1R - 427-91

GENERAL CORRESPONDENCE

YEAR(S):

2005

R. T. HICKS CONSULTANTS, LTD.
901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266-0745

July 13, 2005

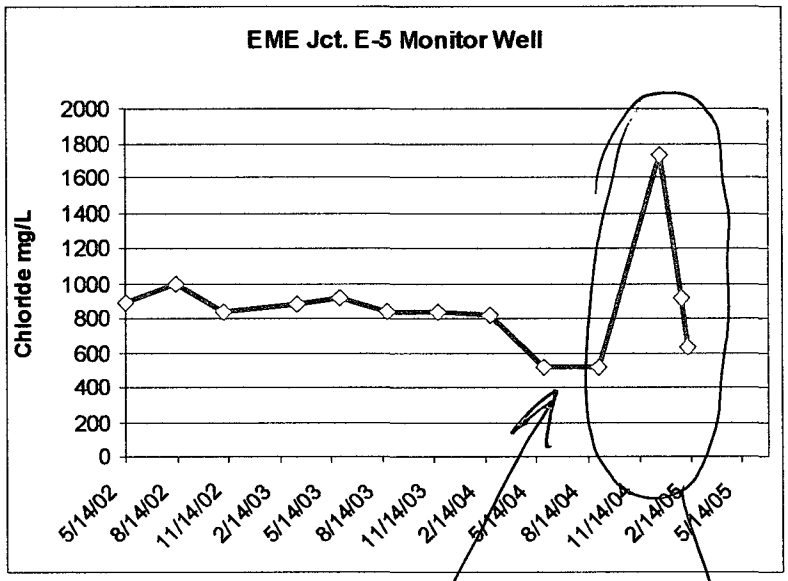
Mr. Daniel Sanchez
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

RE: Marathon Barber EOL UL E Sec 5, T20S, R37E
1R0427-91

Dear Mr. Sanchez

In your letter of May 5, 2005, NMOCD required Rice Operating Company (ROC) to submit an abatement plan for the above-referenced site on or before July 15, 2005. We respectfully request NMOCD carefully review the attached data and the discussion below then re-consider the need for an Abatement Plan for this site. Our rationale for this request is based findings presented in the submission by Marathon Oil Company (MOC) on their activities at the Bertha Barber site (see attached disc) and the recent data from the ROC monitoring well.

The data from the ROC monitoring well shows that hydrocarbons are present in ground water, but well below state standards. If one eliminates the spurious result for December 2004, which depth to water and total depth data clearly show the result is from a different well, the data suggest that chloride and TDS concentrations are generally decreasing with time until September 2004 (figure). Unlike the sampling event of December 2004, we cannot explain the high values of chloride (and TDS) observed in the following two months of January (1730 ppm chloride) and February 2005 (916 ppm). Because the precipitous rise then decline in salt concentrations over this three month period is not consistent with nature, we suspect man-made influences associated with the sampling or laboratory protocols. Regardless of the cause, the elevated chloride and TDS concentrations at the E-5 monitor in the winter of 2004/05 were transitory. Evaluation of these data in the context of the data from the MOC Bertha Barber report is critical to understanding



our request for NMOCD to re-evaluate the need for a Rule 19 Abatement Plan at this site.

The attached MOC report concludes that:

1. Up gradient sources of chloride and TDS have impaired the water quality at the site.
2. The recent wet winter of 2004-2005 have caused ground water levels to rise as much as 10 feet and caused the TDS and chloride to decrease by 50-80% in monitoring wells.
3. The 2005 ground water monitoring event shows that ground water at the site is suitable for livestock (with respect to chloride and TDS) but exceeds the New Mexico numerical standards.
4. Background chloride concentrations, as defined by the adjacent, up gradient livestock well, range between 500 and 700 ppm. The total dissolved solids concentration of the livestock well ranges between 1400 and 1900 ppm.
5. The up gradient monitoring well MW-10 (located down-gradient of Dynegy pipeline release area) continues to show relatively high concentrations of TDS and chloride (2530 ppm and 919 ppm respectively).

We ask NMOCD to closely examine the six years of data collected by MOC and the attached ROC data to confirm that ROC meets the definition of a "responsible person" under NMOCD Rules for the documented impairment of ground water quality at the site. ROC does not dispute that the E-5 EOL Junction Box at the site released produced water (i.e. chloride) to the subsurface and will put forward a Corrective Action Plan to address the residual constituents in the vadose zone. However, ROC does not desire to enter the Rule 19 process to address ground water contamination caused by up gradient, non-ROC sources. We have not examined the NMOCD file regarding the up gradient Dynegy release nor have we sampled the Dynegy monitoring wells. Perhaps a review of the file can enlighten us on how this documented release may have affected the E-5 site. None of our field data nor the data from the MOC report suggests that ROC contributed to the observed benzene in ground water at the site.

We ask NMOCD set aside the mid-July date for our submission of a Rule 19 Abatement Plan. We ask NMOCD to carefully review the attached MOC 2004-05 Annual Report in concert with the data in your files on the up gradient Dynegy release. We believe your analysis will conclude that:

- the magnitude and extent of elevated TDS and chloride near the ROC E-5 site is well-defined
- natural restoration has effectively reduced chloride and TDS concentrations to regional background

- up gradient sources of chloride and TDS continue to affect the water quality near the E-5 site
- ground water beneath the E-5 site is suitable for livestock

We recommend that ROC continue with quarterly monitoring of the E-5 site and submit an annual report in 2006 after evaluation of the 2006 MOC sampling event for the Bertha Barber site. Our annual report will also consider and respond to any data and conclusions derived from NMOCD's evaluation of the Dynegy file.

Thank you for consideration of this request.

Sincerely,
R.T. Hicks Consultants, Ltd.

Randall Hicks
Principal

Copy:

Kristin Pope, Rice Operating Company
Vijay Kurki, Marathon Oil Company

South[redacted] Business Unit

Marathon Oil Company

P.O. Box 3487
Houston, TX 77253-3487
5555 San Felipe Street
Houston, TX 77056-2799
Telephone 713/629-6600

June 13, 2005

Mr. Wayne Price
Environment Bureau
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87504

RE: Annual Groundwater Monitoring Report
2004 and 2005 sampling events
Former Bertha Barbara Tank Battery site
Lea County, NM

Dear Mr. Price:

Please find enclosed Annual Groundwater Monitoring Report covering 2004 and 2005 sampling events. The annual report, which was prepared by R.T. Hicks Consultants Ltd. on behalf of Marathon Oil, summarizes the groundwater monitoring and remediation activities associated with the former Bertha Barbara remediation site.

If you have any questions or need any additional information, please contact me at (713) 296-2213.

Sincerely,

Vijay Kurki

Vijay K. Kurki, P.E.
Senior HES Professional

File: NM-BBTB-E700-001
Enclosures

cc: Joe. W. Sologub w/o enclosures

June 2005

Bertha Barber Tank Battery

Annual Report 2004-2005

R.T. HICKS CONSULTANTS, LTD.

901 RIO GRANDE BLVD. NW, SUITE F-142, ALBUQUERQUE, NM 87104

1.0 EXECUTIVE SUMMARY

We refer the reader to the 2003 Annual Report (submitted to NMOCD in March 2004) which provides important background regarding the site (Appendix A). This submission updates the 2003 Annual Report by providing data from the 2004 and 2005 sampling activities and our interpretations of the data. This submission is the 2004-05 Annual report.

In addition to the sampling programs described below, Marathon Oil Company (MOC) installed a soil vapor extraction (SVE) system in January 2005 that withdraws vapor from MW-1 and MW-2.

Pipeline releases of chloride from Rice Operating Company (located between MW-3 and MW-9) may have entered ground water in the past. Releases of chloride from up gradient sources, such as Dynergy (just northwest of MW-10), continue to impact groundwater quality. The data presented in this report demonstrate that the former Bertha Barber Tank Battery site is not a source of chloride in ground water. The data presented in this report show that the chloride currently observed in ground water is a result of a recent release or a past release from up gradient source(s).

In summary we found:

A. The ground water elevation rose about 5-10 feet in response to the relatively wet 2004-2005 fall and winter season.
B. Benzene is the only regulated hydrocarbon constituent detected in ground water at concentrations that exceed state standards and benzene occurs only in MW-4 and MW-5. However, the up gradient well MW-10, which exhibited hydrocarbons above standards in the past, was not sampled for hydrocarbons.
C. In 2005, benzene concentrations in MW-4 and MW-5 were 15.2 and 25.5 ppb respectively. In the past, benzene concentrations in MW-4 and MW-5 exceeded 50 ppb and 100 ppb respectively.
D. Phase separated hydrocarbons (PSH) exists only in MW-1 and the thickness observed in 2005 (0.1 foot) is less than 2004 (0.81 feet) but more than earlier events, such as September 2003 (0.04 feet).
E. Background chloride concentrations, as defined by the adjacent, up gradient livestock well, range between 500 and 700 ppm. The total dissolved solids concentration of the livestock well ranges between 1400 and 1900 ppm.
F. Chloride concentrations in ground water in March 2005 are generally 80-50% lower than concentrations observed in 2003. TDS concentrations have declined similarly.
G. MW-16, which exhibits the highest concentrations of TDS and chloride (2510 ppm and 1240 ppm respectively), is suitable for livestock but exceeds state ground water standards.
H. The up gradient monitoring well MW-10 (located down-gradient of Dynergy pipeline release area) continues to show relatively high concentrations of TDS and chloride (2530 ppm and 919 ppm respectively).

I. According to NMSU (http://cahe.nmsu.edu/pubs/_m/m-112.html) a TDS of 1000-2999 mg/l is "very satisfactory for all classes of livestock and poultry."

These new data allow us to conclude:

1. The former Bertha Barber Tank Battery, which released hydrocarbons in the past, created a highly localized area of benzene in ground water.
2. Past actions from up gradient, off-site sources have also caused impairment of ground water quality at the site (hydrocarbons and chloride).
3. Natural processes have effectively mitigated the impact caused by the Bertha Barber site's release of hydrocarbons in all wells except MW-5 and MW-4, which remains above WQCC Standards and MW-1, which contains separate phase hydrocarbons.
4. Natural processes will continue to reduce benzene concentrations in MW-5 and MW-4 to acceptable levels.
5. PSH will continue to appear in certain monitor wells in the form of a sheen or thin layer. Fluctuating water levels cause hydrocarbons that are entrained within the saturated zone matrix to appear in monitoring wells.
6. The precipitation events of 2004 appear to have accelerated natural processes (dilution), which have reduced TDS and chloride concentrations in the area caused by others.

We recommend that annual ground water sampling of MW-1, MW-2, MW-4 and MW-5 for hydrocarbon constituents only should continue until benzene is at or below state standard. When ground water quality meets these criteria, Marathon should perform eight quarters of monitoring of these four wells then submit a request for closure of the regulatory file associated with ground water.

June 2005

Bertha Barber Tank Battery

Annual Report 2004-2005

R.T. Hicks Consultants, Ltd.

901 Rio Grande Blvd. NW, Suite F-142, Albuquerque, NM 87104

1.0 EXECUTIVE SUMMARY

We refer the reader to the 2003 Annual Report (submitted to NMOCD in March 2004) which provides important background regarding the site (Appendix A). This submission updates the 2003 Annual Report by providing data from the 2004 and 2005 sampling activities and our interpretations of the data. This submission is the 2004-05 Annual report.

In addition to the sampling programs described below, Marathon Oil Company (MOC) installed a soil vapor extraction (SVE) system in January 2005 that withdraws vapor from MW-1 and MW-2.

Pipeline releases of chloride from Rice Operating Company (located between MW-3 and MW-9) may have entered ground water in the past. Releases of chloride from up gradient sources, such as Dynergy (just northwest of MW-10), continue to impact groundwater quality. The data presented in this report demonstrate that the former Bertha Barber Tank Battery site is not a source of chloride in ground water. The data presented in this report show that the chloride currently observed in ground water is a result of a recent release or a past release from up gradient source(s).

In summary we found:

A. The ground water elevation rose about 5-10 feet in response to the relatively wet 2004-2005 fall and winter season.
B. Benzene is the only regulated hydrocarbon constituent detected in ground water at concentrations that exceed state standards and benzene occurs only in MW-4 and MW-5. However, the up gradient well MW-10, which exhibited hydrocarbons above standards in the past, was not sampled for hydrocarbons.
C. In 2005, benzene concentrations in MW-4 and MW-5 were 15.2 and 25.5 ppb respectively. In the past, benzene concentrations in MW-4 and MW-5 exceeded 50 ppb and 100 ppb respectively.
D. Phase separated hydrocarbons (PSH) exists only in MW-1 and the thickness observed in 2005 (0.1 foot) is less than 2004 (0.81 feet) but more than earlier events, such as September 2003 (0.04 feet).
E. Background chloride concentrations, as defined by the adjacent, up gradient livestock well, range between 500 and 700 ppm. The total dissolved solids concentration of the livestock well ranges between 1400 and 1900 ppm.
F. Chloride concentrations in ground water in March 2005 are generally 80-50% lower than concentrations observed in 2003. TDS concentrations have declined similarly.
G. MW-16, which exhibits the highest concentrations of TDS and chloride (2510 ppm and 1240 ppm respectively), is suitable for livestock but exceeds state ground water standards.
H. The up gradient monitoring well MW-10 (located down-gradient of Dynergy pipeline release area) continues to show relatively high concentrations of TDS and chloride (2530 ppm and 919 ppm respectively).

I. According to NMSU (http://cahe.nmsu.edu/pubs/_m/m-112.html) a TDS of 1000-2999 mg/l is "very satisfactory for all classes of livestock and poultry."

These new data allow us to conclude:

1. The former Bertha Barber Tank Battery, which released hydrocarbons in the past, created a highly localized area of benzene in ground water.
2. Past actions from up gradient, off-site sources have also caused impairment of ground water quality at the site (hydrocarbons and chloride).
3. Natural processes have effectively mitigated the impact caused by the Bertha Barber site's release of hydrocarbons in all wells except MW-5 and MW-4, which remains above WQCC Standards and MW-1, which contains separate phase hydrocarbons.
4. Natural processes will continue to reduce benzene concentrations in MW-5 and MW-4 to acceptable levels.
5. PSH will continue to appear in certain monitor wells in the form of a sheen or thin layer. Fluctuating water levels cause hydrocarbons that are entrained within the saturated zone matrix to appear in monitoring wells.
6. The precipitation events of 2004 appear to have accelerated natural processes (dilution), which have reduced TDS and chloride concentrations in the area caused by others.

We recommend that annual ground water sampling of MW-1, MW-2, MW-4 and MW-5 for hydrocarbon constituents only should continue until benzene is at or below state standard. When ground water quality meets these criteria, Marathon should perform eight quarters of monitoring of these four wells then submit a request for closure of the regulatory file associated with ground water.

2.0 2004-2005 SAMPLING FIELD METHODS

BBC International Inc. conducted annual groundwater monitoring events on March 22, 2004 and March 2-3 and April 22, 2005. During each monitoring event, a site-wide gauging event was completed prior to sampling.

Three wetted casing volumes of water were removed from each well prior to sample collection. The fluid was removed from each well using a submersible pump and dedicated tubing or a dedicated disposable bailer. In some cases, the wells were pumped (or bailed) dry and allowed to recover prior to sampling. When a submersible pump was utilized, it was decontaminated by washing and pumping with water and laboratory-grade detergent. The washing was followed by a clean water rinse.

Because MW-1 showed a measurable amount of phase-separated hydrocarbons (PSH) during both 2004 and 2005 sampling events, BBC did not collect a sample from this well. Because MW-10 measures the effects of the up-gradient sources, BBC International did not sample this well in 2004. In 2005, BBC sampled MW-10 for TDS and chloride only to establish the influence of up gradient sources of chloride on the Bertha Barber site.

During the 2004 annual monitoring event, ground water samples were collected and analyzed for BTEX (benzene, toluene, ethylbenzene and total xylene) using EPA Method 8021B. MOC did not request sampling for metals (e.g. chloride, barium, etc.) or TDS after verbal authorization from NMOCD to eliminate this sampling requirement.

For the 2005 annual monitoring event, BBC collected samples for analysis of regulated petroleum hydrocarbons (BTEX and naphthalene) as well as selected metals. For sulfate analysis of samples from MW-15, MW-9, MW-3 and MW-2, the laboratory employed EPA Method 300.0. The laboratory analyzed samples from all wells for:

- chloride (EPA Method 300.0)
- total dissolved solids (EPA Method 160.1)
- Barium, Iron and Manganese (EPA Method 6010B)

Fluid levels were gauged in all monitor wells during each groundwater monitoring event.

3.0 RESULTS AND DISCUSSION OF 2004-2005 GROUND WATER SAMPLING

Table 1 contains historical fluid level data for all monitor wells at the site. Plate 1 is a water table elevation map for the Bertha Barber wells for March 22, 2004. Plate 2 is a water table elevation map for the March-April 2005 sampling event. Our interpretation of the 2004 water level data remains consistent with the regional data, showing a southeast gradient of 0.0004.

The data from 2005 (Plate 2) reveal an unusual potentiometric surface reminiscent of a map reported to NMOCD several years ago. Perturbations in the water elevation are caused by measurements in MW-6, MW-2, and MW-9. In Plate 2, the hydraulic gradient is 0.005 to the southwest, as in Plate 1, if we employ only the data from wells MW-13, MW-14, MW-11 and MW-16. Because highly localized recharge and discharge cannot be called upon to explain the observed perturbation in the potentiometric surface, we must conclude that localized changes in the hydraulic properties of the underlying aquifer are the cause of the unusual surface. Perhaps aged hydrocarbons have filled pore spaces near MW-6 and MW-2 and reduced the hydraulic conductivity relative to other areas. Perhaps the area near MW-6 and MW-2 exhibits a lower hydraulic conductivity due to natural causes and near MW-9 the aquifer exhibits a higher hydraulic conductivity.

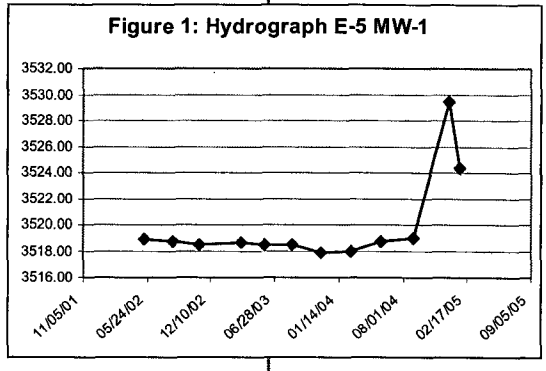


Figure 1 is a hydrograph of the E-5 monitoring well of Rice Operating Company, which is gauged quarterly. In the area of the Bertha Barber site, water levels rose more than 10 feet. Other wells in the area also showed a rise in the water table elevation, but generally less than the 10 feet observed at the E-5 Bertha Barber site.

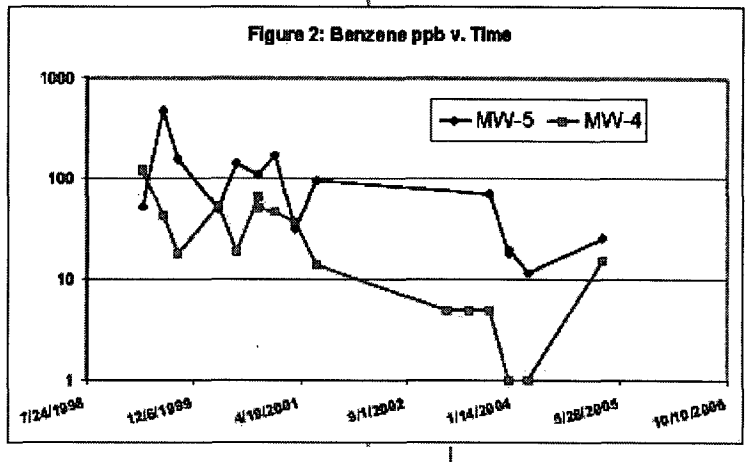
This rise in the ground water elevation shown in Figure 1 was a stress to the hydrogeologic system, similar to a pumping or injection well. When conducting a pumping test to determine aquifer property, one applies a

stress to an aquifer system and measures the response. At the Bertha Barber site, the potentiometric surface at MW-6 and MW-2 has not risen as quickly as other wells while the surface at MW-9 rose higher than all other wells. As stated above, one could conclude from this data that the hydraulic conductivity at MW-6 and MW-2 is less than at other wells, dampening the effect of the regionally rising water levels. Because we saw no evidence of a surface discharge event near MW-9 that would cause the ground water "mound" in Plate 2, we can conclude that the hydraulic conductivity is larger than other wells, showing a larger response to the regionally rising water levels.

In 2004 and 2005, BBC International observed phase-separated hydrocarbons in MW-1. As shown in Table 1, PSH in MW-1 is not uncommon, but the thickness of PSH has increased during the past three years before decreasing to 0.1 foot in 2005. No other wells exhibited PSH in 2004 or 2005. Before 2003 PSH occurred more than once in wells MW-2, MW-4, MW-5, MW-7, MW-9 and MW-10. However, natural processes have caused restoration of hydrocarbons (dissolved and PSH) in MW-4, MW-5, MW-7 and MW-9, which monitored by MOC. PSH was not observed in MW-10 and this we did not sample this well for hydrocarbons. As stated in the 2003 Annual Report:

> *Examination of the geologist's logs of MW-1 and other nearby wells show hydrocarbon stained material at depths exceeding 25 feet and some wells (e.g. MW-3) show hydrocarbon stained material within the saturated zone. We hypothesize that these hydrocarbons in the deep vadose zone and in the saturated zone periodically release phase-separated hydrocarbons to ground water in the form of PSH in monitoring wells.*

The chemical analyses are summarized in Tables 2, 3 and 4 along with historical results from each well. In 2003 and 2005, only MW-5 exhibited benzene above laboratory detection limits. In 2005, MW-5 and MW-4 detected hydrocarbons, both above the WQCC numerical standard. Figure 2 shows the chemical trend in these wells over time. Forecasting the benzene concentration decline using a simple "best fit" analysis to the existing data suggests that MW-5 will meet WQCC standards by 2008. Of course, this same analysis would have shown that MW-4 would not exceed standards in 2005. We cannot



predict the exact date of complete restoration of the site with scientific certainty. However, we can rely upon the Second Law of Thermodynamics and decades of data at other hydrocarbon sites to conclude that natural restoration of ground water will occur at the site.

Since 2003, all other organic constituents, such as toluene and PAHs, have been below laboratory detection limits or below the numerical standards.

Total Dissolved Solids (TDS) and chloride are above WQCC standards in several wells, including the livestock well and MW-10, both up gradient from the former Bertha Barber site. The regional background TDS concentration in the area of the Bertha Barber site appears to range from 1400 to 1900 ppm (see livestock well analyses in Table 4) and background chloride in the livestock well is about 650 ppm. However, the data from MW-10 demonstrate that up gradient sources are contributing to or are the principal source of the observed chloride concentrations at the Bertha Barber site.

Past hydrocarbon concentrations in ground water at MW-10 and past and current chloride values in samples from this same well suggest an off-site source of these constituents. Plate 3 shows a reinterpretation of the chloride concentration map for 2003 that shows regional sources as the principal cause of concentrations observed in MW-12 and MW-16. The fact that wells north and east of MW-10, MW-12 and MW-13 do not display the suggested effects of regional degradation could be due to a deflection in the regional flow caused by the low-permeability zone near MW-6 and MW-2.

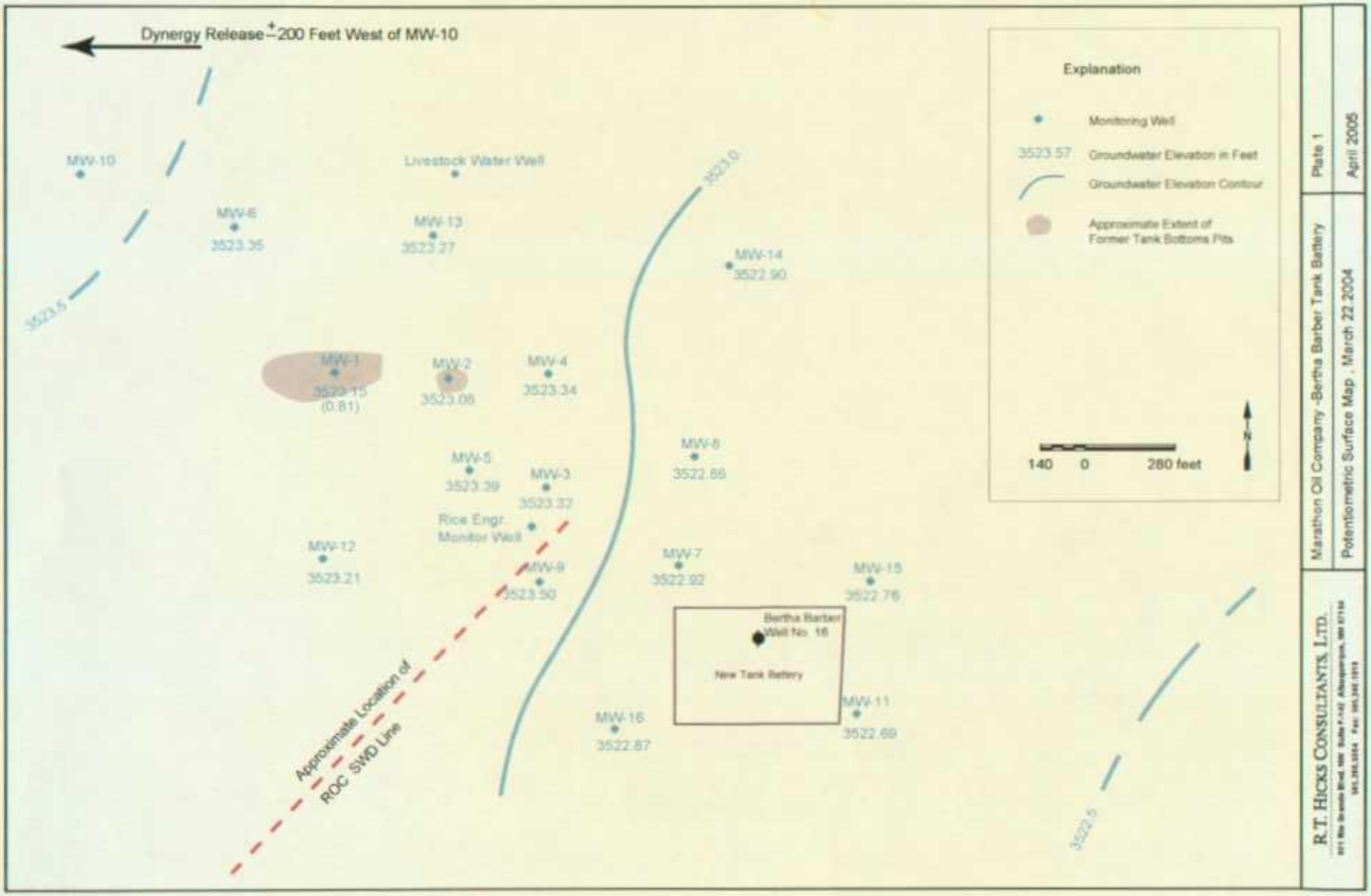
Plate 4 shows the magnitude and extent of chloride in ground water from the most 2005 sampling event. We hypothesize that the large precipitation of 2004 accelerated the natural restoration of ground water (i.e. dilution and dispersion), resulting in the lower chloride concentrations generally observed in Plate 4 versus Plate 3. Like Plate 2, Plate 4 shows an unusual pattern caused by a relatively low chloride value in MW-12 and relatively high value at the ROC monitoring well. The pattern observed in Plate 4 suggests localized impairment of ground water near the ROC monitoring well. More importantly, the geometry of the chloride impact to ground water shown in Plate 4 further support our hypothesis that up gradient sources of chloride, not past discharges by MOC, are the principal cause of elevated chloride concentrations in MOC monitoring wells. We conclude that the former evaporation pit (see 2003 Annual Report) is not a contributor of chloride to the ground water system now observed in monitoring wells. If this former pit is a contributor to the observed ground impairment, we could not explain

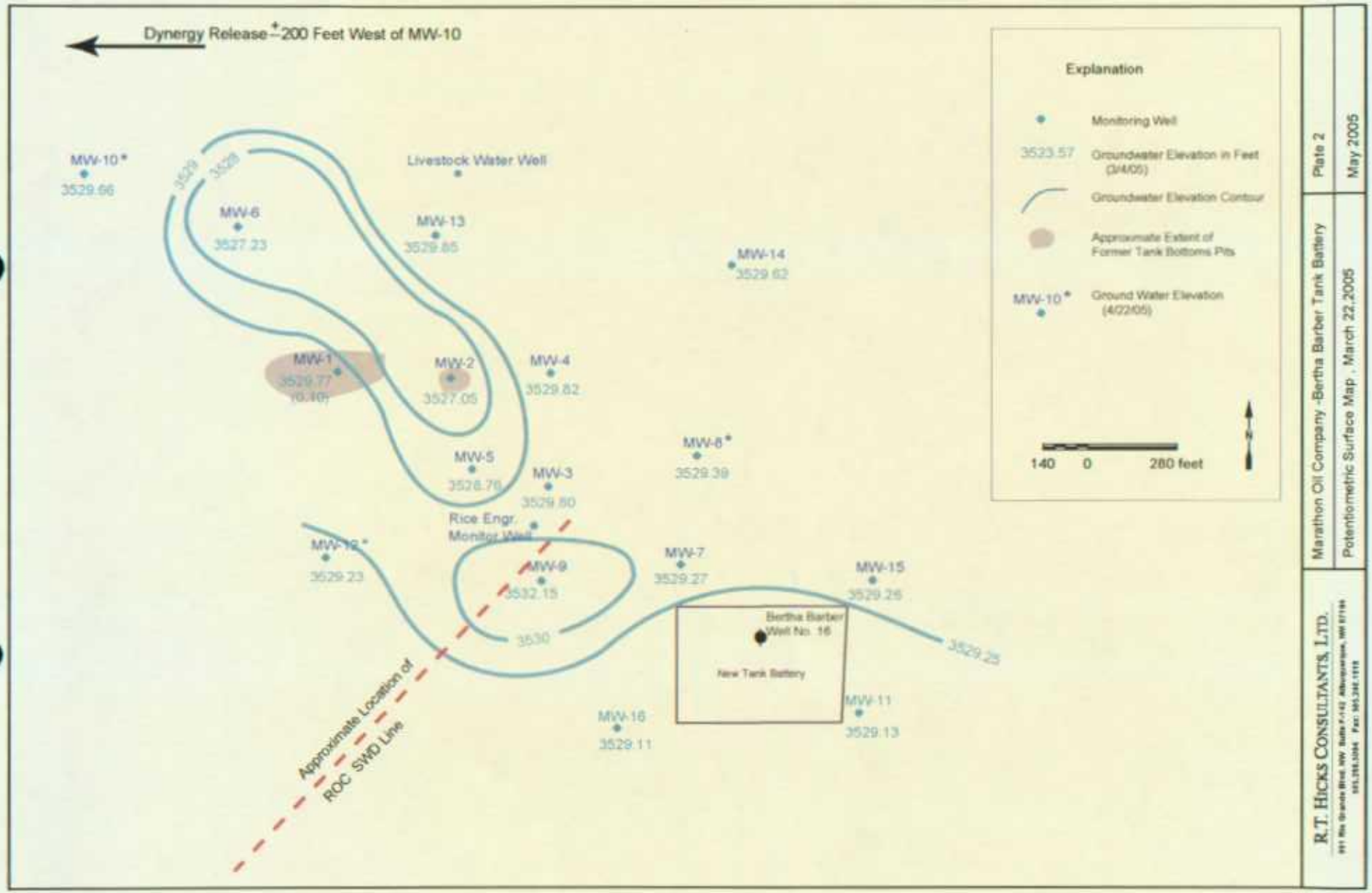
the complete restoration of ground water quality (with respect to chloride and TDS) observed in MW-12, which is directly down gradient from 2003, the chloride concentrations in these wells were generally greater than 1000 ppm and less than 3000 ppm. Monitoring wells located near but down gradient from the former disposal pits (MW-3, MW-4 and MW-9) show that chloride concentrations for the past two years (560 ppm) are not dissimilar from those observed in the adjacent livestock well (average 604 ppm) during that same period. At the down gradient edge of the site, MW-8, MW-11, and MW-15 show that 2005 chloride concentrations are 450-500 ppm. Well MW-16, however, continues to show the effect of up gradient sources.

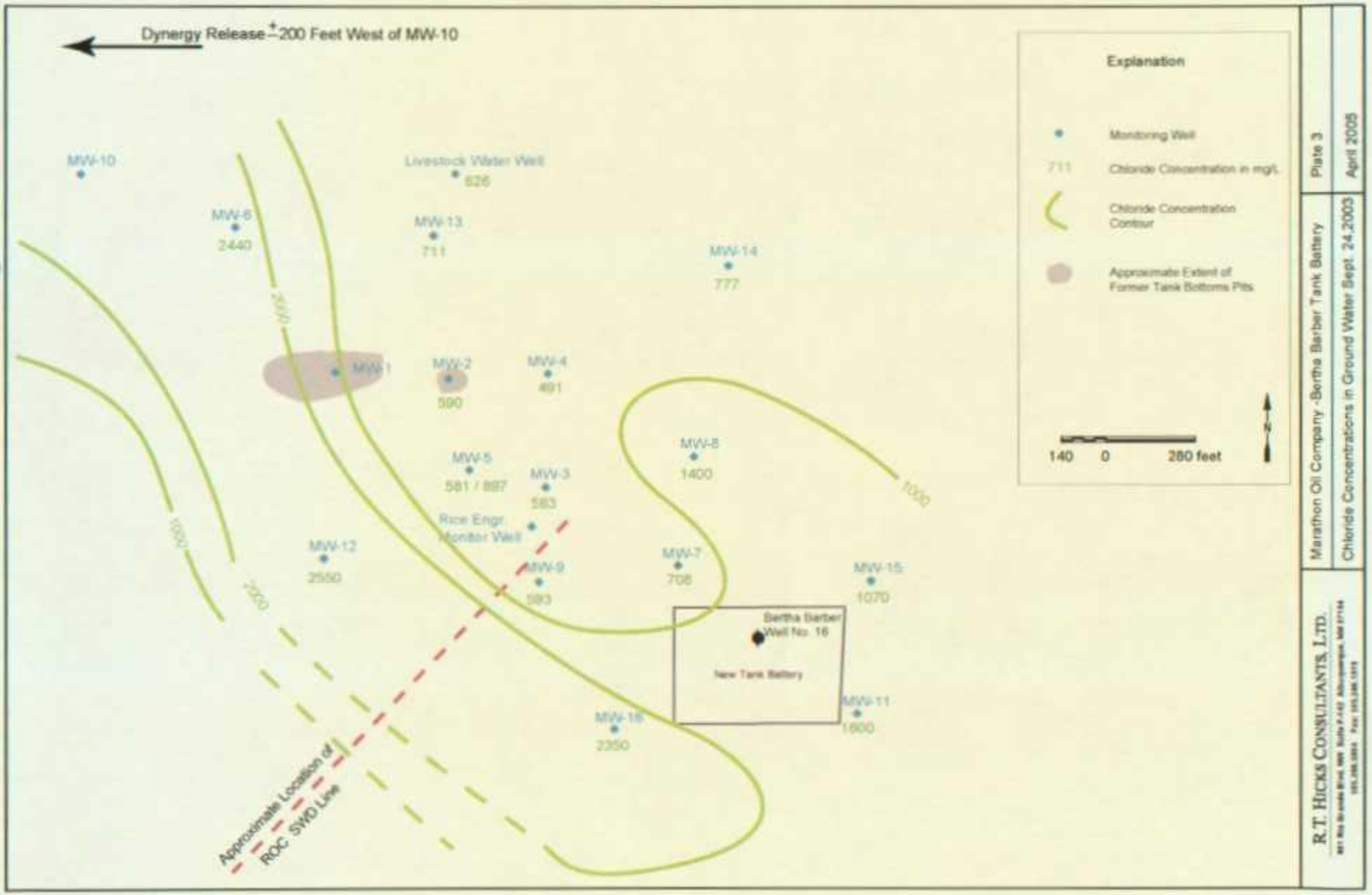
The 2005 data cause us to change our hypothesis presented in the 2003 Annual Report. In this previous report we concluded that past discharges to the former evaporation pit caused localized impairment of ground water quality. With the complete restoration of ground water quality in MW-12, we find it difficult to support a hypothesis that the former evaporation pit continues to contribute to chlorides to ground water. Obviously, the observed chloride and hydrocarbon impact to MW-10 and MW-6 and the 2005 chloride concentration in MW-10 cause us to conclude that chloride from recent sources up gradient from the Bertha Barber site materially affect the chloride concentrations observed in MW-12 and MW-16.

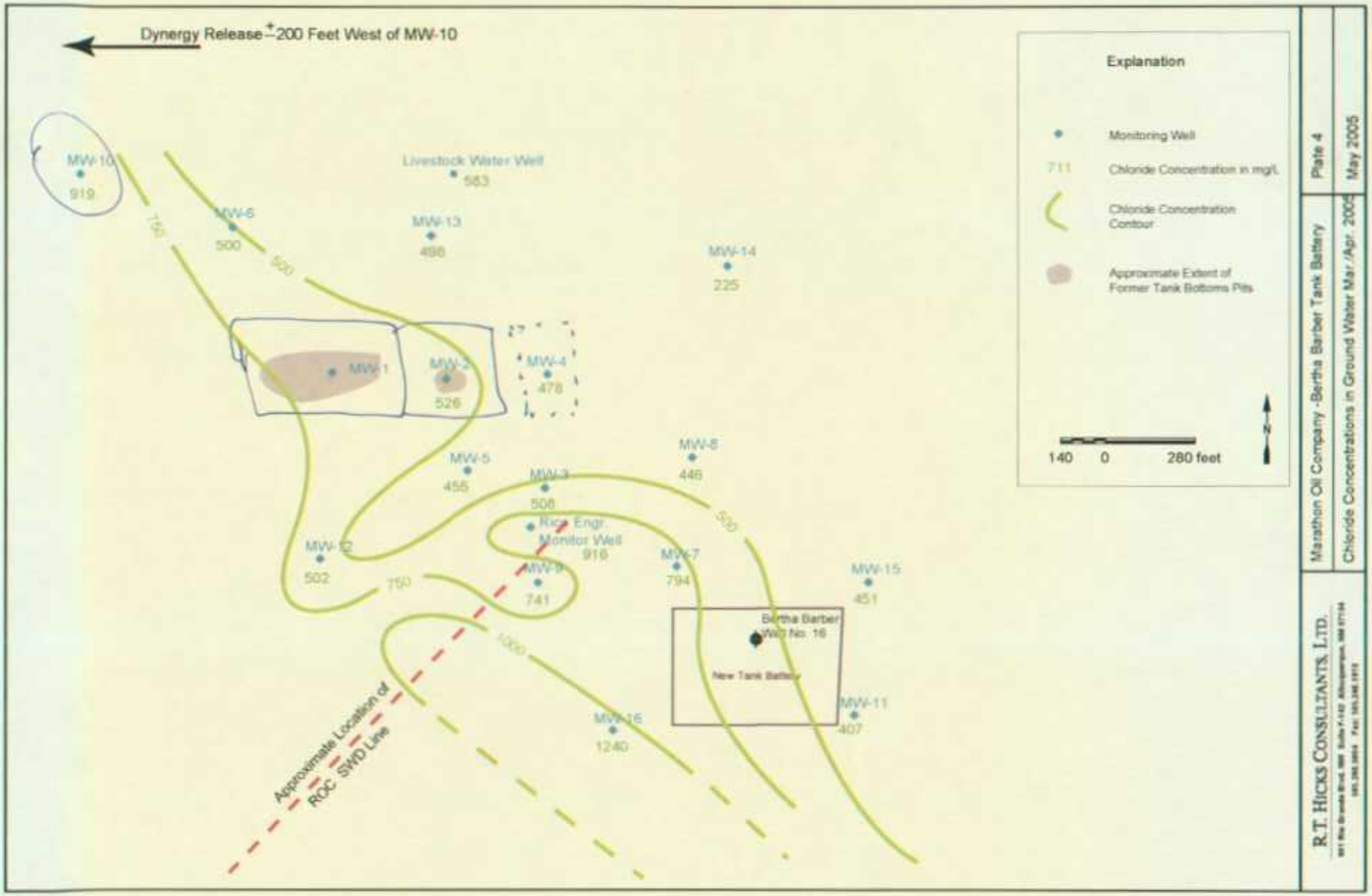
4.0 RECOMMENDATIONS

1. MOC continue to conduct annual monitoring of MW-1, MW-2, MW-4 and MW-5 for BTEXN.
2. Discontinue sampling monitor wells MW-6, MW-8, MW-13, MW-14, and MW-15 as they provide no value.


Dynergy Release ±200 Feet West of MW-10
Explanation
Monitoring Well
3523.57 Groundwater Elevation in Feet
Groundwater Elevation Contour
Approximate Extent of Former Tank Bottoms Pits
140 0 280 feet
N
MW-10
Livestock Water Well
MW-6
3523.35
MW-13
3523.27
MW-14
3522.90
3523.5
3523.0
MW-1
3523.15
(0.81)
MW-2
3523.06
MW-4
3523.34
MW-5
3523.39
MW-3
3523.32
MW-8
3522.86
Rice Engr.
Monitor Well
MW-12
3523.21
MW-9
3523.50
MW-7
3522.92
MW-15
3522.76
Bertha Barber
Well No. 16
New Tank Battery
MW-16
3522.87
MW-11
3522.69
Approximate Location of
ROC SWD Line
3522.5
Plate 1
April 2005
Marathon Oil Company -Bertha Barber Tank Battery
Potentiometric Surface Map , March 22 2004
R.T. Hicks Consultants, Ltd.


Dynergy Release ±200 Feet West of MW-10
Explanation
Monitoring Well
3523.57 Groundwater Elevation in Feet (3/4/05)
Groundwater Elevation Contour
Approximate Extent of Former Tank Bottoms Pits
MW-10* Ground Water Elevation (4/22/05)
140 0 280 feet
N
MW-10*
3529.66
3529
3528
Livestock Water Well
MW-6
3527.23
MW-13
3529.85
MW-14
3529.62
MW-1
3529.77
MW-2
3527.05
MW-4
3529.82
MW-5
3528.78
MW-3
3529.80
MW-8*
3529.39
Rice Engr. Monitor Well
MW-12*
3529.23
MW-9
3532.15
3530
MW-7
3529.27
MW-15
3529.26
3529.25
Bertha Barber Well No. 16
New Tank Battery
MW-16
3529.11
MW-11
3529.13
Approximate Location of ROC SWD Line
Plate 2
May 2005
Marathon Oil Company -Bertha Barber Tank Battery
Potentiometric Surface Map , March 22,2005
R.T. Hicks Consultants, Ltd.


Dynergy Release +200 Feet West of MW-10
Explanation
Monitoring Well
711 Chloride Concentration in mg/L
Chloride Concentration Contour
Approximate Extent of Former Tank Bottoms Pits
140 0 280 feet
N
MW-10
Livestock Water Well
626
MW-6
2440
MW-13
711
MW-14
777
2000
MW-1
MW-2
590
MW-4
491
MW-5
581 / 897
MW-3
583
Rice Engr. Monitor Well
MW-8
1400
1000
MW-12
2550
MW-9
593
MW-7
708
MW-15
1070
2000
Bertha Barber Well No. 16
New Tank Battery
MW-11
1600
MW-16
2350
Approximate Location of ROC SWD Line
Marathon Oil Company - Bertha Barber Tank Battery
Chloride Concentrations in Ground Water Sept. 24,2003
Plate 3
April 2005
R.T. Hicks Consultants, Ltd.


Dynergy Release ±200 Feet West of MW-10
Explanation
Monitoring Well
711 Chloride Concentration in mg/L
Chloride Concentration Contour
Approximate Extent of Former Tank Bottoms Pits
140 0 280 feet
N
MW-10
919
Livestock Water Well
583
MW-6
500
MW-13
496
MW-14
225
MW-1
MW-2
526
MW-4
478
MW-5
455
MW-3
506
MW-8
446
Rice Engr. Monitor Well
916
MW-12
502
MW-9
741
MW-7
794
MW-15
451
Bertha Barber Well No. 16
New Tank Battery
MW-11
407
MW-16
1240
750
500
1000
Approximate Location of ROC SWD Line
Marathon Oil Company - Bertha Barber Tank Battery
Chloride Concentrations in Ground Water Mar./Apr. 2005
Plate 4
May 2005
R.T. HICKS CONSULTANTS, LTD.

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor

May 05, 2005

Joanna Prukop
Cabinet Secretary
Mark Fesmire
Director
Oil Conservation Division

Carolyn Doran Haynes
Rice Operating Company
122 West Taylor
Hobbs, New Mexico 88240

Re: Sites with confirmed Groundwater Contamination

Dear Ms. Haynes:

Pursuant to the New Mexico Oil Conservation Division rule 19.15.1.19 (Rule 19) Prevention and Abatement of Water Pollution requires all responsible persons who are abating water pollution in excess of the standards shall do so pursuant to an abatement plan approved by the director.

Therefore, Rice Operating Company is hereby required to submit individual abatement plans for OCD approval by July 15, 2005 for each of the following sites:

EME Sites;

H-13	UL	H	Sec 13, T20s, R36E	1R0429
M-9	UL	M	Sec 9, T20s, R37E	1R0331
P-6	UL	P	Sec 6, T20s, R37E	1R0422
Jct. N-5	UL	N	Sec 5, T20S, R37E	1R0427-90
Jct. M-16-1	UL	M	Sec 16, T20S, R37E	1R0427-93
Jct. K-33-1	UL	K	Sec 33, T19S, R37E	1R0427-92
Jct. A-20	UL	A	Sec 20, T20S, R37E	1R0427-89
Jct. K-6	UL	K	Sec 6, T20S, R37E	1R0427-88
Marathon Barber EOL	UL	E	Sec 5, T20S, R37E	1R0427-91
jct. D-1 leak	UL	D	Sec. 1, T20S, R36E	not assigned

BD Sites:

Zachary Hinton EOL	UL	O	Sec 12, T22S, R37E	1R0426-36
Jct. J-26	UL	J	Sec 26, T21S, R37E	1R0426-40
Jct. F-17	UL	F	Sec 17, T21S, R37E	1R0426-33
Jct. I-27	UL	I	Sec 27, T21S, R37E	1R0426-35
Jct. N-29	UL	N	Sec 29, T21S, R37E	1R0426-37
jct. E-3	UL	E	Sec 3, T22S, R37E	1R0426-53

Justis Sites:

jct. L-1	UL	L	Sec 1, T25S, R37E	1R0423-0
SWD H-2	UL	H	Sec 2, T26s, R37E	1R0423-01

Hobbs Sites:

Jct. F-29-1A	UL	F	Sec 29, T18S, R38E	not assigned
I-29 Vent	UL	I	Sec 29, T18S, R38E	not assigned

After OCD receives the plans each site will be assigned a new Abatement Plan number (AP#) for tracking purposes. If you have any questions please do not hesitate to contact me at 505-476-3493 or E-mail DJSanchez@state.nm.us; or contact Wayne Price of my staff at 505-476-3487 or e-mail WPRICE@state.nm.us.

Sincerely;

Daniel Sanchez
Enforcement and Compliance Manager
DS/wp

Cc: OCD Hobbs office

Price, Wayne

From: Price, Wayne
Sent: Wednesday, December 08, 2004 10:22 AM
To: Carolyn Doran Haynes (E-mail)
Cc: Kristin Farris Pope (E-mail); Sheeley, Paul; Johnson, Larry
Subject: Groundwater Investigation and Remediation Plans Required for OCD approval by March 15, 2005

Dear Ms. Haynes:

Please provide for OCD approval by *March 15, 2005* groundwater investigation and remediation plans for the following sites:

EME M-16-1	OCD Case # 1R0427-93
EME K-33-1	OCD Case # 1R0427-92
EME E-5	OCD Case # 1R0427-91
EME N-5	OCD Case # 1R0427-90
EME A-20	OCD Case # 1R0427-89
EME K-6	OCD Case # 1R0427-88
BD-17	OCD Case# 1R0426-14

The plans shall include the following at a minimum.

1. Installation of a minimum of two additional monitor wells to properly delineate and define the groundwater conditions on and off the site.

2. A site sampling plan for constituents of concern.

3. The plan shall also include remediation techniques to reduce any vadose contamination that has not already been addressed, and groundwater contamination on and off the site.

4. An area map marking the approximate location and with directions on how to get to the site.

5. A site plot plan showing all significant features.

6. Photos of the site, including any photos available during the original work performed at the site.

7. A summary of all work performed and findings as of to date.

Sincerely:

Wayne Price
New Mexico Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, NM 87505
505-476-3487
fax: 505-476-3462
E-mail: WPRICE@state.nm.us