GW - 032

REPORTS

Year(s)

Summary of Drilling & Sampling activities Report 4/14/2008

Chavez, Carl J, EMNRD

From: Monzeglio, Hope, NMENV

Sent: Monday, August 18, 2008 9:11 AM

To: Ed Riege

Cc: Rajen, Gaurav; Kieling, John, NMENV; Cobrain, Dave, NMENV; Price, Wayne, EMNRD; Chavez, Carl J, EMNRD; Powell, Brandon, EMNRD; Martinez, Cynthia, NMENV

Attachments: GRCC 08-002 Sample Requirm NAPIS well 8_08.pdf

This will go out in the mail today.

Hope

Hope Monzeglio
Environmental Specialist
New Mexico Environment Department
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NEW MEXICO ENVIRONMENT DEPARTMENT

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RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

August 18, 2008

Mr. Ed Riege
Environmental Superintendent
Western Refining Gallup Refinery
Route 3, Box 7
Gallup, New Mexico 87301

RE: SAMPLING REQUIREMENTS FOR MONITORING WELLS KA-1R, KA-2R, AND KA-3R AT THE NEW API SEPARATOR WESTERN REFINING SOUTHWEST, INC., GALLUP REFINERY NMED ID # NMD000333211 HWB-GRCC-08-002

Dear Mr. Riege:

The New Mexico Environment Department (NMED) received Western Refining Southwest, Inc., Gallup Refinery's (Permittee) July 2008 three-month groundwater laboratory results for monitoring wells KA-1R, KA-2R, and KA-3R, located at the New API separator (NAPI). The initial sampling requirements for these monitoring wells was established in NMED's October 15, 2007 Notice of Disapproval, Comment 6. Since the installation of the replacement wells, water has been observed in replacement well KA-3R. NMED is therefore revising the sampling requirements for replacement monitoring wells KA-1R, KA-2R, KA-3R at the NAPI as follows:

a. The Permittee must sample monitoring wells KA-1R, KA-2R, and KA-3R on a quarterly basis starting in September 2008. This quarterly sampling schedule must continue until further notice.

b. The Permittee must collect groundwater samples from KA-1R, KA-2R, and KA-3R in accordance with the sampling schedule described in item a. Samples must be

analyzed for benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tertbutyl ether (MTBE) using EPA Method 8021B plus MTBE, semi volatile organics (SVOCs) using EPA Method 8310, diesel range organics (DRO) extended and gasoline range organics (GRO) using EPA Method 8015B, RCRA metals, and general chemistry.

c. The Permittee must contact the Oil Conservation Division (OCD) no later than September 15, 2008 to revise the Discharge Plan to accommodate these changes. The Permittee must also clarify the well names. The table provided in item 19 of the Discharge Plan references NAPI-1, NAPI-2, and NAPI-3 which were renamed from KA-1, KA-2, and KA-3. The replacement wells are identified as KA-1R, KA-2R and KA-3R. Monitoring well KA-1 and KA-2 have been properly abandoned and KA-3 still exists.

d. The Permittee must submit copies of the final laboratory reports to NMED and OCD no later than 45 days after the associated quarterly sampling field work is completed.

e. The Permittee must also report this information in the Annual Groundwater Monitoring Report.

If you have any questions regarding this letter please call Hope Monzeglio of my staff at (505) 476-6045.

Sincerely,

John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

cc: D. Cobrain, NMED HWB
H. Monzeglio, NMED HWB
W. Price, OCD
C. Chavez, OCD
B. Powell, OCD Aztec Office
G. Ragen, Western Gallup
File: Reading and GRCC 2008
HWB-GRCC-08-002

August 08, 2008 DRAFT

Brine Well Collapse Action Plan

Overview:

As a result of a recent brine well collapse in southeastern New Mexico, the OCD has put together this action plan in order to provide additional protection for public safety and the environment. This plan will be implemented in a three-fold approach; (1) Ensure on-site measures and controls are implemented at the collapse site in a timely fashion to provide for the immediate and long term protection of the public, fresh water and the environment; (2) Perform a detail investigation of the cause of the collapse, including auditing all brine wells in the state and issue a final report of the findings; (3) Assemble a panel of experts to formulate guidelines for all existing and new brine well operations.

OCD anticipates carrying out all three tasks simultaneously using a critical path method to expedite the process. Times lines and schedules will be crafted to ensure the process keeps moving. OCD will appoint different staff members to key assignments for various phases of the project. OCD will also solicit outside help from various sources to assist in this process.

Objective:

OCD's objective is to develop a set of guidelines to evaluate if existing brine wells are safe to operate, and to formulate new methods based on sound science to determine if new brines should be permitted, and if so, how they should be constructed, operated and closed properly. Emphasis will be placed on public safety, protecting fresh water and environment protection for the foreseeable future.

DRAFT

Task (1) Ensure that on-site measures and controls are implemented at the collapse site in a timely fashion to provide for the immediate and long term protection of the public, fresh water and the environment.

- Perform an official ICS de-briefing and make records available.
- Install a temporary fence and signage.
- Install subsidence markers and flags to determine the migration rate and path.
- Maintain a watch patrol and make weekly reports including fly-over photos.
- Develop an early warning system for the protection of county road 217, oilfield equipment, ranching interest, etc.
- Develop and implement a groundwater monitoring plan.
- Install a permanent long-term fence.
- Develop a safety protocol and entry procedure for long term research.
- Maintain public records.

Task (2) Perform a detail investigation of the cause of the collapse, including auditing all brine wells in the state and issue a final report of the findings.

- Require the operator of the collapsed brine well JWS-BW-5 to perform a detail internal audit and report to OCD its findings.
- Send out a comprehensive brine well question air to all brine well operators to determine current operating status of these wells and potential for collapse.
- Perform a regulatory audit of all permitted brine wells and issue letters of non-compliance.
- Require sonar testing and other test, in order to evaluate future safe operations.
- Issue final report of the cause of the collapse and recommendations for future operations.

Task (3) Assemble a panel of experts to formulate guidelines for all existing and new brine well operations.

- Obtain research on similar events, review other state regulations and develop rules of thumb for safe operations.
-

- Collect geo-physical and rock mechanics information and conduct calculations using beam theory and compare results to similar findings for roof stability.
- Set-up meetings for information exchange and stakeholder involvement.

- Develop "Draft Guidelines" for permitting, siting, construction, operation, monitoring, closure and financial assurance. Emphasis being placed on lifetime benefit analysis, subsidence, collapse and the protection of public safety, fresh water and the environment.
- Issue final guidelines.
- Modify Permits to incorporate new guidelines, monitoring programs, adequate financial assurance, closure requirements, and possible post closure monitoring.

Schedule of Events and Assignment of Task:

KLEINFELDER

DOCUMENT TRANSMITTAL FORM

TO:	Ms. Hope Monzeglio NMED HWB 2905 Rodeo Park Drive East, Building 1 Santa Fe, NM 87505	PAGE	1	OF	1
		TRANSMITTAL DATE:	04/15/08		
		TRANSMITTAL DCN:	84679.4-ALB08TS001		

RETURN RESPONSES/COMMENTS TO:	Eileen Shannon
RETURN RESPONSES/COMMENTS BY:	04/29/08

RECEIVED
2008 APR 17 PM 1:50

PROJECT NO.:	84679	PROJECT NAME:	Ciniza Refinery
ACTIVITY/DESCRIPTION:	Letter Report		

DOCUMENTS BEING TRANSMITTED

ITEM	REV.	PAGES	DATE	DESIGNATOR
Summary of Drilling and Sampling Activites	0		04/15/08	84679.4-ALB08R001

INSTRUCTIONS/REMARKS

CC's: D. Cobrain, C. Frischkorn
J. Lieb, E. Reige,
W. Price, C.Chavez,
and B. Powell

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April 14, 2008
File No. 84679.4-ALB08RP001

Ms Hope Monzeglio
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505

Subject: **Summary of Drilling and Sampling Activities**
Western Refining Company, Ciniza Refinery
Gallup, New Mexico
NMED ID # NMD000333211
HWB-GRCC-07-001

Dear Ms. Monzeglio:

Kleinfelder West, Inc. (Kleinfelder), on behalf of Western Refining Company (Western), is submitting this letter report summarizing the installation of replacement monitoring wells KA-1R, KA-2R and KA-3R, the abandonment of existing monitoring wells KA-1 and KA-2, and groundwater sampling at the above referenced site. Fieldwork was performed between March 13 and 15, 2008, and sampling of new monitoring wells KA-1R and KA-2R was performed on March 20, 2008 (field notes included in Appendix A). The well installation and sampling was performed in accordance with Kleinfelder's December 12, 2007 letter and the New Mexico Environment Department-Hazardous Waste Bureau's (NMED-HWB) December 20, 2007 approval letter.

Site Description

The Site is located at 35° 29.41'N, 108° 25.80'W, McKinley County, New Mexico. The facility is an active refinery. Refinery equipment near the site includes the new American Petroleum Institute (API) oil/water separator (separator), an off-gas flare, two aeration lagoons and an evaporation pond (Figure 1).

Site History

Kleinfelder installed monitoring wells KA-1, KA-2, and KA-3 in June 2007. The work was performed in accordance with Kleinfelder's Work Plan No. 83817.PROP-ALB07001 Rev. 1 dated May 24, 2007. Western approved Kleinfelder's work plan via purchase order C16449 dated June 4, 2007. The NMED-HWB approved the work plan in a letter dated June 4, 2007. Fieldwork for this event was performed between June 11 - 21, 2007.

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In its Notice of Disapproval letter dated October 15, 2007, the NMED-HWB rejected the installation of monitoring wells KA-1, KA-2, and KA-3, required that replacement monitoring wells be installed, and that the existing monitoring wells be plugged and abandoned. In a letter dated December 12, 2007, Kleinfelder submitted a new scope of work based upon these requirements. In a follow-up letter dated December 20, 2007, the NMED approved the scope of work, but required that existing monitoring well KA-3 be left in place.

Scope of Work

The scope of work as directed by the NMED included the following:

- Installation of replacement monitoring wells KA-1R and KA-2R to depths of approximately 14.5 feet below ground surface (ft bgs) via hollow stem auger (HSA) drilling methods. The new monitoring wells were to be installed approximately five feet away from existing monitoring wells KA-1 and KA-2, respectively, and were to be screened from approximately four to 14 ft bgs;

- Installation of replacement monitoring well KA-3R approximately five feet away from existing monitoring well KA-3. The new well was to be installed via HSA drilling methods, with an outer casing/auger seated approximately 23 ft bgs and total depth (TD) at 30.5 ft bgs. A 2-inch monitoring well was to be set with a screened interval of approximately 25 to 30 ft bgs;

- Monitoring wells KA-1R and KA-2R were to be developed by manual bailing and surging. Groundwater samples were to be collected from the wells within two weeks of installation, and analyzed for volatile organic compounds (VOCs) per EPA Method 8260, semivolatile organics (SVOCs) / polyaromatic hydrocarbons (PAH) per EPA Method 8310, total petroleum hydrocarbons (gasoline range organics, diesel-range organics, and motor oil-range organics) per EPA Method 8015B, and RCRA 8 metals per EPA Method 6010/7470; and

- Monitoring wells KA-1 and KA-2 were to be properly plugged and abandoned during the same mobilization that the replacement wells were installed.

Scope of Work Deviations

Due to ongoing construction activity on the eastern side of the new API separator at the time of the replacement monitor well installation, monitor well KA-1R was installed approximately 15 feet away from KA-1, rather than the initially proposed 5-foot distance. Construction activities at the time of installation included excavation of an approximate 15-foot deep pit on the southeastern corner of the new API separator for installation of a leak detector.

When existing monitoring well KA-1 was installed, a steel culvert prevented access of the drill rig closer to the API separator. At the time of installation of KA-1R, a soil ramp had been built over the culvert to allow construction equipment access to the eastern

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side of the new API Separator. This enabled KA-1R to be installed closer to the new API separator.

Because of the approximate 0.8 foot higher ground elevation of KA-1 compared to KA-1R, the well screen of KA-1R was installed at a depth of approximately 3.7 to 13.7 feet below grade in order to be approximately 14.5 feet below the ground surface of KA-1. Screen elevations are summarized below:

Well ID	Ground Elevation (feet)	Top of Casing Elevation (feet)	Screen Location (bgs in feet)	Screen Location (elevation in feet)
KA-1	6918.3 (*)	6918.08	4.5 - 9.5	6913.8 - 6908.8
KA-1R	6917.5	6918.43	3.7 - 13.7	6913.8 - 6903.8

* Estimated based on top of casing
bgs = below ground surface

Field Investigation

Rodgers Environmental Services, Inc. performed drilling of soil borings and installation of monitoring wells using a CME 75 drill rig and hollow stem auger drilling methods (See Figure 1 for boring and well locations). Borings were logged from cuttings generated during drilling (borehole logs included as Appendix B). The following fieldwork was performed:

- Monitoring well KA-3R was drilled and installed between March 13 and 14, 2008. The borehole was drilled from ground surface to 23 ft bgs using 10.25-in inner diameter (ID)/14.75-in outer diameter (OD) auger flights. Eight-inch casing was grouted in place to 23 ft bgs. The borehole was drilled to the TD of 30.7 ft bgs using 3.75-in ID/6.75-in OD auger flights;

- Monitoring well KA-3R was installed using 2-in ID schedule 40 PVC casing to a TD of 30.7 ft bgs. KA-3R was installed with 0.010-in slot screen from 25.4 to 30.4 ft bgs;

- Monitoring wells KA-1R and KA-2R were drilled and installed on March 14, 2008. Boreholes KA-1R and KA-2R were drilled from ground surface to their respective TDs of 14.0 and 14.5 ft bgs using 3.75-in ID/6.75-in O.D. auger flights;

- Monitoring wells KA-1R and KA-2R were installed using 2-in ID schedule 40 PVC casing to their respective TDs of 14.0 and 14.5 ft bgs. KA-1R was installed with 0.010-in slot screen from 3.7 to 13.7 ft bgs. KA-2R was installed with 0.010-in slot screen from 4.2 to 14.2 ft bgs;

- The replacement monitoring wells were developed by bailing and surging on March 15, 2008. Monitoring well KA-1R bailed dry after five gallons and did not recharge sufficiently to continue development. Thirty gallons were bailed from monitoring well KA-2R. Development water was disposed of in the API separator

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drain. Insufficient water was present in monitoring well KA-3R to conduct development;

- Existing monitoring wells KA-1 and KA-2 were abandoned using cement/bentonite grout placed into the well via tremmie pipe. Monitoring well KA-3 was left in place;

- Replacement monitoring wells KA-1R and KA-2R were gauged and sampled on March 20, 2008. The wells were purged of three casing volumes via hand bailing. Water quality parameters were monitored and recorded with a properly calibrated YSI-556 water quality meter (parameters included in field notes in Appendix A). KA-1R and KA-2R were sampled for volatile organic compounds (VOCs) per EPA Method 8260, semivolatile organics (SVOCs) / polyaromatic hydrocarbons (PAH) per EPA Method 8310, total petroleum hydrocarbons (gasoline range organics, diesel-range organics, and motor oil-range organics) per EPA Method 8015B, and RCRA 8 metals per EPA Method 6010/7470. Purge water was disposed of in the separator drain. Insufficient water was present in KA-3R to sample;

- Cuttings generated during drilling were contained in 55 gallon drums. A composite soil sample was collected from the cuttings from existing monitoring wells KA-2 and KA-3, as well as from replacement monitoring wells KA-1R, KA-2R, and KA-3R following installation. The sample was collected for classification in order to dispose of the cuttings in Western's on-site landfarm. Cuttings from existing monitoring well KA-1 could not be sampled due to damage to the drum. The composite sample was analyzed for anions per EPA method 9056A, mercury per EPA method 7471, and for total metals per EPA method 6010B. The sample was also to be analyzed for free liquid, ignitability, corrosivity, and reactivity; and

- The replacement monitoring wells were surveyed on March 20, 2008.

Site Stratigraphy

Soils in all borings are generally dry to moist lean clays, with varying sand content. Borehole logs are included as Appendix B. Following is a general description of the observed subsurface conditions:

- Ground surface to 22 ft bgs: Soils are typically red-brown to grey-brown lean clays with 25% to 50% sand. Sand is fine- to coarse-grained.

- 22 ft bgs to 30.5 ft bgs: Bedrock, likely Chinle sandstone.

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Site Hydrogeology

Following monitoring well installation but prior to development, the depth to water (DTW) was measured in each well on March 15, 2008 (see Table 1). The DTW in KA-1R and KA-2R was measured at 8.2 and 8.61 feet below top of casing (ft btoc) respectively. KA-3R was dry. Groundwater gradient near the API Separator is to the west toward the aeration lagoons.

Prior to sampling monitoring wells KA-1R and KA-2R on March 20, 2008, DTW was again measured in the replacement wells, as well as in existing monitoring well KA-3 (see Table 1). The DTW in KA-1R, KA-2R, and KA-3R were measured at 9.50, 8.77, and 30.70 ft btoc, respectively. It is important to note that the DTW in KA-3R corresponds to the TD measured in the well. The DTW in KA-3 was measured at 8.61 ft btoc. A groundwater contour map is included as Figure 2.

At the request of Jim Lieb (Western), DTW in existing monitoring wells were also measured, but were not used to construct the groundwater elevation contour map. The DTW in GWM-1 and GWM-2 were measured at 19.77 and 19.04 ft btoc, respectively. GWM-3 was dry.

Soil Analytical Results

Several analytes were detected above the laboratory practical quantitation limits (PQL) in the composite soil sample collected from cuttings from monitoring wells KA-2, KA-3, KA-1R, KA-2R, and KA-3R (soil analytical results included in Appendix C; results summarized in Table 2). Chloride was detected at 170 mg/kg (PQL = 1.5 mg/kg). Mercury was detected at 0.073 mg/kg (PQL = 0.033 mg/kg). Barium was detected at 520 mg/kg (PQL = 2.0 mg/kg). Chromium was detected at 15 mg/kg (PQL = 1.5 mg/kg). Lead was detected at 6.2 mg/kg (PQL = 1.2 mg/kg).

The composite soil sample tested negative for free liquid. The flash point, determined from the ignitability analysis, was <200 degrees Fahrenheit. The pH of the soil, determined from the corrosivity analysis, was 8.72. Reactive cyanide and reactive sulfide were not detected in the composite sample.

Groundwater Analytical Results

Groundwater samples were collected from replacement monitoring wells KA-1R and KA-2R on March 20, 2008 (groundwater analytical results included in Appendix C; results summarized in Table 3 and on Figure 3). No analytes were detected in the sample from KA-1R above New Mexico Water Quality Control Commission (NMWQCC) standards. In the sample from KA-2R, benzene was detected at 76 microgram per liter (µg/L), which is above the NMWQCC standard of 10 µg/L. Methyl tert-butyl ether was detected at 260 µg/L, which is above the NMWQCC standard of 100 µg/L. Total naphthalenes were detected at 70 mg/L, which is above the NMWQCC standard of 30 µg/L.

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If you have any questions concerning the project of the content of this report, please contact Jim Lieb at (505) 722-0227 or me at (505) 344-7373.

Sincerely,

KLEINFELDER, INC.

Reviewed by:

Eileen Shannon, P.G.
Project Manager

FOR: Barbara J. Everett, R.G., P.G.
Program Manager

Enclosures: Figure 1 – Site Plan
Figure 2 – Groundwater Elevation Contour Map, Alluvial Aquifer, March 20, 2008
Figure 3 – Distribution of Contaminants in Groundwater, March 20, 2008
Table 1 – Summary of Fluid Level Measurements
Table 2 – Composite Soil Sample Laboratory Analytical Results
Table 3 – Groundwater Sample Laboratory Analytical Results
Appendix A – Field Notes
Appendix B – Borehole Logs
Appendix C – Laboratory Analytical Results

cc: J. Lieb, Western Refining Company
E. Reige, Western Refining Company
D. Cobrain, NMED-HWB
C. Frischkorn, NMED-HWB
C. Chavez, NMOCD
W. Price, NMOCD
B. Powell, NMOCD Aztec Office

FIGURES

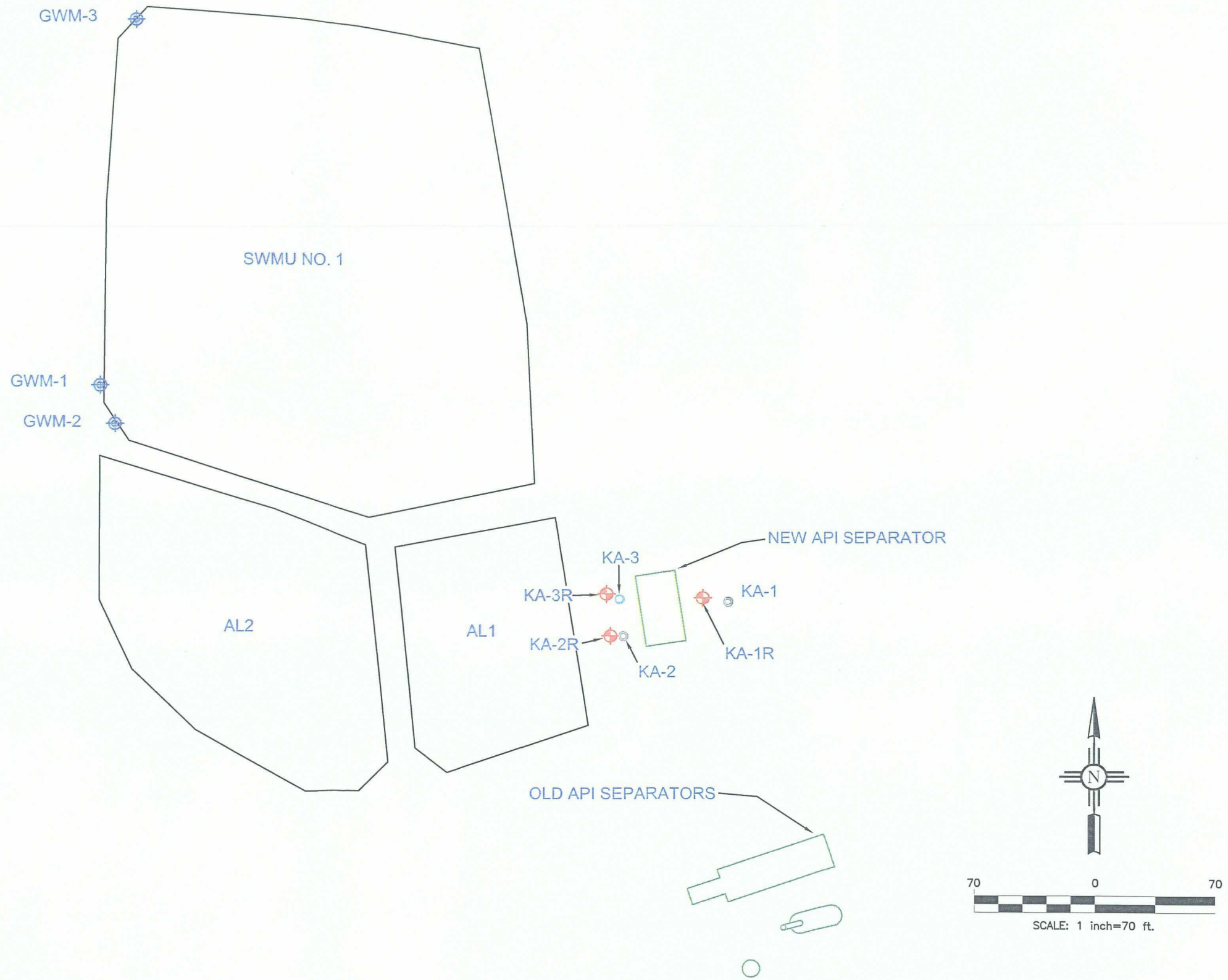
SURVEY DATA

Well ID	Northing	Easting	Top of Casing Elevation
KA-1R	1634587.51	2545700.49	6918.43
KA-2R	1634565.05	2545647.32	6917.27
KA-3	1634583.87	2545645.49	6917.17
KA-3R	1634589.80	2545645.10	6917.31

NOTES:
1. COORDINATES ARE NEW MEXICO STATE PLANE GRID, WEST ZONE, NAD 83.
2. ELEVATIONS SHOWN NAVD 88.
3. COORDINATES AND ELEVATIONS WERE DETERMINED FROM BRASS CAP, NMSHD 2765-11 (USED FOR CINIZA CONTROL SURVEY).
4. SURVEYING BY LYNN ENGINEERING & SURVEYING, INC., DATES 06/21/07 AND 03/20/08.
5. SOURCE: LOCATIONS OF SWM UNITS, AERATION LAGOONS, AND OLD API SEPERATORS TAKEN FROM A DRAWING PROVIDED BY GIANT REFINING CO. ENTITLED "REFINERY MONITOR WELL LOCATIONS," DRAWING NO. Z-02-155, DATED 10/20/1997.

LEGEND

- KA-3 = Monitoring Well Location
- KA-1R = New Monitoring Well Location
- KA-1 = Monitoring Well Location (Abandoned)
- GWM-1 = Existing Monitoring Well Location
- SWMU = Solid Waste Management Unit
- AL = Aeration Lagoon



KLEINFELDER	SITE PLAN Ciniza Refinery Jamestown, New Mexico		FIGURE 1
Originator: B. Lucero	Drawn By: PDan	Date: April 2008	
Approved By: E. Shannon	Project No.: 84679	Drawing No.:84679_01_0_4-08	
	Scale: 1" = 70'	Drawing Category: A	

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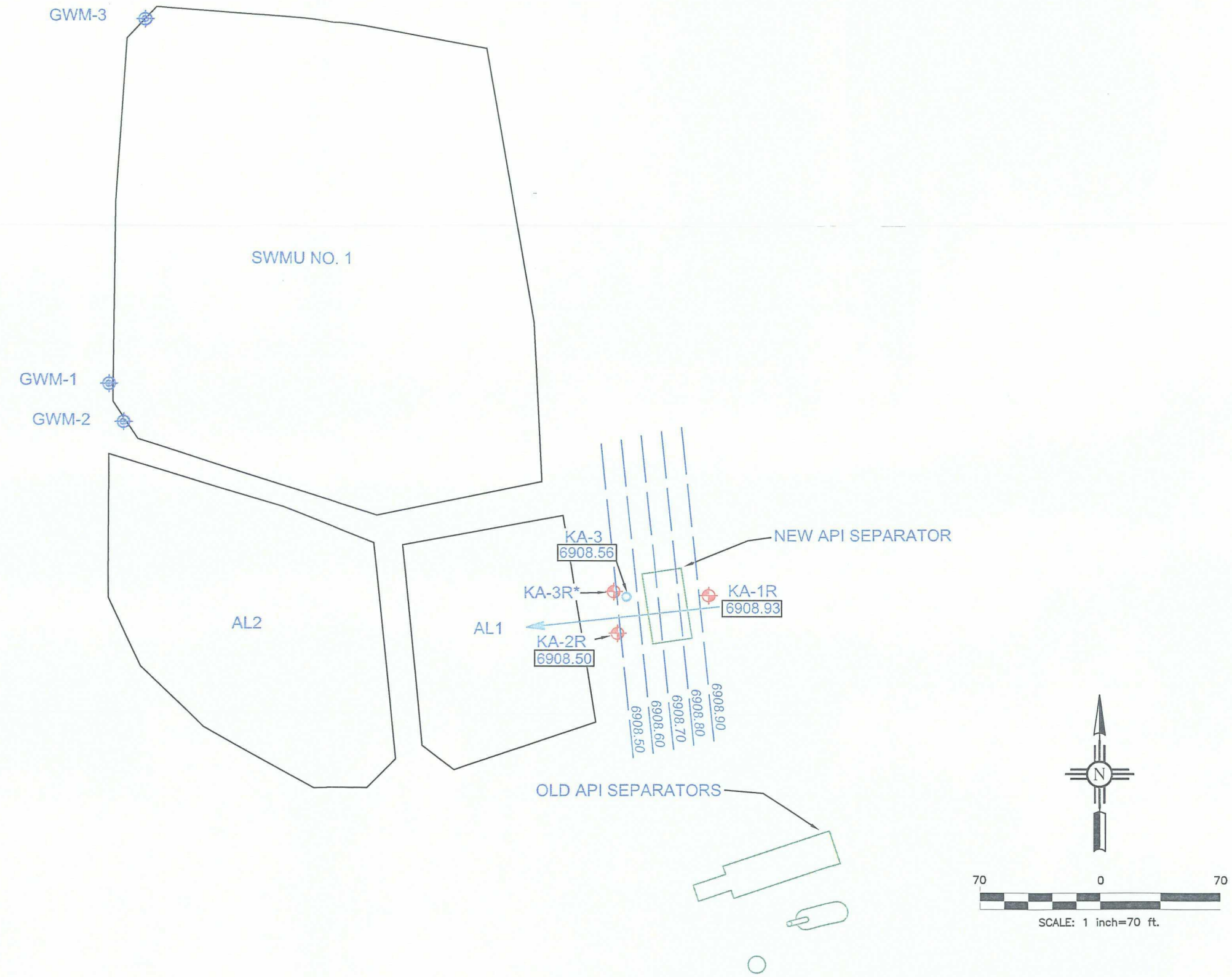
LEGEND

- KA-3 = Monitoring Well Location
- KA-1R = New Monitoring Well Location
- GWM-1 = Existing Monitoring Well Location
- SWMU = Solid Waste Management Unit
- AL = Aeration Lagoon
- KA-1R 6908.93 = Groundwater Surface Elevation
- 6908.50 = Groundwater Elevation Contour
- = Groundwater Flow Direction

NOTES:
* Not used in groundwater surface contour



KLEINFELDER	GROUNDWATER ELEVATION CONTOUR MAP Alluvial Aquifer (March 20, 2008) Ciniza Refinery Jamestown, New Mexico		FIGURE
Originator: B. Lucero	Drawn By: PDan	Date: April 2008	2
Approved By: E. Shannon	Project No.: 84679	Drawing No.:84679_01_0_4-08	
	Scale: 1" = 70'	Drawing Category: A	

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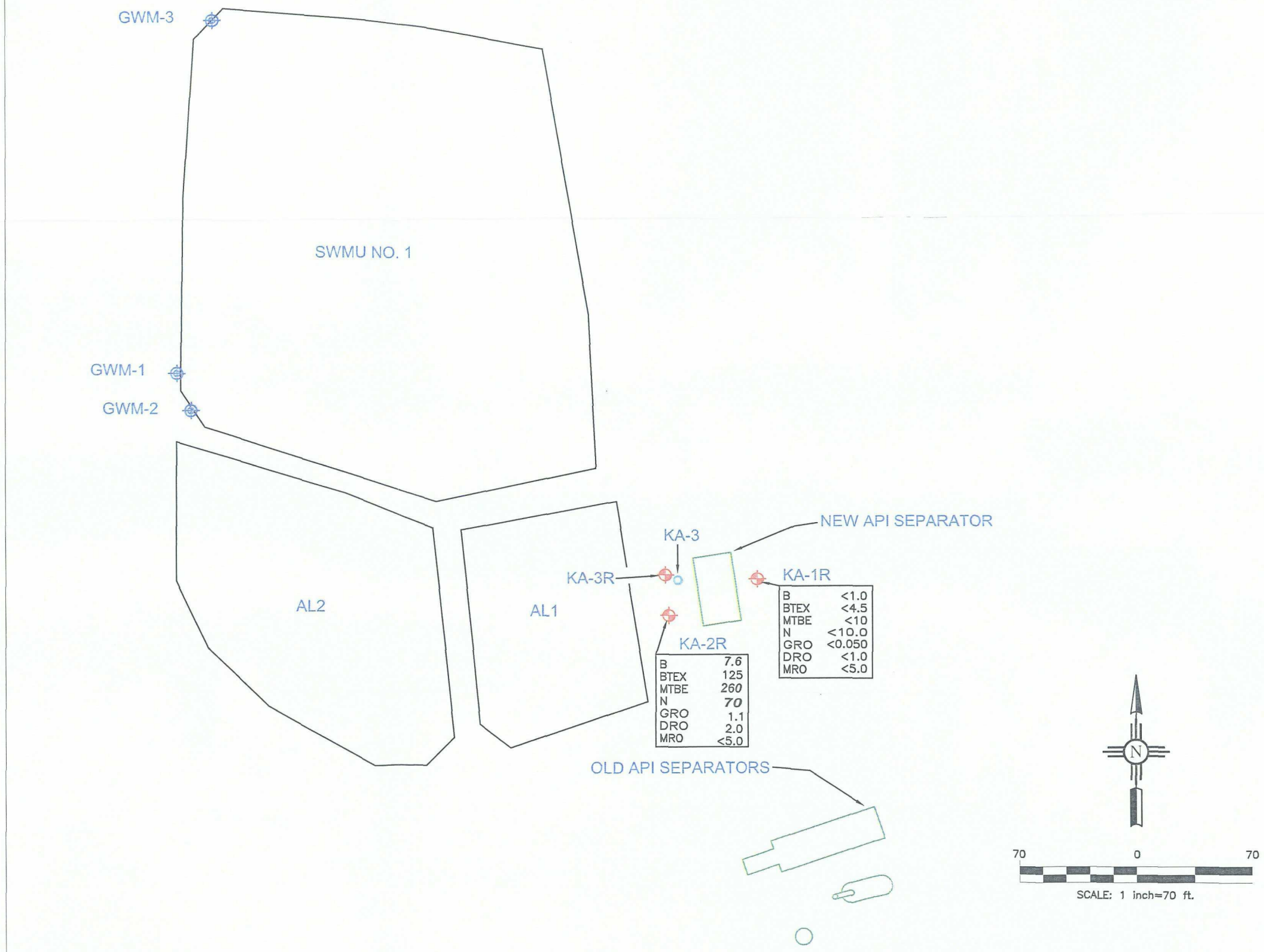

LEGEND

- KA-3 = Monitoring Well Location
- KA-1R = New Monitoring Well Location
- GWM-1 = Existing Monitoring Well Location
- SWMU = Solid Waste Management Unit
- AL = Aeration Lagoon

B	<1.0
BTEX	<4.5
MTBE	<10
N	<10.0
GRO	<0.050
DRO	<1.0
MRO	<5.0

B = Benzene
BTEX = Benzene + Toulene + Ethylbenzene + Total Xylene
MTBE = Methyl Tert-butyl Ether
N = Naph + 1-Methylnapthalene + 2-Methylnapthalene
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
MRO = Motor Oil Range Organics

NOTE: Values in ***BOLD*** exceed the NMWQCC Standard
3R Not Sampled Due to Lack of Water

KLEINFELDER	DISTRIBUTION OF CONTAMINANTS IN GROUNDWATER March 20, 2008 *Ciniza Refinery* Jamestown, New Mexico		FIGURE 3
Originator: B. Lucero	Drawn By: PDan	Date: April 2008	
Approved By: E. Shannon	Project No.: 84679	Drawing No.:84679_01_0_4-08	
	Scale: 1" = 70'	Drawing Category: A	

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TABLES

Table 1
Summary of Fluid Level Measurements
Western Refining Company, Ciniza Refinery

WELL ID	TOTAL DEPTH (ft btoc)	SCREENED INTERVAL (ft bgs)	TOC ELEVATION (ft AMSL)	DATE	TIME	DEPTH TO WATER (ft btoc)	GROUNDWATER SURFACE ELEVATION (ft AMSL)
KA-1R	14	3.7 - 13.7	6918.43	3/15/2008	12:19 PM	8.20	6910.23
				3/20/2008	9:38 AM	9.50	6908.93
KA-2R	14.5	4.2 - 14.2	6917.27	3/15/2008	9:28 AM	8.61	6908.66
				3/20/2008	9:42 AM	8.77	6908.50
KA-3	25	15 - 25	6917.17	6/12/2007	10:15 AM	12.50	6904.67
				6/21/2007	9:15 AM	8.50	6908.67
				3/20/2008	9:45 AM	8.61	6908.56
KA-3R	30.7	25.4 - 30.4	6917.31	3/14/2008	9:40 AM	Dry	N/A
				3/14/2008	11:15 AM	Dry	N/A
				3/15/2008	9:54 AM	30.68	6886.63
				3/15/2008	12:08 PM	30.68	6886.63
				3/20/2008	9:40 AM	30.70	6886.61

ft = feet

btoc = below top of casing

bgs = below ground surface

AMSL = above mean sea level

N/A = not applicable

Note: water measured in KA-3R on 3/15/2008 and 3/20/2008 is likely residual water from monitoring well drilling and installation

Table 2
Composite Soil Sample Laboratory Analytical Results
Western Refining Company, Ciniza Refinery

Analyte	Result	Units	Method
Chloride	170	mg/kg	EPA 9056A
Mercury	0.073	mg/kg	EPA 7471
Arsenic	ND (<12)	mg/kg	EPA 6010B
Barium	520	mg/kg	EPA 6010B
Cadmium	ND (<0.50)	mg/kg	EPA 6010B
Chromium	15	mg/kg	EPA 6010B
Lead	6.2	mg/kg	EPA 6010B
Selenium	ND (<50)	mg/kg	EPA 6010B
Silver	ND (<1.2)	mg/kg	EPA 6010B
Free Liquid	Negative	Pos/Neg	Paint Filter
Flash Point	>200	°F	SW1010M
pH of Soil	8.72	SU	SW9045D
Cyanide, Reactive	ND (<0.05)	mg/kg	SW846
Sulfide, Reactive	ND (<20)	mg/kg	SW846

Note: Results are not compared to NMED standards since disposal will be at Western's on-site landfarm.

SU = Standard pH Units

mg/kg = milligram per kilogram

°F = degrees Fahrenheit

Table 3
Groundwater Sample Laboratory Analytical Results
Western Refining Company, Ciniza Refinery

Sample ID	Date Collected	B[2]	T[3]	E[4]	X[5]	BTEX[6]	MtBE[7]	Naphthalenes[8]	TPH - GRO[9]	TPH - DRO[10]	TPH - MRO[11]
KA-1R	6/21/2007	<1.0	<1.0	<1.0	<1.5	<4.5	<1.0	<10.0	<0.050	<1.0	<5.0
KA-2R	6/21/2007	76	3	24	22	125	260	70	1.1	2.0	<5.0
NMWQCC[1] Standard (µg/L)		*10*	*750*	*750*	*620*	--	*100*	*30*	--	--	--

[1] New Mexico Water Quality Control Commission

Values in shaded boxes indicate that the result exceeds the NMWQCC standard

[2] B = benzene (µg/L)

[3] T = toluene (µg/L)

[4] E = ethylbenzene (µg/L)

[5] X = total xylenes (µg/L)

[6] BTEX = B+T+E+X (µg/L)

[7] M = Methyl tert-butyl ether (MTBE, µg/L)

[8] Total Naphthalenes = Naphthalene + 1-Methylnaphthalene + 2-Methylnaphthalene

[9] Total Petroleum Hydrocarbons, Gasoline Range Organics (mg/L)

[10] Total Petroleum Hydrocarbons, Diesel Range Organics (mg/L)

[11] Total Petroleum Hydrocarbons, Motor Oil Range Organics (mg/L)

APPENDIX A

Field Notes

84679
Ciniza Refinery
Groundwater Monitoring

BJ

Went for analysis by EPA methods 8015B (TPH GRO + DRO) and 8021B (BTEX + MtBE). Sample ID = KA-1.

1205 Tag DTW in KA-2 (KA-3 Bad at bottom) at 9.68 ft, insufficient to continue purging, will submit samples collected at 1100 for analysis by EPA methods 8015B (TPH GRO+DRO) and 8021B (BTEX+MtBE). Sample ID = KA-3. B. Lucero clearing API area.

1213 B. Lucero to ABQ.

1455 @ Hall Environmental to drop-off samples.

1500 @ KA office.

Summary

Developed and sampled wells KA-1 and KA-2, purged and sampled well KA-3. Wells were sampled for analysis by EPA method 8015B (TPH GRO + DRO) and method 8021B (BTEX + MTBE). Note: wells referred to incorrectly in notes; KA-2 and KA-3 references are reversed.

BJ 04/21/07

Ciniza Refinery
Monitor well 2 Drilling

7:30 - Eileen Shannon (Environ Solutions) on lot

8:30 - meet with Jim Lieb Rodger Drilling (John Aguirre and Ivan on site 7:45 A) Attended Site Safety meeting (Morgan Bird)

8:45 - 9:30 Obtained vehicle permit and Excavation Permit (pending) work to drill start point

Jim Lieb escorted us to site

9:35 - Tailgate Safety meeting. Drilling Starting to position rig

Near to entry, have Rodger personnel H2S meters

Start post hole digging for KA-3R

Strong wind gusts forecasted this afternoon I want to do augers until first

10:05-10:35 delay waiting to get Generator moved - exhaust in breathing zone

10:35 - Set up on KA-3R drill to 20'

12:00-1:00 Lunch

3/13/08 — 84679 Cinza Refinery — EZS

22

continued

1:00 - drilled down to 23 feet using 8" HSA and installed conductor casing

	DTP	DTW
2:40 KA-2	—	8.22 brown stain on pole
KA-3	rig parked on top	
KA-1	could not find - worked around	

2:00 - 3:15 pulled augers (7" ID / 14 3/4 OD)

3:30 - grouted in casing (6") @ 23 feet

- visited w/ Jim Lieb re: heavy rig at location. OK with him. Will start @ 7:30 A tomorrow with advancement boring to 30.5 feet with 4 augers

Labeled barrels: Non Haz - Low Reading IDW

Off site @ 3:45, off refinery property at 4pm

Summary

Attended safety meeting and got required permits

Installed Advanced Manual well boring for KA-3 @ TD 23 feet and grouted conductor casing in place

EZS 3/13/08

5/14/08 — 84679 Cinza Refinery — 23

Monitor Well Install

7:30A on site. Access Permit for vehicles from Linda Rosa plus Check Point for [illegible] Can not get permit to exit [illegible] Jim would like [illegible] up as best can

8:24 - Start advancing 8 3/4 OD 4 3/4 ID 7" HSA drilling. Change out augers Weather - mega winds 20-35 mph. Will [illegible]

9:20 - Start advancing 8 3/4 augers - drilled to TD 3 feet

9:40 - dry @ TD

7:45 - Set well KA-3R [illegible] as ~~the other two~~ 4" SE 25 30' slot Screen 24.5 10/20 Sand to ~~23.5~~ 23

11:10 TD = 30.5 with 4" point and Cap on. Measured static [illegible]

-DCY

B4609 | Cinza Refinery | CS
24
3/14/08 cont. | Monitor well Installation

Slow going pulling auger out of conductor casing (sticky clay)

11:15-12:15 (CS) 12:00 Lunch

12:00 – Will need to drill KA-1R next to be out of way of API separator work. Will take time to find KA-1 – buried under soil ramp built over conduit

12:30-2:30 Could not find ~~KA-1~~ KA-2 (gps) set up ~30 from separator about 2 feet below ground surface east of conduit pipe

Called to have Jim Lieb come out ~~KA-1~~ KA-2 was located east of conduit pipe. Originally they had hoped (State) put closer to API separator however could not get rig over conduit pipe. Conduit pipe now has ramp over it due to API separator work

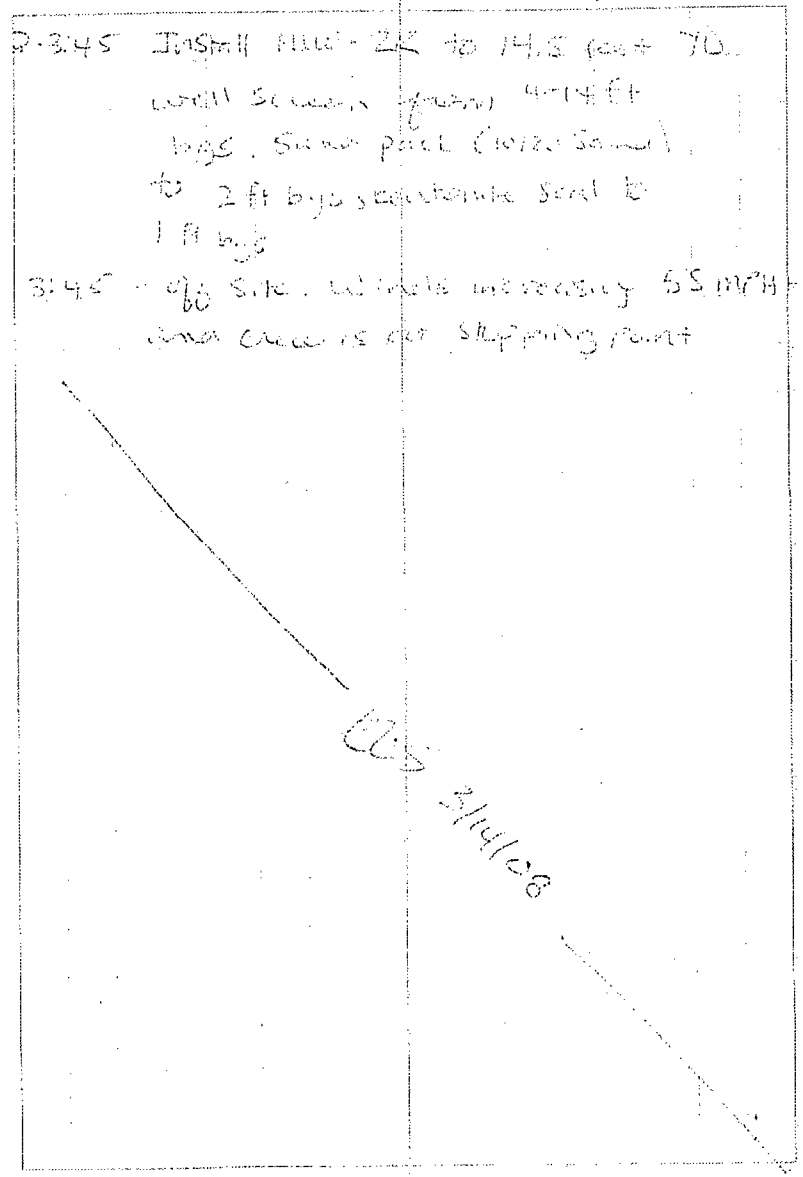
Installed ~~KA-2~~ KA-1R. Were going to search for ~~KA-1~~ KA-2 east of conduit but API-separator workers had to have access to move soil pile

3:00 Mob over to KA-2R

B4609 | Cinza Refinery | CS | 25
3/14/08 cont. | Monitor well Installation

3:45 Install MW-2R to 14.5 feet TD. well screen (from 4 to 14 ft bgs. Sand pack (#2/12 Sand) to 2 ft bgs, bentonite seal to 1 ft bgs

3:45 – off site. Will make necessary GS MW-1R changes at shipping point



3/15/08

84679
Ciniza Refinery
Monitor well Installation

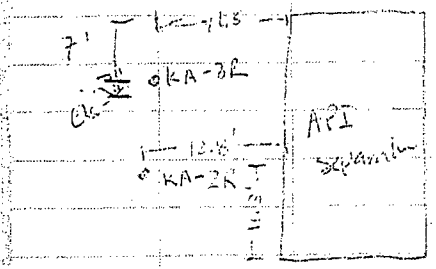
ES

7:30 - 8:00 Calibrate YSI in Hach beaker using 1413.1 µm/s conductivity Solution & 4.01 and 10.01 pH Solutions

8:00 - 8:30 Drive to site & pick up ice

8:45 - out site

↑N



- measured well distances from API
- Spoke with Sabs working on East side of API
- measured DTW pre-development after cur 3/

	DTP	DTW	TD	Time
KA-2R	—	8.61	13.95 30.71	9:28
KA-3R	—	30.68	~~30.72~~ 13.60	7:54
KA-1R	—	8.20	~~13.60~~	12:19

diver 1.61 corrected

ES

- crew making forms & setting pads

84679
Ciniza Refinery
Monitor well Installation

27

3/15/08 continued

12:05 Attempted to sample small quantity of water KA-3R could not get enough in tube bailed after 3 attempts
- plugged well prior to sample attempt: DTW = 30.68 & sand TD = 30.91

~9:30-10:30
Developed KA-2R
- removed 30 gals water (calculated)
- cloudy initially ; cleaned up by drill turbidity after 30 gal

12:20-12:45
Developed KA-1R Slow recovery
- bailed dry after 5 gals
- cloudy

12:45 - collected Soil sampler (2 jars composite) from:
5 drums KA-3R
1 drum KA-1R + KA-3R
2 drums KA-1 & KA-3 (6-11 to 6-12-07)

KA-1R cuttings Placed in Stockpile generated from API leak detector Excavation. Okd by J.M Lieb
1 1/2 55 gal drum

84679 ES 03/16/08
Ciniza Refinery
Monitor well Installation

28

3/16/8 Continued
relabelled old drums (labels must have come off)

1:45 - offsite

ES 3/15/08

3/17/08 Note - ~~Purge~~ development water placed in drain for new API Separator

54679
Ciniza Refinery
Groundwater Monitoring/Surveying

29

0745 B. Lucio on-site from HEC. Tim Lynn and Aaron Mraya (Lynn Engineering) on-site. Will attend Refinery safety training @ 0800.

0840 All personnel have completed safety training & coordinated activities w/ Jim Link (Ciniza). Proceeding to gate 5 to get vehicle passes. Then to lab for safe work permit.

0917 @ API Separator with drawing & signed permits/passes.

0930 Have received H+S's of Lynn Engineering personnel, and have removed caps from wells. T. Lynn & A. Mraya are setting up equipment. Preparing to tag DTW in wells.

Time	WELL	DTP	DTW	DTB	H
0938	KA-1R	—	9.50	13.75	4.25
0940	KA-3R	—	30.70	30.70	—
0942	KA-2R	—	8.77	13.82	5.05
0945	KA-3	—	5.61	NM	—

Barf

0948 Note re: KA-3R. Meter alarms when probe touches bottom of well. Attempted to retrieve water w/ bailer - there is not sufficient water in KA-3R to bail or sample. Purge volumes of KA-1R and KA-2R are as follows: (See pg. 16 for calculation of casing volume of a 2-in I.D. well)

KA-1R:

0.16 gal/ft × (4.25 ft) = 0.68 gal

0.68 gal × 3 = 2.04 gal purge

≃ 2 gal purge

~~0.16 gal~~

KA-2R:

0.16 gal/ft × (5.05 ft) = 0.808 gal

0.808 gal × 3 = 2.424 gal

≃ 2.5 gal purge

0954 Preparing to purge KA-1R. All purge water will be captured in a bucket and disposed of in drain for oil/water separator (ows).

1013 Have purged 3 gallons from well KA-3R. Water quality parameters were monitored and recorded with a YSI-556, SN 05A3015AJ. The

cont meter was calibrated on 03/18/08 for pH and specific conductance. The meter has not been used since calibration.

1041 Have collected sample KA-1R from well KA-1R. Collected (x3) 40-ml VOAs for 8260B analysis, (x3) 40-ml VOAs for 8015B analysis, (x1) 1-liter amber glass jar for 8310 analysis, (x1) 125-ml poly for RCRA 8 metals analysis. Water is cloudy, pinkish-tan in color, with minor silt. There is no odor. The samples have been placed on ice in a cooler. Note: water quality parameters recorded w/ YSI-556 at 0.25, 1, 2 gallons during purge of KA-1R.

1112 Have purged 3 gallons from well KA-2R. Water quality parameters were monitored and recorded w/ YSI-556 at 0.25, 1, 2, 3 gallons.

1133 Have collected sample KA-2R from well KA-2R. Collected (x3) 40-ml VOAs for 8260B analysis; (x3) 40-ml VOAs for

cont 8015B analysis; (X1) 1-liter amber glass jar for 8310 analysis, (X1) 125-ml poly for RCRA 8 metals analytes. Water is cloudy, pinkish-tan, with minor silt. The water has a noticeable hydrocarbon odor. The samples have been placed on ice in a cooler. Note: samples KA-1R and KA-2R were all collected from their respective bailers using bottom-emptying devices.

1159 Per request by J. Lieb (Ciniza) well tag DTW in wells Gwm-1, Gwm-2, Gwm-3. Lynn Engineering off-site.

Time	Well	DTP	DTW	DTB	
1204	Gwm-3	—	—	17.94	dry
1206	Gwm-1	—	19.77	36.49	
1208	Gwm-2	—	19.04	19.04	

1221 BL been leaving site to turn-in badges & vehicle pass. All wells secured.

1237 @ main office. Office is closed for lunch. Cannot return badge and keys until 1300.

1310 Have signed out at office and

cont turned in badge & keys. Have notified J. Lieb of completion of sampling/surveying. BL leave leaving site for ABQ.

1550 Have dropped off samples at Hall. BL went to Kleinfelder office

Summary

Gauged DTW in wells KA-1R, KA-2R, KA-3, KA-3R, Gwm-1, Gwm-2, and Gwm-3. Sampled wells KA-1R and KA-2R for analysis by EPA methods 8260B, 8015B, 8310, and for RCRA 8 metals. Lynn Engineering performed survey of new wells KA-1R, KA-2R, and KA-3R.

BMJ 03/20/08

Water Quality Parameters
Recorded During Purging March 20, 2008
Western Refining Company, Gallup Refinery

KA-1R

Purge Vol. (gal)	DateTime (M/D/Y)	Temp (°C)	pH	SpCond (mS/cm)
0.25	3/20/2008 10:05	12.35	7.46	1.564
1	3/20/2008 10:08	11.72	7.44	1.72
2	3/20/2008 10:15	12.04	7.4	1.879

KA-2R

Purge Vol. (gal)	DateTime (M/D/Y)	Temp (°C)	pH	SpCond (mS/cm)
0.25	3/20/2008 11:02	18.83	6.83	2.087
1	3/20/2008 11:05	18.84	7.14	2.095
2	3/20/2008 11:07	18.9	7.16	2.046
3	3/20/2008 11:10	19.04	7.14	1.968

Note: above data was downloaded from YSI-556 water quality meter

APPENDIX B

Borehole Logs

KLEINFELDER

Soil Boring/Monitoring Well Log

Date		Rig Type: CME 75	Project	Well No.
	Started: 3/14/2008		Ciniza Refinery Monitor Well Install	KA-1R
	Completed: 3/14/2008	Driller: J. Aguirre, Rodgers		
	Backfilled: 3/14/2008	Weather: Sunny, Windy	Top of Casing El.: 6918.43'	Logged By: E. Shannon
Northing: 1634587.51		Easting: 2545700.49	Location: East of New API Separator	

Sample Type: G - Grab Sample; CS - 3.5" I.D. Continuous Sampler; SPT - 2" O.D. 1.38" I.D. Tube Sample; U - 3 " O.D. 2.42" I.D. Ring Sample; ST - 3" O.D. Thin-Walled Shelby Tube; NR - No Recovery

Groundwater

Depth (ft)	Hour	Date
8.20	12:19:00 PM	3/15/2008
9.50	9:38:00 AM	3/20/2008

Groundwater Depth (ft.) / Depth (ft.)	Graphical Log	Sample Taken	Sample Type	Penetration Resistance (Blows per foot)	PID Headspace Reading, ppm	Analytical Sample Number	Visual Classification	WELL CONSTRUCTION
0							SANDY LEAN CLAY (CL) - reddish brown, dry grading to moist, 35 - 50% fine to medium grained sand	Cement bentonite grout
							Note: Boring drilled with hollow stem auger. Soil visually classified from auger cuttings.	3/8" bentonite chips
								2" Sch. 40 PVC casing
5								10/20 sand 3.7' bgs
								0.010" Slot Screen
10							Wet with increasing sand content from 11.5 ft bgs.	
							14.0' El. 6904.4'	13.7' bgs End Cap

Total Depth 14.0'

Additional Groundwater Measurements

Depth (ft)	Hour	Date

Depth (ft)	Hour	Date

Depth (ft)	Hour	Date

KLEINFELDER

Soil Boring/Monitoring Well Log

Date		Rig Type: CME 75	Project	Well No.
	Started: 3/14/2008		Ciniza Refinery Monitor Well Install	KA-2R
	Completed: 3/14/2008	Driller: J. Aguirre, Rodgers		
	Backfilled: 3/14/2008	Weather: Sunny, Windy	Top of Casing El.: 6917.27'	Logged By: E. Shannon
Northing: 1634565.05		Easting: 2545647.32	Location: West of New API Separator	

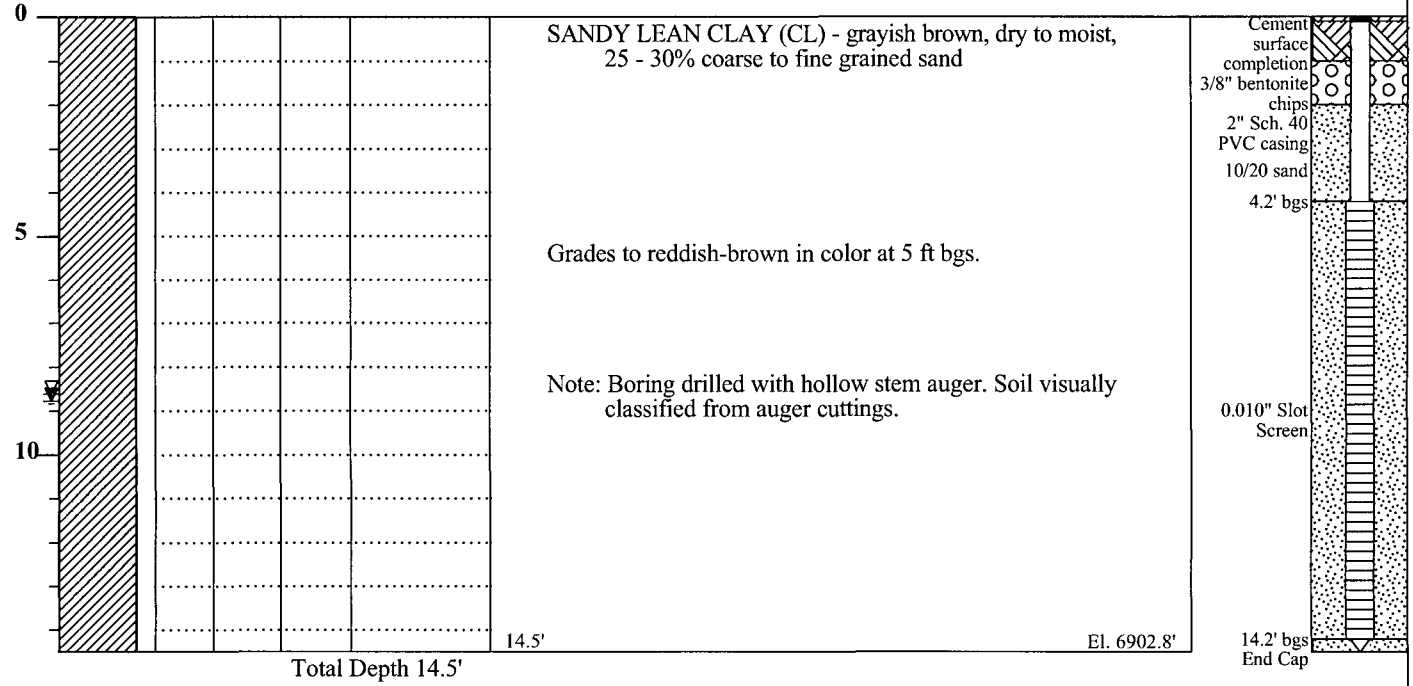
Groundwater Depth (ft.) | Depth (ft.) | Graphical Log | Sample Taken | Sample Type | Penetration Resistance (Blows per foot) | PID Headspace Reading, ppm | Analytical Sample Number

Sample Type: G - Grab Sample; CS - 3.5" I.D. Continuous Sampler; SPT - 2" O.D. 1.38" I.D. Tube Sample; U - 3 " O.D. 2.42" I.D. Ring Sample; ST - 3" O.D. Thin-Walled Shelby Tube; NR - No Recovery

Groundwater

Depth (ft)	Hour	Date
8.61	9:28:00 AM	3/15/2008
8.77	9:42:00 AM	3/20/2008

Visual Classification | **WELL CONSTRUCTION**



Total Depth 14.5'

Additional Groundwater Measurements

Depth (ft)	Hour	Date

Depth (ft)	Hour	Date

Depth (ft)	Hour	Date

KLEINFELDER

Soil Boring/Monitoring Well Log

Date		Project	Well No.
Started: 3/13/2008	Rig Type: CME 75	Ciniza Refinery Monitor Well Install	KA-3R
Completed: 3/14/2008	Driller: J. Aguirre, Rodgers		
Backfilled: 3/14/2008	Weather: Sunny, Windy	Top of Casing El.: 6917.31'	Logged By: E. Shannon
Northing: 1634589.8	Easting: 2545645.1	Location: West of New API Separator	

Sample Type: G - Grab Sample; CS - 3.5" I.D. Continuous Sampler; SPT - 2" O.D. 1.38" I.D. Tube Sample; U - 3 " O.D. 2.42" I.D. Ring Sample; ST - 3" O.D. Thin-Walled Shelby Tube; NR - No Recovery

Groundwater

Depth (ft)	Hour	Date
Dry	9:40:00 AM	3/14/2008
Dry	11:15:00 AM	3/14/2008

Groundwater Depth (ft.) | Depth (ft.) | Graphical Log | Sample Taken | Sample Type | Penetration Resistance (Blows per foot) | PID Headspace Reading, ppm | Analytical Sample Number | **Visual Classification** | **WELL CONSTRUCTION**

0

SANDY LEAN CLAY (CL) - red, dry to moist, coarse to fine grained sand

Note: Boring drilled with hollow stem auger. Soil visually classified from auger cuttings.

5

Driller noted easier drilling at 6.5 ft bgs. Soil grades to darker brown in color.

10

Driller noted change in drilling at 12.5 ft bgs. Auger cuttings increased in sand content and graded moist to wet.

15

Wet at 17 ft bgs.

20

22.0' El. 6895.3'

BEDROCK - driller noted hard drilling at 22 ft bgs, set conductor casing at 23 ft bgs.

25

30

30.7' El. 6886.6'

Total Depth 30.7'

WELL CONSTRUCTION: Flush mount completion; 2" Sch. 40 PVC casing; 8" Steel conductor casing; Cement bentonite grout; 3/8" bentonite chips; 10/20 sand; 25.4' bgs; 0.010" Slot Screen; 30.4' bgs End Cap

Additional Groundwater Measurements

Depth (ft)	Hour	Date
30.68	9:54:00 AM	3/15/2008
30.68	12:08:00 PM	3/15/2008

Depth (ft)	Hour	Date
30.70	9:40:00 AM	3/20/2008

Depth (ft)	Hour	Date

APPENDIX C

Laboratory Analytical Results

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, April 04, 2008

Eileen Shannon
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Ciniza Refinery

Order No.: 0803155

Dear Eileen Shannon:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 3/17/2008 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	Drum Sample Composite
Lab Order:	0803155	**Collection Date:**	3/15/2008 12:45:00 PM
Project:	Ciniza Refinery	**Date Received:**	3/17/2008
Lab ID:	0803155-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 9056A: ANIONS						Analyst: **SLB**
Chloride	170	1.5		mg/Kg	5	3/19/2008 8:22:47 PM
EPA METHOD 7471: MERCURY						Analyst: **SLB**
Mercury	0.073	0.033		mg/Kg	1	3/20/2008 2:55:23 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **TES**
Arsenic	ND	12		mg/Kg	5	3/27/2008 12:11:30 PM
Barium	520	2.0		mg/Kg	20	3/27/2008 12:17:57 PM
Cadmium	ND	0.50		mg/Kg	5	3/27/2008 12:11:30 PM
Chromium	15	1.5		mg/Kg	5	3/27/2008 12:11:30 PM
Lead	6.2	1.2		mg/Kg	5	3/27/2008 12:11:30 PM
Selenium	ND	50		mg/Kg	20	3/27/2008 12:17:57 PM
Silver	ND	1.2		mg/Kg	5	3/27/2008 12:11:30 PM
PAINT FILTER TEST						Analyst: **TAF**
Free Liquid	NEG	0		Pos/Neg	1	4/1/2008

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		

ENERGY LABORATORIES, INC. • P.O. Box 30916 • 1120 South 27th Street • Billings, MT 59107-0916
800-735-4489 • 406-252-6325 • 406-252-6069 fax • eli@energylab.com

LABORATORY ANALYTICAL REPORT

Client: Hall Environmental
Project: 0803155
Lab ID: B08031230-001
Client Sample ID: 0803155-01B, Drum Sample Composite

Report Date: 03/28/08
Collection Date: 03/15/08 12:45
DateReceived: 03/18/08
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
IGNITABILITY							
Flash Point (Ignitability)	>200	°F		30.0		SW1010M	03/26/08 11:44 / mgs
CORROSIVITY							
pH of Soil and Waste	8.72	s.u.		0.10		SW9045D	03/27/08 10:54 / mgs
REACTIVITY							
Cyanide, Reactive	ND	mg/kg		0.05	250	SW846 Ch 7	03/27/08 15:55 / kjp
Sulfide, Reactive	ND	mg/kg		20	500	SW846 Ch 7	03/27/08 08:00 / pwc

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

ENERGY LABORATORIES, INC. ◦ P.O. Box 30916 ◦ 1120 South 27th Street ◦ Billings, MT 59107-0916
800-735-4489 ◦ 406-252-6325 ◦ 406-252-6069 fax ◦ eli@energylab.com

QA/QC Summary Report

Client: Hall Environmental
Project: 0803155

Report Date: 03/28/08
Work Order: B08031230

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW846 Ch 7									Batch: 31601
Sample ID: MB-31601	Method Blank				Run: AUTOAN201-B_080327B				03/27/08 15:56
Cyanide, Reactive	ND	mg/kg	0.05						
Method: SW846 Ch 7									Batch: R108215
Sample ID: MB-R108215	Method Blank				Run: MISC-HZW_080327B				03/27/08 08:00
Sulfide, Reactive	ND	mg/kg	10						
Sample ID: LCS-R108215	Laboratory Control Sample				Run: MISC-HZW_080327B				03/27/08 08:00
Sulfide, Reactive	26	mg/kg	20	81	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Ciniza Refinery **Work Order:** 0803155

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 9056A: Anions									
Sample ID: MB-15405		*MBLK*			Batch ID: **15405**		Analysis Date:		3/19/2008 4:36:28 PM
Chloride	ND	mg/Kg	0.30	0	0	0	0	0	
Sample ID: LCS-15405		*LCS*			Batch ID: **15405**		Analysis Date:		3/19/2008 4:53:52 PM
Chloride	15.22	mg/Kg	0.30	101	90	110			
Method: EPA Method 7471: Mercury									
Sample ID: MB-15421		*MBLK*			Batch ID: **15421**		Analysis Date:		3/20/2008 2:52:16 PM
Mercury	ND	mg/Kg	0.033						
Sample ID: LCS-15421		*LCS*			Batch ID: **15421**		Analysis Date:		3/20/2008 2:53:50 PM
Mercury	0.1654	mg/Kg	0.033	99.3	80	120			
Method: EPA Method 6010B: Soil Metals									
Sample ID: MB-15481		*MBLK*			Batch ID: **15481**		Analysis Date:		3/27/2008 11:29:13 AM
Arsenic	ND	mg/Kg	2.5						
Barium	ND	mg/Kg	0.10						
Cadmium	ND	mg/Kg	0.10						
Chromium	ND	mg/Kg	0.30						
Lead	ND	mg/Kg	0.25						
Selenium	ND	mg/Kg	2.5						
Silver	ND	mg/Kg	0.25						
Sample ID: LCS-15481		*LCS*			Batch ID: **15481**		Analysis Date:		3/27/2008 11:32:09 AM
Arsenic	26.22	mg/Kg	2.5	105	80	120			
Barium	25.51	mg/Kg	0.10	102	80	120			
Cadmium	25.95	mg/Kg	0.10	104	80	120			
Chromium	26.13	mg/Kg	0.30	105	80	120			
Lead	25.97	mg/Kg	0.25	104	80	120			
Selenium	27.20	mg/Kg	2.5	109	80	120			
Silver	24.90	mg/Kg	0.25	99.6	80	120			

Qualifiers:

B	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 KLEIN | Date Received: 3/17/2008

Work Order Number 0803155 | Received by: TLS

Checklist completed by: Signature 3/17/08 Date | Sample ID labels checked by Initials

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?	5°	<6° C 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: Kleinfelder

Address: 8300 Jefferson NE Suite B
Albuquerque NM 87107

Phone #: 505-344-7373

email or Fax#: eshannon@kleinfelder.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Giuma Refinery

Project #: 84679 / 46
~~846782~~ 28

Project Manager: Eileen Shannon

Sampler: Eileen Shannon

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Date	Time	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 0803155	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8260)	8310 (PNA or PAH)	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Pawt Filter, ~~RCI~~ ETS	RCI	Total Metals - RCRA 8	Chloride (300.0)	Air Bubbles (Y or N)
3/15/08	12:45	Drum Sample Composite	2x8oz	ice	-1												X	X	X	X	

Analysis Request

Date:	Time:	Relinquished by:	Received by:
3/17/08	12:28	Eileen Shannon	
3/17/08	1316		3/17/08 1316

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, April 04, 2008

Eileen Shannon
Kleinfelder
8300 Jefferson, NE Suite B
Albuquerque, NM 87113

TEL: (505) 344-7373
FAX (505) 344-1711

RE: Ciniza Refinery

Order No.: 0803222

Dear Eileen Shannon:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 3/21/2008 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: *04-Apr-08*

CLIENT: Kleinfelder
Project: Ciniza Refinery
Lab Order: 0803222

CASE NARRATIVE

Analytical Comments for METHOD 8015GRO_W, SAMPLE 0803222-02A: Elevated surrogate due to matrix interference.

Hall Environmental Analysis Laboratory, Inc.

Date: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-1R
Lab Order:	0803222	**Collection Date:**	3/20/2008 10:41:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-01	**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	3/28/2008 8:28:35 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/28/2008 8:28:35 PM
Surr: DNOP	91.3	58-140		%REC	1	3/28/2008 8:28:35 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	3/28/2008 12:13:05 PM
Surr: BFB	103	79.2-121		%REC	1	3/28/2008 12:13:05 PM
EPA METHOD 8310: PAHS						Analyst: **DMF**
Naphthalene	ND	2.0		µg/L	1	4/3/2008 12:31:51 PM
1-Methylnaphthalene	ND	2.0		µg/L	1	4/3/2008 12:31:51 PM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/3/2008 12:31:51 PM
Acenaphthylene	ND	2.5		µg/L	1	4/3/2008 12:31:51 PM
Acenaphthene	ND	5.0		µg/L	1	4/3/2008 12:31:51 PM
Fluorene	ND	0.80		µg/L	1	4/3/2008 12:31:51 PM
Phenanthrene	ND	0.60		µg/L	1	4/3/2008 12:31:51 PM
Anthracene	ND	0.60		µg/L	1	4/3/2008 12:31:51 PM
Fluoranthene	ND	0.30		µg/L	1	4/3/2008 12:31:51 PM
Pyrene	ND	0.30		µg/L	1	4/3/2008 12:31:51 PM
Benz(a)anthracene	ND	0.070		µg/L	1	4/3/2008 12:31:51 PM
Chrysene	ND	0.20		µg/L	1	4/3/2008 12:31:51 PM
Benzo(b)fluoranthene	ND	0.10		µg/L	1	4/3/2008 12:31:51 PM
Benzo(k)fluoranthene	ND	0.070		µg/L	1	4/3/2008 12:31:51 PM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/3/2008 12:31:51 PM
Dibenz(a,h)anthracene	ND	0.070		µg/L	1	4/3/2008 12:31:51 PM
Benzo(g,h,i)perylene	ND	0.080		µg/L	1	4/3/2008 12:31:51 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	4/3/2008 12:31:51 PM
Surr: Benzo(e)pyrene	72.6	59.9-133		%REC	1	4/3/2008 12:31:51 PM
EPA METHOD 7470: MERCURY						Analyst: **SNV**
Mercury	ND	0.00020		mg/L	1	3/25/2008 3:11:30 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Arsenic	ND	0.020		mg/L	1	3/26/2008 6:47:06 PM
Barium	0.22	0.020		mg/L	1	3/26/2008 6:47:06 PM
Cadmium	ND	0.0020		mg/L	1	3/26/2008 6:47:06 PM
Chromium	ND	0.0060		mg/L	1	3/26/2008 6:47:06 PM
Lead	0.0077	0.0050		mg/L	1	3/26/2008 6:47:06 PM
Selenium	ND	0.050		mg/L	1	3/26/2008 6:47:06 PM
Silver	ND	0.0050		mg/L	1	3/26/2008 6:47:06 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**

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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-1R
Lab Order:	0803222	**Collection Date:**	3/20/2008 10:41:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDC
Benzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Toluene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Ethylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Naphthalene	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	3/27/2008 1:56:24 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	3/27/2008 1:56:24 AM
Acetone	ND	10		µg/L	1	3/27/2008 1:56:24 AM
Bromobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Bromodichloromethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Bromoform	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Bromomethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
2-Butanone	ND	10		µg/L	1	3/27/2008 1:56:24 AM
Carbon disulfide	ND	10		µg/L	1	3/27/2008 1:56:24 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Chlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Chloroethane	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
Chloroform	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Chloromethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
2-Chlorotoluene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
4-Chlorotoluene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
cis-1,2-DCE	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
Dibromochloromethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Dibromomethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
2-Hexanone	ND	10		µg/L	1	3/27/2008 1:56:24 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-1R
Lab Order:	0803222	**Collection Date:**	3/20/2008 10:41:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-01	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDC
Isopropylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	3/27/2008 1:56:24 AM
Methylene Chloride	ND	3.0		µg/L	1	3/27/2008 1:56:24 AM
n-Butylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
n-Propylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
sec-Butylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Styrene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
tert-Butylbenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
trans-1,2-DCE	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/27/2008 1:56:24 AM
Vinyl chloride	ND	1.0		µg/L	1	3/27/2008 1:56:24 AM
Xylenes, Total	ND	1.5		µg/L	1	3/27/2008 1:56:24 AM
Surr: 1,2-Dichloroethane-d4	83.4	68.1-123		%REC	1	3/27/2008 1:56:24 AM
Surr: 4-Bromofluorobenzene	83.4	53.2-145		%REC	1	3/27/2008 1:56:24 AM
Surr: Dibromofluoromethane	84.4	68.5-119		%REC	1	3/27/2008 1:56:24 AM
Surr: Toluene-d8	85.4	64-131		%REC	1	3/27/2008 1:56:24 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-2R
Lab Order:	0803222	**Collection Date:**	3/20/2008 11:33:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: **SCC**
Diesel Range Organics (DRO)	2.0	1.0		mg/L	1	3/28/2008 9:03:39 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	3/28/2008 9:03:39 PM
Surr: DNOP	73.8	58-140		%REC	1	3/28/2008 9:03:39 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	1.1	0.050		mg/L	1	3/28/2008 1:13:29 PM
Surr: BFB	140	79.2-121	S	%REC	1	3/28/2008 1:13:29 PM
EPA METHOD 8310: PAHS						Analyst: **DMF**
Naphthalene	8.0	2.0		µg/L	1	4/3/2008 1:19:50 PM
1-Methylnaphthalene	6.2	2.0		µg/L	1	4/3/2008 1:19:50 PM
2-Methylnaphthalene	ND	2.0		µg/L	1	4/3/2008 1:19:50 PM
Acenaphthylene	ND	2.5		µg/L	1	4/3/2008 1:19:50 PM
Acenaphthene	ND	5.0		µg/L	1	4/3/2008 1:19:50 PM
Fluorene	1.5	0.80		µg/L	1	4/3/2008 1:19:50 PM
Phenanthrene	2.2	0.60		µg/L	1	4/3/2008 1:19:50 PM
Anthracene	ND	0.60		µg/L	1	4/3/2008 1:19:50 PM
Fluoranthene	ND	0.30		µg/L	1	4/3/2008 1:19:50 PM
Pyrene	ND	0.30		µg/L	1	4/3/2008 1:19:50 PM
Benz(a)anthracene	ND	0.070		µg/L	1	4/3/2008 1:19:50 PM
Chrysene	ND	0.20		µg/L	1	4/3/2008 1:19:50 PM
Benzo(b)fluoranthene	ND	0.10		µg/L	1	4/3/2008 1:19:50 PM
Benzo(k)fluoranthene	ND	0.070		µg/L	1	4/3/2008 1:19:50 PM
Benzo(a)pyrene	ND	0.070		µg/L	1	4/3/2008 1:19:50 PM
Dibenz(a,h)anthracene	ND	0.070		µg/L	1	4/3/2008 1:19:50 PM
Benzo(g,h,i)perylene	ND	0.080		µg/L	1	4/3/2008 1:19:50 PM
Indeno(1,2,3-cd)pyrene	ND	0.080		µg/L	1	4/3/2008 1:19:50 PM
Surr: Benzo(e)pyrene	72.7	59.9-133		%REC	1	4/3/2008 1:19:50 PM
EPA METHOD 7470: MERCURY						Analyst: **SNV**
Mercury	ND	0.00020		mg/L	1	3/25/2008 3:13:15 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **TES**
Arsenic	ND	0.020		mg/L	1	3/26/2008 6:51:13 PM
Barium	0.32	0.020		mg/L	1	3/26/2008 6:51:13 PM
Cadmium	ND	0.0020		mg/L	1	3/26/2008 6:51:13 PM
Chromium	ND	0.0060		mg/L	1	3/26/2008 6:51:13 PM
Lead	ND	0.0050		mg/L	1	3/26/2008 6:51:13 PM
Selenium	ND	0.050		mg/L	1	3/26/2008 6:51:13 PM
Silver	ND	0.0050		mg/L	1	3/26/2008 6:51:13 PM
EPA METHOD 8260B: VOLATILES						Analyst: **JDC**

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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-2R
Lab Order:	0803222	**Collection Date:**	3/20/2008 11:33:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDC
Benzene	76	1.0		µg/L	1	3/27/2008 2:24:55 AM
Toluene	3.0	1.0		µg/L	1	3/27/2008 2:24:55 AM
Ethylbenzene	24	1.0		µg/L	1	3/27/2008 2:24:55 AM
Methyl tert-butyl ether (MTBE)	260	10		µg/L	10	3/26/2008 11:54:56 AM
1,2,4-Trimethylbenzene	17	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,3,5-Trimethylbenzene	6.6	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Naphthalene	14	2.0		µg/L	1	3/27/2008 2:24:55 AM
1-Methylnaphthalene	26	4.0		µg/L	1	3/27/2008 2:24:55 AM
2-Methylnaphthalene	30	4.0		µg/L	1	3/27/2008 2:24:55 AM
Acetone	ND	10		µg/L	1	3/27/2008 2:24:55 AM
Bromobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Bromodichloromethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Bromoform	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Bromomethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
2-Butanone	ND	10		µg/L	1	3/27/2008 2:24:55 AM
Carbon disulfide	ND	10		µg/L	1	3/27/2008 2:24:55 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Chlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Chloroethane	ND	2.0		µg/L	1	3/27/2008 2:24:55 AM
Chloroform	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Chloromethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
2-Chlorotoluene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
4-Chlorotoluene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
cis-1,2-DCE	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/27/2008 2:24:55 AM
Dibromochloromethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Dibromomethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	3/27/2008 2:24:55 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
2-Hexanone	ND	10		µg/L	1	3/27/2008 2:24:55 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	KA-2R
Lab Order:	0803222	**Collection Date:**	3/20/2008 11:33:00 AM
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-02	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDC
Isopropylbenzene	1.9	1.0		µg/L	1	3/27/2008 2:24:55 AM
4-Isopropyltoluene	1.0	1.0		µg/L	1	3/27/2008 2:24:55 AM
4-Methyl-2-pentanone	ND	10		µg/L	1	3/27/2008 2:24:55 AM
Methylene Chloride	ND	3.0		µg/L	1	3/27/2008 2:24:55 AM
n-Butylbenzene	2.7	1.0		µg/L	1	3/27/2008 2:24:55 AM
n-Propylbenzene	2.3	1.0		µg/L	1	3/27/2008 2:24:55 AM
sec-Butylbenzene	1.5	1.0		µg/L	1	3/27/2008 2:24:55 AM
Styrene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
tert-Butylbenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/27/2008 2:24:55 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
trans-1,2-DCE	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/27/2008 2:24:55 AM
Vinyl chloride	ND	1.0		µg/L	1	3/27/2008 2:24:55 AM
Xylenes, Total	22	1.5		µg/L	1	3/27/2008 2:24:55 AM
Surr: 1,2-Dichloroethane-d4	85.6	68.1-123		%REC	1	3/27/2008 2:24:55 AM
Surr: 4-Bromofluorobenzene	82.2	53.2-145		%REC	1	3/27/2008 2:24:55 AM
Surr: Dibromofluoromethane	84.7	68.5-119		%REC	1	3/27/2008 2:24:55 AM
Surr: Toluene-d8	86.4	64-131		%REC	1	3/27/2008 2:24:55 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	Trip Blank
Lab Order:	0803222	**Collection Date:**	
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-03	**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	3/28/2008 1:43:37 PM
Surr: BFB	108	79.2-121		%REC	1	3/28/2008 1:43:37 PM
EPA METHOD 8260B: VOLATILES						Analyst: JDC
Benzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Toluene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Ethylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Naphthalene	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2008 12:23:34 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	3/26/2008 12:23:34 PM
Acetone	ND	10		µg/L	1	3/26/2008 12:23:34 PM
Bromobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Bromodichloromethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Bromoform	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Bromomethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
2-Butanone	ND	10		µg/L	1	3/26/2008 12:23:34 PM
Carbon disulfide	ND	10		µg/L	1	3/26/2008 12:23:34 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Chlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Chloroethane	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
Chloroform	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Chloromethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
2-Chlorotoluene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
4-Chlorotoluene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
cis-1,2-DCE	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
Dibromochloromethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Dibromomethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	3/26/2008 12:23:34 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: *04-Apr-08*

CLIENT:	Kleinfelder	**Client Sample ID:**	Trip Blank
Lab Order:	0803222	**Collection Date:**	
Project:	Ciniza Refinery	**Date Received:**	3/21/2008
Lab ID:	0803222-03	**Matrix:**	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDC
2,2-Dichloropropane	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
2-Hexanone	ND	10		µg/L	1	3/26/2008 12:23:34 PM
Isopropylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	3/26/2008 12:23:34 PM
Methylene Chloride	ND	3.0		µg/L	1	3/26/2008 12:23:34 PM
n-Butylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
n-Propylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
sec-Butylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Styrene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
tert-Butylbenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
trans-1,2-DCE	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	3/26/2008 12:23:34 PM
Vinyl chloride	ND	1.0		µg/L	1	3/26/2008 12:23:34 PM
Xylenes, Total	ND	1.5		µg/L	1	3/26/2008 12:23:34 PM
Surr: 1,2-Dichloroethane-d4	83.1	68.1-123		%REC	1	3/26/2008 12:23:34 PM
Surr: 4-Bromofluorobenzene	84.2	53.2-145		%REC	1	3/26/2008 12:23:34 PM
Surr: Dibromofluoromethane	83.1	68.5-119		%REC	1	3/26/2008 12:23:34 PM
Surr: Toluene-d8	85.8	64-131		%REC	1	3/26/2008 12:23:34 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: Kleinfelder
Project: Ciniza Refinery **Work Order:** 0803222

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8015B: Diesel Range									
Sample ID: MB-15451		*MBLK*			Batch ID:	**15451**	Analysis Date:		3/27/2008 9:13:39 PM
Diesel Range Organics (DRO)	ND	mg/L	1.0						
Motor Oil Range Organics (MRO)	ND	mg/L	5.0						
Sample ID: LCS-15451		*LCS*			Batch ID:	**15451**	Analysis Date:		3/27/2008 9:48:38 PM
Diesel Range Organics (DRO)	5.335	mg/L	1.0	93.8	74	157			
Sample ID: LCSD-15451		*LCSD*			Batch ID:	**15451**	Analysis Date:		3/27/2008 10:23:37 PM
Diesel Range Organics (DRO)	5.019	mg/L	1.0	87.5	74	157	6.10	23	
Method: EPA Method 8015B: Gasoline Range									
Sample ID: 5ML RB		*MBLK*			Batch ID:	**R27908**	Analysis Date:		3/28/2008 8:41:23 AM
Gasoline Range Organics (GRO)	ND	mg/L	0.050						
Sample ID: 2.5UG GRO LCS		*LCS*			Batch ID:	**R27908**	Analysis Date:		3/28/2008 8:18:56 PM
Gasoline Range Organics (GRO)	0.4922	mg/L	0.050	98.4	80	115			
Sample ID: 2.5UG GRO LCSD		*LCSD*			Batch ID:	**R27908**	Analysis Date:		3/28/2008 8:48:51 PM
Gasoline Range Organics (GRO)	0.5044	mg/L	0.050	101	80	115	2.45	8.39	

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: Kleinfelder
Project: Ciniza Refinery **Work Order:** 0803222

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8310: PAHs									
Sample ID: MB-15462		*MBLK*			Batch ID: **15462**		Analysis Date:	4/3/2008 9:19:52 AM	
Naphthalene	ND	µg/L	2.0						
1-Methylnaphthalene	ND	µg/L	2.0						
2-Methylnaphthalene	ND	µg/L	2.0						
Acenaphthylene	ND	µg/L	2.5						
Acenaphthene	ND	µg/L	5.0						
Fluorene	ND	µg/L	0.80						
Phenanthrene	ND	µg/L	0.60						
Anthracene	ND	µg/L	0.60						
Fluoranthene	ND	µg/L	0.30						
Pyrene	ND	µg/L	0.30						
Benz(a)anthracene	ND	µg/L	0.070						
Chrysene	ND	µg/L	0.20						
Benzo(b)fluoranthene	ND	µg/L	0.10						
Benzo(k)fluoranthene	ND	µg/L	0.070						
Benzo(a)pyrene	ND	µg/L	0.070						
Dibenz(a,h)anthracene	ND	µg/L	0.070						
Benzo(g,h,i)perylene	ND	µg/L	0.080						
Indeno(1,2,3-cd)pyrene	ND	µg/L	0.080						
Sample ID: LCS-15462		*LCS*			Batch ID: **15462**		Analysis Date:	4/3/2008 10:55:52 AM	
Naphthalene	25.56	µg/L	2.0	63.9	37.3	91.2			
1-Methylnaphthalene	24.62	µg/L	2.0	61.4	36.7	91.2			
2-Methylnaphthalene	24.24	µg/L	2.0	60.6	35.8	91.6			
Acenaphthylene	25.43	µg/L	2.5	63.4	14.4	114			
Acenaphthene	25.14	µg/L	5.0	62.8	43.9	96.5			
Fluorene	2.560	µg/L	0.80	63.8	47.4	102			
Phenanthrene	1.270	µg/L	0.60	63.2	46.9	107			
Anthracene	1.270	µg/L	0.60	63.2	49.1	110			
Fluoranthene	2.620	µg/L	0.30	65.3	44.8	102			
Pyrene	2.580	µg/L	0.30	64.3	49.2	104			
Benz(a)anthracene	0.2600	µg/L	0.070	64.8	50.5	113			
Chrysene	1.300	µg/L	0.20	64.7	41.3	98.5			
Benzo(b)fluoranthene	0.3200	µg/L	0.10	63.9	52.7	106			
Benzo(k)fluoranthene	0.1600	µg/L	0.070	64.0	44.9	105			
Benzo(a)pyrene	0.1700	µg/L	0.070	67.7	52.8	115			
Dibenz(a,h)anthracene	0.3400	µg/L	0.070	67.9	50.5	108			
Benzo(g,h,i)perylene	0.3700	µg/L	0.080	74.0	55.4	108			
Indeno(1,2,3-cd)pyrene	0.6510	µg/L	0.080	65.0	15.1	117			
Sample ID: LCSD-15462		*LCSD*			Batch ID: **15462**		Analysis Date:	4/3/2008 11:43:52 AM	
Naphthalene	25.94	µg/L	2.0	64.8	37.3	91.2	1.48	32.1	
1-Methylnaphthalene	25.40	µg/L	2.0	63.3	36.7	91.2	3.12	32.7	
2-Methylnaphthalene	24.99	µg/L	2.0	62.5	35.8	91.6	3.05	34	
Acenaphthylene	26.60	µg/L	2.5	66.3	14.4	114	4.50	38.8	
Acenaphthene	26.23	µg/L	5.0	65.6	43.9	96.5	4.24	38.6	
Fluorene	2.710	µg/L	0.80	67.6	47.4	102	5.69	29.3	

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: Kleinfelder
Project: Ciniza Refinery **Work Order:** 0803222

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8310: PAHs									
Sample ID: LCSD-15462		*LCSD*			Batch ID:	**15462**	Analysis Date:		4/3/2008 11:43:52 AM
Phenanthrene	1.390	µg/L	0.60	69.2	46.9	107	9.02	25	
Anthracene	1.370	µg/L	0.60	68.2	49.1	110	7.58	23.9	
Fluoranthene	2.760	µg/L	0.30	68.8	44.8	102	5.20	15.7	
Pyrene	2.780	µg/L	0.30	69.3	49.2	104	7.46	15.3	
Benz(a)anthracene	0.2800	µg/L	0.070	69.8	50.5	113	7.41	19	
Chrysene	1.380	µg/L	0.20	68.7	41.3	98.5	5.97	16.6	
Benzo(b)fluoranthene	0.3400	µg/L	0.10	67.9	52.7	106	6.06	21.7	
Benzo(k)fluoranthene	0.1700	µg/L	0.070	68.0	44.9	105	6.06	19.4	
Benzo(a)pyrene	0.1800	µg/L	0.070	71.7	52.8	115	5.71	16.7	
Dibenz(a,h)anthracene	0.3600	µg/L	0.070	71.9	50.5	108	5.71	17.3	
Benzo(g,h,i)perylene	0.3700	µg/L	0.080	74.0	55.4	108	0	18	
Indeno(1,2,3-cd)pyrene	0.7360	µg/L	0.080	73.5	15.1	117	12.3	17.7	
Method: EPA Method 7470: Mercury									
Sample ID: MB-15464		*MBLK*			Batch ID:	**15464**	Analysis Date:		3/25/2008 2:35:37 PM
Mercury	ND	mg/L	0.00020						
Sample ID: LCS-15464		*LCS*			Batch ID:	**15464**	Analysis Date:		3/25/2008 2:37:22 PM
Mercury	0.005334	mg/L	0.00020	107	80	120			
Method: EPA 6010B: Total Recoverable Metals									
Sample ID: MB-15474		*MBLK*			Batch ID:	**15474**	Analysis Date:		3/26/2008 6:17:00 PM
Arsenic	ND	mg/L	0.020						
Barium	ND	mg/L	0.010						
Cadmium	ND	mg/L	0.0020						
Chromium	ND	mg/L	0.0060						
Lead	ND	mg/L	0.0050						
Selenium	ND	mg/L	0.050						
Silver	ND	mg/L	0.0050						
Sample ID: LCS-15474		*LCS*			Batch ID:	**15474**	Analysis Date:		3/26/2008 6:21:23 PM
Arsenic	0.4613	mg/L	0.020	92.3	80	120			
Barium	0.4529	mg/L	0.010	90.6	80	120			
Cadmium	0.4595	mg/L	0.0020	91.9	80	120			
Chromium	0.4515	mg/L	0.0060	90.3	80	120			
Lead	0.4499	mg/L	0.0050	90.0	80	120			
Selenium	0.4504	mg/L	0.050	90.1	80	120			
Silver	0.4643	mg/L	0.0050	92.9	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

QA/QC SUMMARY REPORT

Client: Kleinfelder
Project: Ciniza Refinery Work Order: 0803222

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260B: VOLATILES									
Sample ID: 5mL rb		MBLK		Batch ID: R27881		Analysis Date: 3/26/2008 9:28:39 AM			
Benzene	ND	µg/L	1.0						
Toluene	ND	µg/L	1.0						
Ethylbenzene	ND	µg/L	1.0						
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0						
1,2,4-Trimethylbenzene	ND	µg/L	1.0						
1,3,5-Trimethylbenzene	ND	µg/L	1.0						
1,2-Dichloroethane (EDC)	ND	µg/L	1.0						
1,2-Dibromoethane (EDB)	ND	µg/L	1.0						
Naphthalene	ND	µg/L	2.0						
1-Methylnaphthalene	ND	µg/L	4.0						
2-Methylnaphthalene	ND	µg/L	4.0						
Acetone	ND	µg/L	10						
Bromobenzene	ND	µg/L	1.0						
Bromodichloromethane	ND	µg/L	1.0						
Bromoform	ND	µg/L	1.0						
Bromomethane	ND	µg/L	1.0						
2-Butanone	ND	µg/L	10						
Carbon disulfide	ND	µg/L	10						
Carbon Tetrachloride	ND	µg/L	1.0						
Chlorobenzene	ND	µg/L	1.0						
Chloroethane	ND	µg/L	2.0						
Chloroform	ND	µg/L	1.0						
Chloromethane	ND	µg/L	1.0						
2-Chlorotoluene	ND	µg/L	1.0						
4-Chlorotoluene	ND	µg/L	1.0						
cis-1,2-DCE	ND	µg/L	1.0						
cis-1,3-Dichloropropene	ND	µg/L	1.0						
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0						
Dibromochloromethane	ND	µg/L	1.0						
Dibromomethane	ND	µg/L	1.0						
1,2-Dichlorobenzene	ND	µg/L	1.0						
1,3-Dichlorobenzene	ND	µg/L	1.0						
1,4-Dichlorobenzene	ND	µg/L	1.0						
Dichlorodifluoromethane	ND	µg/L	1.0						
1,1-Dichloroethane	ND	µg/L	1.0						
1,1-Dichloroethene	ND	µg/L	1.0						
1,2-Dichloropropane	ND	µg/L	1.0						
1,3-Dichloropropane	ND	µg/L	1.0						
2,2-Dichloropropane	ND	µg/L	2.0						
1,1-Dichloropropene	ND	µg/L	1.0						
Hexachlorobutadiene	ND	µg/L	1.0						
2-Hexanone	ND	µg/L	10						
Isopropylbenzene	ND	µg/L	1.0						
4-Isopropyltoluene	ND	µg/L	1.0						

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: Kleinfelder
Project: Ciniza Refinery **Work Order:** 0803222

Analyte	Result	Units	PQL	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 8260B: VOLATILES									
Sample ID: 5mL rb		*MBLK*			Batch ID: **R27881**		Analysis Date:	3/26/2008 9:28:39 AM	
4-Methyl-2-pentanone	ND	µg/L	10						
Methylene Chloride	ND	µg/L	3.0						
n-Butylbenzene	ND	µg/L	1.0						
n-Propylbenzene	ND	µg/L	1.0						
sec-Butylbenzene	ND	µg/L	1.0						
Styrene	ND	µg/L	1.0						
tert-Butylbenzene	ND	µg/L	1.0						
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0						
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0						
Tetrachloroethene (PCE)	ND	µg/L	1.0						
trans-1,2-DCE	ND	µg/L	1.0						
trans-1,3-Dichloropropene	ND	µg/L	1.0						
1,2,3-Trichlorobenzene	ND	µg/L	1.0						
1,2,4-Trichlorobenzene	ND	µg/L	1.0						
1,1,1-Trichloroethane	ND	µg/L	1.0						
1,1,2-Trichloroethane	ND	µg/L	1.0						
Trichloroethene (TCE)	ND	µg/L	1.0						
Trichlorofluoromethane	ND	µg/L	1.0						
1,2,3-Trichloropropane	ND	µg/L	2.0						
Vinyl chloride	ND	µg/L	1.0						
Xylenes, Total	ND	µg/L	1.5						
Sample ID: 100ng lcs		*LCS*			Batch ID: **R27881**		Analysis Date:	3/26/2008 10:26:17 AM	
Benzene	19.11	µg/L	1.0	95.6	72.4	126			
Toluene	17.37	µg/L	1.0	86.9	69.4	126			
Chlorobenzene	20.06	µg/L	1.0	100	83.1	111			
1,1-Dichloroethene	18.86	µg/L	1.0	94.3	81.4	122			
Trichloroethene (TCE)	17.72	µg/L	1.0	88.6	64.4	118			

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 KLEIN | Date Received: 3/21/2008

Work Order Number 0803222 | Received by: AT

Checklist completed by: _____ 3/21/08 | Sample ID labels checked by _____ Initials

Signature | 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?	10°	*<6° C 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: Kleinfelder West, Inc

Address: 8300 Jefferson Blvd NE
Albuquerque, NM 87113

Phone #: (505) 344-7373

email or Fax#: (505) 344-1711

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
☑ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name:
Ciniza Refinery

Project #:
84679 task 4/4b

Project Manager:
Eileen Shannon

Sampler: Lucero, Brian

On Ice: Yes No

Sample Temperature: 10

HALL ENVIRONMENTAL ANALYSIS LABORATORY
www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	EDC (Method 8260)	8310 (PNA or PAH)	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	RCRA 8 metals			Air Bubbles (Y or N)
03/20/08	1041	KA-1R	(2)40ml VOA (1) 1-liter (1) 125-ml poly	HgCl2 N/A HNO_3	0803222-1			X				X			X		X			
03/20/08	1133	KA-2R	(2) 40ml VOA (1) liter (1) 125-ml poly	HgCl2 N/A HNO_3	-2			X				X			X		X			
		Trip Blank			-3			X							X					

Date:	Time:	Relinquished by:	Received by:	Date:	Time:
03/20/08	1550	Brian Lucero		3/20/08	1550
Date:	Time:	Relinquished by:	Received by:		

Remarks:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.