the following: Staff Training and Demonstration Of Capability (DOC) records, Instrument Detection Limits (IDL), Method Detection Limits (MDL), and Instrument/Equipment Certification and/or Maintenance records.

Complaints from clients are logged on a complaint form, which is reviewed by the QAO to ensure that it is handled according to the Quality Systems Section 5.5.3.1 and kept on file. When procedures are not in compliance with the requirements of this plan, "stop work orders" can be issued.

Finally, the QAO provides clients with Quality Control data and Quality Assurance reports as requested. Someone with a minimum of 3 years of directly related experience and a BS in a scientific or engineering discipline should fill this position or it can be filled by a senior manager.

Section Manager/Technical Directors

The Section Manager/Technical Directors are responsible for training and supervising departmental staff. They schedule incoming work and monitor laboratory personnel to ensure that proper procedures and techniques are being used. They supervise and implement new Quality Control procedures as directed by the QAO, update and maintain quality control records and evaluate laboratory personnel in their Quality Control activities.

They are the technical director of the associated section and review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 3 years of directly related experience and a BS in a scientific or engineering discipline should fill this position.

Chemist I, II and III

A Chemist is responsible for the analysis of soil and water samples and the generation of high quality data in accordance with the laboratory SOPs and QA/QC guidelines in a reasonable time as prescribed by standard turnaround schedules or as directed by the Section Manager, Laboratory Manager or Business Manager.

The chemist is responsible for making sure all data generated is entered in the database in the correct manner and the raw data is reviewed, signed and delivered to the appropriate peer for review. A Chemist reports daily to the section manager and will inform them as to material needs of the section specifically pertaining to the analyses preformed by the chemist. Additional duties may include preparation of samples for analysis, maintenance of lab instruments or equipment, cleaning and providing technical assistance to lower level laboratory staff.

The senior chemist in the section may be asked to perform supervisory duties as related to operational aspects of the section. The chemist may perform all duties of a lab technician.

The position of Chemist is a full or part time hourly position and may divided into three levels, Chemist I, II, and III. Chemist I must have a minimum of an AA in a related field or equivalent experience. Chemist II must have a minimum of an AA in a related field or equivalent plus, at least 2 years of environmental or closely related lab experience. Chemist III must have Bachelors degree and 3 years of environmental or closely related lab experience.

Lab Technician

A lab technician is responsible for providing support in the form of sample preparation, sample analysis, general lab maintenance, glassware washing, chemical inventories and sample kit preparation.

Sample Control Manager

The sample control manager is responsible for receiving samples and reviewing the sample login information after it has been entered into the computer. The sample control manager also checks the samples against the chain-of-custody for any sample and/or labeling discrepancies prior to distribution.

The sample control manager is also responsible for sending out samples to the sub-contractors along with the review and shipping of field sampling bottle kits. The sample control manager acts as a liaison between the laboratory and field sampling crew to assure the appropriate analytical tests is assigned. If a discrepancy is noted the sample Control Manager or sample custodian will contact the customer to resolve any questions or problems. The Sample Control Manager is an integral part the customer service team.

This position should be filled by someone with a high school diploma and a minimum of 3 years of directly related experience and can also be filled by a senior manager.

Delegations in the Absence of Key Personnel

Planned absences shall be preceded by notification to the Laboratory Manager. The appropriate staff members shall be informed of the absence. In the case of unplanned absences, the organizational superior shall either assume the responsibilities and duties or delegate the responsibilities and duties to an appropriately qualified member.

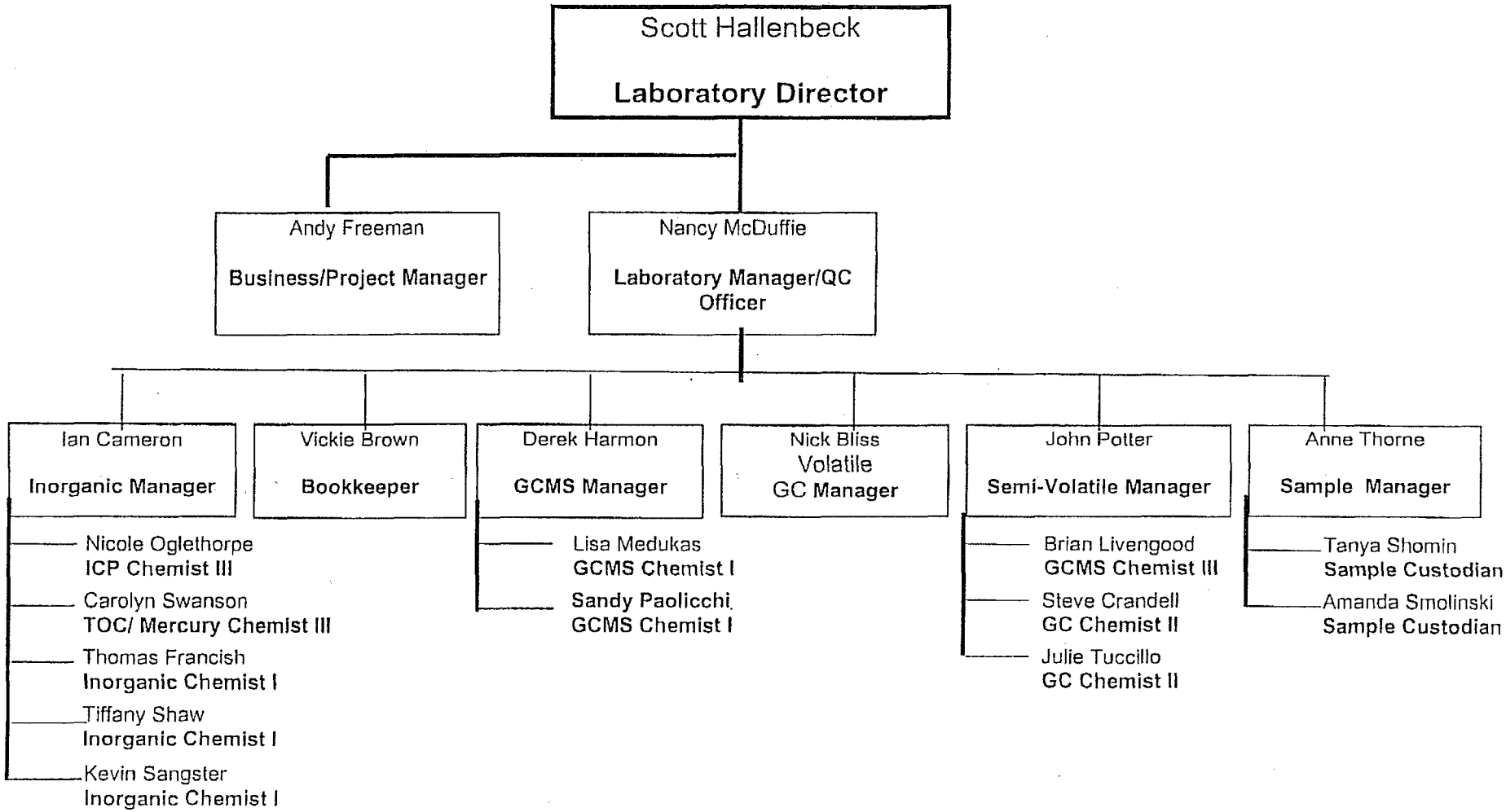
Laboratory Personnel Qualification and Training

All personnel joining HEAL shall undergo orientation and training. During this period the new personnel shall be introduced to the organization and their responsibilities, as well as the policies and procedures of the company. They shall also undergo on the job training and shall work with trained staff. They will be shown required tasks and be observed while performing them. Initial demonstration of capability must be completed and documented prior to performing assignments unsupervised.

New employees that do not have prior analysis experience will not be allowed to perform analysis until they have demonstrated attention to detail with minimal errors in the assigned tasks. To ensure a sustained level of quality performance among staff members, continuing demonstration of capability shall be performed at least once a year.

Laboratory staff must successfully pass an external Proficiency Testing (PT) sample or initial PT sample. Each new employee shall sign an ethics and data integrity agreement to ensure that they know that data quality is our main objective. Every HEAL employee recognizes that although turn around time is important, quality is put above any pressure to complete the task expediently. Analysts are not compensated for passing QC parameters nor are incentives given for the quantity of work produced.

Diagram of Organizational Structure



5.0 Receipt and Handling of Samples

Sampling

Procedures

HEAL does not provide field sampling for any projects. Sample kits are prepared and provided for clients upon request. The sample kits contain the appropriate sampling containers (with a preservative when necessary), labels, blue ice, a cooler, chain-of-custody forms, plastic bags, bubble wrap, and any special sampling instructions. The sample control manager reviews the kits prior to shipment.

Containers

Containers which are sent out for sampling are purchased by HEAL from a commercial source. Glass containers are certified "EPA Cleaned" QA level 1. Those containers are received with a Certificate of Analysis verifying that the containers have been cleaned according to the EPA wash procedure. Containers are generally used once and discarded. If the samples are collected and stored in inappropriate containers the laboratory may not be able to accurately quantify the amount the desired components. In this case re-sampling may be required.

Preservation

If sampling for an analyte(s) requires preservation, the sample custodians fortify the containers prior to shipment to the field. The required preservative is introduced into the vials in uniform amounts and done so rapidly to minimize the risk of contamination. Vials that contain a preservative are labeled appropriately.

The following pages contain tables specifying additional preservation requirements for samples.

Tables of Standard Holding Times, Preservation, and Containers

Organic Compounds

Compound	Matrix	Container	Preservative	Holding Time
Purgeable halocarbons and aromatics	aqueous	40 mL glass voas, teflon-lined septum	$HgCl_2$, or HCl, pH <2; cool, <6° C	14 days to analysis
Purgeable halocarbons and aromatics	Soil/MeOH*	4 oz. Jar/2-20 ml VOAs w/ methanol	cool, <6° C	14 days to analysis
Semi-volatiles	aqueous	1 L amber	cool, <6° C	7 days to extract, 40 days after extraction to analyze
Semi-volatiles	soil	8 oz. Jar	cool, <6° C	14 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	aqueous	1 L amber	cool, <6° C	7 days to extract, 40 days after extraction to analyze
PCBs, pesticides, herbicides	soil	8 oz. Jar	cool, <6° C	14 days to extract, 40 days after extraction to analyze

*Use of field methanol kits are available and recommended for the PSTB.

Inorganic Compounds

Compound	Matrix	Container	Preservative	Holding Time
Acidity	aqueous	250-mL HDP	cool, <6° C	14 days
Alkalinity	aqueous	250-mL HDP	cool, <6° C	14 days
Ammonia	aqueous	1-L HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Biochemical Oxygen Demand	aqueous	2-L HDP	cool, <6° C	48 hours
Bromide	aqueous	250-mL HDP	none required	28 days
Chemical Oxygen Demand	aqueous	125-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Chloride	aqueous	125-mL HDP	none required	28 days
Chloride	solid	4-oz jar	none required	28 days
Chlorine, total residual	aqueous	500-mL HDP	none required	analyze immediately
Chromium VI	aqueous	250-mL HDP	cool, <6° C	24 hours
Chromium VI	solid	8-oz jar	cool, <6° C	as soon as possible

Compound	Matrix	Container	Preservative	Holding Time
Color	aqueous	125-mL HDP	cool, <6° C	48 hours
Cyanide	aqueous	1-L HDP	cool, <6° C NaOH pH>12	14 days
Cyanide	solid	4-oz jar	cool, <6° C	14 days
Fluoride	aqueous	500-mL HDP	none required	28 days
Hardness	aqueous	250-mL HDP	HNO_3 or H_2SO_4 pH<2	6 months
Hydrogen ion (pH)	aqueous	60-mL HDP	none required	analyze immediately
Hydrogen ion (pH)	solid	4-oz jar	none required	analyze immediately
Kjeldahl and organic nitrogen	aqueous	1-L HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Mercury	aqueous	250-mL HDP	HNO_3 pH < 2	28 days
Mercury	solid	8-oz jar	none required	28 days
Metals (except Cr VI and Hg)	aqueous	500-mL HDP	HNO_3 pH < 2	6 months
Nitrate	aqueous	250-mL HDP	cool, <6° C	48 hours
Nitrate	solid	8-oz jar	cool, <6° C	analyze immediately
Nitrate-Nitrite	aqueous	250-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Nitrate-Nitrite	solid	8-oz jar	cool, <6° C	28 days
Nitrite	aqueous	125-mL HDP	cool, <6° C	48 hours
Oil and Grease	aqueous	2-L wide-mouth glass	cool, <6° C, H_2SO_4 pH<2	28 days
Oil and Grease	solid	2-L wide-mouth glass	cool, <6° C	28 days
Organic Carbon	aqueous	125-mL HDP	cool, <6° C, HCl or H_2SO_4 pH<2	28 days
Organic Carbon	solid	4-oz jar	cool, <6° C	28 days
Orthophosphate	aqueous	125-mL HDP	Cool, <6° C	48 hours
Phenolics	aqueous	1-L Boston Round	cool, <6° C, H_2SO_4 pH<2	28 days
Phenolics	solid	8-oz jar (glass only)	cool, <6° C	28 days
Phosphorous (elemental)	aqueous	1-L Boston Round	cool, <6° C	48 hours
Phosphorous (total)	aqueous	125-mL HDP	cool, <6° C, H_2SO_4 pH<2	28 days
Residue, total	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, filterable(TDS)	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, non-filterable (TSS)	aqueous	250-mL HDP	cool, <6° C	7 days
Residue, settleable	aqueous	Imhoff Cone	cool, <6° C	48 hours

Residue, volatile	aqueous	250-mL HDP	cool, <6° C	7 days

Compound	Matrix	Container	Preservative	Holding time
Silica	aqueous	125-mL HDP	cool, <6° C	28 days
Specific conductance	aqueous	250-mL HDP	cool, <6° C	28 days
Specific conductance	solid	8-oz jar	cool, <6° C	28 days
Sulfate	aqueous	125-mL HDP	cool, <6° C	28 days
Sulfate	solid	4-oz jar	cool, <6° C	28 days
Sulfide	aqueous	1-L HDP	cool, <6° C, ZnAc + NaOH pH>9	7 days
Sulfide	solid	8-oz jar	cool, <6° C	7 days
Surfactants	aqueous	500-mL HDP	cool, <6° C	48 hours
Turbidity	aqueous	250-mL HDP	cool, <6° C	48 hours

Sample Custody

Chain-of-Custody Form

A Chain-of-Custody (CoC) form is used to provide a record of sample chronology starting with the field sampling through laboratory analysis. HEALs CoC contains the client's name, address, phone and fax numbers, the project name and number, the project manager's name, and the field sampler's name. It also identifies the date and time of sample collection, sample matrix, field sample ID number, number/volume of sample containers, sample temperature upon receipt, and any sample preservative information.

There is also a space to record the HEAL ID number assigned to samples after they are received. Next to the sample information is a space for the client to indicate the desired analyses to be performed. Finally, there is a section to track the actual custody of the samples. The custody section contains lines for signatures, dates and times when samples are relinquished and received. The CoC form also includes a space to record special sample related instructions, sampling anomalies, time constraints, and any sample disposal considerations.

A sample chain-of-custody form can be found at the end of this section.

Receiving Samples

Samples are received by authorized HEAL personnel. Upon arrival, the CoC is compared to the respective samples. After the samples and CoC have been determined to be complete and accurate, the sampler signs over the CoC. The HEAL staff member in turn signs the chain-of-custody, also noting the current date and time. This relinquishes custody of the samples from the sampler and delegates sample custody to HEAL. The third (pink) copy of the CoC form is given to the person who has relinquished custody of the samples.

Logging in Samples and Storage

Standard Operating Procedures have been established for the receiving and tracking of all samples (refer to HALL Login SOP). These procedures ensure that samples are received and properly logged into the laboratory, and that all associated documentation, including chain of custody forms, are complete and consistent with the samples received. Each sample set is given a unique HEAL tracking ID number. Individual sample locations within a defined sample set are given a unique sample ID suffix-number. Labels with the HEAL numbers, and analytes requested, are generated and placed on their respective containers. The pH of preserved samples is checked and noted if out of compliance. Samples are reviewed by the sample control manager prior to being distributed to the storage refrigerators or appropriate laboratory personnel.

Samples are stored in the volatile section refrigerator, the semi-volatile section refrigerator, or the inorganic section refrigerator. If a soil sample must be extracted for both volatile and semi-volatile analysis, it is first placed into the volatile soil sample refrigerator. After the volatile extraction, the sample is moved to the semi-volatile refrigerator to minimize any risk of contamination.

Each project (sample set) is entered into the Laboratory Information Management System (LIMS) with a unique ID given to every container. The ID tag includes the Lab ID, Client ID, date and time of collection, and the analysis/analyses to be performed. The LIMS continually updates throughout the lab. Therefore, at any time, an analyst or manager may inquire about a project and/or samples status. For more information about the login procedures, reference the Sample Login SOP.

Disposal of Samples

Analytical results are used to characterize their respective sample contamination level(s) so that the proper disposal can be performed. These wastes will be disposed of according to their hazard as well as their type and level of contamination. Refer to the Hall Environmental Analysis Laboratory Chemical Hygiene Plan for details regarding waste disposal.

Waste drums are provided by an outside agency. These drums are removed by the outside agency and disposed of in a proper manner.

The wastes that are determined to be non-hazardous are disposed of as non-hazardous waste.

CHAIN-OF-CUSTODY RECORD

Accreditation Applied:
NELAC ☐ USACE ☐
Other: _____

Client:

Address:

Phone #:

Fax #:

Project Name:

Project #:

Project Manager:

Sampler:

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					H_2Cl_2	HNO_3		

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B MOD (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Cations (Na, K, Ca, Mg)	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260 (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)

Date:	Time:	Relinquished By: (Signature)	Remarks:
Date:	Time:	Relinquished By: (Signature)	Remarks:

Remarks:

6.0 Analytical Procedures

All analytical methods used at HEAL incorporate necessary and sufficient Quality Assurance and Quality Control practices. A Standard Operating Procedure is used for each method to provide the necessary criteria to yield acceptable results. These procedures are updated each year or more often if necessary and are attached as a pdf file in the Laboratory Information Management System (LIMS) for easy access by each analyst. The sample is almost always consumed or altered during the analytical process. Therefore, it is important that each step in the analytical process be correctly followed in order to yield valid data.

When unforeseen problems arise, the analyst, section manager, and lab manager meet to discuss the factors involved. The analytical requirements are evaluated and a suitable corrective action, or resolution is established. The client is notified in the case narrative with the final report or before if validity is in question.

List of Procedures Used

Typically, the procedures used by HEAL are EPA approved methodologies. However, proprietary methods for client specific samples, are sometimes used. The following tables list EPA Method numbers with their corresponding analytes and/or instrument classification.

Organic Analysis

Methodology	Title of Method
8021B	"Halogenated and Aromatic Volatile Organics by Gas Chromatography"
8015B	"Nonhalogenated Volatile Organics by Gas Chromatography" (Gasoline Range and Diesel Range Organics)
8081A	"Organochlorine Pesticides by Gas Chromatography"
8082	"PCBs as Aroclors by Gas Chromatography"
8151A	"Chlorinated Herbicides by GC using Methylation or Pentafluorobenzylation Derivitization"
8310	"Polynuclear Aromatic Hydrocarbons"
8330	"Nitroaromatics and Nitramines"
8315	"Formaldehyde"
1005	"TNRCC – Total Petroleum Hydrocarbons"
504.1	"EDB" & "DBCP"
418.1	"Total Petroleum Hydrocarbons"
413.2	"Oil and Grease"

Gas Chromatographic/Mass Spectrometric Methods

Methodology	Title of Method
8260B	"Volatile Organic Compounds by GC/MS: Capillary Column Technique"
8270C	"Semivolatile Organic Compounds by GC/MS: Capillary Column Technique"
624	"Purgeables"
625	"Base/Neutrals and Acids"

Inorganic Analysis

Methodology	Title of Method
310.1	Alkalinity
350.3	Ammonia
300.0/300.1	Anions (aqueous)
9065	Anion (soil)
120.1	Electrical Conductivity
3500	Ferrous Iron
351.2	Total Kjeldhal Nitrogen (TKN)
9095	Paint Filter
150.1	pH
420.3	Phenols
160.1	Total Dissolved Solids (TDS)
160.2	Total Suspended Solids (TSS)
180.1	Turbidity
	Metals
200.7/6010B	ICP Metals
7470	Mercury (aqueous)
7471	Mercury (soil)

Preparative Methodologies

Methodology	Title of Method
1311	Toxicity Characteristic Leaching Procedure
1312	Synthetic Precipitation Leaching Procedure
3005	Acid Digestion of Waters for Total Recoverable or Dissolved Metals
3010	Acid Digestion of Aqueous Samples and Extracts for Total Metals
3050	Acid Digestion of Sediment, Sludge, and Soil samples
3510B	Separatory Funnel Liquid-Liquid Extraction
3540	Soxhlet Extraction
3545	Accelerated Solvent Extraction
3665	Sulfuric Acid/Permanganate Cleanup (PCB)
5030	Purge-and-Trap for Aqueous Samples
5035	Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples

Analytical Standard Operating Procedures (SOPs) are based upon the above listed methods and a variety of other publications. A log of all current SOPs is on file with the QAO and detailed SOPs are available at request.

7.0 Calibration

All equipment and instrumentation used at HEAL are operated, maintained and calibrated according to manufacturers guidelines, as well as criteria set forth in applicable analytical methodology. Personnel who have been properly trained in there procedures perform operation and calibration. Brief descriptions of the calibration processes for our major laboratory equipment and instruments are found below.

Thermometers

The thermometers in the laboratory are used to measure the temperatures of the refrigerators/freezers, ovens, water baths, TCLP Extractions, digestion blocks and samples at the time of log-in. All of these are checked for annually with a NIST certified thermometer and a correction factor is noted on each thermometer log.

Refrigerators/Freezers

Each laboratory refrigerator or freezer contains a thermometer capable of measuring to a minimum precision of 1°C. The thermometers are kept with the bulb immersed in liquid. Each workday, the temperatures of the refrigerators are recorded in a designated logbook to insure that the refrigerators are between ± 2° C. Samples are stored separately from the standards to reduce the risk of contamination.

Ovens

The oven contains a thermometer graduated by 1° C. the temperature is measured before and after a cycle when the operating procedure demands this level of precision. Otherwise they are checked daily.

Instrument Calibration

An instrument calibration is the relationship between the known concentrations of a set of calibration standards introduced into an analytical instrument and the measured response they produce. Calibration curve standards are a prepared series of aliquots at various known concentrations levels from a primary source reference standard. Specific mathematical types of calibration techniques are outlined in SW-846 8000B. The entire initial calibration must be performed prior to sample analyses.

The lowest standard in the calibration curve must be at or below the required reporting limit.

A minimum of 5 calibration points must be used for the calibration curve for GC, GC/MS and HPLC methods.

Most compounds tend to be linear and a linear approach should be favored when linearity is suggested by the calibration data. Non-linear calibration should be considered only when a linear approach cannot be applied. It is not acceptable to use an alternate calibration procedure when a compound fails to perform in the usual manner. When this occurs it is indicative of instrument issues or operator error.

If a non-linear calibration curve fit is employed, a minimum of six calibration levels must be used for second-order (quadratic) curves and a third order polynomial requires a minimum of seven calibration levels.

When more than 5 levels of standards are analyzed in anticipation of using second- or third-order calibration curves, all calibration points MUST be used regardless of the calibration option employed. The highest or lowest calibration point may be excluded for the purpose of narrowing the calibration range, and meeting the requirements for a specific calibration option. Otherwise, unjustified exclusion of calibration data is expressly forbidden.

Analytical methods vary in QC acceptance criteria. HEAL follows the method specific guidelines for QC acceptance. The specific acceptance criteria are outlined in the analytical methods and its corresponding SOP.

Analytical balance

All of the analytical balances are capable of weighing to a minimum precision of 0.1 grams. Records are kept of daily calibration checks for the balances in use. Certified weights are used in these checks. The balances are annually certified by an outside source and the certifications are on file with the QAO.

pH Meter

The pH meter measures to a precision of 0.01 pH units. The log book contains the calibration before each use, or each day, if used more than once per day. It is calibrated using 3 certified buffers. Also available with the pH meter is a magnetic stirrer with a temperature sensor.

Other Analytical Instrumentation and Equipment

The conductivity probe constant shall be determined prior to use. A 3 point linear curve is used.

Eppendorf (or equivalent brands) pipettes are calibrated gravimetrically once a week and verified prior to use.

Reagents

HEAL assures that the reagents used are of acceptable quality for their intended purpose. This is accomplished by ordering high quality reagents and adhering to good laboratory practices so as to minimize contamination or chemical degradation. All reagents must meet any specifications noted in the analytical method.

Upon receipt, all reagents are assigned a separate ID number, and logged into the LIMS. All reagents shall be labeled with the date received into the laboratory and again with the date opened for use. Recommended shelf life shall be documented and controlled. Dilutions or solutions prepared shall be clearly labeled, dated, and signed. These solutions are traceable back to their primary reagents.

All gases used with an instrument shall meet specifications of the manufacturer. Recommended shelf life shall be documented and controlled. All safety requirements that relate to maximum and/or minimum allowed pressure, fitting types, and leak test frequency, shall be followed. When a new tank of gas is delivered, it shall be checked for leaks and marked with the date put in use. The date and initial pressure of a new tank will be noted on the new tank.

HEAL has a Quality Assurance Procedure designed to assure that the quality of laboratory reagent water meets established criteria for all analytical methods. HEAL continuously monitors the quality of the reagent water and provides the necessary indicators for maintenance of the purification systems.

Reagent blank samples are also analyzed to ensure that no contamination is present at detectable levels. The frequency of reagent blank analysis is the same as calibration verification samples. The reagent blank and calibration verification should be analyzed successively. Refrigerator storage blanks are stored in the volatiles refrigerator for a period of one week and analyzed and replaced once a week.

8.0 Maintenance

Maintenance logs are kept for each major instrument. In the front of the log, the following information is included:

Unique name of the item or equipment
Manufacturer
Type of Instrument
Model Number
Serial Number
Date received and date placed into service
Location of Instrument
Condition of instrument upon receipt

For routine maintenance, the following information shall be included in the log:

Maintenance Date
Maintenance Description
Maintenance Performed by Initials

A manufacturer service agreement (or equivalent) covers most major instrumentation to assure prompt and reliable response to maintenance needs beyond HEAL instrument operator capabilities.

9.0 Quality Control

Internal Quality Control Checks

Hall Environmental Analysis Laboratory, Inc. utilizes various internal quality control checks, including replicates, spiked samples, blanks, laboratory control spikes, calibration standards, quality control charts, uncertainty measurements and surrogates.

Replicates, or duplicates, are identical tests repeated for the same sample in order to determine the precision of such a method. A Relative Percent Difference (RPD) is calculated as a measure of this precision.

Spiked Samples (MS/MSD) are samples evaluated with a known added quantity of a target compound. This is to help determine the accuracy of the analyses. A percent recovery is calculated to assess the quality of the accuracy.

Duplicate samples, laboratory control spikes (LCS) and spiked samples (MS/MSD) are performed according to the following schedule for each area:

Organics: LCS and MS/MSD samples are analyzed for every batch of 20 samples (sufficient sample volume permitting for the MS/MSD).

Metals and wet chemistry: LCS, MS/MSD and sample duplicate analysis are performed, at a minimum, for every batch of 20 samples (sufficient sample volume permitting for the MS/MSD and sample duplicate).

Anions: LCS, MS/MSD and sample duplicate analysis are performed, at a minimum, for every batch of 10 samples (sufficient sample volume permitting for the MS and sample duplicate).

Blanks consist of all the reagents measured and treated as they are with samples, except without the samples. This enables the laboratory to assure clean reagents and procedures.

Blind Quality Control Samples are samples provided by an unbiased third party. They contain a pre-determined concentration of the target compound, which is unknown to the analyst. They are analyzed quarterly, and enable the laboratory to assess the quality of its results.

Calibration standards are standards run to calibrate and confirm the consistency of the instrumentation. Calibration standards are utilized at the beginning and end of each batch, and more frequently for larger batches.

Quality Control Charts are charts with acceptable ranges of the values of quality control checks. If a value falls outside the appropriate range, immediate evaluation and assessment of the procedures is required.

A surrogate compound, a substance that has similar properties to the target compounds (but not expected to be present), is added in all applicable tests. It is a measure of the level of recovery achieved in testing.

Uncertainty measurements are used to estimate the range of uncertainty of a certain result.

The specific types and frequency of QC sample analysis differ from method to method and section to section. Individual method specific QC sample criteria are outlined in the each Methods SOP.

SOPs will be update annually or more often if changes are deemed necessary. SOPs are stored as a linked .pdf file in the test portion of the LIMS. This is done by right clicking on the SOP tab of the test screen and adding the appropriate path where the current SOPs are located on the server. The QAO will update these links as necessary.

An initial demonstration of capability is performed each time there is a change in instrument type, personnel, or test method. A minimum of 4 replicate control spikes are prepared and analyzed according to the test method. Sample results are compared against current acceptable LCS recovery limits.

Precision, Accuracy, Detection Levels

Precision

The laboratory uses sample duplicates to assess precision. A duplicate sample is analyzed for each batch of 20 samples (5% frequency) when possible. HEAL requires the RPD to fall within the 99% confidence interval of established control charts or a RPD of less than 20 if control charts are not available. RPD's greater than these limits are considered out-of-control and require an appropriate response. Allowances can be made for high RPD values when the sample results are above the detection limit but less than less than 5X the detection limit. Criteria (based on sample matrix and methodology) for these situations require analyst/supervisor review to determine appropriate corrective action required.

Accuracy

The accuracy of an analysis refers to the difference between the calculated value and the actual value of a measurement. The accuracy of a laboratory result is evaluated by comparing the measured amount of QC reference material recovered from a sample and the known amount added. Control limits are established for each analytical method and sample matrix. Recoveries are assessed to determine the method efficiency and/or the matrix effect.

Analytical accuracy is expressed as the percent recovery (%R) of an analyte or parameter. A known amount of analyte is added to an environmental sample before the sample is prepared and subsequently analyzed. The equation used to calculate percent recovery is:

%Recovery = {(concentration* recovered)/(concentration* added)} X 100

*or amount

HEAL requires that the Percent Recovery to fall within the 99 % confidence interval of established control limits. A value that falls outside of the confidence interval requires

a warning and process evaluation. The confidence intervals are calculated by determining the mean and sample standard deviation. If control limits are not available, the range of 85 to 115% is used unless the specific method dictates otherwise. Percent Recoveries outside of this range mandate additional action such as analyses by Method of Standard Additions, additional sample preparation(s) where applicable, method changes, out-of-control action or data qualification.

Detection Limit

Current practices at HEAL define the Detection Limit (DL) as the smallest amount that can be detected above the baseline noise in a procedure within a stated confidence level.

HEAL presently utilize an Instrument Detection Limit (IDL), a Method Detection Limit (MDL), and a Practical Quantitation Limit (PQL). The relationship between these levels is approximately
IDL: MDL: PQL = 1:5:5.

The IDL is a measure of the sensitivity of an analytical instrument. The IDL is the amount which, when injected, produces a detectable signal in 99% of the analyses at that concentration. An IDL can be considered the minimum level of analyte concentration that is detectable above random baseline noise.

The MDL is a laboratories measure of the sensitivity of an analytical method. An MDL determination (also outlined in SW-846 Appendix B part 136) consists of replicate spiked samples carried through all necessary preparation steps. The spike concentration is three times the standard deviation of three replicates of spikes. Seven replicates are spiked and then analyzed successively and their Standard Deviation (s) calculated. The method detection limit (MDL) can be calculated using the standard deviation according to the formula:

$$MDL = s * t\,(99\%)$$

Where t (99%) is the student's t value for the 99% confidence interval. It depends on the number of trials used in calculating the sample standard deviation, so choose the appropriate value according to the number of trials.

Number of Trials	t(99%)
6	3.36
7	3.14
8	3.00
9	2.90

The calculated MDL must not be less than 10 times the spiked amount or the study must be performed again with a lower concentration.

The PQL is significant because different laboratories can produce different MDLs although they may employ the same analytical procedures, instruments and sample matrices. The PQL is about two to five times the MDL and represents a practical,

and routinely achievable, reporting level with a good certainty that the reported value is reliable. It is often determined by regulatory limits. The reported PQL for a sample is dependent on the dilution factor utilized during sample analysis.

Quality Control Parameter Calculations

Mean

The sample mean is also known as the arithmetic average. It can be calculated by adding all of the appropriate values together, and dividing this sum by the number of values.

$$\text{Average} = (\Sigma\, x_l) / n$$

x_l = the value x in the l^{th} trial
n = the number of trials

Standard Deviation

The sample standard deviation, represented by s, is a measure of dispersion. The dispersion is considered to be the difference between the average and each of the values x_l. The variance, s^2, can be calculated by summing the squares of the differences and dividing by the number of differences. The sample standard deviation, s, can be found by taking the square root of the variance.

$$\text{Standard deviation} = s = [\Sigma\, (x_l - \text{average})^2 / (n-1)]^{1/2}$$

Percent Recovery (MS, MSD, LCS and LCSD)

$$\text{Percent Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{(\text{Spike Added})} \times 100$$

Confidence Intervals

Confidence intervals are calculated using the average (x), the sample standard deviation (s), and the Student's t distribution (s-dist), which depends on the number of values used to calculate the average and sample standard deviation.

The formula is: confidence interval = $x \pm s * \text{s-dist}$

Student's t Distribution

n (Values)	10	15	20	25	31	41	61	121	> 121
95 %	2.262	2.145	2.093	2.064	2.042	2.021	2.000	1.980	1.960
99%	3.250	2.977	2.861	2.797	2.750	2.704	2.660	2.617	2.576

Unless there is insufficient data, at least 20 values will always be used in calculating the confidence intervals.

RPD (Relative Percent Difference)

Analytical precision is expressed as a percentage of the difference between the results of duplicate samples for a given analyst. Relative percent difference (RPD) is calculated as follows:

$$RPD = \frac{2 \times (\text{Sample Result} - \text{Duplicate Result})}{(\text{Sample Result} + \text{Duplicate Result})} \times 100$$

Uncertainty Measurements

All procedures allow for some uncertainty. For most analyses the components and estimates of uncertainty are reduced by following well established test methods. To further reduce uncertainty, results are generally not reported below the lowest calibration point (PQL) and above the highest calibration point (UQL). Ranges of uncertainty are also calculated using LCS recoveries. These are kept on file with the QAO and are updated annually.

Calibration Calculations

1. Response Factor or Calibration Factor:

$$RF = ((A_x)(C_{is}))/((A_{is})(C_x)) \qquad CF = (A_x)/(C_x)$$

a. Average RF or CF

$$RF_{AVE} = RF_i / n$$

b. Standard Deviation

$$s = SQRT \{ [\Sigma (RF_i - RF_{AVE})^2] / (n-1) \}$$

c. Relative Standard Deviation

$$RSD = s / RF_{AVE}$$

Where:
A_x = Area of the compound
C_x = Concentration of the compound
A_{is} = Area of the internal standard
C_{is} = Concentration of the internal standard
n = number of pairs of data
RF_i = Response Factor (or other determined value)
RF_{AVE} = Average of all the response factors
Σ = the sum of all the individual values

2. Linear Regression

$$y=mx+b$$

a. Slope (m)

$$m =(n\Sigma x_i y_i - (n\Sigma x_i)*(n\Sigma y_i)) / (n\Sigma x_i^2 - (\Sigma x_i)^2)$$

b. Intercept (b)

$$b =y_{AVE} - m*(x_{AVE})$$

c. Correlation Coefficient (cc)

$$CC (r) =\{ \Sigma((x_i-x_{ave})*(y_i-y_{ave})) \} / \{ SQRT((\Sigma(x_i-x_{ave})^2)*(\Sigma(y_i-y_{ave})^2)) \}$$

Or

$$CC (r) =[(\Sigma w * \Sigma wxy) - (\Sigma wx * \Sigma wy)] / (sqrt(([(\Sigma w * \Sigma wx^2) - (\Sigma wx * \Sigma wx)] * [(\Sigma w * \Sigma wy^2) - (\Sigma wy * \Sigma wy)])))]$$

d. Coefficient of Determination

$$COD (r^2) = CC*CC$$

Where:
y = Response (Area) Ratio A_x/A_{is}
x = Concentration Ratio C_x/C_{is}
m = slope
b = intercept
n = number of replicate x,y pairs
x_i = individual values for independent variable
y_i = individual values for dependent variable
Σ = the sum of all the individual values
x_{ave} = average of the x values
y_{ave} = average of the y values
w = weighting factor, for equal weighting w=1
Σ = the sum of the values indicated

3. Quadratic Regression

$y = ax^2 + bx + c$

a. Coefficient of Determination

$$COD\ (r^2) = \left(\Sigma(y_i - y_{ave})^2 - \{[(n-1)/(n-p)] * [\Sigma(y_i - Y_i)^2]\} \right) / \Sigma(y_i - y_{ave})^2$$

Where:
y = Response (Area) Ratio A_x/A_{is}
x = Concentration Ratio C_x/C_{is}
a = x^2 coefficient
b = x coefficient
c = intercept
y_i = individual values for each dependent variable
x_i = individual values for each independent variable
y_{ave} = average of the y values
y_{ave} = average of the y values
n = number of pairs of data
p = number of parameters in the polynomial equation (I.e., 3 for third order, 2 for second order)
Yi = ((2*a*(Cx/Cis)^2)-b^2+b+(4*a*c))/(4a)

b. Coefficients (a,b,c) of a Quadratic Regression

$$a = S_{(x2y)}S_{(xx)} - S_{(xy)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$b = S_{(xy)}S_{(x2x2)} - S_{(x2y)}S_{(xx2)} / S_{(xx)}S_{(x2x2)} - [S_{(xx2)}]^2$$

$$c = [(\Sigma yw)/n] - b*[(\Sigma xw)/n] - a*[\Sigma(x^2w)/n]$$

Where:
n = number of replicate x,y pairs
x = x values
y = y values
$w = S^{-2} / (\Sigma S^{-2}/n)$
$S_{(xx)} = (\Sigma x^2 w) - [(\Sigma xw)^2 / n]$
$S_{(xy)} = (\Sigma xyw) - [(\Sigma xw)*(\Sigma yw) / n]$
$S_{(xx2)} = (\Sigma x^3 w) - [(\Sigma xw)*(\Sigma x^2 w) / n]$
$S_{(x2y)} = (\Sigma x^2 yw) - [(\Sigma x^2 w)*(\Sigma yw) / n]$
$S_{(x2x2)} = (\Sigma x^4 w) - [(\Sigma x^2 w)^2 / n]$
Or If unweighted calibration, w=1
S(xx) = (Sx2) - [(Sx)2 / n]
S(xy) = (Sxy) - [(Sx)*(Sy) / n]
S(xx2) = (Sx3) - [(Sx)*(Sx2) / n]
S(x2y) = (Sx2y) - [(Sx2)*(Sy) / n]
S(x2x2) = (Sx4) - [(Sx2)2 / n]

10.0 Data Reduction, Validation, Reporting, and Record Keeping

All data reported must be of the highest possible accuracy and quality. During the processes of data reduction, validation, and report generation, the work is thoroughly checked to insure that error is minimized.

Data Reduction

The analyst who generated the data usually performs the data reduction. The calculations include evaluation of surrogate recoveries (where applicable), response factor calculations for manual calculations, and other miscellaneous calculations related to the sample quantitation.

If the results are computer generated, then the formulas must be confirmed by hand calculations.

Validation

A senior analyst, most often the section supervisor, validates the data. All data undergoes peer review. If an error is detected it is brought to the analyst attention to rectify and further checks ensure that all data for that batch is sound. Previous and/or common mistake are stringently monitored throughout the validation process. Data is reported using appropriate significant figure criteria. In most cases, two significant digits are utilized, but three significant digits can be used in QC calculations. Significant digits are not rounded until after the last step of a sample calculation. All final reports undergo a review by the management to provide a logical review of all the results before they are released to the client.

If data is to be manually transferred from one medium to another, the transcribed data is checked by a peer. This includes data typing, computer data entry, chromatographic data transfer, data table inclusion to a cover letter, or when data results are combined with other data fields.

All hand written data from run logs, analytical standard logbooks, hand entered data logbooks, or on instrument generated chromatograms, are systematically archived should the need for future retrieval arise.

Data that is being reported is treated with the utmost respect and care to help eliminate errors. Unethical practices will be detected through peer review and be dealt with the utmost severity.

Reports and Records

The reports are compiled by the Laboratory Information Management System (LIMS). Most data is transferred directly from the instruments to the LIMS. After being processed by the analyst and reviewed by the section supervisor, reports are approved and signed by the senior laboratory management. A comparative analysis of the data is performed at this point. For example, if TKN and NH3 are analyzed on the same sample the NH3 result should never be greater than the TKN result. Lab results and reports are released only to appropriately designated individuals. Release of the data can be by fax, email, diskette deliverables, or mailed hard copy.

When a project is completed, the project file folder is stored with a hard copy of the report, relevant supporting data, and the quality assurance/control worksheets. These folders are kept on file and are arranged by project number. Additionally, all electronic data is backed up daily on the HEAL main server. The backup includes raw data, chromatograms and report documents. Hard copies of chromatograms are stored separately according to the instrument and the analysis date. All records and analytical data reports are retained in a secure location as permanent records for a minimum period of five years (unless specified otherwise in a client contract). Access to archived information shall be documented with an access log. Access to archived electronic reports and data will be protected by a project manager password. In the event that HEAL transfers ownership or terminates business practices, complete records will be maintained or transferred according to the client's instructions.

After issuance, the original report shall remain unchanged. If a correction to the report is necessary, then an additional document shall be issued. This document shall have a title of "Addendum to Test Report or Correction to Original Report", or equivalent. Demonstration of original report integrity comes in two forms. First, the report date is included on each page of the final report. Second, each page is numbered in sequential order, making the addition or omission of any data page(s) readily detectable.

11.0 Corrective Action

The limits that have been defined for data acceptability also form the basis for corrective action initiation. Initiation of corrective action occurs when the data generated from continuing calibration standard, sample surrogate recovery, laboratory control spike, matrix spike or sample duplicates exceed acceptance criteria. If corrective action is necessary, the analyst or the section supervisor will coordinate to take the following steps to determine and correct the measurement system deficiency:

Check all calculations and data measurements systems (Calibrations, reagents, instrument performance checks etc.).

Assure that proper procedures were followed.

Unforeseen problems that arise during sample preparation and/or sample analysis that lead to treating a sample differently from documented procedures shall be documented with a corrective action report. The section supervisor and lab manager shall be made aware of the problem at the time of the occurrence. See the SOP regarding departures from documented procedures.

Continuing calibration standards below acceptance criteria can not be used for reporting analytical data unless method specific criteria states otherwise.

An analyte above control limits in a Continuing Calibration may be acceptable if the previous continuing calibration standard was acceptable for that analyte. Further, the target analyte in the samples analyzed after the acceptable calibration standard and before calibration standard with the high bias, are reported as non-detected. Finally, the samples following an analyte that is above control limits for a continuing calibration standard can not be reported for that analyte.

Samples with non-compliant surrogate recoveries should be reanalyzed unless deemed unnecessary by the supervisor for matrix, historical data, or other analysis related anomalies.

Laboratory and Matrix Spike acceptance criteria vary significantly depending on method and matrix. Analysts and supervisors meet and discuss appropriate corrective action measures as spike failures occur.

Sample duplicates with RPD values outside control limits require supervisor evaluation and possible reanalysis.

A second mechanism for initiation of corrective action is that resulting from Quality Assurance performance audits, system audits, inter and intra-laboratory comparison studies. Corrective Actions initiated through this mechanism will be monitored and coordinated by the laboratory QA officer.

All corrective action forms are entered in the LIMs and included with the raw data for peer review, signed by the technical director of the section and included in the case narrative to the client whose samples were affected. All Corrective action forms in the LIMs are reviewed by the QA Officer.

12.0 Quality Assurance Audits, Reports and Complaints

Internal/External Systems' Audits, Performance Evaluations, and Complaints

Several procedures are used to assess the effectiveness of the quality control system. One of the methods includes internal performance evaluations, which are conducted by the use of control samples, replicate measurements and use control charts. Another method is external performance audits, which are conducted by the use of inter-laboratory checks, such as participation in laboratory evaluation programs and performance evaluation samples available from a NELAC accredited Proficiency Standard Vendor.

Proficiency samples will be obtained twice per year from the appropriate vendor. We also participate in soil and water Underground Storage Tank PT studies. Copies of our results are available upon request.

Quality Assurance Audits are performed annually by the Quality Assurance Officer. They are performed using the guidelines outlined below:

The system audit consists of a qualitative inspection of the QA system in the laboratory and an assessment of the adequacy of the physical facilities for sampling, calibration, and measurement. This audit includes a careful evaluation and review of laboratory quality control procedures. Including but not limited to:

1. Review of staff qualifications, demonstration of capability, and personnel training programs
2. Storage and handling of reagents, standards and samples
3. Standard preparation logbook and LIMS procedures
4. Extraction logbooks
5. Raw data logbooks
6. Analytical logbooks or batch printouts and instrument maintenance logbooks
7. Data review procedures
8. Corrective action procedures
9. Review of data packages is performed regularly by the lab manager/QA Officer.

The Quality Assurance Officer will conduct these audits on an annual basis. Performance evaluation will, in part, be based upon the results obtained on the proficiency results.

Complaints

Complaints from clients are documented and given to the laboratory manager. The lab manager shall review the information and contact the client. If doubt is raised concerning the laboratories policies or procedures, then an audit of the section or sections may be performed. All records of complaints and subsequent actions shall be maintained for 3 years unless otherwise stated.

Internal and External Reports

The Quality Assurance Officer is responsible for preparation and submission of quality assurance reports to the appropriate management personnel as problems and issues arise. These reports include the assessment of measurement systems, data precision and accuracy, and the results of performance and system audits. Additionally, they also include significant QA problems, corrective actions, and recommended resolution measures. Reports of these Quality Assurance Audits describe the particular activities audited, procedures utilized in the examination and evaluation of laboratory records, and data validation procedures. Finally, there are procedures for evaluating the performance of Quality Control and Quality Assurance activities, and laboratory deficiencies and the implementation of corrective actions with the review requirements.

13.0 Analytical Protocols Utilized at Hall Environmental Analysis Laboratory, Inc.

1. Standard Methods for the Examination of Water and Wastewater: AOHA, AWWA, and WPCG; 20th Edition, 1999.

2. Methods for Chemical Analysis of Water and Wastes, USEPA, EPA-600/4-79-020, March 1979 and as amended December, 1982 (EPA-600/4-82-055)

3. Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, USEPA SW-846, 3rd Edition, Updates I, II, IIA, IIB, III, December, 1996.

4. Methods of Soil Analysis: Parts 1 & 2, 2nd Edition, Agronomy Society of America, Monograph 9

5. Diagnosis & Improvement of Saline & Alkali Soils, Agriculture Handbook No. 60, USDA, 1954

6. Handbook on Reference Methods for Soil Testing, The Council on Soil Testing & Plant Analysis, 1980 and 1992

7. Field and Laboratory Methods Applicable to Overburdens and Mine Soils, USEPA, EPA-600/2-78-054, March 1978

8. Laboratory Procedures for Analyses of Oilfield Waste. Department of Natural Resources, Office of Conservation, Injection and Mining Division, Louisiana, August 1988

9. Soil Testing Methods Used at Colorado State University for the Evaluation of Fertility, Salinity and Trace Element Toxicity, Technical Bulletin LT B88-2 January, 1988

10. Manual of Operating Procedures for the Analysis of Selected Soil, Water, Plant Tissue and Wastes Chemical and physical Parameter. Soil, Water, and Plant Analysis Laboratory, Dept. of Soil and Water Science, The University of Arizona, August 1989

11. Sampling Procedures and Chemical Methods in Use at the U.S. Salinity Laboratory for Characterizing Salt-Affected Soils and Water. USDA Salinity Laboratory.

12. Procedures for Collecting Soil Samples and Methods of Analysis for Soil Survey. USDA Soil Conservation Service, SSIR No. 1.

13. Soil Survey Laboratory Methods Manual. Soil Survey Laboratory Staff. Soil Survey Investigations Report No. 42, version 2.0, August 1992.

14. Methods for the Determination of Metals in Environmental Samples, USEPA, EPA-600/4-91-010, June 1991

15. The Merck Index, Eleventh Edition, Merck & Co., Inc. 1989.

16. Handbook of Chemistry and Physics, 62nd Edition, CRC Press, Inc. 1981-1982.

17. Analytical Chemistry of PCB's. Erickson, Mitchell D., CRC Press, Inc. 1992.

18. Environmental Perspective on the Emerging Oil Shale Industry, EPA Oil & Shale Research Group.

19. Polycyclic Aromatic Hydrocarbons in Water Systems, CRC Press, Inc.

Appendix A

OREGON

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

NELAP Recognized

Hall Environmental Analysis Laboratory, Inc.

NM100001
4901 Hawkins Rd. NE, Suite D
Albuquerque, NM 87109

IS GRANTED APPROVAL BY ORELAP UNDER THE 2003 NELAC STANDARDS, TO PERFORM ANALYSES ON ENVIRONMENTAL SAMPLES IN MATRICES AS LISTED BELOW:

Air	*Drinking Water*	*Non Potable Water*	*Solids and Chem. Waste*	*Tissue*
	Chemistry	Chemistry	Chemistry	

AND AS RECORDED IN THE LIST OF APPROVED ANALYTES, METHODS, ANALYTIC TECHNIQUES, AND FIELDS OF TESTING ISSUED CONCURRENTLY WITH THIS CERTIFICATE AND REVISED AS NECESSARY.

ACCREDITED STATUS DEPENDS ON SUCCESSFUL ONGOING PARTICIPATION IN THE PROGRAM AND CONTINUED COMPLIANCE WITH THE STANDARDS.

CUSTOMERS ARE URGED TO VERIFY THE LABORATORY'S CURRENT ACCREDITATION STATUS IN OREGON.

Irene E. Ronning

Irene E. Ronning, Ph.D.
ORELAP Administrator
1717 SW 10th
Portland, OR 97201

ISSUE DATE: 3/1/2007
EXPIRATION DATE: 2/29/2008
Certificate No: NM100001-005

Oregon

Environmental Laboratory Accreditation Program

Public Health Laboratory
1717 SW 10th Avenue
Portland, OR 97201
(503) 229-5505
FAX (503) 229-5682
TTY (503) 731-4031

Department of Agriculture, Laboratory Division
Department of Environmental Quality, Laboratory Division
Department of Human Services, Public Health Laboratory

NELAP Recognized

ORELAP Fields of Accreditation

ORELAPID: NM100001
EPACode: NM00001

Certificate: NM100001-005

Hall Environmental Analysis Laboratory, Inc.

4901 Hawkins Rd. NE, Suite D
Albuquerque, NM, 87109

Issue Date: 3/1/2007 ***Expiration Date:*** 2/29/2008

As of 3/1/2007 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

MATRIX: Drinking Water

Reference		*Code*	*Description*
EPA 160.1		10009208	Total Dissolved Solids, dried @ 180 C.
Analyte Code	*Analyte*		
1955	Residue-filterable (TDS)		
EPA 200.7		10014003	ICP - metals
Analyte Code	*Analyte*		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		
1025	Boron		
1030	Cadmium		
1040	Chromium		
1055	Copper		
1070	Iron		
1075	Lead		
1090	Manganese		
1100	Molybdenum		
1105	Nickel		
1140	Selenium		
1150	Silver		
1175	Tin		
1180	Titanium		
1185	Vanadium		
1190	Zinc		
EPA 245.1		10036609	Mercury by Cold Vapor Atomic Absorption
Analyte Code	*Analyte*		
1095	Mercury		
EPA 300.0		10053006	Ion chromatography - anions.
Analyte Code	*Analyte*		
1575	Chloride		
1730	Fluoride		
1810	Nitrate as N		
1835	Nitrite		
1870	Orthophosphate as P		
2000	Sulfate		

ORELAP Fields of Accreditation

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EPA 415.1		10078407	Organic carbon - Combustion or Oxidation
Analyte Code	*Analyte*		
2040	Total Organic Carbon		
EPA 5030B		10153409	Purge and trap for aqueous samples
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 504.1		10083008	EDB/DBCP/TCP micro-extraction, GC/ECD
Analyte Code	*Analyte*		
4570	1,2-Dibromo-3-chloropropane (DBCP)		
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)		
EPA 524.2		10088809	Volatile Organic Compounds GC/MS Capillary Column
Analyte Code	*Analyte*		
5105	1,1,1,2-Tetrachloroethane		
5160	1,1,1-Trichloroethane		
5110	1,1,2,2-Tetrachloroethane		
5165	1,1,2-Trichloroethane		
4630	1,1-Dichloroethane		
4640	1,1-Dichloroethylene		
4670	1,1-Dichloropropene		
5155	1,2,4-Trichlorobenzene		
5210	1,2,4-Trimethylbenzene		
4610	1,2-Dichlorobenzene		
4635	1,2-Dichloroethane		
4655	1,2-Dichloropropane		
5215	1,3,5-Trimethylbenzene		
4615	1,3-Dichlorobenzene		
4660	1,3-Dichloropropane		
4620	1,4-Dichlorobenzene		
4535	2-Chlorotoluene		
4540	4-Chlorotoluene		
5870	4-Isopropyltoluene		
4375	Benzene		
4390	Bromochloromethane		
4395	Bromodichloromethane		
4400	Bromoform		
4950	Bromomethane (Methyl bromide)		
4455	Carbon tetrachloride		
4475	Chlorobenzene		
4485	Chloroethane		
4505	Chloroform		
105	Chloromethane		
4645	cis-1,2-Dichloroethylene		
4575	Dibromochloromethane		
4595	Dibromomethane		
4765	Ethylbenzene		
4835	Hexachlorobutadiene		
4900	Isopropylbenzene		
5000	Methyl tert-butyl ether (MTBE)		
4435	n-Butylbenzene		
5090	n-Propylbenzene		
4440	sec-Butylbenzene		

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5100	Styrene
5115	Tetrachloroethylene (Perchloroethylene)
5120	Tetrahydrofuran (THF)
5140	Toluene
4700	trans-1,2-Dicloroethylene
4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride

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Cusotmers: Please verify the current accreditation standing with ORELAP.

MATRIX: Non-Potable Water

Reference	Code	Description
EPA 150.1	10008408	pH - Electrometric Measurement
Analyte Code *Analyte*		
1900 pH		
EPA 160.1	10009208	Total Dissolved Solids, dried @ 180 C.
Analyte Code *Analyte*		
1955 Residue-filterable (TDS)		
EPA 300.0	10053006	Ion chromatography - anions.
Analyte Code *Analyte*		
1540 Bromide		
1575 Chloride		
1730 Fluoride		
1810 Nitrate as N		
1840 Nitrite as N		
1870 Orthophosphate as P		
2000 Sulfate		
EPA 3005A	10133207	Acid Digestion of waters for Total Recoverable or Dissolved Metals
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 3510C	10138202	Separatory Funnel Liquid-liquid extraction
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 5030B	10153409	Purge and trap for aqueous samples
Analyte Code *Analyte*		
125 Extraction/Preparation		
EPA 6010B	10155609	ICP - AES
Analyte Code *Analyte*		
1000 Aluminum		
1005 Antimony		
1010 Arsenic		
1015 Barium		
1020 Beryllium		
1025 Boron		
1030 Cadmium		
1035 Calcium		
1040 Chromium		
1050 Cobalt		
1070 Iron		
1075 Lead		
1085 Magnesium		
1090 Manganese		
1100 Molybdenum		
1105 Nickel		
1125 Potassium		
1140 Selenium		
1150 Silver		
1155 Sodium		
1165 Thallium		
1175 Tin		
1180 Titanium		

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3035	Uranium		
1185	Vanadium		
1190	Zinc		
EPA 8015B		10173601	Non-halogenated organics using GC/FID
Analyte Code	*Analyte*		
9369	Diesel range organics (DRO)		
9408	Gasoline range organics (GRO)		
EPA 8021B		10174608	Aromatic and Halogenated Volatiles by GC with PID and/or ECD Purge &
Analyte Code	*Analyte*		
5210	1,2,4-Trimethylbenzene		
5215	1,3,5-Trimethylbenzene		
4375	Benzene		
4765	Ethylbenzene		
5240	m+p-xylene		
5000	Methyl tert-butyl ether (MTBE)		
5250	o-Xylene		
5140	Toluene		
EPA 8081A		10178606	Organochlorine Pesticides by GC/ECD
Analyte Code	*Analyte*		
7355	4,4'-DDD		
7360	4,4'-DDE		
7365	4,4'-DDT		
7025	Aldrin		
7110	alpha-BHC (alpha-Hexachlorocyclohexane)		
7115	beta-BHC (beta-Hexachlorocyclohexane)		
7105	delta-BHC		
7470	Dieldrin		
7510	Endosulfan I		
7515	Endosulfan II		
7520	Endosulfan sulfate		
7540	Endrin		
7530	Endrin aldehyde		
7120	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)		
7685	Heptachlor		
7690	Heptachlor epoxide		
7810	Methoxychlor		
EPA 8082		10179007	Polychlorinated Biphenyls (PCBs) by GC/ECD
Analyte Code	*Analyte*		
8880	Aroclor-1016 (PCB-1016)		
8885	Aroclor-1221 (PCB-1221)		
8890	Aroclor-1232 (PCB-1232)		
8895	Aroclor-1242 (PCB-1242)		
8900	Aroclor-1248 (PCB-1248)		
8905	Aroclor-1254 (PCB-1254)		
8910	Aroclor-1260 (PCB-1260)		
EPA 8260B		10184602	Volatile Organic Compounds by purge and trap GC/MS
Analyte Code	*Analyte*		
5105	1,1,1,2-Tetrachloroethane		
5160	1,1,1-Trichloroethane		
5110	1,1,2,2-Tetrachloroethane		
5165	1,1,2-Trichloroethane		

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As of 3/1/2007 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

4630	1,1-Dichloroethane
4640	1,1-Dichloroethylene
4670	1,1-Dichloropropene
5150	1,2,3-Trichlorobenzene
5180	1,2,3-Trichloropropane
5155	1,2,4-Trichlorobenzene
5210	1,2,4-Trimethylbenzene
4570	1,2-Dibromo-3-chloropropane (DBCP)
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)
4610	1,2-Dichlorobenzene
4635	1,2-Dichloroethane
4655	1,2-Dichloropropane
5215	1,3,5-Trimethylbenzene
4615	1,3-Dichlorobenzene
4660	1,3-Dichloropropane
4620	1,4-Dichlorobenzene
6380	1-Methylnaphthalene
4665	2,2-Dichloropropane
4410	2-Butanone (Methyl ethyl ketone, MEK)
4535	2-Chlorotoluene
4860	2-Hexanone
6385	2-Methylnaphthalene
4540	4-Chlorotoluene
4995	4-Methyl-2-pentanone (MIBK)
4315	Acetone
4375	Benzene
4385	Bromobenzene
4390	Bromochloromethane
4395	Bromodichloromethane
4400	Bromoform
4950	Bromomethane (Methyl bromide)
4450	Carbon disulfide
4455	Carbon tetrachloride
4475	Chlorobenzene
4485	Chloroethane
4505	Chloroform
105	Chloromethane
4645	cis-1,2-Dichloroethylene
4680	cis-1,3-Dichloropropene
4575	Dibromochloromethane
4595	Dibromomethane
4625	Dichlorodifluoromethane
4650	Dichloromethane (DCM, Methylene chloride)
4765	Ethylbenzene
4835	Hexachlorobutadiene
4900	Isopropylbenzene
5240	m+p-xylene
5000	Methyl tert-butyl ether (MTBE)
5005	Naphthalene
4435	n-Butylbenzene
5090	n-Propylbenzene

Hall Environmental Analysis Laboratory, Inc.

4901 Hawkins Rd. NE, Suite D
Albuquerque, NM, 87109

Certificate: NM100001-005

Issue Date: 3/1/2007 *Expiration Date:* 2/29/2008

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Customers: Please verify the current accreditation standing with ORELAP.

5250	o-Xylene
4910	p-Isopropyltoluene
4440	sec-Butylbenzene
5100	Styrene
4445	tert-Butylbenzene
5115	Tetrachloroethylene (Perchloroethylene)
5140	Toluene
4700	trans-1,2-Dichloroethylene
4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride
5260	Xylene (total)

EPA 8270C 10185805 SemiVolitile Organic compounds by GC/MS

Analyte Code	*Analyte*
5155	1,2,4-Trichlorobenzene
4610	1,2-Dichlorobenzene
4615	1,3-Dichlorobenzene
4620	1,4-Dichlorobenzene
6835	2,4,5-Trichlorophenol
6840	2,4,6-Trichlorophenol
6000	2,4-Dichlorophenol
6130	2,4-Dimethylphenol
6175	2,4-Dinitrophenol
6185	2,4-Dinitrotoluene (2,4-DNT)
6190	2,6-Dinitrotoluene (2,6-DNT)
5795	2-Chloronaphthalene
5800	2-Chlorophenol
6385	2-Methylnaphthalene
6400	2-Methylphenol (o-Cresol)
6460	2-Nitroaniline
6490	2-Nitrophenol
6412	3 & 4 Methylphenol
5945	3,3'-Dichlorobenzidine
6465	3-Nitroaniline
6140	4,6-Dinitro-2-methylphenol
5660	4-Bromophenyl phenyl ether
5700	4-Chloro-3-methylphenol
5745	4-Chloroaniline
5825	4-Chlorophenyl phenylether
6470	4-Nitroaniline
6500	4-Nitrophenol
5500	Acenaphthene
5505	Acenaphthylene
5545	Aniline
5555	Anthracene
123	Azobenzene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene

Hall Environmental Analysis Laboratory, Inc.

Certificate: NM100001-005

4901 Hawkins Rd. NE, Suite D
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5600	Benzo[k]fluoranthene
482	Benzofluoranthene
5610	Benzoic acid
5630	Benzyl alcohol
5765	bis(2-Chloroethyl)ether
5770	bis(2-Chloroethyloxymethane)
5780	bis(2-Chloroisopropyl)ether
6255	bis(2-Ethylhexyl)phthalate (DEHP)
5670	Butyl benzyl phthalate
5680	Carbazole
5855	Chrysene
5895	Dibenz[a,h]anthracene
5905	Dibenzofuran
6070	Diethyl phthalate
6135	Dimethyl phthalate
5925	Di-n-butyl phthalate
6200	Di-n-octyl phthalate
6265	Fluoranthene
6270	Fluorene
6275	Hexachlorobenzene
4835	Hexachlorobutadiene
6285	Hexachlorocyclopentadiene
4840	Hexachloroethane
6315	Indeno[1,2,3-cd]pyrene
6320	Isophorone
5005	Naphthalene
5015	Nitrobenzene
6535	n-Nitrosodiphenylamine
6540	n-Nitrosodipropylamine
6605	Pentachlorophenol
6615	Phenanthrene
6625	Phenol
6565	Pyrene
5095	Pyridine

EPA 8310 10187607 Polynuclear Aromatic Hydrocarbons by HPLC/UV-VIS

Analyte Code	*Analyte*
6380	1-Methylnaphthalene
6385	2-Methylnaphthalene
5500	Acenaphthene
5505	Acenaphthylene
5555	Anthracene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5600	Benzo[k]fluoranthene
5855	Chrysene
5895	Dibenz[a,h]anthracene
6265	Fluoranthene
6270	Fluorene
6315	Indeno[1,2,3-cd]pyrene

ORELAPID: NM100001
EPACode: NM00001

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Certificate: NM100001-005

Hall Environmental Analysis Laboratory, Inc.

4901 Hawkins Rd. NE, Suite D
Albuquerque, NM, 87109

Issue Date: 3/1/2007 *Expiration Date:* 2/29/2008

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Cusotmers: Please verify the current accreditation standing with ORELAP.

5005	Naphthalene
6515	Phenanthrene
6665	Pyrene

ORELAP Fields of Accreditation

ORELAPID: NM100001
EPACode: NM00001

Hall Environmental Analysis Laboratory, Inc.

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4901 Hawkins Rd. NE, Suite D
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MATRIX: Solids

Reference		*Code*	*Description*
EPA 3050A		10135407	Acid Digestion of Sediments, Sludges, and soils
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 3540C		10140202	Soxhlet Extraction
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 3545		10140804	Pressurized Fluid Extraction (PFE)
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 5035		10154004	Closed-System Purge-and-Trap and Extraction for Volatile Organics in So
Analyte Code	*Analyte*		
125	Extraction/Preparation		
EPA 6010B		10155609	ICP - AES
Analyte Code	*Analyte*		
1000	Aluminum		
1005	Antimony		
1010	Arsenic		
1015	Barium		
1020	Beryllium		
1025	Boron		
1030	Cadmium		
1035	Calcium		
1040	Chromium		
1050	Cobalt		
1055	Copper		
1070	Iron		
1075	Lead		
1085	Magnesium		
1090	Manganese		
1100	Molybdenum		
1105	Nickel		
1125	Potassium		
1140	Selenium		
1145	Silicon		
1150	Silver		
1155	Sodium		
1165	Thallium		
1175	Tin		
1180	Titanium		
3035	Uranium		
1185	Vanadium		
1190	Zinc		
EPA 7471A		10166208	Mercury in Solid Waste by Cold Vapor Atomic Absorption
Analyte Code	*Analyte*		
1095	Mercury		
EPA 8015B		10173501	Non-halogenated organics using GC/FID
Analyte Code	*Analyte*		
9369	Diesel range organics (DRO)		
9408	Gasoline range organics (GRO)		

ORELAP ID: NM100001
EPA Code: NM00001

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Hall Environmental Analysis Laboratory, Inc.

Certificate: NM100001-005

4901 Hawkins Rd. NE, Suite D
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EPA 8021B		10174809	Aromatic and Halogenated Volatiles by GC with PID and/or ECD Purge &
	Analyte Code	*Analyte*	
	5210	1,2,4-Trimethylbenzene	
	5215	1,3,5-Trimethylbenzene	
	4375	Benzene	
	4765	Ethylbenzene	
	5240	m+p-xylene	
	5000	Methyl tert-butyl ether (MTBE)	
	5250	o-Xylene	
	5140	Toluene	
	5260	Xylene (total)	
EPA 8081A		10178606	Organochlorine Pesticides by GC/ECD
	Analyte Code	*Analyte*	
	7355	4,4'-DDD	
	7360	4,4'-DDE	
	7365	4,4'-DDT	
	7025	Aldrin	
	7110	alpha-BHC (alpha-Hexachlorocyclohexane)	
	7115	beta-BHC (beta-Hexachlorocyclohexane)	
	7105	delta-BHC	
	7470	Dieldrin	
	7510	Endosulfan I	
	7515	Endosulfan II	
	7520	Endosulfan sulfate	
	7540	Endrin	
	7530	Endrin aldehyde	
	7120	gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	
	7685	Heptachlor	
	7690	Heptachlor epoxide	
	7810	Methoxychlor	
EPA 8082		10179007	Polychlorinated Biphenyls (PCBs) by GC/ECD
	Analyte Code	*Analyte*	
	8880	Aroclor-1016 (PCB-1016)	
	8885	Aroclor-1221 (PCB-1221)	
	8890	Aroclor-1232 (PCB-1232)	
	8895	Aroclor-1242 (PCB-1242)	
	8900	Aroclor-1248 (PCB-1248)	
	8905	Aroclor-1254 (PCB-1254)	
	8910	Aroclor-1260 (PCB-1260)	
EPA 8260B		10184802	Volatile Organic Compounds by purge and trap GC/MS
	Analyte Code	*Analyte*	
	5105	1,1,1,2-Tetrachloroethane	
	5160	1,1,1-Trichloroethane	
	5110	1,1,2,2-Tetrachloroethane	
	5165	1,1,2-Trichloroethane	
	4630	1,1-Dichloroethane	
	4640	1,1-Dichloroethylene	
	4670	1,1-Dichloropropene	
	5150	1,2,3-Trichlorobenzene	
	5180	1,2,3-Trichloropropane	
	5155	1,2,4-Trichlorobenzene	

Hall Environmental Analysis Laboratory, Inc.
4901 Hawkins Rd. NE, Suite D
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As of 3/1/2007 this list supercedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with ORELAP.

5210	1,2,4-Trimethylbenzene
4570	1,2-Dibromo-3-chloropropane (DBCP)
4585	1,2-Dibromoethane (EDB, Ethylene dibromide)
4610	1,2-Dichlorobenzene
4635	1,2-Dichloroethane
4655	1,2-Dichloropropane
5215	1,3,5-Trimethylbenzene
4615	1,3-Dichlorobenzene
4660	1,3-Dichloropropane
4620	1,4-Dichlorobenzene
6380	1-Methylnaphthalene
4665	2,2-Dichloropropane
4410	2-Butanone (Methyl ethyl ketone, MEK)
4535	2-Chlorotoluene
4860	2-Hexanone
6385	2-Methylnaphthalene
4540	4-Chlorotoluene
4995	4-Methyl-2-pentanone (MIBK)
4315	Acetone
4375	Benzene
4385	Bromobenzene
4390	Bromochloromethane
4395	Bromodichloromethane
4400	Bromoform
4950	Bromomethane (Methyl bromide)
4450	Carbon disulfide
4455	Carbon tetrachloride
4475	Chlorobenzene
4485	Chloroethane
4505	Chloroform
105	Chloromethane
4645	cis-1,2-Dichloroethylene
4680	cis-1,3-Dichloropropene
4575	Dibromochloromethane
4595	Dibromomethane
4625	Dichlorodifluoromethane
4650	Dichloromethane (DCM, Methylene chloride)
4765	Ethylbenzene
4835	Hexachlorobutadiene
4900	Isopropylbenzene
5240	m+p-xylene
5000	Methyl tert-butyl ether (MTBE)
5005	Naphthalene
4435	n-Butylbenzene
5090	n-Propylbenzene
5250	o-Xylene
4910	p-Isopropyltoluene
4440	sec-Butylbenzene
5100	Styrene
4445	tert-Butylbenzene
5115	Tetrachloroethylene (Perchloroethylene)

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5140	Toluene
4700	trans-1,2-Dichloroethylene
4685	trans-1,3-Dichloropropylene
5170	Trichloroethene (Trichloroethylene)
5175	Trichlorofluoromethane
5235	Vinyl chloride
5260	Xylene (total)

EPA 8270C 10185805 SemiVolitile Organic compounds by GC/MS

Analyte Code	Analyte
5155	1,2,4-Trichlorobenzene
4610	1,2-Dichlorobenzene
4615	1,3-Dichlorobenzene
4620	1,4-Dichlorobenzene
6835	2,4,5-Trichlorophenol
6840	2,4,6-Trichlorophenol
6000	2,4-Dichlorophenol
6130	2,4-Dimethylphenol
6175	2,4-Dinitrophenol
6185	2,4-Dinitrotoluene (2,4-DNT)
6190	2,6-Dinitrotoluene (2,6-DNT)
5795	2-Chloronaphthalene
5800	2-Chlorophenol
6385	2-Methylnaphthalene
6400	2-Methylphenol (o-Cresol)
6460	2-Nitroaniline
6490	2-Nitrophenol
6412	3 & 4 Methylphenol
5945	3,3'-Dichlorobenzidine
6465	3-Nitroaniline
6140	4,6-Dinitro-2-methylphenol
5660	4-Bromophenyl phenyl ether
5700	4-Chloro-3-methylphenol
5745	4-Chloroaniline
5825	4-Chlorophenyl phenylether
6470	4-Nitroaniline
6500	4-Nitrophenol
5500	Acenaphthene
5505	Acenaphthylene
5545	Aniline
5555	Anthracene
123	Azobenzene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5610	Benzoic acid
5630	Benzyl alcohol
5760	bis(2-Chloroethoxy)methane
5765	bis(2-Chloroethyl)ether
5780	bis(2-Chloroisopropyl)ether
6255	bis(2-Ethylhexyl)phthalate (DEHP)

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Cusolmers: Please verify the current accreditation standing with ORELAP.

5670	Butyl benzyl phthalate
5680	Carbazole
5855	Chrysene
5895	Dibenz[a,h]anthracene
5905	Dibenzofuran
6070	Diethyl phthalate
6135	Dimethyl phthalate
5925	Di-n-butyl phthalate
6200	Di-n-octyl phthalate
6265	Fluoranthene
6270	Fluorene
6275	Hexachlorobenzene
4835	Hexachlorobutadiene
6285	Hexachlorocyclopentadiene
4840	Hexachloroethane
6315	Indeno[1,2,3-cd]pyrene
6320	Isophorone
5005	Naphthalene
5015	Nitrobenzene
6530	n-Nitrosodimethylamine
6535	n-Nitrosodiphenylamine
6540	n-Nitrosodipropylamine
6605	Pentachlorophenol
6615	Phenanthrene
6625	Phenol
6665	Pyrene
5095	Pyridine

EPA 8310 10187607 Polynuclear Aromatic Hydrocarbons by HPLC/UV-VIS

Analyte Code	Analyte
6380	1-Methylnaphthalene
6385	2-Methylnaphthalene
5500	Acenaphthene
5505	Acenaphthylene
5555	Anthracene
5575	Benzo[a]anthracene
5580	Benzo[a]pyrene
5585	Benzo[b]fluoranthene
5590	Benzo[g,h,i]perylene
5600	Benzo[k]fluoranthene
5855	Chrysene
5895	Dibenz[a,h]anthracene
6265	Fluoranthene
6270	Fluorene
6315	Indeno[1,2,3-cd]pyrene
5005	Naphthalene
6615	Phenanthrene
6665	Pyrene

Arizona Department of Health Services

ENVIRONMENTAL LABORATORY LICENSE

Issued to:

Laboratory Director: Scott Hallenbeck
Owner/Representative: Scott Hallenbeck

Hall Environmental Analysis Laboratory
AZ0682

is in compliance with Environmental Laboratory's applicable standards for the State of Arizona and maintains on file a List of Parameters for which the laboratory is certified to perform analysis.

PERIOD OF LICENSURE FROM: 10/20/2006 TO: 10/19/2007

Steven D. Baker, Chief
Office of Laboratory Services
Bureau of State Laboratory Services

AZ License: AZ0682

Lab Name: Hall Environmental Analysis Laboratory

Director: Mr. Scott Hallenbeck

Phone: (505) 345-3975

Fax: (505) 345-4107

Program HW

Parameter	EPA Method	Billing Code	Cert Date
Aluminum	EPA 6010B	MTL3	10/20/05
Arsenic	EPA 6010B	MTL3	10/20/05
Barium	EPA 6010B	MTL3	10/20/05
Beryllium	EPA 6010B	MTL3	10/20/05
C10-C32 Hydrocarbons	8015AZ	VOC4	
Cadmium	EPA 6010B	MTL3	10/20/05
Calcium	EPA 6010B	MTL3	10/20/05
Chromium Total	EPA 6010B	MTL3	10/20/05
Copper	EPA 6010B	MTL3	10/20/05
Funnel Liquid-Liquid Extraction	EPA 3510C	*	
Iron	EPA 6010B	MTL3	10/20/05
Lead	EPA 6010B	MTL3	10/20/05
Magnesium	EPA 6010B	MTL3	10/20/05
Manganese	EPA 6010B	MTL3	10/20/05
Mercury	EPA 7470A	MTL5	10/20/05
Mercury	EPA 7471A	MTL5	10/20/05
Nickel	EPA 6010B	MTL3	10/20/05
Nonhalogenated Volatile Organics	EPA 8015B	VOC3	10/20/05
Polynuclear Aromatic Hydrocarbons	EPA 8310	SOC13	
Potassium	EPA 6010B	MTL3	10/20/05
Pressurized Fluid Extraction	EPA 3545	*	
Purge And Trap	EPA 5030B	*	10/20/05
Purge And Trap	EPA 5035	*	10/20/05
Sediments, Sludges And Soils	EPA 3050B	*	10/20/05
Selenium	EPA 6010B	MTL3	
Silver	EPA 6010B	MTL3	10/20/05
Sodium	EPA 6010B	MTL3	10/20/05
Total Recoverable In Water	EPA 3005A	*	10/20/05
Volatile Organics	EPA 8021B	VOC1	10/20/05
Volatile Organics	EPA 8260B	VOC8	10/20/05
Zinc	EPA 6010B	MTL3	10/20/05

Total Licensed Parameters in this Program: 31

Instruments	Quantity	Date
GAS CHROMATOGRAPH	2	09/06/06
GAS CHROMATOGRAPH/MASS SPECTROMETER	1	08/11/05
INDUCTIVELY COUPLED PLASMA SPECTROMETER	1	08/11/05
MERCURY ANALYZER	1	08/11/05

AZ License: AZ0682

Lab Name: Hall Environmental Analysis Laboratory

Softwares
VARIAN STAR - GCMS
PERKIN ELMER - ICP
VARIAN GALAXIE AND CUSTOM WRITTEN-GC

Section 10.0 Chemical Analytical Reports

Title	Tab Number
Groundwater First Quarter 2007	6
Groundwater Second Quarter 2007	7
Soil Gas First Quarter 2007	8
Soil Gas Second Quarter 2007	9
GAC Analysis – January to June 2007	10

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 Rd 4990 Bloomfield NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC Analysis 2-20-07
Project #:
Project Manager: Cindy Hurtado
Sampler:
Sample Temperature: 3°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0702230
2-20-07	8:55	H_2O	GAC 1 Eff	4-VOA			X	1
2-20-07	9:00	H_2O	GAC 2 Eff	4-VOA			X	2

ANALYSIS REQUEST

BTEX + [redacted]'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
2-20-07	9:40 AM	Robert Graham	[signature]	2-21-07 1005
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/21/2007

Work Order Number 0702230 | Received by GLS

Checklist completed by GSchlyper 2-21-07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 2-20-07 **Work Order:** 0702230

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12370		*MBLK*			Batch ID: **12370**		Analysis Date:	2/23/2007 10:43:54 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12370		*LCS*			Batch ID: **12370**		Analysis Date:	2/23/2007 11:16:51 AM	
Diesel Range Organics (DRO)	5.880	mg/L	1.0	118	74	157			
Sample ID: LCSD-12370		*LCSD*			Batch ID: **12370**		Analysis Date:	2/23/2007 11:51:15 AM	
Diesel Range Organics (DRO)	5.742	mg/L	1.0	115	74	157	2.39	23	
Method: SW8015									
Sample ID: 0702230-02A MSD		*MSD*			Batch ID: **R22553**		Analysis Date:	2/21/2007 4:00:33 PM	
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115	1.77	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22553**		Analysis Date:	2/21/2007 7:53:59 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 4:30:44 PM	
Gasoline Range Organics (GRO)	0.5068	mg/L	0.050	101	80	115			
Sample ID: 0702230-02A MS		*MS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 3:30:24 PM	
Gasoline Range Organics (GRO)	0.5134	mg/L	0.050	103	80	115			
Method: SW8021									
Sample ID: 0702230-01A MSD		*MSD*			Batch ID: **R22553**		Analysis Date:	2/21/2007 2:29:59 PM	
Benzene	22.09	µg/L	1.0	100	85.9	113	1.80	27	
Toluene	20.12	µg/L	1.0	101	86.4	113	1.98	19	
Ethylbenzene	20.26	µg/L	1.0	101	83.5	118	1.76	10	
Xylenes, Total	60.96	µg/L	2.0	102	83.4	122	2.04	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22553**		Analysis Date:	2/21/2007 7:53:59 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 3:00:13 PM	
Benzene	20.89	µg/L	1.0	104	85.9	113			
Toluene	20.78	µg/L	1.0	104	86.4	113			
Ethylbenzene	20.89	µg/L	1.0	104	83.5	118			
Xylenes, Total	63.43	µg/L	2.0	106	83.4	122			
Sample ID: 0702230-01A MS		*MS*			Batch ID: **R22553**		Analysis Date:	2/21/2007 2:00:01 PM	
Benzene	22.49	µg/L	1.0	102	85.9	113			
Toluene	20.52	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.62	µg/L	1.0	103	83.5	118			
Xylenes, Total	62.22	µg/L	2.0	104	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *26-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 2 Eff
Lab Order:	0702230	**Collection Date:**	2/20/2007 9:00:00 AM
Project:	GAC Analysis 2-20-07	**Date Received:**	2/21/2007
Lab ID:	0702230-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2007 1:00:06 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2007 1:00:06 PM
Surr: DNOP	121	58-140		%REC	1	2/23/2007 1:00:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/21/2007 12:30:02 PM
Surr: BFB	107	79.2-121		%REC	1	2/21/2007 12:30:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Toluene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Ethylbenzene	ND	1.0		µg/L	1	2/21/2007 12:30:02 PM
Xylenes, Total	ND	3.0		µg/L	1	2/21/2007 12:30:02 PM
Surr: 4-Bromofluorobenzene	88.4	70.2-105		%REC	1	2/21/2007 12:30:02 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *26-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702230	**Collection Date:**	2/20/2007 8:55:00 AM
Project:	GAC Analysis 2-20-07	**Date Received:**	2/21/2007
Lab ID:	0702230-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/23/2007 12:25:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/23/2007 12:25:39 PM
Surr: DNOP	118	58-140		%REC	1	2/23/2007 12:25:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/21/2007 11:59:49 AM
Surr: BFB	104	79.2-121		%REC	1	2/21/2007 11:59:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.0	1.0		µg/L	1	2/21/2007 11:59:49 AM
Toluene	ND	1.0		µg/L	1	2/21/2007 11:59:49 AM
Ethylbenzene	ND	1.0		µg/L	1	2/21/2007 11:59:49 AM
Xylenes, Total	ND	3.0		µg/L	1	2/21/2007 11:59:49 AM
Surr: 4-Bromofluorobenzene	88.2	70.2-105		%REC	1	2/21/2007 11:59:49 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, February 26, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 2-20-07

Order No.: 0702230

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 2/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

Client: SAN Juan Refining
Address: #50 Rd 4990
Bloomfield, NM
87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 2/08/07
Project #:
Project Manager: Cindy Hurtado
Sampler: ~~Bob Krakow~~
Sample Temperature: 5°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
								0702097
2-8-07	8:36	H_2O	GAC 1 Eff	4-VOA			HCL	-1

ANALYSIS REQUEST

BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
02/08/07	1:30pm	Cindy Hurtado	2/9/07 1015
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/9/2007

Work Order Number 0702097 | Received by TLS

Checklist completed by D Schlegel 2-9-07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	5°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 2-08-07
Work Order: 0702097

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12299		*MBLK*			Batch ID: **12299**		Analysis Date:	2/12/2007 4:08:22 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12299		*LCS*			Batch ID: **12299**		Analysis Date:	2/12/2007 4:42:25 PM	
Diesel Range Organics (DRO)	5.505	mg/L	1.0	110	74	157			
Sample ID: LCSD-12299		*LCSD*			Batch ID: **12299**		Analysis Date:	2/12/2007 5:16:29 PM	
Diesel Range Organics (DRO)	5.045	mg/L	1.0	101	74	157	8.71	23	
Method: SW8015									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22431**		Analysis Date:	2/9/2007 10:01:19 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22440**		Analysis Date:	2/12/2007 8:59:23 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22431**		Analysis Date:	2/9/2007 12:01:44 PM	
Gasoline Range Organics (GRO)	0.5348	mg/L	0.050	102	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22440**		Analysis Date:	2/12/2007 11:19:44 AM	
Gasoline Range Organics (GRO)	0.5266	mg/L	0.050	101	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22431**		Analysis Date:	2/9/2007 10:01:19 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22440**		Analysis Date:	2/12/2007 8:59:23 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22431**		Analysis Date:	2/9/2007 11:31:36 AM	
Benzene	18.22	µg/L	1.0	91.1	85.9	113			
Toluene	19.06	µg/L	1.0	95.3	86.4	113			
Ethylbenzene	19.12	µg/L	1.0	95.6	83.5	118			
Xylenes, Total	57.11	µg/L	2.0	95.2	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22440**		Analysis Date:	2/12/2007 10:49:36 AM	
Benzene	19.95	µg/L	1.0	99.8	85.9	113			
Toluene	20.13	µg/L	1.0	101	86.4	113			
Ethylbenzene	19.94	µg/L	1.0	99.7	83.5	118			
Xylenes, Total	59.87	µg/L	2.0	99.8	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *13-Feb-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702097	**Collection Date:**	2/8/2007 8:30:00 AM
Project:	GAC 2-08-07	**Date Received:**	2/9/2007
Lab ID:	0702097-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/12/2007 5:50:32 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/12/2007 5:50:32 PM
Surr: DNOP	115	58-140		%REC	1	2/12/2007 5:50:32 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/9/2007 9:03:33 PM
Surr: BFB	107	79.2-121		%REC	1	2/9/2007 9:03:33 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/9/2007 9:03:33 PM
Benzene	2.9	1.0		µg/L	1	2/9/2007 9:03:33 PM
Toluene	ND	1.0		µg/L	1	2/9/2007 9:03:33 PM
Ethylbenzene	ND	1.0		µg/L	1	2/9/2007 9:03:33 PM
Xylenes, Total	ND	3.0		µg/L	1	2/9/2007 9:03:33 PM
Surr: 4-Bromofluorobenzene	88.9	70.2-105		%REC	1	2/9/2007 9:03:33 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
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COVER LETTER

Tuesday, February 13, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 2-08-07

Order No.: 0702097

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 2/9/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 1-10-07
Project #:
Project Manager:
Sampler: Cindy Hurtado
Sample Temperature: 5°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
1-10-07	9:30	H_2O	GAC 1 Eff	4 VOA			HCl	0701139 1

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
1-10-07	10AM	Cindy Hurtado	Tanya Shan	1/11/07 1035
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/11/2007

Work Order Number 0701139 | Received by TLS

Checklist completed by [signature] Signature | Jan 11, 07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? **5°** *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis 1/10/07
Work Order: 0701139

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12103		*MBLK*			Batch ID: **12103**		Analysis Date:	1/11/2007 10:15:38 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12103		*LCS*			Batch ID: **12103**		Analysis Date:	1/11/2007 10:49:27 PM	
Diesel Range Organics (DRO)	5.396	mg/L	1.0	108	74	157			
Sample ID: LCSD-12103		*LCSD*			Batch ID: **12103**		Analysis Date:	1/11/2007 11:57:08 PM	
Diesel Range Organics (DRO)	5.637	mg/L	1.0	113	74	157	4.37	23	
Method: SW8015									
Sample ID: 0701139-01A MSD		*MSD*			Batch ID: **R22096**		Analysis Date:	1/13/2007 3:16:24 AM	
Gasoline Range Organics (GRO)	0.5182	mg/L	0.050	104	80	115	1.99	8.39	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22096**		Analysis Date:	1/12/2007 12:13:27 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22096**		Analysis Date:	1/12/2007 2:14:10 PM	
Gasoline Range Organics (GRO)	0.5570	mg/L	0.050	111	80	115			
Sample ID: 0701139-01A MS		*MS*			Batch ID: **R22096**		Analysis Date:	1/13/2007 2:46:14 AM	
Gasoline Range Organics (GRO)	0.5286	mg/L	0.050	106	80	115			
Method: SW8021									
Sample ID: 0701139-01A MSD		*MSD*			Batch ID: **R22096**		Analysis Date:	1/13/2007 3:16:24 AM	
Benzene	5.712	µg/L	1.0	95.2	85.9	113	2.80	27	
Toluene	35.37	µg/L	1.0	95.6	86.4	113	3.46	19	
Ethylbenzene	8.384	µg/L	1.0	93.2	83.5	118	2.82	10	
Xylenes, Total	41.97	µg/L	3.0	105	83.4	122	3.38	13	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22096**		Analysis Date:	1/12/2007 12:13:27 PM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22096**		Analysis Date:	1/12/2007 1:44:01 PM	
Benzene	18.15	µg/L	1.0	90.8	85.9	113			
Toluene	18.72	µg/L	1.0	93.6	86.4	113			
Ethylbenzene	18.94	µg/L	1.0	94.7	83.5	118			
Xylenes, Total	56.60	µg/L	3.0	94.3	83.4	122			
Sample ID: 0701139-01A MS		*MS*			Batch ID: **R22096**		Analysis Date:	1/13/2007 2:46:14 AM	
Benzene	5.874	µg/L	1.0	97.9	85.9	113			
Toluene	36.62	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	8.624	µg/L	1.0	95.8	83.5	118			
Xylenes, Total	43.42	µg/L	3.0	109	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *15-Jan-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0701139	**Collection Date:**	1/10/2007 9:30:00 AM
Project:	GAC Analysis 1/10/07	**Date Received:**	1/11/2007
Lab ID:	0701139-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	1/12/2007 1:38:36 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/12/2007 1:38:36 AM
Surr: DNOP	129	58-140		%REC	1	1/12/2007 1:38:36 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	1/13/2007 2:16:05 AM
Surr: BFB	103	79.2-121		%REC	1	1/13/2007 2:16:05 AM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Toluene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Ethylbenzene	ND	1.0		µg/L	1	1/13/2007 2:16:05 AM
Xylenes, Total	ND	3.0		µg/L	1	1/13/2007 2:16:05 AM
Surr: 4-Bromofluorobenzene	86.2	70.2-105		%REC	1	1/13/2007 2:16:05 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit
S	Spike recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
MCL	Maximum Contaminant Level
RL	Reporting Limit

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, January 15, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis 1/10/07

Order No.: 0701139

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 1/11/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 1-3-07
Project #:
Project Manager:
Sampler: Bob Krakow
Sample Temperature: 5°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
1-03-07	1230pm	H_2O	GAC 1 EFF	3-40A			HCl	0701033 1

ANALYSIS REQUEST

BTEX + ~~MTBE + TMB's (8021)~~	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
1-03-07	155pm	Cindy Hurtado	Jamye Thom	1/4/07 1015
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 1/4/2007

Work Order Number 0701033 | Received by TLS

Checklist completed by [signature] Signature | Jan 4, 07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☐	No ☑		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	5°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 1-3-07
Work Order: 0701033

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12086		*MBLK*			Batch ID: **12086**		Analysis Date:	1/9/2007 9:26:30 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12086		*LCS*			Batch ID: **12086**		Analysis Date:	1/9/2007 10:00:35 AM	
Diesel Range Organics (DRO)	5.093	mg/L	1.0	102	74	157			
Sample ID: LCSD-12086		*LCSD*			Batch ID: **12086**		Analysis Date:	1/9/2007 10:23:49 AM	
Diesel Range Organics (DRO)	4.417	mg/L	1.0	88.3	74	157	14.2	23	
Method: SW8015									
Sample ID: 0701033-01A MSD		*MSD*			Batch ID: **R22023**		Analysis Date:	1/5/2007 2:23:09 PM	
Gasoline Range Organics (GRO)	0.5960	mg/L	0.050	101	80	115	2.03	8.39	
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22023**		Analysis Date:	1/5/2007 9:36:07 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22023**		Analysis Date:	1/5/2007 11:36:27 AM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	99.2	80	115			
Sample ID: 0701033-01A MS		*MS*			Batch ID: **R22023**		Analysis Date:	1/5/2007 1:53:05 PM	
Gasoline Range Organics (GRO)	0.5840	mg/L	0.050	98.1	80	115			
Method: SW8021									
Sample ID: 5ML RB		*MBLK*			Batch ID: **R22023**		Analysis Date:	1/5/2007 9:36:07 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22023**		Analysis Date:	1/5/2007 11:06:27 AM	
Benzene	17.80	µg/L	1.0	89.0	85.9	113			
Toluene	17.87	µg/L	1.0	89.3	86.4	113			
Ethylbenzene	17.69	µg/L	1.0	88.4	83.5	118			
Xylenes, Total	53.20	µg/L	3.0	88.7	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *10-Jan-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0701033	**Collection Date:**	1/3/2007 12:30:00 PM
Project:	GAC 1-3-07	**Date Received:**	1/4/2007
Lab ID:	0701033-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	6.2	1.0		mg/L	1	1/9/2007 12:17:01 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	1/9/2007 12:17:01 PM
Surr: DNOP	91.4	58-140		%REC	1	1/9/2007 12:17:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	0.093	0.050		mg/L	1	1/5/2007 1:23:03 PM
Surr: BFB	101	79.2-121		%REC	1	1/5/2007 1:23:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Toluene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Ethylbenzene	ND	1.0		µg/L	1	1/5/2007 1:23:03 PM
Xylenes, Total	ND	3.0		µg/L	1	1/5/2007 1:23:03 PM
Surr: 4-Bromofluorobenzene	81.5	70.2-105		%REC	1	1/5/2007 1:23:03 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, January 10, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 1-3-07

Order No.: 0701033

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 1/4/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd Qtr 2007 - Vapor

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Bob Kratow

Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No.
6/20/07	830 AM	Vapor	DW #1	1-Tedlar				0706317-1

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
6/20/07	950A	Cindy Hurtado		
				6/21/07 1355
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

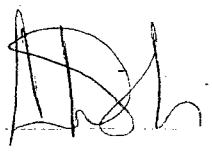
Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706317 | Received by TLS

Checklist completed by  6/21/07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*
If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Vapor **Work Order:** 0706317

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24112**		Analysis Date:	6/25/2007 8:38:52 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24112**		Analysis Date:	6/25/2007 10:20:52 AM	
Gasoline Range Organics (GRO)	0.5100	mg/L	0.050	97.6	80	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24178**		Analysis Date:	6/28/2007 9:29:44 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24178**		Analysis Date:	6/28/2007 5:30:21 PM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	99.2	80	115			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0706317	**Collection Date:**	6/20/2007 8:30:00 AM
Project:	River Terrace 2nd Qtr 2007-Vapor	**Date Received:**	6/21/2007
Lab ID:	0706317-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/28/2007 11:22:26 AM
Surr: BFB	99.8	84.5-129		%REC	1	6/28/2007 11:22:26 AM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 2:52:58 PM
Xylenes, Total	0.32	0.30		µg/L	1	6/25/2007 2:52:58 PM
Surr: 1,2-Dichloroethane-d4	92.8	50.9-168		%REC	1	6/25/2007 2:52:58 PM
Surr: 4-Bromofluorobenzene	89.2	71.2-123		%REC	1	6/25/2007 2:52:58 PM
Surr: Dibromofluoromethane	90.5	64.7-142		%REC	1	6/25/2007 2:52:58 PM
Surr: Toluene-d8	88.1	81.9-122		%REC	1	6/25/2007 2:52:58 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Vapor

Order No.: 0706317

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990, Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd Qtr 2007 - VAPOR
Project #:
Project Manager:
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature:

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No.
6/19/07	1030A	Vapor	TP-#13	1-Tedlar			0706027 7
	1140A		TP-#12				8
	1125A		TP-#11				9
	940A		TP-#10				10
	955A		TP-#3				11
	1250pm		TP-#7				12
	110pm		TP-#9				13

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
✓		✓													
✓		✓													
✓		✓													
✓		✓													
✓		✓													
✓		✓													
✓		✓													

Date: 6/19/07 Time: 220pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) Tanya S 6/20/07 905

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

Client: San Juan Refining

Project Name: River Terrace - 2nd QTR 2007 - Vapor

Address: #50 Rd 4990
Bloomfield, NM
87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Krakow

Fax #: 505-632-3911

Sample Temperature:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0706079	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas / Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles or Headspace (Y or N)
6/18/07	1010Am	Vapor	MW#49	1-Tedlar			1	✓		✓										
	11 AM		TP-#1				2	✓		✓										
	1255pm		TP-#8				3	✓		✓										
	120pm		TP-#6				4	✓		✓										
	145pm		TP-#5				5	✓		✓										
	210pm		TP-#2				6	✓		✓										

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
6/18/07	255pm	Cindy Hurtado	[illegible]	6/20/07	909

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/20/2007

Work Order Number 0706279 | Received by TLS

Checklist completed by (Signature) | Date 6/20/07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?		*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace-2nd Qtr-2007-Vapor **Work Order:** 0706279

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	3.0						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8260B									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R24116**		Analysis Date:	6/25/2007 10:21:11 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24116**		Analysis Date:	6/25/2007 11:38:52 AM	
Benzene	20.86	µg/L	1.0	104	82.4	128			
Toluene	19.80	µg/L	1.0	99.0	77.2	115			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24152**		Analysis Date:	6/27/2007 12:05:06 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24152**		Analysis Date:	6/27/2007 11:12:13 PM	
Gasoline Range Organics (GRO)	0.4180	mg/L	0.050	79.2	80	115			S
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24178**		Analysis Date:	6/28/2007 9:29:44 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24178**		Analysis Date:	6/28/2007 5:30:21 PM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	99.2	80	115			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace-2nd Qtr-2007-Vapor **Work Order:** 0706279

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24087**		Analysis Date:	6/24/2007 6:46:06 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24087**		Analysis Date:	6/25/2007 1:56:59 AM	
Gasoline Range Organics (GRO)	0.4960	mg/L	0.050	94.8	80	115			
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: **R24110**		Analysis Date:	6/25/2007 7:09:46 AM	
Benzene	ND	mg/Kg	0.050						
Toluene	ND	mg/Kg	0.050						
Ethylbenzene	ND	mg/Kg	0.050						
Xylenes, Total	ND	mg/Kg	0.10						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24110**		Analysis Date:	6/25/2007 8:20:35 AM	
Benzene	1.031	mg/Kg	0.050	103	78.2	123			
Toluene	0.9916	mg/Kg	0.050	99.2	72.6	128			
Method: SW8260B									
Sample ID: 5ml rb		*MBLK*			Batch ID: **R24110**		Analysis Date:	6/25/2007 7:09:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24110**		Analysis Date:	6/25/2007 8:20:35 AM	
Benzene	20.62	µg/L	1.0	103	82.4	128			
Toluene	19.83	µg/L	1.0	99.2	77.2	115			
Method: SW8260B									
Sample ID: b1		*MBLK*			Batch ID: **R24111**		Analysis Date:	6/25/2007 8:59:20 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R24111**		Analysis Date:	6/25/2007 10:09:00 AM	
Benzene	19.81	µg/L	1.0	99.0	82.4	128			
Toluene	20.75	µg/L	1.0	104	77.2	115			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24112**		Analysis Date:	6/25/2007 8:38:52 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24112**		Analysis Date:	6/25/2007 10:20:52 AM	
Gasoline Range Organics (GRO)	0.5100	mg/L	0.050	97.6	80	115			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #9
Lab Order:	0706279	**Collection Date:**	6/19/2007 1:10:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-13	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.6	5.0		µg/L	1	6/28/2007 10:52:02 AM
Surr: BFB	95.8	84.5-129		%REC	1	6/28/2007 10:52:02 AM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 2:14:12 PM
Xylenes, Total	0.93	0.30		µg/L	1	6/25/2007 2:14:12 PM
Surr: 1,2-Dichloroethane-d4	93.0	50.9-168		%REC	1	6/25/2007 2:14:12 PM
Surr: 4-Bromofluorobenzene	91.3	71.2-123		%REC	1	6/25/2007 2:14:12 PM
Surr: Dibromofluoromethane	88.7	64.7-142		%REC	1	6/25/2007 2:14:12 PM
Surr: Toluene-d8	85.4	81.9-122		%REC	1	6/25/2007 2:14:12 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #7
Lab Order:	0706279	**Collection Date:**	6/19/2007 12:50:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-12	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.0	5.0		µg/L	1	6/27/2007 3:05:48 PM
Surr: BFB	104	84.5-129		%REC	1	6/27/2007 3:05:48 PM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 1:35:19 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 1:35:19 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 1:35:19 PM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 1:35:19 PM
Surr: 1,2-Dichloroethane-d4	92.5	50.9-168		%REC	1	6/25/2007 1:35:19 PM
Surr: 4-Bromofluorobenzene	88.5	71.2-123		%REC	1	6/25/2007 1:35:19 PM
Surr: Dibromofluoromethane	89.6	64.7-142		%REC	1	6/25/2007 1:35:19 PM
Surr: Toluene-d8	85.8	81.9-122		%REC	1	6/25/2007 1:35:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #3
Lab Order:	0706279	**Collection Date:**	6/19/2007 9:55:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-11	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.6	5.0		µg/L	1	6/25/2007 2:25:24 PM
Surr: BFB	117	84.5-129		%REC	1	6/25/2007 2:25:24 PM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:56:35 PM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 12:56:35 PM
Surr: 1,2-Dichloroethane-d4	93.6	50.9-168		%REC	1	6/25/2007 12:56:35 PM
Surr: 4-Bromofluorobenzene	90.4	71.2-123		%REC	1	6/25/2007 12:56:35 PM
Surr: Dibromofluoromethane	89.6	64.7-142		%REC	1	6/25/2007 12:56:35 PM
Surr: Toluene-d8	86.3	81.9-122		%REC	1	6/25/2007 12:56:35 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #10
Lab Order:	0706279	**Collection Date:**	6/19/2007 9:40:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-10	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	6/25/2007 1:23:52 PM
Surr: BFB	124	84.5-129		%REC	1	6/25/2007 1:23:52 PM
EPA METHOD 8260B: VOLATILES						Analyst: **LMM**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:17:48 PM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 12:17:48 PM
Surr: 1,2-Dichloroethane-d4	94.6	50.9-168		%REC	1	6/25/2007 12:17:48 PM
Surr: 4-Bromofluorobenzene	89.1	71.2-123		%REC	1	6/25/2007 12:17:48 PM
Surr: Dibromofluoromethane	91.9	64.7-142		%REC	1	6/25/2007 12:17:48 PM
Surr: Toluene-d8	85.4	81.9-122		%REC	1	6/25/2007 12:17:48 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #11
Lab Order:	0706279	**Collection Date:**	6/19/2007 11:25:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-09	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.2	5.0		µg/L	1	6/25/2007 12:53:19 PM
Surr: BFB	116	84.5-129		%REC	1	6/25/2007 12:53:19 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:42:24 AM
Xylenes, Total	0.74	0.30		µg/L	1	6/25/2007 10:42:24 AM
Surr: 1,2-Dichloroethane-d4	101	50.9-168		%REC	1	6/25/2007 10:42:24 AM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	6/25/2007 10:42:24 AM
Surr: Dibromofluoromethane	106	64.7-142		%REC	1	6/25/2007 10:42:24 AM
Surr: Toluene-d8	98.1	81.9-122		%REC	1	6/25/2007 10:42:24 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #12
Lab Order:	0706279	**Collection Date:**	6/19/2007 11:00:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-08	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.0	5.0		µg/L	1	6/25/2007 12:22:44 PM
Surr: BFB	114	84.5-129		%REC	1	6/25/2007 12:22:44 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 11:15:47 AM
Xylenes, Total	0.56	0.30		µg/L	1	6/25/2007 11:15:47 AM
Surr: 1,2-Dichloroethane-d4	98.4	50.9-168		%REC	1	6/25/2007 11:15:47 AM
Surr: 4-Bromofluorobenzene	99.1	71.2-123		%REC	1	6/25/2007 11:15:47 AM
Surr: Dibromofluoromethane	105	64.7-142		%REC	1	6/25/2007 11:15:47 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 11:15:47 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #13
Lab Order:	0706279	**Collection Date:**	6/19/2007 10:30:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	5.8	5.0		µg/L	1	6/25/2007 11:52:01 AM
Surr: BFB	113	84.5-129		%REC	1	6/25/2007 11:52:01 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 11:49:12 AM
Xylenes, Total	0.60	0.30		µg/L	1	6/25/2007 11:49:12 AM
Surr: 1,2-Dichloroethane-d4	100	50.9-168		%REC	1	6/25/2007 11:49:12 AM
Surr: 4-Bromofluorobenzene	102	71.2-123		%REC	1	6/25/2007 11:49:12 AM
Surr: Dibromofluoromethane	105	64.7-142		%REC	1	6/25/2007 11:49:12 AM
Surr: Toluene-d8	95.3	81.9-122		%REC	1	6/25/2007 11:49:12 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #2
Lab Order:	0706279	**Collection Date:**	6/18/2007 2:10:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	10	5.0		µg/L	1	6/24/2007 9:51:12 PM
Surr: BFB	108	84.5-129		%REC	1	6/24/2007 9:51:12 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Toluene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 12:22:36 PM
Xylenes, Total	1.4	0.30		µg/L	1	6/25/2007 12:22:36 PM
Surr: 1,2-Dichloroethane-d4	99.7	50.9-168		%REC	1	6/25/2007 12:22:36 PM
Surr: 4-Bromofluorobenzene	104	71.2-123		%REC	1	6/25/2007 12:22:36 PM
Surr: Dibromofluoromethane	104	64.7-142		%REC	1	6/25/2007 12:22:36 PM
Surr: Toluene-d8	94.7	81.9-122		%REC	1	6/25/2007 12:22:36 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #5
Lab Order:	0706279	**Collection Date:**	6/18/2007 1:45:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	9000	250		µg/L	50	6/24/2007 11:23:21 PM
Surr: BFB	118	84.5-129		%REC	50	6/24/2007 11:23:21 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Toluene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Ethylbenzene	ND	5.0		µg/L	50	6/25/2007 11:20:06 AM
Xylenes, Total	1500	30		µg/L	100	6/25/2007 12:31:50 PM
Surr: 1,2-Dichloroethane-d4	100	50.9-168		%REC	50	6/25/2007 11:20:06 AM
Surr: 4-Bromofluorobenzene	99.2	71.2-123		%REC	50	6/25/2007 11:20:06 AM
Surr: Dibromofluoromethane	99.4	64.7-142		%REC	50	6/25/2007 11:20:06 AM
Surr: Toluene-d8	100	81.9-122		%REC	50	6/25/2007 11:20:06 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #6
Lab Order:	0706279	**Collection Date:**	6/18/2007 1:20:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/24/2007 9:20:37 PM
Surr: BFB	109	84.5-129		%REC	1	6/24/2007 9:20:37 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:44:22 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 10:44:22 AM
Surr: 1,2-Dichloroethane-d4	99.0	50.9-168		%REC	1	6/25/2007 10:44:22 AM
Surr: 4-Bromofluorobenzene	108	71.2-123		%REC	1	6/25/2007 10:44:22 AM
Surr: Dibromofluoromethane	93.1	64.7-142		%REC	1	6/25/2007 10:44:22 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 10:44:22 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #8
Lab Order:	0706279	**Collection Date:**	6/18/2007 12:55:00 PM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	6/25/2007 11:21:30 AM
Surr: BFB	107	84.5-129		%REC	1	6/25/2007 11:21:30 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 10:08:45 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 10:08:45 AM
Surr: 1,2-Dichloroethane-d4	104	50.9-168		%REC	1	6/25/2007 10:08:45 AM
Surr: 4-Bromofluorobenzene	107	71.2-123		%REC	1	6/25/2007 10:08:45 AM
Surr: Dibromofluoromethane	97.3	64.7-142		%REC	1	6/25/2007 10:08:45 AM
Surr: Toluene-d8	102	81.9-122		%REC	1	6/25/2007 10:08:45 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP- #1
Lab Order:	0706279	**Collection Date:**	6/18/2007 11:00:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7.4	5.0		µg/L	1	6/25/2007 10:51:09 AM
Surr: BFB	106	84.5-129		%REC	1	6/25/2007 10:51:09 AM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 9:33:15 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 9:33:15 AM
Ethylbenzene	0.28	0.10		µg/L	1	6/25/2007 9:33:15 AM
Xylenes, Total	1.0	0.30		µg/L	1	6/25/2007 9:33:15 AM
Surr: 1,2-Dichloroethane-d4	99.4	50.9-168		%REC	1	6/25/2007 9:33:15 AM
Surr: 4-Bromofluorobenzene	101	71.2-123		%REC	1	6/25/2007 9:33:15 AM
Surr: Dibromofluoromethane	93.1	64.7-142		%REC	1	6/25/2007 9:33:15 AM
Surr: Toluene-d8	106	81.9-122		%REC	1	6/25/2007 9:33:15 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0706279	**Collection Date:**	6/18/2007 10:10:00 AM
Project:	River Terrace-2nd Qtr-2007-Vapor	**Date Received:**	6/20/2007
Lab ID:	0706279-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	6/24/2007 8:50:07 PM
Surr: BFB	124	84.5-129		%REC	1	6/24/2007 8:50:07 PM
EPA METHOD 8260B: VOLATILES						Analyst: **SMP**
Benzene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Toluene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Ethylbenzene	ND	0.10		µg/L	1	6/25/2007 8:56:06 AM
Xylenes, Total	ND	0.30		µg/L	1	6/25/2007 8:56:06 AM
Surr: 1,2-Dichloroethane-d4	101	50.9-168		%REC	1	6/25/2007 8:56:06 AM
Surr: 4-Bromofluorobenzene	106	71.2-123		%REC	1	6/25/2007 8:56:06 AM
Surr: Dibromofluoromethane	91.5	64.7-142		%REC	1	6/25/2007 8:56:06 AM
Surr: Toluene-d8	104	81.9-122		%REC	1	6/25/2007 8:56:06 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace-2nd Qtr-2007-Vapor

Order No.: 0706279

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 13 sample(s) on 6/20/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990, Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 1st QTR-2007-VS
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 4°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0702317	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
2-26-07	930A	Soil	TP-8	1-Tedlar			1	X		X														
	1010AM		TP-5				2	X		X														
	1035A		TP-2				3	X		X														
	1235A		TP-6				4	X		X														
	1PM		TP-1				5	X		X														
	120PM		TP-9				6	X		X														
	220PM		TP-12				7	X		X														

Date: 2/26/07 Time: 3:15 PM Relinquished By: (Signature) Cindy Hurtado
Date: Time: Relinquished By: (Signature)

Received By: (Signature) 2/27/07 1002
Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/27/2007

Work Order Number 0702317 | Received by TLS

Checklist completed by _____ Signature _____ Date Feb 27, 07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007-VS **Work Order:** 0702317

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22631**		Analysis Date:	2/27/2007 7:28:51 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22631**		Analysis Date:	2/27/2007 9:04:06 PM	
Gasoline Range Organics (GRO)	0.5120	mg/L	0.050	102	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22631**		Analysis Date:	2/27/2007 7:28:51 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22631**		Analysis Date:	2/27/2007 8:02:49 PM	
Benzene	20.88	µg/L	1.0	104	85.9	113			
Toluene	20.77	µg/L	1.0	104	86.4	113			
Ethylbenzene	21.09	µg/L	1.0	105	83.5	118			
Xylenes, Total	43.04	µg/L	2.0	108	83.4	122			
1,2,4-Trimethylbenzene	20.33	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.93	µg/L	1.0	105	85.2	113			
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 4:43:18 PM	
Gasoline Range Organics (GRO)	0.5440	mg/L	0.050	109	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 3:42:30 PM	
Benzene	21.61	µg/L	1.0	108	85.9	113			
Toluene	21.25	µg/L	1.0	106	86.4	113			
Ethylbenzene	21.37	µg/L	1.0	107	83.5	118			
Xylenes, Total	45.32	µg/L	2.0	113	83.4	122			
1,2,4-Trimethylbenzene	21.13	µg/L	1.0	106	83.5	115			
1,3,5-Trimethylbenzene	21.80	µg/L	1.0	109	85.2	113			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0702317	**Collection Date:**	2/26/2007 2:20:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-07	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	61	5.0		µg/L	1	2/27/2007 12:52:43 PM
Surr: BFB	128	84.5-129		%REC	1	2/27/2007 12:52:43 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 12:52:43 PM
Toluene	ND	0.10		µg/L	1	2/27/2007 12:52:43 PM
Ethylbenzene	1.1	0.10		µg/L	1	2/27/2007 12:52:43 PM
Xylenes, Total	11	0.30		µg/L	1	2/27/2007 12:52:43 PM
Surr: 4-Bromofluorobenzene	97.2	70.2-105		%REC	1	2/27/2007 12:52:43 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0702317	**Collection Date:**	2/26/2007 1:30:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	290	5.0		µg/L	1	2/27/2007 12:22:22 PM
Surr: BFB	168	84.5-129	S	%REC	1	2/27/2007 12:22:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 12:22:22 PM
Toluene	0.15	0.10		µg/L	1	2/27/2007 12:22:22 PM
Ethylbenzene	4.3	0.10		µg/L	1	2/27/2007 12:22:22 PM
Xylenes, Total	41	1.5		µg/L	5	2/27/2007 7:02:24 PM
Surr: 4-Bromofluorobenzene	104	70.2-105		%REC	1	2/27/2007 12:22:22 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0702317	**Collection Date:**	2/26/2007 1:00:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7300	250		µg/L	50	2/27/2007 4:27:21 PM
Surr: BFB	130	84.5-129	S	%REC	50	2/27/2007 4:27:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	6.1	5.0		µg/L	50	2/27/2007 4:27:21 PM
Toluene	8.2	5.0		µg/L	50	2/27/2007 4:27:21 PM
Ethylbenzene	150	5.0		µg/L	50	2/27/2007 4:27:21 PM
Xylenes, Total	1200	30		µg/L	100	2/28/2007 11:08:28 AM
Surr: 4-Bromofluorobenzene	97.8	70.2-105		%REC	50	2/27/2007 4:27:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0702317	**Collection Date:**	2/26/2007 12:35:00 PM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	98	10		µg/L	2	2/27/2007 6:31:47 PM
Surr: BFB	198	84.5-129	S	%REC	2	2/27/2007 6:31:47 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.20		µg/L	2	2/27/2007 6:31:47 PM
Toluene	ND	0.20		µg/L	2	2/27/2007 6:31:47 PM
Ethylbenzene	1.0	0.20		µg/L	2	2/27/2007 6:31:47 PM
Xylenes, Total	13	0.60		µg/L	2	2/27/2007 6:31:47 PM
Surr: 4-Bromofluorobenzene	94.6	70.2-105		%REC	2	2/27/2007 6:31:47 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0702317	**Collection Date:**	2/26/2007 10:35:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	88	5.0		µg/L	1	2/27/2007 11:52:07 AM
Surr: BFB	131	84.5-129	S	%REC	1	2/27/2007 11:52:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/27/2007 11:52:07 AM
Toluene	ND	0.10		µg/L	1	2/27/2007 11:52:07 AM
Ethylbenzene	1.1	0.10		µg/L	1	2/27/2007 11:52:07 AM
Xylenes, Total	17	0.30		µg/L	1	2/27/2007 11:52:07 AM
Surr: 4-Bromofluorobenzene	98.7	70.2-105		%REC	1	2/27/2007 11:52:07 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0702317	**Collection Date:**	2/26/2007 10:10:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6100	250		µg/L	50	2/27/2007 3:56:28 PM
Surr: BFB	133	84.5-129	S	%REC	50	2/27/2007 3:56:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	5.0		µg/L	50	2/27/2007 3:56:28 PM
Toluene	9.8	5.0		µg/L	50	2/27/2007 3:56:28 PM
Ethylbenzene	23	5.0		µg/L	50	2/27/2007 3:56:28 PM
Xylenes, Total	1000	15		µg/L	50	2/27/2007 3:56:28 PM
Surr: 4-Bromofluorobenzene	96.6	70.2-105		%REC	50	2/27/2007 3:56:28 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0702317	**Collection Date:**	2/26/2007 9:30:00 AM
Project:	River Terrace - 1st Quarter 2007-VS	**Date Received:**	2/27/2007
Lab ID:	0702317-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	7100	500		µg/L	100	2/27/2007 7:32:37 PM
Surr: BFB	122	84.5-129		%REC	100	2/27/2007 7:32:37 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	5.0		µg/L	50	2/27/2007 2:55:54 PM
Toluene	9.5	5.0		µg/L	50	2/27/2007 2:55:54 PM
Ethylbenzene	130	5.0		µg/L	50	2/27/2007 2:55:54 PM
Xylenes, Total	1400	30		µg/L	100	2/27/2007 7:32:37 PM
Surr: 4-Bromofluorobenzene	99.4	70.2-105		%REC	50	2/27/2007 2:55:54 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

CLIENT:	San Juan Refining
Project:	River Terrace - 1st Quarter 2007-VS
Lab Order:	0702317

CASE NARRATIVE

"S" flags denote that the surrogate was not recoverable due to sample dilution or matrix interferences.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 01, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007-VS

Order No.: 0702317

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 2/27/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Address: #50 Rd 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

Project Name: River Terrace - 1st Qtr-2007 - VS

Project #:

Project Manager: Cindy Hurtado

Sampler: Cindy Hurtado / Bob Kramer

Sample Temperature: /

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	HEAL No. 0702369	BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
2-26-07	9AM	Vapor	TP-13	1-Tedlar			1	X		X														
	9:30A		TP-11				2	X		X														
	10AM		TP-3				3	X		X														
	10:30A		TP-10				4	X		X														
	12:40pm		MW #49				5	X		X														
	1:30pm		DW #1				6	X		X														

Date: 2/27/07 Time: 2:30pm Relinquished By: (Signature) Cindy Hurtado

Received By: (Signature) 2/28/07 9:59

Date: Time: Relinquished By: (Signature)

Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702369 | Received by TLS

Checklist completed by [signature] (Signature) Feb 28, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted	☑	Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	

Container/Temp Blank temperature? *4° C ± 2 Acceptable*

If given sufficient time to cool.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007- VS **Work Order:** 0702369

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 4:43:18 PM	
Gasoline Range Organics (GRO)	0.5440	mg/L	0.050	109	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22641**		Analysis Date:	2/28/2007 8:40:46 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22641**		Analysis Date:	2/28/2007 3:42:30 PM	
Benzene	21.61	µg/L	1.0	108	85.9	113			
Toluene	21.25	µg/L	1.0	106	86.4	113			
Ethylbenzene	21.37	µg/L	1.0	107	83.5	118			
Xylenes, Total	45.32	µg/L	2.0	113	83.4	122			
1,2,4-Trimethylbenzene	21.13	µg/L	1.0	106	83.5	115			
1,3,5-Trimethylbenzene	21.80	µg/L	1.0	109	85.2	113			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0702369	**Collection Date:**	2/27/2007 1:30:00 PM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-06	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	2/28/2007 2:10:11 PM
Surr: BFB	117	84.5-129		%REC	1	2/28/2007 2:10:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 2:10:11 PM
Xylenes, Total	ND	0.30		µg/L	1	2/28/2007 2:10:11 PM
Surr: 4-Bromofluorobenzene	87.0	70.2-105		%REC	1	2/28/2007 2:10:11 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0702369	**Collection Date:**	2/27/2007 12:40:00 PM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-05	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		µg/L	1	2/28/2007 1:39:39 PM
Surr: BFB	116	84.5-129		%REC	1	2/28/2007 1:39:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 1:39:39 PM
Xylenes, Total	ND	0.30		µg/L	1	2/28/2007 1:39:39 PM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	1	2/28/2007 1:39:39 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0702369	**Collection Date:**	2/27/2007 10:30:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-04	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	6.0	5.0		µg/L	1	2/28/2007 1:09:21 PM
Surr: BFB	116	84.5-129		%REC	1	2/28/2007 1:09:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Ethylbenzene	ND	0.10		µg/L	1	2/28/2007 1:09:21 PM
Xylenes, Total	0.94	0.30		µg/L	1	2/28/2007 1:09:21 PM
Surr: 4-Bromofluorobenzene	86.5	70.2-105		%REC	1	2/28/2007 1:09:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0702369	**Collection Date:**	2/27/2007 10:00:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-03	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	13	5.0		µg/L	1	2/28/2007 12:39:08 PM
Surr: BFB	117	84.5-129		%REC	1	2/28/2007 12:39:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 12:39:08 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 12:39:08 PM
Ethylbenzene	0.11	0.10		µg/L	1	2/28/2007 12:39:08 PM
Xylenes, Total	1.2	0.30		µg/L	1	2/28/2007 12:39:08 PM
Surr: 4-Bromofluorobenzene	85.7	70.2-105		%REC	1	2/28/2007 12:39:08 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0702369	**Collection Date:**	2/27/2007 9:30:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-02	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	11	5.0		µg/L	1	2/28/2007 12:08:57 PM
Surr: BFB	119	84.5-129		%REC	1	2/28/2007 12:08:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 12:08:57 PM
Toluene	ND	0.10		µg/L	1	2/28/2007 12:08:57 PM
Ethylbenzene	0.11	0.10		µg/L	1	2/28/2007 12:08:57 PM
Xylenes, Total	1.4	0.30		µg/L	1	2/28/2007 12:08:57 PM
Surr: 4-Bromofluorobenzene	89.2	70.2-105		%REC	1	2/28/2007 12:08:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *01-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0702369	**Collection Date:**	2/27/2007 9:00:00 AM
Project:	River Terrace - 1st Quarter 2007- VS	**Date Received:**	2/28/2007
Lab ID:	0702369-01	**Matrix:**	AIR

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	24	5.0		µg/L	1	2/28/2007 11:38:42 AM
Surr: BFB	130	84.5-129	S	%REC	1	2/28/2007 11:38:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.10		µg/L	1	2/28/2007 11:38:42 AM
Toluene	ND	0.10		µg/L	1	2/28/2007 11:38:42 AM
Ethylbenzene	0.20	0.10		µg/L	1	2/28/2007 11:38:42 AM
Xylenes, Total	2.9	0.30		µg/L	1	2/28/2007 11:38:42 AM
Surr: 4-Bromofluorobenzene	95.4	70.2-105		%REC	1	2/28/2007 11:38:42 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 01, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007- VS

Order No.: 0702369

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990, Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2007 - water
Project #:
Project Manager:
Sampler: Cindy Hurtado / Bob Kvalvo
Sample Temperature: 2°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0706281	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr, Ba				Air Bubbles or Headspace (Y or N)
6/15/07	1040A	H2O	TP-#13	5-VOA			HCl	7	X		X														
				1-500		✓		7													X				
	1105A		TP-#12	5-VOA			✓	8	X		X														
				1-500		✓		8													X				
	1130A		TP-#11	5-VOA			✓	9	X		X														
				1-500		✓		9													X				
	945A		TP-#10	5-VOA			✓	10	X		X														
				1-500		✓		10													X				
	1005A		TP-#3	5-VOA			X	11	X		X														
				1-500		X		11													X				
	1115A		TP-#9	5-VOA			X	12	X		X														
				1-500		X		12													X				

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
6/19/07	215pm	Cindy Hurtado	Tonya Sz	6/20/07	1026

Remarks:

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd QTR 2007 - WATER
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Kraker
Sample Temperature: 3°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No.	BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr, Ba				Air Bubbles or Headspace (Y or N)
6/18/07	1025A	H_2O	MW#4	5-VOA			✓	0706281 1	X		X														
				1-500mL		X		1													X				
	1115		TP-#1	5-VOA			X	2	X		X														
				1-500		X		2													X				
	1pm		TP-#8	5-VOA			X	3	X		X														
				1-500		X		3													X				
	130pm		TP-#6	5-VOA			X	4	X		X														
				1-500		X		4													X				
	150pm		TP-#5	5-VOA			X	5	X		X														
				1-500		X		5													X				
	220pm		TP-#2	5-VOA			X	6	X		X														
				1-500		X		6													X				

Remarks:

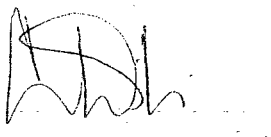
Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
6/18/07	3pm	Cindy Hurtado		6/20/07 1036
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/20/2007

Work Order Number 0706281 | Received by TLS

Checklist completed by  6/20/07
Signature Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	2°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments: Added Added 1 ml HNO_3 to #2

Corrective Action

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water **Work Order:** 0706281

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW6010A									
Sample ID: MB-13241		*MBLK*			Batch ID:	**13241**	Analysis Date:	7/3/2007 2:42:57 PM	
Barium	ND	mg/L	0.020						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13241		*LCS*			Batch ID:	**13241**	Analysis Date:	7/3/2007 2:36:54 PM	
Barium	0.5090	mg/L	0.020	102	80	120			
Chromium	0.5194	mg/L	0.0060	104	80	120			
Lead	0.5088	mg/L	0.0050	102	80	120			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water **Work Order:** 0706281

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0706281-07A MSD		*MSD*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 10:28:03 PM	
Methyl tert-butyl ether (MTBE)	8.330	µg/L	2.5	101	51.2	138	3.84	28	
Benzene	6.186	µg/L	1.0	110	85.9	113	0.194	27	
Toluene	41.38	µg/L	1.0	103	86.4	113	0.0532	19	
Ethylbenzene	8.278	µg/L	1.0	105	83.5	118	0.434	10	
Xylenes, Total	48.02	µg/L	2.0	104	83.4	122	0.677	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 9:15:37 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R24163**	Analysis Date:	6/28/2007 9:59:41 AM	
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 11:57:52 PM	
Methyl tert-butyl ether (MTBE)	22.31	µg/L	2.5	112	51.2	138			
Benzene	21.32	µg/L	1.0	107	85.9	113			
Toluene	21.33	µg/L	1.0	107	86.4	113			
Ethylbenzene	21.45	µg/L	1.0	107	83.5	118			
Xylenes, Total	63.41	µg/L	2.0	106	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R24163**	Analysis Date:	6/28/2007 11:59:59 AM	
Methyl tert-butyl ether (MTBE)	21.70	µg/L	2.5	109	51.2	138			
Benzene	21.38	µg/L	1.0	107	85.9	113			
Toluene	20.71	µg/L	1.0	104	86.4	113			
Ethylbenzene	20.80	µg/L	1.0	104	83.5	118			
Xylenes, Total	61.60	µg/L	2.0	102	83.4	122			
Sample ID: 0706281-07A MS		*MS*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 9:58:02 PM	
Methyl tert-butyl ether (MTBE)	8.656	µg/L	2.5	105	51.2	138			
Benzene	6.198	µg/L	1.0	111	85.9	113			
Toluene	41.40	µg/L	1.0	103	86.4	113			
Ethylbenzene	8.314	µg/L	1.0	105	83.5	118			
Xylenes, Total	47.70	µg/L	2.0	103	83.4	122			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water **Work Order:** 070628[illegible]

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13223		*MBLK*			Batch ID:	**13223**	Analysis Date:	6/21/2007 10:07:39 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: MB-13224		*MBLK*			Batch ID:	**13224**	Analysis Date:	6/21/2007 11:52:15 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13223		*LCS*			Batch ID:	**13223**	Analysis Date:	6/21/2007 10:42:20 AM	
Diesel Range Organics (DRO)	4.532	mg/L	1.0	90.6	74	157			
Sample ID: LCS-13224		*LCS*			Batch ID:	**13224**	Analysis Date:	6/21/2007 12:27:31 PM	
Diesel Range Organics (DRO)	4.861	mg/L	1.0	97.2	74	157			
Sample ID: LCSD-13223		*LCSD*			Batch ID:	**13223**	Analysis Date:	6/21/2007 11:17:17 AM	
Diesel Range Organics (DRO)	5.076	mg/L	1.0	102	74	157	11.3	23	
Sample ID: LCSD-13224		*LCSD*			Batch ID:	**13224**	Analysis Date:	6/21/2007 1:02:34 PM	
Diesel Range Organics (DRO)	4.850	mg/L	1.0	97.0	74	157	0.227	23	
Method: SW8015									
Sample ID: 0706281-07A MSD		*MSD*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 10:28:03 PM	
Gasoline Range Organics (GRO)	0.4618	mg/L	0.050	92.4	80	115	0.0433	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 9:15:37 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R24163**	Analysis Date:	6/28/2007 9:59:41 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 10:57:56 PM	
Gasoline Range Organics (GRO)	0.5052	mg/L	0.050	101	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R24163**	Analysis Date:	6/28/2007 11:29:57 AM	
Gasoline Range Organics (GRO)	0.4870	mg/L	0.050	97.4	80	115			
Sample ID: 0706281-07A MS		*MS*			Batch ID:	**R24153**	Analysis Date:	6/27/2007 9:58:02 PM	
Gasoline Range Organics (GRO)	0.4620	mg/L	0.050	92.4	80	115			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#9
Lab Order:	0706281	**Collection Date:**	6/19/2007 1:15:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-12	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 10:59:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 10:59:58 PM
Surr: DNOP	109	58-140		%REC	1	6/21/2007 10:59:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 7:12:02 AM
Surr: BFB	95.1	79.2-121		%REC	1	6/28/2007 7:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 7:12:02 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 7:12:02 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 7:12:02 AM
Surr: 4-Bromofluorobenzene	87.7	70.2-105		%REC	1	6/28/2007 7:12:02 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.91	0.020		mg/L	1	7/3/2007 3:33:52 PM
Chromium	0.018	0.0060		mg/L	1	7/3/2007 3:33:52 PM
Lead	0.020	0.0050		mg/L	1	7/3/2007 3:33:52 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#3
Lab Order:	0706281	**Collection Date:**	6/19/2007 10:05:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-11	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 9:49:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 9:49:58 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 9:49:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 6:41:56 AM
Surr: BFB	96.5	79.2-121		%REC	1	6/28/2007 6:41:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 6:41:56 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 6:41:56 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 6:41:56 AM
Surr: 4-Bromofluorobenzene	88.8	70.2-105		%REC	1	6/28/2007 6:41:56 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.20	0.020		mg/L	1	7/3/2007 3:31:19 PM
Chromium	0.0083	0.0060		mg/L	1	7/3/2007 3:31:19 PM
Lead	0.0073	0.0050		mg/L	1	7/3/2007 3:31:19 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT: San Juan Refining
Lab Order: 0706281
Project: River Terrace 2nd Qtr 2007-Water
Lab ID: 0706281-10

Client Sample ID: TP-#10
Collection Date: 6/19/2007 9:45:00 AM
Date Received: 6/20/2007
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 9:14:59 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 9:14:59 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 9:14:59 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 6:12:01 AM
Surr: BFB	94.2	79.2-121		%REC	1	6/28/2007 6:12:01 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 6:12:01 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 6:12:01 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 6:12:01 AM
Surr: 4-Bromofluorobenzene	86.5	70.2-105		%REC	1	6/28/2007 6:12:01 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.41	0.020		mg/L	1	7/3/2007 3:23:51 PM
Chromium	0.024	0.0060		mg/L	1	7/3/2007 3:23:51 PM
Lead	0.0089	0.0050		mg/L	1	7/3/2007 3:23:51 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#11
Lab Order:	0706281	**Collection Date:**	6/19/2007 11:30:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-09	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 8:39:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 8:39:58 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 8:39:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 5:42:04 AM
Surr: BFB	95.4	79.2-121		%REC	1	6/28/2007 5:42:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 4:32:44 PM
Benzene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Toluene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 4:32:44 PM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 4:32:44 PM
Surr: 4-Bromofluorobenzene	89.9	70.2-105		%REC	1	6/28/2007 4:32:44 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.33	0.020		mg/L	1	7/3/2007 3:21:22 PM
Chromium	0.013	0.0060		mg/L	1	7/3/2007 3:21:22 PM
Lead	0.015	0.0050		mg/L	1	7/3/2007 3:21:22 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#12
Lab Order:	0706281	**Collection Date:**	6/19/2007 11:05:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-08	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 8:04:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 8:04:58 PM
Surr: DNOP	108	58-140		%REC	1	6/21/2007 8:04:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/28/2007 5:12:02 AM
Surr: BFB	98.3	79.2-121		%REC	1	6/28/2007 5:12:02 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	2.9	2.5		µg/L	1	6/28/2007 4:02:46 PM
Benzene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Toluene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 4:02:46 PM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 4:02:46 PM
Surr: 4-Bromofluorobenzene	87.7	70.2-105		%REC	1	6/28/2007 4:02:46 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.21	0.020		mg/L	1	7/3/2007 3:18:53 PM
Chromium	0.0095	0.0060		mg/L	1	7/3/2007 3:18:53 PM
Lead	0.016	0.0050		mg/L	1	7/3/2007 3:18:53 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#13
Lab Order:	0706281	**Collection Date:**	6/19/2007 10:40:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 7:30:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 7:30:03 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 7:30:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/27/2007 9:27:55 PM
Surr: BFB	94.7	79.2-121		%REC	1	6/27/2007 9:27:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/27/2007 9:27:55 PM
Benzene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Toluene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Ethylbenzene	ND	1.0		µg/L	1	6/27/2007 9:27:55 PM
Xylenes, Total	ND	2.0		µg/L	1	6/27/2007 9:27:55 PM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	1	6/27/2007 9:27:55 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.42	0.020		mg/L	1	7/3/2007 3:16:25 PM
Chromium	0.019	0.0060		mg/L	1	7/3/2007 3:16:25 PM
Lead	0.011	0.0050		mg/L	1	7/3/2007 3:16:25 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#2
Lab Order:	0706281	**Collection Date:**	6/18/2007 2:20:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 6:55:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 6:55:03 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 6:55:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	47	5.0		mg/L	100	6/28/2007 4:40:49 AM
Surr: BFB	106	79.2-121		%REC	100	6/28/2007 4:40:49 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/28/2007 4:40:49 AM
Benzene	1400	100		µg/L	100	6/28/2007 4:40:49 AM
Toluene	320	100		µg/L	100	6/28/2007 4:40:49 AM
Ethylbenzene	3800	100		µg/L	100	6/28/2007 4:40:49 AM
Xylenes, Total	15000	200		µg/L	100	6/28/2007 4:40:49 AM
Surr: 4-Bromofluorobenzene	100	70.2-105		%REC	100	6/28/2007 4:40:49 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.29	0.020		mg/L	1	7/3/2007 3:13:55 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:13:55 PM
Lead	0.067	0.0050		mg/L	1	7/3/2007 3:13:55 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#5
Lab Order:	0706281	**Collection Date:**	6/18/2007 1:50:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 6:20:05 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 6:20:05 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 6:20:05 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	78	5.0		mg/L	100	6/28/2007 3:05:44 AM
Surr: BFB	112	79.2-121		%REC	100	6/28/2007 3:05:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/28/2007 3:05:44 AM
Benzene	340	100		µg/L	100	6/28/2007 3:05:44 AM
Toluene	ND	100		µg/L	100	6/28/2007 3:05:44 AM
Ethylbenzene	3500	100		µg/L	100	6/28/2007 3:05:44 AM
Xylenes, Total	21000	1000		µg/L	500	6/28/2007 3:32:47 PM
Surr: 4-Bromofluorobenzene	90.3	70.2-105		%REC	500	6/28/2007 3:32:47 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.21	0.020		mg/L	1	7/3/2007 3:11:28 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:11:28 PM
Lead	0.092	0.0050		mg/L	1	7/3/2007 3:11:28 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 05-Jul-07

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#6
Lab Order:	0706281	**Collection Date:**	6/18/2007 1:30:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 5:44:45 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 5:44:45 PM
Surr: DNOP	110	58-140		%REC	1	6/21/2007 5:44:45 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	6/28/2007 2:33:13 AM
Surr: BFB	99.9	79.2-121		%REC	1	6/28/2007 2:33:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/28/2007 2:33:13 AM
Benzene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Toluene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Ethylbenzene	ND	1.0		µg/L	1	6/28/2007 2:33:13 AM
Xylenes, Total	ND	2.0		µg/L	1	6/28/2007 2:33:13 AM
Surr: 4-Bromofluorobenzene	93.0	70.2-105		%REC	1	6/28/2007 2:33:13 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.38	0.020		mg/L	1	7/3/2007 3:08:54 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:08:54 PM
Lead	0.027	0.0050		mg/L	1	7/3/2007 3:08:54 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#8
Lab Order:	0706281	**Collection Date:**	6/18/2007 1:00:00 PM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.2	1.0		mg/L	1	6/21/2007 5:09:29 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 5:09:29 PM
Surr: DNOP	108	58-140		%REC	1	6/21/2007 5:09:29 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	35	5.0		mg/L	100	6/28/2007 1:00:26 AM
Surr: BFB	110	79.2-121		%REC	100	6/28/2007 1:00:26 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	6/28/2007 1:33:05 AM
Benzene	ND	10		µg/L	10	6/28/2007 1:33:05 AM
Toluene	ND	10		µg/L	10	6/28/2007 1:33:05 AM
Ethylbenzene	290	10		µg/L	10	6/28/2007 1:33:05 AM
Xylenes, Total	8600	200		µg/L	100	6/28/2007 1:00:26 AM
Surr: 4-Bromofluorobenzene	102	70.2-105		%REC	100	6/28/2007 1:00:26 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.44	0.020		mg/L	1	7/3/2007 3:03:57 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:03:57 PM
Lead	0.054	0.0050		mg/L	1	7/3/2007 3:03:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-#1
Lab Order:	0706281	**Collection Date:**	6/18/2007 11:15:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	6/21/2007 4:34:18 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 4:34:18 PM
Surr: DNOP	106	58-140		%REC	1	6/21/2007 4:34:18 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	70	5.0		mg/L	100	6/27/2007 8:27:50 PM
Surr: BFB	113	79.2-121		%REC	100	6/27/2007 8:27:50 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	6/27/2007 8:27:50 PM
Benzene	1900	100		µg/L	100	6/27/2007 8:27:50 PM
Toluene	ND	100		µg/L	100	6/27/2007 8:27:50 PM
Ethylbenzene	4000	100		µg/L	100	6/27/2007 8:27:50 PM
Xylenes, Total	19000	500		µg/L	250	6/27/2007 7:57:50 PM
Surr: 4-Bromofluorobenzene	96.0	70.2-105		%REC	250	6/27/2007 7:57:50 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.14	0.020		mg/L	1	7/3/2007 3:01:30 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:01:30 PM
Lead	0.24	0.0050		mg/L	1	7/3/2007 3:01:30 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0706281	**Collection Date:**	6/18/2007 10:25:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/20/2007
Lab ID:	0706281-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/21/2007 3:23:46 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/21/2007 3:23:46 PM
Surr: DNOP	112	58-140		%REC	1	6/21/2007 3:23:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	6/27/2007 7:27:46 PM
Surr: BFB	94.6	79.2-121		%REC	1	6/27/2007 7:27:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	6/27/2007 7:27:46 PM
Benzene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Toluene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Ethylbenzene	ND	1.0		µg/L	1	6/27/2007 7:27:46 PM
Xylenes, Total	ND	2.0		µg/L	1	6/27/2007 7:27:46 PM
Surr: 4-Bromofluorobenzene	86.4	70.2-105		%REC	1	6/27/2007 7:27:46 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.064	0.020		mg/L	1	7/3/2007 2:59:00 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 2:59:00 PM
Lead	ND	0.0050		mg/L	1	7/3/2007 2:59:00 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, July 05, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Water

Order No.: 0706281

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 12 sample(s) on 6/20/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 2nd Qtr 2007 - Water
Project #:
Project Manager:
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 6°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 706320	BTEX + MTBE + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb Cr, Ba / Total Hg				Air Bubbles or Headspace (Y or N)
6/20/07	820 AM	H_2O	TP #7	5-VOA			HCl	-1	✓		✓														
				1-500ml		✓															X				
	845 AM		DW #1	4-VOA			✓	-2																	
				1-500ml		✓			✓		✓										XX				

Date: 6/20/07 Time: 947A Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 6/20/07 1355
Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706320 | Received by TLS

Checklist completed by [signature] Signature | Date 6/21/07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☑	N/A ☐	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace 2nd Qtr 2007-Water **Work Order:** 0706320

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13262		*MBLK*			Batch ID: **13262**		Analysis Date: 6/27/2007 1:10:07 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13262		*LCS*			Batch ID: **13262**		Analysis Date: 6/27/2007 1:45:10 PM		
Diesel Range Organics (DRO)	5.722	mg/L	1.0	114	74	157			
Sample ID: LCSD-13262		*LCSD*			Batch ID: **13262**		Analysis Date: 6/27/2007 2:20:34 PM		
Diesel Range Organics (DRO)	5.745	mg/L	1.0	115	74	157	0.392	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24198**		Analysis Date: 6/30/2007 6:59:05 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R24198**		Analysis Date: 6/30/2007 11:14:32 PM		
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R24198**		Analysis Date: 6/30/2007 6:59:05 PM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R24198**		Analysis Date: 6/30/2007 11:44:25 P		
Methyl tert-butyl ether (MTBE)	18.69	µg/L	2.5	93.5	51.2	138			
Benzene	19.42	µg/L	1.0	97.1	85.9	113			
Toluene	19.80	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	20.03	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.67	µg/L	2.0	99.4	83.4	122			
Method: SW7470									
Sample ID: MB-13285		*MBLK*			Batch ID: **13285**		Analysis Date: 6/28/2007 8:57:40 PM		
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-13285		*LCS*			Batch ID: **13285**		Analysis Date: 6/28/2007 8:59:24 PM		
Mercury	0.004858	mg/L	0.00020	97.2	80	120			
Method: SW6010A									
Sample ID: MB-13241		*MBLK*			Batch ID: **13241**		Analysis Date: 7/3/2007 2:42:57 PM		
Barium	ND	mg/L	0.020						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-13241		*LCS*			Batch ID: **13241**		Analysis Date: 7/3/2007 2:36:54 PM		
Barium	0.5090	mg/L	0.020	102	80	120			
Chromium	0.5194	mg/L	0.0060	104	80	120			
Lead	0.5088	mg/L	0.0050	102	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0706320	**Collection Date:**	6/20/2007 8:45:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/21/2007
Lab ID:	0706320-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 5:17:03 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 5:17:03 PM
Surr: DNOP	116	58-140		%REC	1	6/27/2007 5:17:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.15	0.050		mg/L	1	7/1/2007 3:17:17 AM
Surr: BFB	107	79.2-121		%REC	1	7/1/2007 3:17:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 3:17:17 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 3:17:17 AM
Xylenes, Total	2.6	2.0		µg/L	1	7/1/2007 3:17:17 AM
Surr: 4-Bromofluorobenzene	91.9	70.2-105		%REC	1	7/1/2007 3:17:17 AM
EPA METHOD 7470: MERCURY						Analyst: **IC**
Mercury	ND	0.00020		mg/L	1	6/28/2007 9:42:30 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.93	0.10		mg/L	1	7/3/2007 3:47:56 PM
Chromium	ND	0.030		mg/L	1	7/3/2007 3:47:56 PM
Lead	ND	0.025		mg/L	1	7/3/2007 3:47:56 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *05-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP #7
Lab Order:	0706320	**Collection Date:**	6/20/2007 8:20:00 AM
Project:	River Terrace 2nd Qtr 2007-Water	**Date Received:**	6/21/2007
Lab ID:	0706320-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 4:41:42 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 4:41:42 PM
Surr: DNOP	109	58-140		%REC	1	6/27/2007 4:41:42 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.052	0.050		mg/L	1	7/1/2007 2:47:15 AM
Surr: BFB	106	79.2-121		%REC	1	7/1/2007 2:47:15 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 2:47:15 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 2:47:15 AM
Xylenes, Total	ND	2.0		µg/L	1	7/1/2007 2:47:15 AM
Surr: 4-Bromofluorobenzene	89.6	70.2-105		%REC	1	7/1/2007 2:47:15 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **CMS**
Barium	0.075	0.020		mg/L	1	7/3/2007 3:43:49 PM
Chromium	ND	0.0060		mg/L	1	7/3/2007 3:43:49 PM
Lead	ND	0.0050		mg/L	1	7/3/2007 3:43:49 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, July 05, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace 2nd Qtr 2007-Water

Order No.: 0706320

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990, Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: River Terrace - 1st QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado, Bob Krakow
Sample Temperature: 3°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 07023168
2-27-07	910A	H2O	TP-13	4-VOA			✓	1
	940		TP-11				✓	2
	1005		TP-3				✓	3
	1035		TP-10				✓	4
	1250		MW #49	4-VOA			✓	5
	"		"	1-250		✓		5
	145pm		DW #1	4-VOA			✓	6
	"		"	1-250		✓		6

ANALYSIS REQUEST

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)	Total Pb, Cr	Total Pb, Cr, Hg			Air Bubbles or Headspace (Y or N)
✓		✓														
✓		✓														
✓		✓														
✓		✓														
✓		✓														
												X				
✓		✓														
													X			

Date: 2/27/07 Time: 235pm Relinquished By: (Signature) Cindy Hurtado
Date: Time: Relinquished By: (Signature)

Received By: (Signature) 2128167 959
Received By: (Signature)

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702368 | Received by TLS

Checklist completed by [signature] (Signature) Feb 28, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☑	No ☐	N/A ☐	
Water - pH acceptable upon receipt?	Yes ☑	No ☐	N/A ☐	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702368

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW6010A									
Sample ID: MB-12415		*MBLK*			Batch ID:	**12415**	Analysis Date:	3/7/2007 11:09:22 AM	
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Sample ID: LCS-12415		*LCS*			Batch ID:	**12415**	Analysis Date:	3/7/2007 11:10:57 AM	
Chromium	0.5043	mg/L	0.0060	101	80	120			
Lead	0.4878	mg/L	0.0050	97.6	80	120			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S [illegible] recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702368

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12410		*MBLK*			Batch ID: **12410**		Analysis Date:		3/1/2007 1:58:25 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12410		*LCS*			Batch ID: **12410**		Analysis Date:		3/1/2007 2:32:49 PM
Diesel Range Organics (DRO)	5.603	mg/L	1.0	112	74	157			
Sample ID: LCSD-12410		*LCSD*			Batch ID: **12410**		Analysis Date:		3/1/2007 3:07:09 PM
Diesel Range Organics (DRO)	5.623	mg/L	1.0	112	74	157	0.362	23	
Method: SW8015									
Sample ID: 0702368-02A MSD		*MSD*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:08:04 AM
Gasoline Range Organics (GRO)	0.4970	mg/L	0.050	99.4	80	115	1.17	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/1/2007 7:58:58 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:37:59 AM
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Sample ID: 0702368-02A MS		*MS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 5:38:03 AM
Gasoline Range Organics (GRO)	0.4912	mg/L	0.050	98.2	80	115			
Method: SW8021									
Sample ID: RB-II		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:07:52 AM
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:37:53 AM
Methyl tert-butyl ether (MTBE)	19.85	µg/L	2.5	99.2	51.2	138			
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			
1,2,4-Trimethylbenzene	20.48	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.34	µg/L	1.0	102	85.2	113			
Method: SW7470									
Sample ID: LCS-12426		*LCS*			Batch ID: **12426**		Analysis Date:		3/2/2007
Mercury	0.005014	mg/L	0.00020	100	80	120			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	%Rec recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	DW #1
Lab Order:	0702368	**Collection Date:**	2/27/2007 1:45:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 8:15:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 8:15:35 PM
Surr: DNOP	111	58-140		%REC	1	3/1/2007 8:15:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.29	0.050		mg/L	1	3/2/2007 4:08:00 AM
Surr: BFB	114	79.2-121		%REC	1	3/2/2007 4:08:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 4:08:00 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Xylenes, Total	8.3	2.0		µg/L	1	3/2/2007 4:08:00 AM
1,2,4-Trimethylbenzene	52	1.0		µg/L	1	3/2/2007 4:08:00 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 4:08:00 AM
Surr: 4-Bromofluorobenzene	93.2	70.2-105		%REC	1	3/2/2007 4:08:00 AM
EPA METHOD 7470: MERCURY						Analyst: **CMS**
Mercury	0.0015	0.00020		mg/L	1	3/2/2007
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	3/7/2007 11:16:40 AM
Lead	ND	0.0050		mg/L	1	3/7/2007 11:16:40 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	MW #49
Lab Order:	0702368	**Collection Date:**	2/27/2007 12:50:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 7:41:31 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 7:41:31 PM
Surr: DNOP	109	58-140		%REC	1	3/1/2007 7:41:31 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.054	0.050		mg/L	1	3/2/2007 1:37:54 AM
Surr: BFB	113	79.2-121		%REC	1	3/2/2007 1:37:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 1:37:54 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 1:37:54 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:37:54 AM
Surr: 4-Bromofluorobenzene	91.6	70.2-105		%REC	1	3/2/2007 1:37:54 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **NMO**
Chromium	ND	0.0060		mg/L	1	3/7/2007 11:14:58 AM
Lead	ND	0.0050		mg/L	1	3/7/2007 11:14:58 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-10
Lab Order:	0702368	**Collection Date:**	2/27/2007 10:35:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 6:33:18 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 6:33:18 PM
Surr: DNOP	112	58-140		%REC	1	3/1/2007 6:33:18 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 1:07:48 AM
Surr: BFB	111	79.2-121		%REC	1	3/2/2007 1:07:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 1:07:48 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 1:07:48 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 1:07:48 AM
Surr: 4-Bromofluorobenzene	92.2	70.2-105		%REC	1	3/2/2007 1:07:48 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-3
Lab Order:	0702368	**Collection Date:**	2/27/2007 10:05:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 5:59:14 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 5:59:14 PM
Surr: DNOP	102	58-140		%REC	1	3/1/2007 5:59:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 12:37:57 AM
Surr: BFB	113	79.2-121		%REC	1	3/2/2007 12:37:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 12:37:57 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 12:37:57 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:37:57 AM
Surr: 4-Bromofluorobenzene	94.8	70.2-105		%REC	1	3/2/2007 12:37:57 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value *above quantitation range*	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-11
Lab Order:	0702368	**Collection Date:**	2/27/2007 9:40:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 5:24:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 5:24:47 PM
Surr: DNOP	116	58-140		%REC	1	3/1/2007 5:24:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/2/2007 12:07:53 AM
Surr: BFB	111	79.2-121		%REC	1	3/2/2007 12:07:53 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/2/2007 12:07:53 AM
Benzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Toluene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Ethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Xylenes, Total	ND	2.0		µg/L	1	3/2/2007 12:07:53 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/2/2007 12:07:53 AM
Surr: 4-Bromofluorobenzene	92.2	70.2-105		%REC	1	3/2/2007 12:07:53 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *08-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-13
Lab Order:	0702368	**Collection Date:**	2/27/2007 9:10:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/28/2007
Lab ID:	0702368-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 4:50:22 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 4:50:22 PM
Surr: DNOP	116	58-140		%REC	1	3/1/2007 4:50:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 11:37:46 PM
Surr: BFB	111	79.2-121		%REC	1	3/1/2007 11:37:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	3/1/2007 11:37:46 PM
Benzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 11:37:46 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:37:46 PM
Surr: 4-Bromofluorobenzene	92.6	70.2-105		%REC	1	3/1/2007 11:37:46 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, March 08, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007

Order No.: 0702368

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 6 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ▪ Suite D ▪ Albuquerque, NM 87109
505.345.3975 ▪ Fax 505.345.4107
www.hallenvironmental.com

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining

Project Name: River Terrace - 1st QTR-2007

Address: #50 Rd 4990 Bloomfield NM 87413

Project #:

Project Manager: Cindy Hurtado

Phone #: 505-632-4161

Sampler: Cindy Hurtado / Bob Krakow

Fax #: 505-632-3911

Sample Temperature: 4°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCl	HEAL No.
2-26-07	940am	H2O	TP-8	4-VOA			✓	0702319 1
	1000am		TP-5				✓	2
	1045		TP-2				✓	3
	1245		TP-6				✓	4
	110pm		TP-1				✓	5
	135pm		TP-9				✓	6
	230pm		TP-12				✓	7

ANALYSIS REQUEST

BTEX + MTBE + ~~TMBEs~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														
X		X														
X		X														
X		X														
X		X														
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
2/26/07	310pm	Cindy Hurtado		2/27/07 1004
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/27/2007

Work Order Number 0702319 | Received by TLS

Checklist completed by _____ Feb 27, 07
Signature Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22663**		Analysis Date:	3/1/2007 6:29:17 PM	
Methyl tert-butyl ether (MTBE)	19.97	µg/L	2.5	99.8	51.2	138			
Benzene	20.54	µg/L	1.0	103	85.9	113			
Toluene	20.39	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.63	µg/L	1.0	103	83.5	118			
Xylenes, Total	63.04	µg/L	2.0	105	83.4	122			
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:	3/2/2007 2:37:53 AM	
Methyl tert-butyl ether (MTBE)	19.85	µg/L	2.5	99.2	51.2	138			
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			
1,2,4-Trimethylbenzene	20.48	µg/L	1.0	102	83.5	115			
1,3,5-Trimethylbenzene	20.34	µg/L	1.0	102	85.2	113			
Sample ID: 0702319-07A MS		*MS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 1:31:29 AM	
Methyl tert-butyl ether (MTBE)	21.12	µg/L	2.5	97.2	51.2	138			
Benzene	20.08	µg/L	1.0	100	85.9	113			
Toluene	19.81	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	19.91	µg/L	1.0	99.6	83.5	118			
Xylenes, Total	60.90	µg/L	2.0	99.8	83.4	122			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0702319-07A MSD		*MSD*			Batch ID:	**R22620**	Analysis Date:		2/28/2007 2:01:31 AM
Methyl tert-butyl ether (MTBE)	23.45	µg/L	2.5	109	51.2	138	10.4	28	
Benzene	22.07	µg/L	1.0	110	85.9	113	9.47	27	
Toluene	22.03	µg/L	1.0	110	86.4	113	10.6	19	
Ethylbenzene	22.38	µg/L	1.0	112	83.5	118	11.7	10	R
Xylenes, Total	68.38	µg/L	2.0	112	83.4	122	11.6	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R22620**	Analysis Date:		2/27/2007 7:35:36 AM
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R22643**	Analysis Date:		2/28/2007 11:19:47 AM
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R22663**	Analysis Date:		3/1/2007 7:58:58 AM
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: RB-II		*MBLK*			Batch ID:	**R22664**	Analysis Date:		3/2/2007 2:07:52 AM
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R22620**	Analysis Date:		2/28/2007 2:31:28 AM
Methyl tert-butyl ether (MTBE)	20.25	µg/L	2.5	101	51.2	138			
Benzene	21.06	µg/L	1.0	105	85.9	113			
Toluene	20.87	µg/L	1.0	104	86.4	113			
Ethylbenzene	21.02	µg/L	1.0	105	83.5	118			
Xylenes, Total	64.49	µg/L	2.0	107	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R22643**	Analysis Date:		3/1/2007 4:25:10 AM
Methyl tert-butyl ether (MTBE)	19.44	µg/L	2.5	97.2	51.2	138			
Benzene	19.50	µg/L	1.0	97.5	85.9	113			
Toluene	20.10	µg/L	1.0	100	86.4	113			
Ethylbenzene	19.74	µg/L	1.0	98.7	83.5	118			
Xylenes, Total	60.40	µg/L	2.0	101	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: River Terrace - 1st Quarter 2007 **Work Order:** 0702319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12403		*MBLK*			Batch ID: **12403**		Analysis Date:	2/28/2007 9:05:32 AM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12403		*LCS*			Batch ID: **12403**		Analysis Date:	2/28/2007 9:39:57 AM	
Diesel Range Organics (DRO)	5.097	mg/L	1.0	102	74	157			
Sample ID: LCSD-12403		*LCSD*			Batch ID: **12403**		Analysis Date:	2/28/2007 10:14:36 AM	
Diesel Range Organics (DRO)	5.797	mg/L	1.0	116	74	157	12.8	23	
Method: SW8015									
Sample ID: 0702319-06A MSD		*MSD*			Batch ID: **R22620**		Analysis Date:	2/28/2007 8:31:46 AM	
Gasoline Range Organics (GRO)	0.5526	mg/L	0.050	104	80	115	1.83	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22620**		Analysis Date:	2/27/2007 7:35:36 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22643**		Analysis Date:	2/28/2007 11:19:47 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:	3/1/2007 7:58:58 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 9:03:38 AM	
Gasoline Range Organics (GRO)	0.5236	mg/L	0.050	105	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22643**		Analysis Date:	2/28/2007 11:24:49 PM	
Gasoline Range Organics (GRO)	0.5418	mg/L	0.050	108	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:	3/2/2007 6:37:59 AM	
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Sample ID: 0702319-06A MS		*MS*			Batch ID: **R22620**		Analysis Date:	2/28/2007 7:58:54 AM	
Gasoline Range Organics (GRO)	0.5426	mg/L	0.050	102	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-12
Lab Order:	0702319	**Collection Date:**	2/26/2007 2:30:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-07	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 2:15:13 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 2:15:13 PM
Surr: DNOP	117	58-140		%REC	1	2/28/2007 2:15:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/28/2007 1:01:30 AM
Surr: BFB	110	79.2-121		%REC	1	2/28/2007 1:01:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 1:01:30 AM
Benzene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Toluene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 1:01:30 AM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 1:01:30 AM
Surr: 4-Bromofluorobenzene	92.0	70.2-105		%REC	1	2/28/2007 1:01:30 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-9
Lab Order:	0702319	**Collection Date:**	2/26/2007 1:35:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-06	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 1:40:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 1:40:47 PM
Surr: DNOP	116	58-140		%REC	1	2/28/2007 1:40:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	2/28/2007 12:31:30 AM
Surr: BFB	108	79.2-121		%REC	1	2/28/2007 12:31:30 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 12:31:30 AM
Benzene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Toluene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 12:31:30 AM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 12:31:30 AM
Surr: 4-Bromofluorobenzene	88.1	70.2-105		%REC	1	2/28/2007 12:31:30 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-1
Lab Order:	0702319	**Collection Date:**	2/26/2007 1:10:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-05	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	3.0	1.0		mg/L	1	2/28/2007 1:06:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 1:06:25 PM
Surr: DNOP	111	58-140		%REC	1	2/28/2007 1:06:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	160	5.0		mg/L	100	2/27/2007 11:31:21 PM
Surr: BFB	117	79.2-121		%REC	100	2/27/2007 11:31:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	2/27/2007 11:31:21 PM
Benzene	2000	100		µg/L	100	2/27/2007 11:31:21 PM
Toluene	ND	100		µg/L	100	2/27/2007 11:31:21 PM
Ethylbenzene	6300	100		µg/L	100	2/27/2007 11:31:21 PM
Xylenes, Total	32000	500		µg/L	250	2/28/2007 5:23:57 PM
Surr: 4-Bromofluorobenzene	91.5	70.2-105		%REC	100	2/27/2007 11:31:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-6
Lab Order:	0702319	**Collection Date:**	2/26/2007 12:45:00 PM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-04	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 12:32:01 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 12:32:01 PM
Surr: DNOP	114	58-140		%REC	1	2/28/2007 12:32:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.28	0.050		mg/L	1	2/28/2007 4:53:51 PM
Surr: BFB	122	79.2-121	S	%REC	1	2/28/2007 4:53:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	2/28/2007 4:53:51 PM
Benzene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Toluene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Ethylbenzene	ND	1.0		µg/L	1	2/28/2007 4:53:51 PM
Xylenes, Total	ND	2.0		µg/L	1	2/28/2007 4:53:51 PM
Surr: 4-Bromofluorobenzene	91.4	70.2-105		%REC	1	2/28/2007 4:53:51 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-2
Lab Order:	0702319	**Collection Date:**	2/26/2007 10:45:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	2/28/2007 11:57:38 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 11:57:38 AM
Surr: DNOP	93.8	58-140		%REC	1	2/28/2007 11:57:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	94	5.0		mg/L	100	2/27/2007 10:28:23 PM
Surr: BFB	115	79.2-121		%REC	100	2/27/2007 10:28:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	250		µg/L	100	2/27/2007 10:28:23 PM
Benzene	4300	100		µg/L	100	2/27/2007 10:28:23 PM
Toluene	ND	100		µg/L	100	2/27/2007 10:28:23 PM
Ethylbenzene	4300	100		µg/L	100	2/27/2007 10:28:23 PM
Xylenes, Total	19000	200		µg/L	100	2/28/2007 3:23:25 PM
Surr: 4-Bromofluorobenzene	92.1	70.2-105		%REC	100	2/27/2007 10:28:23 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-5
Lab Order:	0702319	**Collection Date:**	2/26/2007 10:20:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	2/28/2007 11:23:27 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 11:23:27 AM
Surr: DNOP	118	58-140		%REC	1	2/28/2007 11:23:27 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	85	5.0		mg/L	100	3/1/2007 9:55:06 AM
Surr: BFB	113	79.2-121		%REC	100	3/1/2007 9:55:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	2/28/2007 1:53:21 PM
Benzene	ND	10		µg/L	10	2/28/2007 1:53:21 PM
Toluene	ND	10		µg/L	10	2/28/2007 1:53:21 PM
Ethylbenzene	1300	50		µg/L	50	2/27/2007 9:55:37 PM
Xylenes, Total	18000	200		µg/L	100	3/1/2007 9:55:06 AM
Surr: 4-Bromofluorobenzene	91.2	70.2-105		%REC	50	2/27/2007 9:55:37 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	TP-8
Lab Order:	0702319	**Collection Date:**	2/26/2007 9:40:00 AM
Project:	River Terrace - 1st Quarter 2007	**Date Received:**	2/27/2007
Lab ID:	0702319-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.1	1.0		mg/L	1	2/28/2007 10:49:01 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	2/28/2007 10:49:01 AM
Surr: DNOP	113	58-140		%REC	1	2/28/2007 10:49:01 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	70	0.50		mg/L	10	2/27/2007 8:50:26 PM
Surr: BFB	120	79.2-121		%REC	10	2/27/2007 8:50:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Methyl tert-butyl ether (MTBE)	ND	25		µg/L	10	2/27/2007 8:50:26 PM
Benzene	ND	10		µg/L	10	2/27/2007 8:50:26 PM
Toluene	ND	10		µg/L	10	2/27/2007 8:50:26 PM
Ethylbenzene	1300	100		µg/L	100	2/27/2007 8:17:42 PM
Xylenes, Total	13000	200		µg/L	100	2/27/2007 8:17:42 PM
Surr: 4-Bromofluorobenzene	95.6	70.2-105		%REC	10	2/27/2007 8:50:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: River Terrace - 1st Quarter 2007

Order No.: 0702319

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 7 sample(s) on 2/27/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC Analysis- 2/27/07

Order No.: 0702367

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 2/28/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 1 Eff
Lab Order:	0702367	**Collection Date:**	2/27/2007 11:20:00 AM
Project:	GAC Analysis- 2/27/07	**Date Received:**	2/28/2007
Lab ID:	0702367-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 3:41:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 3:41:34 PM
Surr: DNOP	117	58-140		%REC	1	3/1/2007 3:41:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 10:37:27 PM
Surr: BFB	111	79.2-121		%REC	1	3/1/2007 10:37:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 10:37:27 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 10:37:27 PM
Surr: 4-Bromofluorobenzene	91.7	70.2-105		%REC	1	3/1/2007 10:37:27 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC 2 Eff
Lab Order:	0702367	**Collection Date:**	2/27/2007 11:30:00 AM
Project:	GAC Analysis- 2/27/07	**Date Received:**	2/28/2007
Lab ID:	0702367-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/1/2007 4:15:58 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/1/2007 4:15:58 PM
Surr: DNOP	118	58-140		%REC	1	3/1/2007 4:15:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/1/2007 11:07:38 PM
Surr: BFB	114	79.2-121		%REC	1	3/1/2007 11:07:38 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Toluene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Ethylbenzene	ND	1.0		µg/L	1	3/1/2007 11:07:38 PM
Xylenes, Total	ND	2.0		µg/L	1	3/1/2007 11:07:38 PM
Surr: 4-Bromofluorobenzene	94.2	70.2-105		%REC	1	3/1/2007 11:07:38 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC Analysis- 2/27/07 **Work Order:** 0702367

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12410		*MBLK*			Batch ID: **12410**		Analysis Date:		3/1/2007 1:58:25 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12410		*LCS*			Batch ID: **12410**		Analysis Date:		3/1/2007 2:32:49 PM
Diesel Range Organics (DRO)	5.603	mg/L	1.0	112	74	157			
Sample ID: LCSD-12410		*LCSD*			Batch ID: **12410**		Analysis Date:		3/1/2007 3:07:09 PM
Diesel Range Organics (DRO)	5.623	mg/L	1.0	112	74	157	0.362	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/1/2007 7:58:58 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 6:37:59 AM
Gasoline Range Organics (GRO)	0.5380	mg/L	0.050	108	80	115			
Method: SW8021									
Sample ID: RB-II		*MBLK*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:07:52 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R22664**		Analysis Date:		3/2/2007 2:37:53 A
Benzene	20.24	µg/L	1.0	101	85.9	113			
Toluene	20.31	µg/L	1.0	102	86.4	113			
Ethylbenzene	20.41	µg/L	1.0	102	83.5	118			
Xylenes, Total	62.18	µg/L	2.0	104	83.4	122			

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 2/28/2007

Work Order Number 0702367 | Received by TLS

Checklist completed by _____ (Signature) Feb 28, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace? No VOA vials submitted ☐		Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC Analysis - 2/27/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado, Bob Krakow
Sample Temperature: 3°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative: $HgCl_2$	Preservative: HNO_3	Preservative: HCl	HEAL No.
								0702367
2/27/07	1120A	H2O	GAC1 Eff	4-VOA			✓	1
2/27/07	1130A	H2O	GA2 Eff	4-VOA			✓	2

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + ~~TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date: 2/27/07 Time: 235pm Relinquished By: (Signature) Cindy Hurtado
Received By: (Signature) 2/28/07 959

Date: Time: Relinquished By: (Signature)
Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 20, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3-13-07

Order No.: 0703192

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 3/14/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	1-Inlet
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:35:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 5:59:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 5:59:35 PM
Surr: DNOP	122	58-140		%REC	1	3/15/2007 5:59:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	12	0.50		mg/L	10	3/15/2007 2:43:21 PM
Surr: BFB	110	79.2-121		%REC	10	3/15/2007 2:43:21 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	230	10		µg/L	10	3/15/2007 2:43:21 PM
Toluene	39	10		µg/L	10	3/15/2007 2:43:21 PM
Ethylbenzene	860	10		µg/L	10	3/15/2007 2:43:21 PM
Xylenes, Total	2900	40		µg/L	20	3/16/2007 11:22:50 AM
Surr: 4-Bromofluorobenzene	86.6	70.2-105		%REC	10	3/15/2007 2:43:21 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-1
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:30:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 6:34:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 6:34:35 PM
Surr: DNOP	123	58-140		%REC	1	3/15/2007 6:34:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2007 3:43:24 PM
Surr: BFB	108	79.2-121		%REC	1	3/15/2007 3:43:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	2.7	1.0		µg/L	1	3/15/2007 3:43:24 PM
Toluene	ND	1.0		µg/L	1	3/15/2007 3:43:24 PM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2007 3:43:24 PM
Xylenes, Total	ND	2.0		µg/L	1	3/15/2007 3:43:24 PM
Surr: 4-Bromofluorobenzene	85.8	70.2-105		%REC	1	3/15/2007 3:43:24 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *20-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-2
Lab Order:	0703192	**Collection Date:**	3/13/2007 9:25:00 AM
Project:	GAC 3-13-07	**Date Received:**	3/14/2007
Lab ID:	0703192-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	3/15/2007 7:09:17 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/15/2007 7:09:17 PM
Surr: DNOP	131	58-140		%REC	1	3/15/2007 7:09:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/15/2007 4:13:29 PM
Surr: BFB	110	79.2-121		%REC	1	3/15/2007 4:13:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Toluene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Ethylbenzene	ND	1.0		µg/L	1	3/15/2007 4:13:29 PM
Xylenes, Total	ND	2.0		µg/L	1	3/15/2007 4:13:29 PM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	3/15/2007 4:13:29 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-13-07
Work Order: 0703192

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12514		*MBLK*			Batch ID: **12514**		Analysis Date:	3/15/2007 3:39:45 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12514		*LCS*			Batch ID: **12514**		Analysis Date:	3/15/2007 4:14:41 PM	
Diesel Range Organics (DRO)	5.808	mg/L	1.0	116	74	157			
Sample ID: LCSD-12514		*LCSD*			Batch ID: **12514**		Analysis Date:	3/15/2007 4:49:41 PM	
Diesel Range Organics (DRO)	6.117	mg/L	1.0	122	74	157	5.18	23	
Method: SW8015									
Sample ID: 0703192-02A MSD		*MSD*			Batch ID: **R22853**		Analysis Date:	3/15/2007 5:13:46 PM	
Gasoline Range Organics (GRO)	0.5084	mg/L	0.050	92.3	80	115	0.592	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22853**		Analysis Date:	3/15/2007 7:25:08 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22868**		Analysis Date:	3/16/2007 9:49:32 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22853**		Analysis Date:	3/15/2007 5:43:56 PM	
Gasoline Range Organics (GRO)	0.5016	mg/L	0.050	100	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22868**		Analysis Date:	3/16/2007 10:01:18 PM	
Gasoline Range Organics (GRO)	0.5152	mg/L	0.050	99.6	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID: **R22868**		Analysis Date:	3/16/2007 10:31:24 PM	
Gasoline Range Organics (GRO)	0.4586	mg/L	0.050	88.2	80	115	11.6	15	
Sample ID: 0703192-02A MS		*MS*			Batch ID: **R22853**		Analysis Date:	3/15/2007 4:43:37 PM	
Gasoline Range Organics (GRO)	0.5054	mg/L	0.050	91.7	80	115			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S 4 / 6 ecovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-13-07
Work Order: 0703192

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0703192-03A MSD		*MSD*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:14:08 PM
Benzene	19.57	µg/L	1.0	97.8	85.9	113	0.102	27	
Toluene	20.01	µg/L	1.0	100	86.4	113	0.409	19	
Ethylbenzene	20.17	µg/L	1.0	101	83.5	118	0.338	10	
Xylenes, Total	59.76	µg/L	2.0	99.6	83.4	122	0.936	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:25:08 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22868**		Analysis Date:		3/16/2007 9:49:32 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22853**		Analysis Date:		3/15/2007 7:44:14 PM
Benzene	20.17	µg/L	1.0	101	85.9	113			
Toluene	20.54	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.61	µg/L	1.0	103	83.5	118			
Xylenes, Total	61.78	µg/L	2.0	103	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22868**		Analysis Date:		3/16/2007 7:59:16 PM
Benzene	19.76	µg/L	1.0	98.8	85.9	113			
Toluene	20.11	µg/L	1.0	101	86.4	113			
Ethylbenzene	20.25	µg/L	1.0	101	83.5	118			
Xylenes, Total	60.50	µg/L	2.0	101	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID: **R22868**		Analysis Date:		3/16/2007 8:30:58 PM
Benzene	19.38	µg/L	1.0	96.9	85.9	113	1.92	27	
Toluene	19.67	µg/L	1.0	98.4	86.4	113	2.22	19	
Ethylbenzene	19.88	µg/L	1.0	99.4	83.5	118	1.88	10	
Xylenes, Total	59.09	µg/L	2.0	98.5	83.4	122	2.36	13	
Sample ID: 0703192-03A MS		*MS*			Batch ID: **R22853**		Analysis Date:		3/15/2007 6:44:11 PM
Benzene	19.59	µg/L	1.0	98.0	85.9	113			
Toluene	20.09	µg/L	1.0	100	86.4	113			
Ethylbenzene	20.10	µg/L	1.0	101	83.5	118			
Xylenes, Total	60.32	µg/L	2.0	101	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/14/2007

Work Order Number 0703192 | Received by TLS

Checklist completed by [signature] Signature | 3/14/07 Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	3°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
#50 CR 4990
Address: Bloomfield, NM 87413

Project Name: GAC 3-13-07
Project #: 1st. Quarter 2007
Project Manager: Cindy Hurtado
Sampler: Bob Knudson
Sample Temperature: 3°

Phone #: 505-632-4161
Fax #: 505-632-3911

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No. 0703192
3-13-07	9:35	H_2O	1-Inlet	4-VOA			X	1
	9:30	H_2O	Eff-1	4-VOA			X	2
	9:25	H_2O	Eff-2	4-VOA			X	3

ANALYSIS REQUEST

BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3-13-07	10:00 AM	10:00 [illegible]	3/14/07 1357
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, March 28, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 3-21-07

Order No.: 0703335

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 3/22/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

4901 Hawkins NE ■ Suite D ■ Albuquerque, NM 87109
505.345.3975 ■ Fax 505.345.4107
www.hallenvironmental.com

Hall Environmental Analysis Laboratory, Inc.

Date: *28-Mar-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	EFF-1
Lab Order:	0703335	**Collection Date:**	3/21/2007 8:55:00 AM
Project:	GAC 3-21-07	**Date Received:**	3/22/2007
Lab ID:	0703335-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	1.2	1.0		mg/L	1	3/27/2007 2:10:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/27/2007 2:10:39 PM
Surr: DNOP	123	58-140		%REC	1	3/27/2007 2:10:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.051	0.050		mg/L	1	3/23/2007 1:08:47 AM
Surr: BFB	112	79.2-121		%REC	1	3/23/2007 1:08:47 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	3.4	1.0		µg/L	1	3/23/2007 1:08:47 AM
Toluene	ND	1.0		µg/L	1	3/23/2007 1:08:47 AM
Ethylbenzene	ND	1.0		µg/L	1	3/23/2007 1:08:47 AM
Xylenes, Total	ND	2.0		µg/L	1	3/23/2007 1:08:47 AM
Surr: 4-Bromofluorobenzene	88.6	70.2-105		%REC	1	3/23/2007 1:08:47 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 3-21-07
Work Order: 0703335

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12590		*MBLK*			Batch ID: **12590**		Analysis Date: 3/27/2007 11:53:27 AM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12590		*LCS*			Batch ID: **12590**		Analysis Date: 3/27/2007 1:01:56 PM		
Diesel Range Organics (DRO)	4.535	mg/L	1.0	90.7	74	157			
Sample ID: LCSD-12590		*LCSD*			Batch ID: **12590**		Analysis Date: 3/27/2007 1:36:17 PM		
Diesel Range Organics (DRO)	5.484	mg/L	1.0	110	74	157	18.9	23	
Method: SW8015									
Sample ID: 0703335-01A MSD		*MSD*			Batch ID: **R22935**		Analysis Date: 3/23/2007 2:08:59 AM		
Gasoline Range Organics (GRO)	0.4996	mg/L	0.050	89.7	80	115	0.758	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22935**		Analysis Date: 3/22/2007 7:57:21 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R22935**		Analysis Date: 3/23/2007 4:09:12 AM		
Gasoline Range Organics (GRO)	0.4128	mg/L	0.050	82.6	80	115			
Sample ID: 0703335-01A MS		*MS*			Batch ID: **R22935**		Analysis Date: 3/23/2007 1:38:49 AM		
Gasoline Range Organics (GRO)	0.5034	mg/L	0.050	90.4	80	115			
Method: SW8021									
Sample ID: 0703335-01A MSD		*MSD*			Batch ID: **R22935**		Analysis Date: 3/23/2007 2:08:59 AM		
Benzene	9.290	µg/L	1.0	105	85.9	113	0.921	27	
Toluene	41.43	µg/L	1.0	103	86.4	113	0.261	19	
Ethylbenzene	8.016	µg/L	1.0	101	83.5	118	0.448	10	
Xylenes, Total	47.07	µg/L	2.0	102	83.4	122	0.0722	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R22935**		Analysis Date: 3/22/2007 7:57:21 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R22935**		Analysis Date: 3/23/2007 2:38:58 AM		
Benzene	20.19	µg/L	1.0	101	85.9	113			
Toluene	20.63	µg/L	1.0	103	86.4	113			
Ethylbenzene	20.52	µg/L	1.0	103	83.5	118			
Xylenes, Total	61.53	µg/L	2.0	103	83.4	122			
Sample ID: 0703335-01A MS		*MS*			Batch ID: **R22935**		Analysis Date: 3/23/2007 1:38:49 AM		
Benzene	9.376	µg/L	1.0	107	85.9	113			
Toluene	41.32	µg/L	1.0	102	86.4	113			
Ethylbenzene	8.052	µg/L	1.0	102	83.5	118			
Xylenes, Total	47.10	µg/L	2.0	102	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 3/22/2007

Work Order Number 0703335 | Received by TLS

Checklist completed by Signature 3-22-07 Date

Matrix | Carrier name Client drop-off

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☐	Not Shipped ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	6°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining

Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 3-21-07

Project #:

Project Manager: Cindy Hurtado

Sampler: Bob Krakow

Sample Temperature: 71.3 60°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0703335
3-21-07	8:55 8:57	H_2O	EFF-1	4-VOA			X	-1

ANALYSIS REQUEST

BTEX + [illegible] (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
3-21-07	9:35	Bob Krakow	3/22/07 912
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, April 11, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 4/03/07

Order No.: 0704053

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/4/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff #1
Lab Order:	0704053	**Collection Date:**	4/3/2007 2:05:00 PM
Project:	GAC 4/03/07	**Date Received:**	4/4/2007
Lab ID:	0704053-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/4/2007 10:58:34 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/4/2007 10:58:34 PM
Surr: DNOP	114	58-140		%REC	1	4/4/2007 10:58:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	0.071	0.050		mg/L	1	4/7/2007 9:20:29 PM
Surr: BFB	114	79.2-121		%REC	1	4/7/2007 9:20:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	14	1.0		µg/L	1	4/7/2007 9:20:29 PM
Toluene	ND	1.0		µg/L	1	4/7/2007 9:20:29 PM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2007 9:20:29 PM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2007 9:20:29 PM
Surr: 4-Bromofluorobenzene	89.7	70.2-105		%REC	1	4/7/2007 9:20:29 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *11-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff #2
Lab Order:	0704053	**Collection Date:**	4/3/2007 2:15:00 PM
Project:	GAC 4/03/07	**Date Received:**	4/4/2007
Lab ID:	0704053-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/4/2007 11:32:43 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/4/2007 11:32:43 PM
Surr: DNOP	126	58-140		%REC	1	4/4/2007 11:32:43 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **LMM**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/6/2007 10:29:23 PM
Surr: BFB	109	79.2-121		%REC	1	4/6/2007 10:29:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: **LMM**
Benzene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Toluene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Ethylbenzene	ND	1.0		µg/L	1	4/6/2007 10:29:23 PM
Xylenes, Total	ND	2.0		µg/L	1	4/6/2007 10:29:23 PM
Surr: 4-Bromofluorobenzene	86.8	70.2-105		%REC	1	4/6/2007 10:29:23 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/03/07

Work Order: 0704053

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12656		*MBLK*			Batch ID:	**12656**	Analysis Date:		4/4/2007 8:40:44 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12656		*LCS*			Batch ID:	**12656**	Analysis Date:		4/4/2007 9:15:09 PM
Diesel Range Organics (DRO)	5.371	mg/L	1.0	107	74	157			
Sample ID: LCSD-12656		*LCSD*			Batch ID:	**12656**	Analysis Date:		4/4/2007 9:49:34 PM
Diesel Range Organics (DRO)	5.376	mg/L	1.0	108	74	157	0.0912	23	
Method: SW8015									
Sample ID: 0704053-02A MSD		*MSD*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 11:29:22 PM
Gasoline Range Organics (GRO)	0.4268	mg/L	0.050	82.6	80	115	0.188	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 9:30:14 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23144**	Analysis Date:		4/7/2007 3:11:02 PM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 11:42:13 AM
Gasoline Range Organics (GRO)	0.4978	mg/L	0.050	99.6	80	115			
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23144**	Analysis Date:		4/7/2007 5:11:52 PM
Gasoline Range Organics (GRO)	0.4782	mg/L	0.050	95.6	80	115			
Sample ID: 0704053-02A MS		*MS*			Batch ID:	**R23139**	Analysis Date:		4/6/2007 10:59:21 P
Gasoline Range Organics (GRO)	0.4260	mg/L	0.050	82.4	80	115			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/03/07 **Work Order:** 0704053

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8021									
Sample ID: 0704053-02A MSD		*MSD*			Batch ID: **R23139**		Analysis Date:		4/6/2007 11:29:22 PM
Benzene	5.442	µg/L	1.0	109	85.9	113	0.738	27	
Toluene	38.99	µg/L	1.0	100	86.4	113	1.02	19	
Ethylbenzene	7.522	µg/L	1.0	100	83.5	118	0.240	10	
Xylenes, Total	44.23	µg/L	2.0	111	83.4	122	1.38	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23139**		Analysis Date:		4/6/2007 9:30:14 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23144**		Analysis Date:		4/7/2007 3:11:02 PM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R23139**		Analysis Date:		4/6/2007 11:12:13 AM
Benzene	18.88	µg/L	1.0	94.4	85.9	113			
Toluene	19.42	µg/L	1.0	97.1	86.4	113			
Ethylbenzene	19.64	µg/L	1.0	98.2	83.5	118			
Xylenes, Total	59.10	µg/L	2.0	98.5	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R23144**		Analysis Date:		4/7/2007 4:41:35 PM
Benzene	19.18	µg/L	1.0	95.9	85.9	113			
Toluene	19.60	µg/L	1.0	98.0	86.4	113			
Ethylbenzene	19.77	µg/L	1.0	98.9	83.5	118			
Xylenes, Total	59.26	µg/L	2.0	98.8	83.4	122			
Sample ID: 0704053-02A MS		*MS*			Batch ID: **R23139**		Analysis Date:		4/6/2007 10:59:21 PM
Benzene	5.402	µg/L	1.0	108	85.9	113			
Toluene	38.60	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	7.504	µg/L	1.0	100	83.5	118			
Xylenes, Total	43.62	µg/L	2.0	109	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/4/2007

Work Order Number 0704053 | Received by GLS

Checklist completed by B Schlupp (Signature) 4-4-07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☑	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

Client: San Juan Refining

Address: #50 Road 4990
Bloomfield, NM
87413

Phone #: 505-632-4161

Fax #: 505-632-3911

QA / QC Package:
Std ☐ Level 4 ☐

Other:

Project Name:
GAC-4/03/07

Project #:

Project Manager:
Cindy Hurtado

Sampler: Cindy Hurtado/Bob Krakow

Sample Temperature: 4°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3		0704053
4/03/07	205pm	H_2O	EFF #1	4-VOA			HCL	1
4/03/07	215pm	H_2O	EFF #2	4-VOA			HCL	2

ANALYSIS REQUEST

BTEX + ~~MBE + TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
4/03/07	330pm	Cindy Hurtado	D Ichlippe	4-4-07 @ 1115
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, April 23, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 4/16/07

Order No.: 0704251

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/18/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Eff #1
Lab Order:	0704251	**Collection Date:**	4/16/2007 11:00:00 AM
Project:	GAC 4/16/07	**Date Received:**	4/18/2007
Lab ID:	0704251-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2007 9:47:19 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2007 9:47:19 PM
Surr: DNOP	121	58-140		%REC	1	4/19/2007 9:47:19 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.11	0.050		mg/L	1	4/21/2007 1:54:28 AM
Surr: BFB	112	79.2-121		%REC	1	4/21/2007 1:54:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	28	1.0		µg/L	1	4/21/2007 1:54:28 AM
Toluene	ND	1.0		µg/L	1	4/21/2007 1:54:28 AM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2007 1:54:28 AM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2007 1:54:28 AM
Surr: 4-Bromofluorobenzene	89.5	70.2-105		%REC	1	4/21/2007 1:54:28 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *23-Apr-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Eff #2
Lab Order:	0704251	**Collection Date:**	4/16/2007 11:05:00 AM
Project:	GAC 4/16/07	**Date Received:**	4/18/2007
Lab ID:	0704251-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	4/19/2007 10:21:47 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	4/19/2007 10:21:47 PM
Surr: DNOP	123	58-140		%REC	1	4/19/2007 10:21:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/21/2007 2:24:22 AM
Surr: BFB	111	79.2-121		%REC	1	4/21/2007 2:24:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Toluene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2007 2:24:22 AM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2007 2:24:22 AM
Surr: 4-Bromofluorobenzene	87.6	70.2-105		%REC	1	4/21/2007 2:24:22 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 4/16/07 **Work Order:** 0704251

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12765		*MBLK*			Batch ID: **12765**		Analysis Date:	4/19/2007 8:04:08 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12765		*LCS*			Batch ID: **12765**		Analysis Date:	4/19/2007 8:38:31 PM	
Diesel Range Organics (DRO)	4.783	mg/L	1.0	95.7	74	157			
Sample ID: LCSD-12765		*LCSD*			Batch ID: **12765**		Analysis Date:	4/19/2007 9:12:55 PM	
Diesel Range Organics (DRO)	5.149	mg/L	1.0	103	74	157	7.37	23	
Method: SW8015									
Sample ID: 5ml rb-II 24		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/20/2007 8:23:53 PM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS-II		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 6:09:47 PM	
Gasoline Range Organics (GRO)	0.4208	mg/L	0.050	84.2	80	115			
Method: SW8021									
Sample ID: 5ML RB-II		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/20/2007 8:23:53 PM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 5ML RB-III		*MBLK*			Batch ID: **R23317**		Analysis Date:	4/21/2007 10:35:58 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS-II		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 2:54:23 AM	
Benzene	18.80	µg/L	1.0	94.0	85.9	113			
Toluene	19.18	µg/L	1.0	95.9	86.4	113			
Ethylbenzene	19.30	µg/L	1.0	96.5	83.5	118			
Xylenes, Total	57.44	µg/L	2.0	95.7	83.4	122			
Sample ID: 100NG BTEX LCS-III		*LCS*			Batch ID: **R23317**		Analysis Date:	4/21/2007 4:39:25 PM	
Benzene	18.62	µg/L	1.0	93.1	85.9	113			
Toluene	19.04	µg/L	1.0	95.2	86.4	113			
Ethylbenzene	19.13	µg/L	1.0	95.6	83.5	118			
Xylenes, Total	56.54	µg/L	2.0	94.2	83.4	122			
Sample ID: 100NG BTEX LCSD-I		*LCSD*			Batch ID: **R23317**		Analysis Date:	4/21/2007 5:09:27 PM	
Benzene	18.92	µg/L	1.0	94.6	85.9	113	1.56	27	
Toluene	19.27	µg/L	1.0	96.4	86.4	113	1.18	19	
Ethylbenzene	19.29	µg/L	1.0	96.5	83.5	118	0.864	10	
Xylenes, Total	57.53	µg/L	2.0	95.9	83.4	122	1.73	13	

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/18/2007

Work Order Number 0704251 | Received by TLS

Checklist completed by Signature Tanya Shomi Date APR. 18, 07

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	1°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC 4/16/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 1°

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative	HEAL No. 0704251	BTEX + ~~MTBE + TMB~~'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)				Air Bubbles or Headspace (Y or N)
4/16/07	11Am	H_2O	GAC Eff #1	3-VOA			HCL	1	X		X													
4/16/07	1105Am	H_2O	GAC Eff #2	3-VOA			HCL	2	X		X													

Remarks:

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	Date	Time
4/17/07	812am	Cindy Hurtado	[signature]	4/18/07	915
		Relinquished By: (Signature)	Received By: (Signature)		

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 03, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC

Order No.: 0704400

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 4/26/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *03-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-1
Lab Order:	0704400	**Collection Date:**	4/25/2007 11:10:00 AM
Project:	GAC	**Date Received:**	4/26/2007
Lab ID:	0704400-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/1/2007 11:26:30 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/1/2007 11:26:30 AM
Surr: DNOP	123	58-140		%REC	1	5/1/2007 11:26:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	0.074	0.050		mg/L	1	4/26/2007 11:28:59 PM
Surr: BFB	114	79.2-121		%REC	1	4/26/2007 11:28:59 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	14	1.0		µg/L	1	4/26/2007 11:28:59 PM
Toluene	ND	1.0		µg/L	1	4/26/2007 11:28:59 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2007 11:28:59 PM
Xylenes, Total	ND	2.0		µg/L	1	4/26/2007 11:28:59 PM
Surr: 4-Bromofluorobenzene	89.1	70.2-105		%REC	1	4/26/2007 11:28:59 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *03-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	Eff-2
Lab Order:	0704400	**Collection Date:**	4/25/2007 11:00:00 AM
Project:	GAC	**Date Received:**	4/26/2007
Lab ID:	0704400-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/1/2007 12:01:11 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/1/2007 12:01:11 PM
Surr: DNOP	117	58-140		%REC	1	5/1/2007 12:01:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/26/2007 11:58:57 PM
Surr: BFB	113	79.2-121		%REC	1	4/26/2007 11:58:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Toluene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Ethylbenzene	ND	1.0		µg/L	1	4/26/2007 11:58:57 PM
Xylenes, Total	ND	2.0		µg/L	1	4/26/2007 11:58:57 PM
Surr: 4-Bromofluorobenzene	88.0	70.2-105		%REC	1	4/26/2007 11:58:57 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC
Work Order: 0704400

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12841		*MBLK*			Batch ID: **12841**		Analysis Date: 5/1/2007 9:43:01 AM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12841		*LCS*			Batch ID: **12841**		Analysis Date: 5/1/2007 10:17:23 AM		
Diesel Range Organics (DRO)	5.138	mg/L	1.0	103	74	157			
Sample ID: LCSD-12841		*LCSD*			Batch ID: **12841**		Analysis Date: 5/1/2007 10:40:36 AM		
Diesel Range Organics (DRO)	5.250	mg/L	1.0	105	74	157	2.16	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23375**		Analysis Date: 4/26/2007 9:26:05 AM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: **R23375**		Analysis Date: 4/26/2007 8:58:36 PM		
Gasoline Range Organics (GRO)	0.4986	mg/L	0.050	94.4	80	115			
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: **R23375**		Analysis Date: 4/26/2007 9:26:05 AM		
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: **R23375**		Analysis Date: 4/26/2007 6:58:00 PM		
Benzene	18.93	µg/L	1.0	94.6	85.9	113			
Toluene	19.52	µg/L	1.0	97.6	86.4	113			
Ethylbenzene	19.78	µg/L	1.0	98.9	83.5	118			
Xylenes, Total	59.08	µg/L	2.0	98.5	83.4	122			

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 4/26/2007

Work Order Number 0704400 | Received by TLS

Checklist completed by Tanya Shone (Signature) APR 26,07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	4°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 Rd 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC
Project #:
Project Manager:
Sampler: Bob Krakow
Sample Temperature: 4

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	0704400
4-25-07	11:10	H_2O	Eff-1	3 VOA			X	1
4-25-07	11:00	H_2O	Eff-2	3-VOA			X	2

ANALYSIS REQUEST

BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
4-25-07	1:45	Robert Krakow	Sonya Sho	4/26/07 1103
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 10, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC

Order No.: 0705063

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/3/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *10-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705063	**Collection Date:**	5/2/2007 8:33:00 AM
Project:	GAC	**Date Received:**	5/3/2007
Lab ID:	0705063-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/9/2007 10:45:27 AM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/9/2007 10:45:27 AM
Surr: DNOP	120	58-140		%REC	1	5/9/2007 10:45:27 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/4/2007 12:30:39 PM
Surr: BFB	115	79.2-121		%REC	1	5/4/2007 12:30:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Toluene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Ethylbenzene	ND	1.0		µg/L	1	5/4/2007 12:30:39 PM
Xylenes, Total	ND	2.0		µg/L	1	5/4/2007 12:30:39 PM
Surr: 4-Bromofluorobenzene	88.5	70.2-105		%REC	1	5/4/2007 12:30:39 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC **Work Order:** 0705063

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12887		*MBLK*			Batch ID:	**12887**	Analysis Date:		5/9/2007 9:03:08 AM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12887		*LCS*			Batch ID:	**12887**	Analysis Date:		5/9/2007 9:37:14 AM
Diesel Range Organics (DRO)	5.077	mg/L	1.0	102	74	157			
Sample ID: LCSD-12887		*LCSD*			Batch ID:	**12887**	Analysis Date:		5/9/2007 10:11:19 AM
Diesel Range Organics (DRO)	4.826	mg/L	1.0	96.5	74	157	5.08	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 8:54:18 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 6:32:01 PM
Gasoline Range Organics (GRO)	0.4776	mg/L	0.050	92.2	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 7:02:09 PM
Gasoline Range Organics (GRO)	0.4738	mg/L	0.050	91.4	80	115	0.799	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 8:54:18 AM
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 1:30:50 PM
Benzene	18.60	µg/L	1.0	93.0	85.9	113			
Toluene	19.31	µg/L	1.0	96.5	86.4	113			
Ethylbenzene	19.67	µg/L	1.0	98.3	83.5	118			
Xylenes, Total	58.34	µg/L	2.0	97.2	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	**R23473**	Analysis Date:		5/4/2007 2:00:51 PM
Benzene	18.64	µg/L	1.0	93.2	85.9	113	0.226	27	
Toluene	19.27	µg/L	1.0	96.4	86.4	113	0.187	19	
Ethylbenzene	19.57	µg/L	1.0	97.8	83.5	118	0.500	10	
Xylenes, Total	58.14	µg/L	2.0	96.9	83.4	122	0.343	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/3/2007

Work Order Number 0705063 | Received by TLS

Checklist completed by Tanya SL (Signature) May 3 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	14°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN Refining
Address: #50 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob KrAKow
Sample Temperature: 14°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative $HgCl_2$	Preservative HNO_3	Preservative HCl	HEAL No.
5-2-07	8:33	H_2O	GAC-B	3-VOA			X	0705043 1

ANALYSIS REQUEST

BTEX + ~~MTBE~~ + TMB's (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
5-2-07	8:50	Robert Krakow		
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	5/3/07 1452

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Thursday, May 17, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 5/9/07

Order No.: 0705154

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/11/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *17-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705154	**Collection Date:**	5/9/2007 1:45:00 PM
Project:	GAC 5/9/07	**Date Received:**	5/11/2007
Lab ID:	0705154-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/15/2007 7:05:38 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/15/2007 7:05:38 PM
Surr: DNOP	117	58-140		%REC	1	5/15/2007 7:05:38 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/14/2007 2:58:26 PM
Surr: BFB	121	79.2-121	S	%REC	1	5/14/2007 2:58:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Toluene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Ethylbenzene	ND	1.0		µg/L	1	5/14/2007 2:58:26 PM
Xylenes, Total	ND	2.0		µg/L	1	5/14/2007 2:58:26 PM
Surr: 4-Bromofluorobenzene	92.7	70.2-105		%REC	1	5/14/2007 2:58:26 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 5/9/07
Work Order: 0705154

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-12932		*MBLK*			Batch ID:	**12932**	Analysis Date:	5/15/2007 3:04:39 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-12932		*LCS*			Batch ID:	**12932**	Analysis Date:	5/15/2007 3:39:15 PM	
Diesel Range Organics (DRO)	4.810	mg/L	1.0	96.2	74	157			
Sample ID: LCSD-12932		*LCSD*			Batch ID:	**12932**	Analysis Date:	5/15/2007 4:13:40 PM	
Diesel Range Organics (DRO)	4.860	mg/L	1.0	97.2	74	157	1.03	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 8:19:39 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 5:04:15 PM	
Gasoline Range Organics (GRO)	0.4702	mg/L	0.050	91.1	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 5:34:20 PM	
Gasoline Range Organics (GRO)	0.4792	mg/L	0.050	92.9	80	115	1.90	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 8:19:39 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS 0		*LCS*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 9:50:01 AM	
Benzene	19.25	µg/L	1.0	96.2	85.9	113			
Toluene	19.55	µg/L	1.0	97.7	86.4	113			
Ethylbenzene	19.66	µg/L	1.0	98.3	83.5	118			
Xylenes, Total	58.63	µg/L	2.0	97.7	83.4	122			
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 3:58:46 PM	
Benzene	19.65	µg/L	1.0	98.2	85.9	113			
Toluene	19.76	µg/L	1.0	98.8	86.4	113			
Ethylbenzene	20.01	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.06	µg/L	2.0	98.4	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	**R23590**	Analysis Date:	5/14/2007 4:31:21 PM	
Benzene	19.56	µg/L	1.0	97.8	85.9	113	0.449	27	
Toluene	19.69	µg/L	1.0	98.4	86.4	113	0.385	19	
Ethylbenzene	19.80	µg/L	1.0	99.0	83.5	118	1.04	10	
Xylenes, Total	58.82	µg/L	2.0	98.0	83.4	122	0.414	13	

Qualifiers:

- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/11/2007

Work Order Number 0705154 | Received by TLS

Checklist completed by Tonya SL (Signature) May 11,07 (Date)

Matrix | Carrier name Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	8°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: SAN JUAN REFINING

Project Name: GAC 5-9-07

Address: #50 CR 4990
Bloomfield, NM 87413

Project #:

Project Manager:

Phone #: 505-632-4161

Sampler: Bob KRAKOW

Fax #: 505-632-3911

Sample Temperature: 80

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3	HCl	
5-9-07	1:45	H_2O	GAC-B	3-VOA			X	0705154 1

ANALYSIS REQUEST

BTEX + [illegible]'s (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)
5-9-07	2:45	Robert Krakow	5/11/07 1052
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, May 23, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC- 5/15/07

Order No.: 0705220

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 5/16/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *23-May-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC-B
Lab Order:	0705220	**Collection Date:**	5/15/2007 12:15:00 PM
Project:	GAC- 5/15/07	**Date Received:**	5/16/2007
Lab ID:	0705220-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	5/22/2007 8:50:51 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	5/22/2007 8:50:51 PM
Surr: DNOP	118	58-140		%REC	1	5/22/2007 8:50:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	5/16/2007 8:34:41 PM
Surr: BFB	109	79.2-121		%REC	1	5/16/2007 8:34:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Toluene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Ethylbenzene	ND	1.0		µg/L	1	5/16/2007 8:34:41 PM
Xylenes, Total	ND	2.0		µg/L	1	5/16/2007 8:34:41 PM
Surr: 4-Bromofluorobenzene	84.3	70.2-105		%REC	1	5/16/2007 8:34:41 PM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC- 5/15/07
Work Order: 0705220

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13003		*MBLK*			Batch ID:	**13003**	Analysis Date:	5/22/2007 6:32:11 PM	
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13003		*LCS*			Batch ID:	**13003**	Analysis Date:	5/22/2007 7:06:50 PM	
Diesel Range Organics (DRO)	4.973	mg/L	1.0	99.5	74	157			
Sample ID: LCSD-13003		*LCSD*			Batch ID:	**13003**	Analysis Date:	5/22/2007 7:41:33 PM	
Diesel Range Organics (DRO)	5.046	mg/L	1.0	101	74	157	1.47	23	
Method: SW8015									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 8:18:09 AM	
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 7:34:35 PM	
Gasoline Range Organics (GRO)	0.4916	mg/L	0.050	95.2	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 8:04:40 PM	
Gasoline Range Organics (GRO)	0.4758	mg/L	0.050	92.1	80	115	3.27	8.39	
Method: SW8021									
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 8:18:09 AM	
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 6:34:27 PM	
Benzene	19.52	µg/L	1.0	97.6	85.9	113			
Toluene	19.54	µg/L	1.0	97.7	86.4	113			
Ethylbenzene	19.86	µg/L	1.0	99.3	83.5	118			
Xylenes, Total	58.81	µg/L	2.0	98.0	83.4	122			
Sample ID: 100NG BTEX LCSD		*LCSD*			Batch ID:	**R23622**	Analysis Date:	5/16/2007 7:04:37 PM	
Benzene	19.07	µg/L	1.0	95.3	85.9	113	2.35	27	
Toluene	19.40	µg/L	1.0	97.0	86.4	113	0.729	19	
Ethylbenzene	19.52	µg/L	1.0	97.6	83.5	118	1.71	10	
Xylenes, Total	58.09	µg/L	2.0	96.8	83.4	122	1.23	13	

Qualifiers:

- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 5/16/2007

Work Order Number 0705220 | Received by TLS

Checklist completed by _____ (Signature) May 16, 07 (Date)

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	
Container/Temp Blank temperature?	2°	*4° C ± 2 Acceptable* If given sufficient time to cool.		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding _____

Comments: _____

Corrective Action _____

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other: _____

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC-5/15/07
Project #:
Project Manager: Cindy Hurtado
Sampler: Bob Krakow
Sample Temperature: 2°

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.
					$HgCl_2$	HNO_3		
5/15/07	1245	H_2O	GAC - B	3-VOA			HCL	0705220 1

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
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ANALYSIS REQUEST

BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
X		X														

Date	Time	Relinquished By: (Signature)	Received By: (Signature)	
5/15/07	1PM	Cindy Hurtado	Tonya Shomin	5/16/07 944
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks:

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Monday, July 02, 2007

Cindy Hurtado
San Juan Refining
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: GAC 2nd QTR-2007

Order No.: 0706319

Dear Cindy Hurtado:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 6/21/2007 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

Please don't hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Business Manager
Nancy McDuffie, Laboratory Manager

NM Lab # NM9425
AZ license # AZ0682
ORELAP Lab # NM100001

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	**Client Sample ID:**	GAC Influent
Lab Order:	0706319	**Collection Date:**	6/20/2007 9:05:00 AM
Project:	GAC 2nd QTR-2007	**Date Received:**	6/21/2007
Lab ID:	0706319-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	1.4	1.0		mg/L	1	6/27/2007 2:55:52 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 2:55:52 PM
Surr: DNOP	112	58-140		%REC	1	6/27/2007 2:55:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4.8	1.0		mg/L	20	7/1/2007 12:17:06 AM
Surr: BFB	106	79.2-121		%REC	20	7/1/2007 12:17:06 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	20	7/1/2007 12:17:06 AM
Benzene	350	20		µg/L	20	7/1/2007 12:17:06 AM
Toluene	ND	20		µg/L	20	7/1/2007 12:17:06 AM
Ethylbenzene	730	20		µg/L	20	7/1/2007 12:17:06 AM
Xylenes, Total	700	40		µg/L	20	7/1/2007 12:17:06 AM
Surr: 4-Bromofluorobenzene	90.8	70.2-105		%REC	20	7/1/2007 12:17:06 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	GAC #1
Lab Order:	0706319	Collection Date:	6/20/2007 9:15:00 AM
Project:	GAC 2nd QTR-2007	Date Received:	6/21/2007
Lab ID:	0706319-02	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 3:31:08 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 3:31:08 PM
Surr: DNOP	111	58-140		%REC	1	6/27/2007 3:31:08 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/1/2007 12:47:13 AM
Surr: BFB	96.7	79.2-121		%REC	1	7/1/2007 12:47:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 12:47:13 AM
Benzene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Ethylbenzene	ND	1.0		µg/L	1	7/1/2007 12:47:13 AM
Xylenes, Total	ND	2.0		µg/L	1	7/1/2007 12:47:13 AM
Surr: 4-Bromofluorobenzene	82.4	70.2-105		%REC	1	7/1/2007 12:47:13 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: *02-Jul-07*

CLIENT:	San Juan Refining	Client Sample ID:	GAC #2
Lab Order:	0706319	Collection Date:	6/20/2007 9:25:00 AM
Project:	GAC 2nd QTR-2007	Date Received:	6/21/2007
Lab ID:	0706319-03	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	6/27/2007 4:06:25 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	6/27/2007 4:06:25 PM
Surr: DNOP	112	58-140		%REC	1	6/27/2007 4:06:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	7/1/2007 1:17:12 AM
Surr: BFB	96.5	79.2-121		%REC	1	7/1/2007 1:17:12 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Methyl tert-butyl ether (MTBE)	ND	2.5		µg/L	1	7/1/2007 1:17:12 AM
Benzene	2.5	1.0		µg/L	1	7/1/2007 1:17:12 AM
Toluene	ND	1.0		µg/L	1	7/1/2007 1:17:12 AM
Ethylbenzene	1.5	1.0		µg/L	1	7/1/2007 1:17:12 AM
Xylenes, Total	2.2	2.0		µg/L	1	7/1/2007 1:17:12 AM
Surr: 4-Bromofluorobenzene	82.0	70.2-105		%REC	1	7/1/2007 1:17:12 AM

Qualifiers:

*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
ND	Not Detected at the Reporting Limit	RL	Reporting Limit
S	Spike recovery outside accepted recovery limits		

QA/QC SUMMARY REPORT

Client: San Juan Refining
Project: GAC 2nd QTR-2007

Work Order: 0706319

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: SW8015									
Sample ID: MB-13262		*MBLK*			Batch ID: 13262		Analysis Date: 6/27/2007 1:10:07 PM		
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-13262		*LCS*			Batch ID: 13262		Analysis Date: 6/27/2007 1:45:10 PM		
Diesel Range Organics (DRO)	5.722	mg/L	1.0	114	74	157			
Sample ID: LCSD-13262		*LCSD*			Batch ID: 13262		Analysis Date: 6/27/2007 2:20:34 PM		
Diesel Range Organics (DRO)	5.745	mg/L	1.0	115	74	157	0.392	23	
Method: SW8015									
Sample ID: 0706319-03A MSD		*MSD*			Batch ID: R24198		Analysis Date: 7/1/2007 2:17:17 AM		
Gasoline Range Organics (GRO)	0.5070	mg/L	0.050	95.5	80	115	2.07	8.39	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: R24198		Analysis Date: 6/30/2007 6:59:05 PM		
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID: R24198		Analysis Date: 6/30/2007 11:14:32 PM		
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115			
Sample ID: 0706319-03A MS		*MS*			Batch ID: R24198		Analysis Date: 7/1/2007 1:47:18 AM		
Gasoline Range Organics (GRO)	0.4966	mg/L	0.050	93.4	80	115			
Method: SW8021									
Sample ID: 0706319-03A MSD		*MSD*			Batch ID: R24198		Analysis Date: 7/1/2007 2:17:17 AM		
Methyl tert-butyl ether (MTBE)	6.924	µg/L	2.5	83.9	51.2	138	2.19	28	
Benzene	7.290	µg/L	1.0	87.1	85.9	113	0.633	27	
Toluene	39.31	µg/L	1.0	97.4	86.4	113	2.74	19	
Ethylbenzene	8.948	µg/L	1.0	93.6	83.5	118	3.16	10	
Xylenes, Total	47.49	µg/L	2.0	98.3	83.4	122	1.81	13	
Sample ID: 5ML REAGENT BLA		*MBLK*			Batch ID: R24198		Analysis Date: 6/30/2007 6:59:05 PM		
Methyl tert-butyl ether (MTBE)	ND	µg/L	2.5						
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	2.0						
Sample ID: 100NG BTEX LCS		*LCS*			Batch ID: R24198		Analysis Date: 6/30/2007 11:44:25 PM		
Methyl tert-butyl ether (MTBE)	18.69	µg/L	2.5	93.5	51.2	138			
Benzene	19.42	µg/L	1.0	97.1	85.9	113			
Toluene	19.80	µg/L	1.0	99.0	86.4	113			
Ethylbenzene	20.03	µg/L	1.0	100	83.5	118			
Xylenes, Total	59.67	µg/L	2.0	99.4	83.4	122			
Sample ID: 0706319-03A MS		*MS*			Batch ID: R24198		Analysis Date: 7/1/2007 1:47:18 AM		
Methyl tert-butyl ether (MTBE)	6.774	µg/L	2.5	82.1	51.2	138			
Benzene	7.244	µg/L	1.0	86.3	85.9	113			
Toluene	38.25	µg/L	1.0	94.8	86.4	113			
Ethylbenzene	8.670	µg/L	1.0	90.1	83.5	118			
Xylenes, Total	46.63	µg/L	2.0	96.4	83.4	122			

Qualifiers:

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	S	Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name SJR | Date and Time Received: 6/21/2007

Work Order Number 0706319 | Received by TLS

Checklist completed by 6/21/07
Signature | Date

Matrix | Carrier name UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐				
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐			
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑				
Chain of custody present?	Yes ☑	No ☐					
Chain of custody signed when relinquished and received?	Yes ☑	No ☐					
Chain of custody agrees with sample labels?	Yes ☑	No ☐					
Samples in proper container/bottle?	Yes ☑	No ☐					
Sample containers intact?	Yes ☑	No ☐					
Sufficient sample volume for indicated test?	Yes ☑	No ☐					
All samples received within holding time?	Yes ☑	No ☐					
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐				
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑				
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑				

Container/Temp Blank temperature? 6° *4° C ± 2 Acceptable* If given sufficient time to cool.

COMMENTS:

Client contacted | Date contacted: | Person contacted

Contacted by: | Regarding

Comments:

Corrective Action

CHAIN-OF-CUSTODY RECORD

QA / QC Package:
Std ☐ Level 4 ☐
Other:

HALL ENVIRONMENTAL ANALYSIS LABORATORY
4901 Hawkins NE, Suite D
Albuquerque, New Mexico 87109
Tel. 505.345.3975 Fax 505.345.4107
www.hallenvironmental.com

Client: San Juan Refining
Address: #50 Rd 4990 Bloomfield, NM 87413
Phone #: 505-632-4161
Fax #: 505-632-3911

Project Name: GAC - 2nd QTR-2007
Project #:
Project Manager: Cindy Hurtado
Sampler: Cindy Hurtado / Bob Krakow
Sample Temperature: 6°

ANALYSIS REQUEST

Date	Time	Matrix	Sample I.D. No.	Number/Volume	Preservative			HEAL No.	BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gasoline Only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8021)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / PCB's (8082)	8260B (VOA)	8270 (Semi-VOA)					Air Bubbles or Headspace (Y or N)
					$HgCl_2$	HNO_3	HCl	0706319																
6/20/07	905A	H2O	GAC Influent	4-VOA			✓	1	X		X													
	915A		GAC #1	4-VOA			✓	2	X		X													
	925A		GAC #2	4-VOA			✓	3	X		X													

Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	
6/20/07	945A	Cindy Hurtado	Tanya SL	6/21/07 1355
Date:	Time:	Relinquished By: (Signature)	Received By: (Signature)	

Remarks: