

1R - 426-153

REPORTS

DATE:

4-22-09



Infrastructure, buildings, environment, communications

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2009 APR 27 PM 1 07

ARCADIS U.S., Inc.
1004 N. Big Spring Street
Suite 300
Midland Texas 79701
Tel 432.687.5400
Fax 432.687.5401
www.arcadis-us.com

Brad Jones
New Mexico Oil Conservation Division
1220 So. Saint Francis Drive
Santa Fe, New Mexico 87505

Certified Mail Receipt No. 7002 2410 0001 5813 0202

Subject:

Investigation and Characterization Plan Report
Blinebry-Drinkard (BD) Junction N-32 Vent
T21S, R37E, Section 32, Unit N, Eunice, Lea County, New Mexico

Dear Mr. Jones;

RICE Operating Company (ROC) has retained ARCADIS U.S., Inc. (ARCADIS) to address potential environmental concerns at the above-referenced site. ROC is the service provider (agent) for the Blinebry-Drinkard (BD) SWD System and has no ownership of any portion of the pipeline, well, or facility. The System is owned by a consortium of oil producers, System Partners, who provide all operating capital on a percentage ownership/usage basis. Environmental projects of this magnitude require System Partners AFE approval and work begins as funds are received.

On behalf of ROC, ARCADIS respectfully submits this Investigation and Characterization Plan (ICP) Report for the above-referenced site.

SITE HISTORY AND BACKGROUND

The site is located west of the town of Eunice, New Mexico (Figure 1). Elevated chlorides in this area have been reported since as early as 1952 (*Geology and ground-water conditions in southern Lea County, New Mexico* [Groundwater Report 6 by A. Nicholson, Jr. and A. Clebsch, Jr.; United States Geological Society]). The expected depth to groundwater at this site is approximately 100 feet below ground surface.

The junction was eliminated and replaced with a new junction box located 80 feet northeast of the former junction box location (Figure 2). Initial delineation began in August, 2007 and was completed on November 2, 2007. A backhoe was used to collect soil samples at one foot intervals to a depth of 12 feet below ground surface five, ten and fifteen feet north, south, east and west of the junction box locations. Soil samples were analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a photoionization detector (PID). Field analytical results are shown in Table 1.

Date:
April 22, 2009

Contact:
Sharon Hall

Phone:
432.687.5400

Email:
shall@arcadis-us.com

Part of a bigger picture

A backhoe was used to excavate soils from an excavation around the former junction box measuring 30 feet by 30 feet by 12 feet deep. A four-point wall composite sample was collected from each of the four walls and five-point composite sample was collected from the bottom of the excavation and submitted to Cardinal Laboratories for gasoline range organics (GRO) and diesel range organics (DRO) and chloride analysis. Some elevated PID readings were observed near the source. DRO was detected at a concentration of 57.8 milligrams per kilogram (mg/kg) in the four-point wall composite sample and at a concentration of 36 mg/kg in the five-point bottom composite sample. GRO was not detected. Field and Laboratory analytical results are summarized in Table 2.

Based on the results of the soil sampling analytical results, elevated chloride concentrations are present at the subject site (Figure 2).

The site was further excavated (40 feet by 45 feet by 5 feet deep along the perimeter) to allow for installation of a clay barrier in the 12 foot deep excavation. The excavated soils were blended on-site and returned to the excavation to a depth six feet below grade. A six-foot deep shelf extending five-feet from the north, south and west walls and ten-feet from the east wall was excavated to prepare the excavation for a clay barrier. A one-foot thick clay barrier was installed at a depth of 5 to 6 feet below ground surface. The clay layer was compacted to a dry density of 93.4% and 14% moisture. The remaining fill was used to backfill the excavation to ground surface and to contour the surrounding area. An identification plate was placed on the surface at the location of the former junction box to mark the presence of the clay liner.

A sample of the blended backfill material was submitted to Cardinal Laboratories for GRO, DRO and chloride analysis. GRO was detected at a concentration of 517 mg/kg and chlorides were detected at a concentration of 1,090 mg/kg.

To further investigate the depth of chloride impacts a soil boring (SB-1) was installed to a depth of 90 feet below ground surface at a location five-feet north of the former junction box. Soil samples were collected every five-feet and analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a PID. One sample, collected from a depth of 90 feet below ground surface was submitted to Cardinal Laboratories and analyzed for chlorides. Laboratory analysis confirms the presence of an elevated chloride concentration (1,296 mg/kg) at a depth of 90 feet below ground surface.

ROC disclosed potential groundwater impact at the site to New Mexico Oil Conservation Division (NMOCD) via e-mail on December 6, 2007. A disclosure report was submitted to NMOCD with all of the ROC 2007 Junction Box Reports in March 2008 per the ROC Junction Box Upgrade Work plan.

On behalf of ROC, ARCADIS submitted an ICP to NMOCD on May 21, 2008. The plan proposed three tasks:

INVESTIGATION AND CHARACTERIZATION PLAN

As discussed above existing site data suggest a potential for impairment of groundwater quality. Therefore the work elements described below are designed to assist ROC in selecting an appropriate vadose zone remedy and, if necessary, a groundwater remedy.

Task 1- Collect Regional Hydrogeologic Data

A one-half mile water well inventory that includes a review of water well records listed on the New Mexico State Engineer Office and United States Geological Survey (USGS) websites and windmills indicated on applicable USGS topographic maps.

Chloride impacted regional groundwater has been reported in this area near the towns of Eunice and Monument since as early as 1952 (*Geology and ground-water conditions in southern Lea County, New Mexico* [Groundwater Report 6 by A. Nicholson, Jr. and A. Clebsch, Jr.; United States Geological Society]).

Task 2- Evaluate Concentrations of Constituents of Concern in Soil and Groundwater

Installation of one monitoring well. If analytical results indicate that chloride and/or BTEX concentrations in groundwater exceed New Mexico Water Quality Control Commission standards, additional monitoring wells may be installed as warranted by the results of the investigation.

Additional soil borings were proposed approximately north, south, east and west of the former junction location.

Task 3- Evaluate Potential Flux from the Vadose Zone to Ground Water

As proposed in the ICP, the information gathered from Tasks 1 and 2 would be evaluated and utilized to design a groundwater remedy, if needed. The groundwater remedy that offers the greatest environmental benefit while causing the least environmental impairment will be selected. If the evaluation demonstrates that residual constituents pose no threat to groundwater quality, only a surface restoration plan protective of groundwater will be proposed. Such recommendations and findings will be presented to NMOCD in a subsequent Corrective Action Plan (CAP).

The proposed ICP was approved by NMOCD on May 28, 2008. On June 2, 2008, NMOCD was informed by email that an electromagnetic (EM) survey would be performed at this site to assist on placement of the proposed monitoring well and soil borings. On July 30, 2008 ARCADIS emailed NMOCD the results of the EM survey and informed NMOCD that there were no proposed changes to the approved monitoring well and soil boring locations as a result of the EM survey.

ICP INVESTIGATION RESULTS

Four soil borings (SB 2 through SB 5) and one monitoring well were drilled at the site on October 6 and 7, 2008 (Figure 2). The soil borings were each drilled to a depth of 80 feet and the monitoring well was drilled to a depth of 100 feet. Soil samples were collected every five-feet and analyzed in the field for chlorides using field-adapted Method 9253 and screened in the field using a PID. Two samples from each boring were submitted to Cardinal Laboratories and analyzed for chlorides. Soil boring logs and the monitor well log are attached and include chloride field analysis results.

The monitoring well was constructed of 4 inch PVC casing with 20 feet of 0.01 inch slotted screen and a two-foot concrete pad. Groundwater was measured at a depth of 97.17 feet on January 1, 2009.

Laboratory and field analysis confirm that elevated chloride concentrations are present in soils at the site. Soil laboratory analytical results are summarized in Table 3. A groundwater sample collected on January 1, 2009 exhibited elevated chloride and total dissolved solids (TDS) concentrations (1,540 and 3,010 milligrams per liter, respectively). Laboratory analytical results are attached.

RECOMMENDATIONS

Based on the fact that elevated chloride concentrations in groundwater have been reported in the area since the early 1950s, we propose drilling one upgradient and one downgradient monitoring well at the site to assess groundwater quality. Groundwater samples will be collected and analyzed for chlorides and TDS. Based on the results of groundwater analysis ROC will submit their recommendations for further action if warranted.

Your approval to drill two monitoring wells in the approximate locations shown on Figure 3 is requested. If you have any questions or need additional information please contact Hack Conder at (575) 393-9174 or me.

Very Truly Yours,

ARCADIS U.S, Inc.



Sharon E. Hall
Associate Vice President

ARCADIS

Brad Jones
April 22, 2009

Copies:

Hack Conder - Rice Operating Company

Attachments:

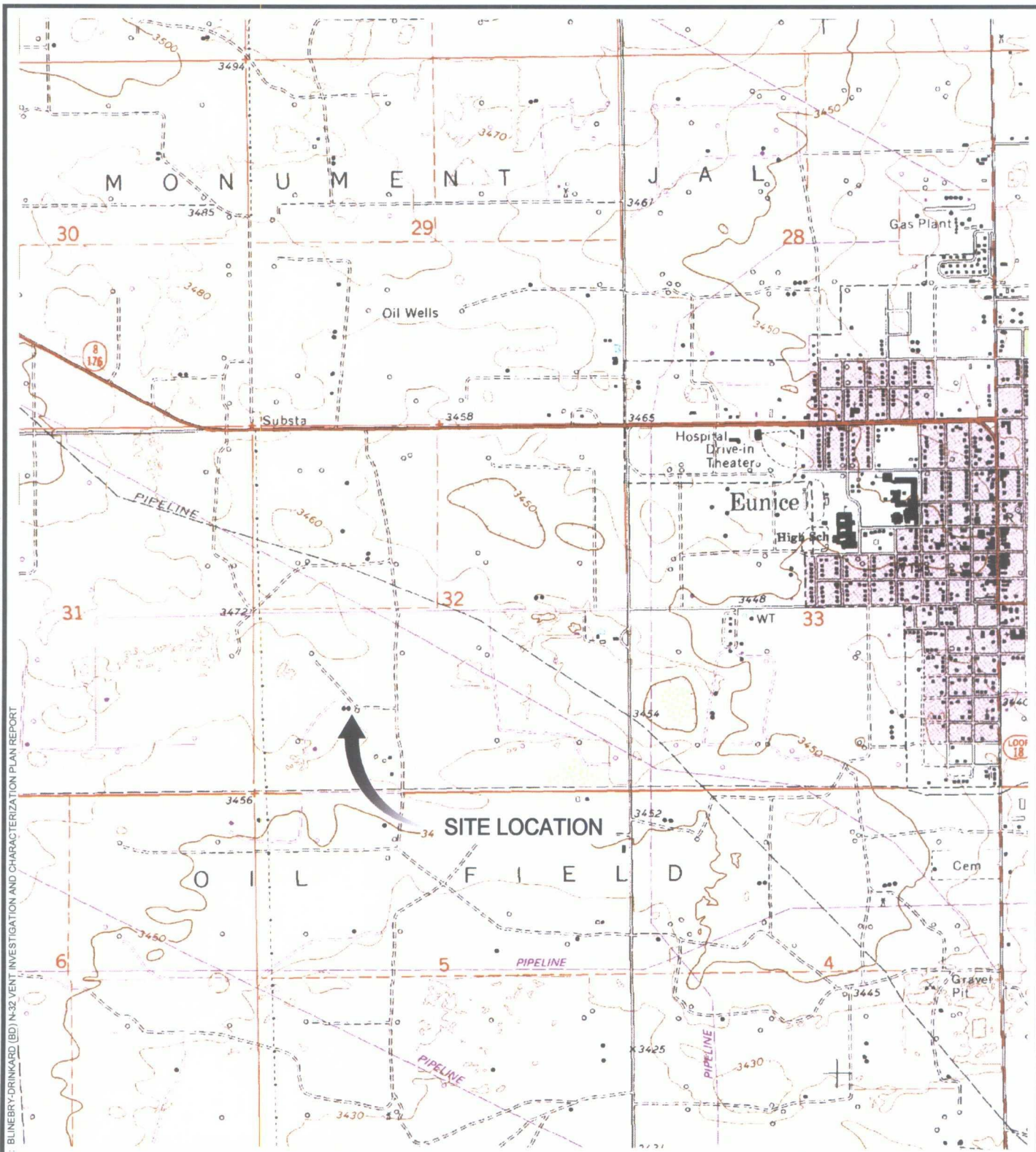
Figures 1, 2 and 3

Data tables 1, 2 and 3

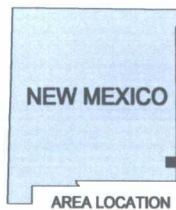
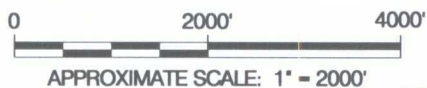
October 2008 Investigation Laboratory Results

Soil Boring and Monitoring Well Logs

CITY: MIDLAND TX DIV: GROUP: ENV DB: HC LD: HC PIC: PK: SH TM: SH LVR: ON=OFF=REF UN:
 G:\ENV\CA\WIDLAND\ACT\MID\0150001\0000\DWG\015001.DWG LAYOUT: 1 SAVED: 3/30/2009 3:48 PM ACADVER: 17.05 (LMS TECH) PAGES: 17 PAGES: 17 PAGES: 17 PAGES: 17
 PROJECTNAME: BLINBRY-DRINKARD (BD) N-32 VENT INVESTIGATION AND CHARACTERIZATION PLAN REPORT
 XREFS: BlinbryMap 03210302.dwg



SOURCE: U.S. GEOLOGICAL SURVEY 7 1/2 MINUTE TOPOGRAPHIC SERIES, EUNICE, NEW MEXICO QUADRANGLE, PUBLISHED 1979.



RICE OPERATING COMPANY
 LEA COUNTY, NEW MEXICO
**BLINBRY-DRINKARD (BD) N-32 VENT INVESTIGATION
 AND CHARACTERIZATION PLAN REPORT**

SITE LOCATION MAP



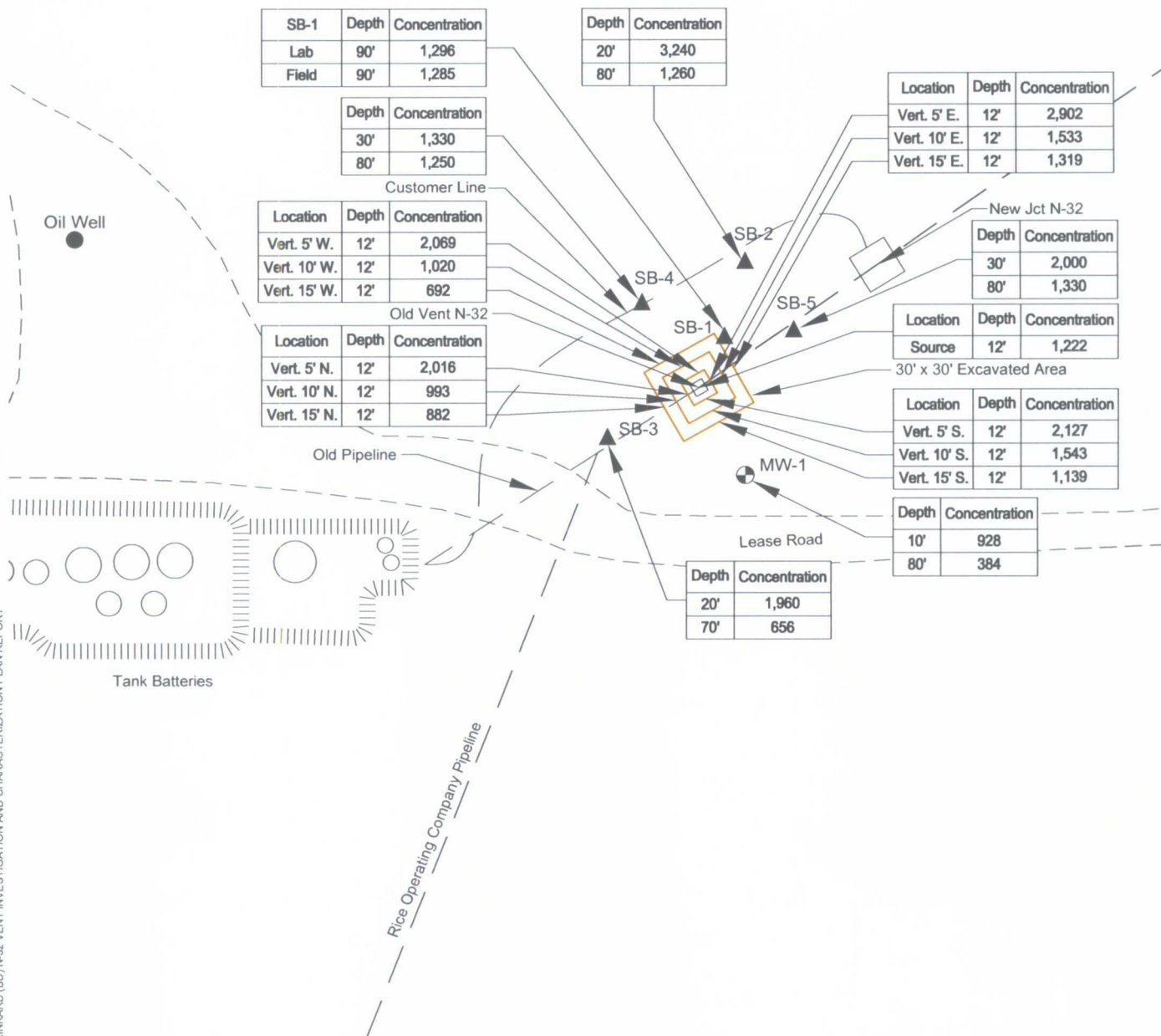
FIGURE
1

CITY: MIDLAND TX, DIV: GROUP: ENV, DB: HC, LD: HC, PIC: PAK SH, TIK SH, LVR: ON=OFF=REF, UN: G:\ENV\CA\WIDLAND\ACT\MIDT010150001\00001\DWG\015001.DWG, LAYOUT: 2, SAVED: 4/21/2009 7:41 AM, ACADVER: 17.05, PAGES: 17, PLOTTED: 4/21/2009 7:42 AM, BY: CLAUDY, HERB

PROJECTNAME: BLINEBRY-DRINKARD (BD) N-32 VENT INVESTIGATION AND CHARACTERIZATION PLAN REPORT

IMAGES: BD Vent N-32.rtf

REFS:



EXPLANATION

- ▲ SOIL BORING LOCATION
- OIL WELL LOCATION
- ⊙ MONITOR WELL LOCATION
- PIPELINE TRACE
- LEASE ROADS
- ||||| BERMED AREAS

0 60' 120'

APPROXIMATE SCALE: 1" = 60'

RICE OPERATING COMPANY LEA COUNTY, NEW MEXICO BLINEBRY-DRINKARD (BD) N-32 VENT INVESTIGATION AND CHARACTERIZATION PLAN REPORT

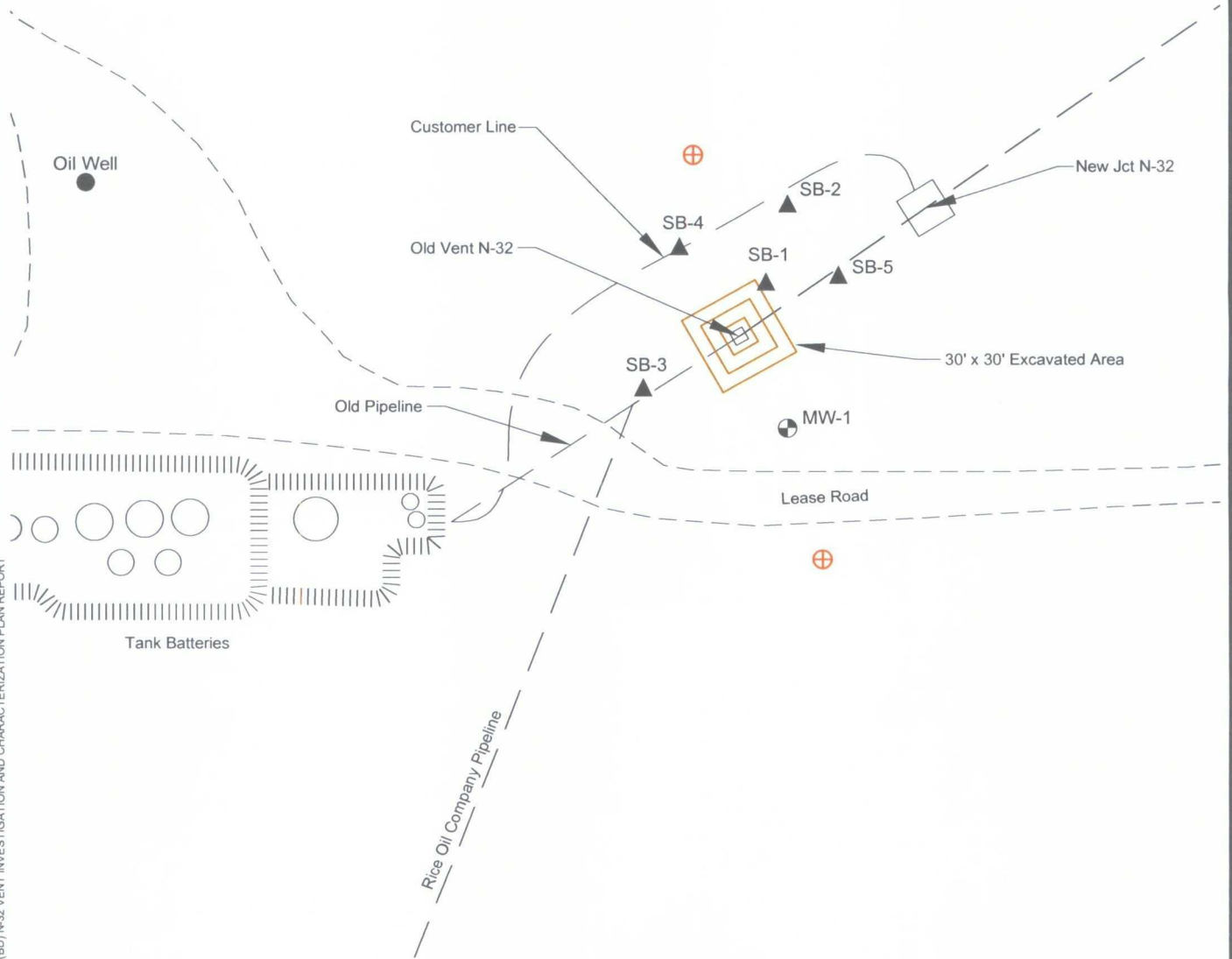
CHLORIDE CONCENTRATIONS
MILLIGRAMS PER KILOGRAM (mg/kg)



FIGURE

2

CITY: MIDLAND TX DWG GROUP: ENV DB: HC LD: HC PIC: PM: SH TLM: SH LVR: ON*OFF=REF UN:
 G:\ENV\CAD\MIDLAND\ACT\MT010150001\100001\DWG\1901.DWG LAYOUT: 3 SAVED: 3/31/2009 10:36 AM ACADVER: 17.08 (LMS TECH) PAGES: 17.08 (LMS TECH) PLOTSETUP: — PLOTSTYLETABLE: AGANON.LCTB PLOTTED: 3/31/2009 10:36 AM BY: CLAUDY, HERB
 PROJECT NAME: BLINEBRY-DRINKARD (BD) N-32 VENT INVESTIGATION AND CHARACTERIZATION PLAN REPORT
 IMAGES: 80 Vent N-32.rvt
 XREFS:



EXPLANATION

- ▲ SOIL BORING LOCATION
- OIL WELL LOCATION
- ⊕ PROPOSED MONITOR WELL
- PIPELINE TRACE
- LEASE ROADS
- ||||| BERMED AREAS

0 60' 120'
 APPROXIMATE SCALE: 1" = 60'

RICE OPERATING COMPANY
 LEA COUNTY, NEW MEXICO
**BLINEBRY-DRINKARD (BD) N-32 VENT INVESTIGATION
 AND CHARACTERIZATION PLAN REPORT**

PROPOSED MONITOR WELL LOCATIONS



FIGURE
3

Table 1 - Soil Field Delineation Results

| N/S Delineation CL | | | | | | | |
|--------------------|-------|-------|------|--------|------|-------|-------|
| Depth | 15' S | 10' S | 5' S | Source | 5' N | 10' N | 15' N |
| 1' | 230 | 259 | 150 | | 272 | 247 | 286 |
| 2' | 180 | 211 | 139 | | 289 | 321 | 332 |
| 3' | 260 | 621 | 1200 | | 344 | 633 | 313 |
| 4' | 276 | 840 | 2437 | 435 | 258 | 1399 | 780 |
| 5' | 175 | 2017 | 2127 | 603 | 258 | 1932 | 457 |
| 6' | 338 | 1748 | 2652 | 988 | 263 | 1162 | 625 |
| 7' | 455 | 1287 | 2043 | 2529 | 1315 | 4401 | 1874 |
| 8' | 1829 | 581 | 1234 | 4294 | 2903 | 2220 | 1433 |
| 9' | 639 | 686 | 1283 | 5288 | 1112 | 903 | 784 |
| 10' | 1587 | 1469 | 1239 | 2009 | 2015 | 589 | 1403 |
| 11' | 1494 | 1226 | 1041 | 5244 | 2973 | 1160 | 701 |
| 12' | 1139 | 1543 | 886 | 1222 | 2016 | 993 | 882 |

| W/E Delineation CL | | | | | | | |
|--------------------|-------|-------|------|--------|------|-------|-------|
| Depth | 15' W | 10' W | 5' W | Source | 5' E | 10' E | 15' E |
| 1' | 253 | 194 | 400 | | 143 | 432 | 145 |
| 2' | 299 | 148 | 660 | | 260 | 213 | 306 |
| 3' | 358 | 235 | 795 | | 140 | 241 | 300 |
| 4' | 437 | 355 | 1092 | 435 | 168 | 565 | 782 |
| 5' | 256 | 257 | 3529 | 603 | 447 | 2806 | 1646 |
| 6' | 290 | 268 | 3411 | 988 | 322 | 3048 | 3198 |
| 7' | 432 | 1537 | 1723 | 2529 | 1490 | 2061 | 2779 |
| 8' | 973 | 3690 | 2443 | 4294 | 4618 | 2264 | 2738 |
| 9' | 1644 | 1835 | 2031 | 5288 | 2065 | 2972 | 3184 |
| 10' | 551 | 2822 | 1051 | 2009 | 994 | 1976 | 1115 |
| 11' | 598 | 1701 | 1389 | 5244 | 1848 | 1462 | 1554 |
| 12' | 692 | 1020 | 2069 | 1222 | 2902 | 1533 | 1319 |

| N/S Delineation PID | | | | | | | |
|---------------------|-------|-------|------|--------|------|-------|-------|
| Depth | 15' S | 10' S | 5' S | Source | 5' N | 10' N | 15' N |
| 1' | 3.9 | 7.4 | 92.9 | | 0.7 | 5.5 | 0 |
| 2' | 131 | 8.8 | 65 | | 0 | 0 | 0 |
| 3' | 50.2 | 49.9 | 179 | | 0 | 0.8 | 0 |
| 4' | 7.3 | 195 | 582 | 32.9 | 27.7 | 863 | 455 |
| 5' | 8.8 | 700 | 778 | 106 | 511 | 944 | 493 |
| 6' | 0 | 584 | 1180 | 417 | 714 | 898 | 486 |
| 7' | 0 | 316 | 860 | 892 | 754 | 512 | 204 |
| 8' | 0 | 76.9 | 1227 | 928 | 367 | 209 | 163 |
| 9' | 0 | 34.9 | 977 | 772 | 82.1 | 76.3 | 56.5 |
| 10' | 0 | 22.5 | 1096 | 757 | 73.6 | 38.3 | 39.9 |
| 11' | 0 | 24.2 | 478 | 1124 | 28.4 | 23.9 | 10.1 |
| 12' | 0 | 106 | 292 | 333 | 18.5 | 23.3 | 13.1 |

| W/E Delineation PID | | | | | | | |
|---------------------|-------|-------|------|--------|------|-------|-------|
| Depth | 15' W | 10' W | 5' W | Source | 5' E | 10' E | 15' E |
| 1' | 16.3 | 8.9 | 44.5 | | 29.9 | 4.6 | 2.3 |
| 2' | 7.7 | 7.8 | 80.3 | | 23 | 3.5 | 0 |
| 3' | 5.3 | 5.4 | 768 | | 77.4 | 13.1 | 0 |
| 4' | 3.4 | 7.8 | 875 | 32.9 | 49.3 | 67.1 | 11.4 |
| 5' | 2.3 | 6.5 | 685 | 106 | 622 | 22.6 | 0 |
| 6' | 1.5 | 6.6 | 846 | 417 | 902 | 377 | 0 |
| 7' | 4.6 | 6.1 | 718 | 892 | 1116 | 162 | 0 |
| 8' | 2.5 | 4.6 | 891 | 928 | 1183 | 29.1 | 0 |
| 9' | 2.5 | 6.2 | 1116 | 772 | 908 | 14.7 | 0 |
| 10' | 1.9 | 3.3 | 929 | 757 | 1079 | 10.1 | 0 |
| 11' | 6.5 | 5.3 | 202 | 1124 | 1341 | 11.8 | 0 |
| 12' | 2.5 | 2.6 | 118 | 333 | 790 | 13.6 | 0 |

Table 2- Soil Field and Laboratory Results - Excavation and Backfill Sampling

| Test | Field | | Lab Results | | |
|------------------------------------------------|-------|------|-------------|------|----------|
| | CL | PID | CL | DRO | GRO |
| Wall Composite Samples | N | 834 | 170 | | |
| | S | 873 | 23.5 | | |
| | E | 989 | 12.6 | | |
| | W | 772 | 8.3 | | |
| 4pt Wall Composite 30 x 30 Blended Backfill | | 976 | 106 | 688 | 57.8 <10 |
| | | 894 | 20.1 | 1090 | 517 <10 |
| Bottom Samples | | | | | |
| | 1 | 1353 | | | |
| | 2 | 1311 | | | |
| | 3 | 1758 | | | |
| | 4 | 1318 | | | |
| 5pt Bottom Composite @ 12' | 5 | 2754 | | | |
| | | 1708 | 8.8 | 2400 | 36 <10 |

Table 3

Soil Boring Sampling Chloride Results

| Sample ID | Depth (feet) | Concentration (milligrams per kilogram) |
|------------------|-------------------------|----------------------------------------------------|
| SB #1 | 90 | 1,296 |
| SB #2 | 20 | 3,240 |
| SB #2 | 80 | 1,260 |
| SB #3 | 20 | 1960 |
| SB #3 | 70 | 656 |
| SB #4 | 30 | 1,330 |
| SB #4 | 80 | 1,250 |
| SB #5 | 30 | 2,000 |
| SB #5 | 80 | 1,330 |
| MW-1 | 10 | 928 |
| MW-1 | 80 | 384 |



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 WEST TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 10/17/08
Reporting Date: 10/17/08
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: BD N-32 VENT

Analysis Date: 10/17/08
Sampling Date: 10/06/08 & 10/07/08
Sample Type: SOIL
Sample Condition: COOL & INTACT
Sample Received By: HM
Analyzed By: HM/TR

| LAB NO. | SAMPLE ID | Cl ⁻ (mg/kg) |
|-----------------------------|-------------|----------------------------|
| H16132-1 | MW #1 @ 10' | 928 |
| H16132-2 | MW #1 @ 80' | 384 |
| H16132-3 | SB #2 @ 20' | 3,240 |
| H16132-4 | SB #2 @ 80' | 1,260 |
| H16132-5 | SB #3 @ 20' | 1,960 |
| H16132-6 | SB #3 @ 70' | 656 |
| H16132-7 | SB #4 @ 30' | 1,330 |
| H16132-8 | SB #4 @ 80' | 1,250 |
| H16132-9 | SB #5 @ 30' | 2,000 |
| H16132-10 | SB #5 @ 80' | 1,330 |
| Quality Control | | 500 |
| True Value QC | | 500 |
| % Recovery | | 100 |
| Relative Percent Difference | | < 0.1 |

METHOD: Standard Methods

4500-Cl⁻B

Note: Analyses performed on 1:4 w:v aqueous extracts.


Chemist

10-20-08
Date

H16132 RICE

GW 97.18

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CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

| BILL TO | | | | | | | | | | ANALYSIS REQUEST | | | | | | | | | |
|-------------------------------------------|-------------|--------------------|--------------|-------------|----------|----------|---------|-------|-----------|----------------------|--|--|--|--|--|--|--|--|--|
| Company Name: Rice Operating Company | | | | | | | | | | P.O. #: | | | | | | | | | |
| Project Manager: Hack Conder | | | | | | | | | | Company: | | | | | | | | | |
| Address: 122 West Taylor | | | | | | | | | | Attn: | | | | | | | | | |
| City: Hobbs | | | | | | | | | | State: NM Zip: 88240 | | | | | | | | | |
| Phone #: 393-9174 | | | | | | | | | | Address: | | | | | | | | | |
| Project #: | | | | | | | | | | City: | | | | | | | | | |
| Project Name: BD N-32 vent | | | | | | | | | | State: | | | | | | | | | |
| Project Location: BD N-32 vent | | | | | | | | | | Phone #: | | | | | | | | | |
| Sample Name: Lara Weinheimer/ Tony Grieco | | | | | | | | | | Fax #: | | | | | | | | | |
| Lab I.D. | Sample I.D. | (G) RAB OR (C) OMP | # CONTAINERS | MATRIX | PRESERV. | SAMPLING | DATE | TIME | chlorides | | | | | | | | | | |
| H16132-1 | MW #1 @ 10' | 1 | 1 | GROUNDWATER | ✓ | ✓ | 10/7/08 | 09:25 | ✓ | | | | | | | | | | |
| 2 | MW #1 @ 80' | 1 | 1 | WASTEWATER | ✓ | ✓ | 10/7/08 | 09:52 | ✓ | | | | | | | | | | |
| 3 | SB #2 @ 20' | 1 | 1 | SLUDGE | ✓ | ✓ | 10/6/08 | 11:08 | ✓ | | | | | | | | | | |
| 4 | SB #2 @ 80' | 1 | 1 | OTHER | ✓ | ✓ | 10/6/08 | 11:55 | ✓ | | | | | | | | | | |
| 5 | SB #3 @ 20' | 1 | 1 | ACID/BASE | ✓ | ✓ | 10/6/08 | 02:00 | ✓ | | | | | | | | | | |
| 6 | SB #3 @ 70' | 1 | 1 | OTHER | ✓ | ✓ | 10/6/08 | 02:26 | ✓ | | | | | | | | | | |
| 7 | SB #4 @ 30' | 1 | 1 | ICE / COOL | ✓ | ✓ | 10/6/08 | 03:15 | ✓ | | | | | | | | | | |
| 8 | SB #4 @ 80' | 1 | 1 | OTHER | ✓ | ✓ | 10/6/08 | 03:45 | ✓ | | | | | | | | | | |
| 9 | SB #5 @ 30' | 1 | 1 | ✓ | ✓ | ✓ | 10/7/08 | 08:22 | ✓ | | | | | | | | | | |
| 10 | SB #5 @ 80' | 1 | 1 | ✓ | ✓ | ✓ | 10/7/08 | 08:40 | ✓ | | | | | | | | | | |

PLEASE NOTE: Liability and Damages: Cardinal's facility and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. No other damages, including those for negligence and any other cause whatsoever shall be deemed unless expressly stated in writing and received by Cardinal within 30 days after completion of the applicable analysis. No other damages, including those for negligence and any other cause whatsoever shall be deemed unless expressly stated in writing and received by Cardinal within 30 days after completion of the applicable analysis. No other damages, including those for negligence and any other cause whatsoever shall be deemed unless expressly stated in writing and received by Cardinal within 30 days after completion of the applicable analysis.

Received By: Lara Weinheimer Date: 10-17-08 Time: 11:32

Received By: John S. Moore Date: 10-17-08 Time: 11:32

Delivered By: (Circle One) Lara Weinheimer

Sample: - UPS - Bus - Other:

Sample Condition: ☒ Cool ☐ Intact ☐ Yes ☐ No

Checked By: (Initials) JS

Phone Result: ☐ Yes ☐ No Add'l Phone #: Hcoonder@riceswd.com; jpurvis@riceswd.com;

Fax Result: ☐ Yes ☐ No Add'l Fax #: Lweinheimer@riceswd.com

REMARKS: email results

1 Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

NEED SAMPLES BACK, PLEASE



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR
HOBBS, NM 88240
FAX TO: (575) 397-1471


Receiving Date: 01/23/09
Reporting Date: 01/29/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N~ LEA CO., NM

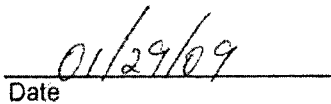
Sampling Date: 01/21/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: ZL

| LAB NUMBER | SAMPLE ID | BENZENE (mg/L) | TOLUENE (mg/L) | ETHYL BENZENE (mg/L) | TOTAL XYLENES (mg/L) |
|-----------------------------|-----------------|-------------------|-------------------|----------------------------|----------------------------|
| ANALYSIS DATE | | 01/28/09 | 01/28/09 | 01/28/09 | 01/28/09 |
| H16750-1 | MONITOR WELL #1 | <0.001 | <0.001 | <0.001 | <0.003 |
| | | | | | |
| | | | | | |
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| | | | | | |
| Quality Control | | 0.055 | 0.056 | 0.055 | 0.167 |
| True Value QC | | 0.050 | 0.050 | 0.050 | 0.150 |
| % Recovery | | 110 | 112 | 110 | 111 |
| Relative Percent Difference | | 1.7 | 1.7 | <1.0 | <1.0 |

METHOD: EPA SW-846 8021B

TEXAS NELAP CERTIFICATION T104704398-08-TX FOR BENZENE, TOLUENE, ETHYL BENZENE,
AND TOTAL XYLENES.


Chemist


Date

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



PHONE (575) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

ANALYTICAL RESULTS FOR
RICE OPERATING COMPANY
ATTN: HACK CONDER
122 W. TAYLOR STREET
HOBBS, NM 88240
FAX TO: (575) 397-1471

Receiving Date: 01/23/09
Reporting Date: 01/27/09
Project Number: NOT GIVEN
Project Name: BD N-32 VENT
Project Location: T21S-R37E-SEC32 N ~ LEA CO., NM

Sampling Date: 01/21/09
Sample Type: WATER
Sample Condition: COOL & INTACT
Sample Received By: ML
Analyzed By: TR

| LAB NUMBER | SAMPLE ID | Na (mg/L) | Ca (mg/L) | Mg (mg/L) | K (mg/L) | Conductivity (uS/cm) | T-Alkalinity (mgCaCO ₃ /L) |
|-----------------------------|-----------------|--------------|--------------|--------------|-------------|-------------------------|------------------------------------------|
| ANALYSIS DATE: | | 01/27/09 | 01/27/09 | 01/27/09 | 01/27/09 | 01/26/09 | 01/26/09 |
| H16750-1 | MONITOR WELL #1 | 931 | 116 | 43.7 | 20.9 | 4,540 | 216 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Quality Control | | NR | 48.1 | 51.0 | 2.78 | 1,429 | NR |
| True Value QC | | NR | 50.0 | 50.0 | 3.00 | 1,413 | NR |
| % Recovery | | NR | 96.2 | 102 | 92.6 | 101 | NR |
| Relative Percent Difference | | NR | <0.1 | <0.1 | 7.3 | 0.1 | NR |

| | | | | | |
|----------|-------------|-----------|------|-------|-------|
| METHODS: | SM3500-Ca-D | 3500-Mg E | 8049 | 120.1 | 310.1 |
|----------|-------------|-----------|------|-------|-------|

| | Cl (mg/L) | SO ₄ (mg/L) | CO ₃ (mg/L) | HCO ₃ (mg/L) | pH (s. u.) | TDS (mg/L) |
|-------------------------------|--------------|---------------------------|---------------------------|----------------------------|---------------|---------------|
| ANALYSIS DATE: | 01/26/09 | 01/26/09 | 01/26/09 | 01/26/09 | 01/26/09 | 01/26/09 |
| H16750-1 MONITOR WELL #1 | 1,540 | 130 | 0 | 264 | 7.16 | 3,010 |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Quality Control | 490 | 42.1 | NR | 1000 | 7.00 | NR |
| True Value QC | 500 | 40.0 | NR | 1000 | 7.00 | NR |
| % Recovery | 98.0 | 105 | NR | 100 | 100 | NR |
| Relative Percent Difference | 2.0 | 3.1 | NR | <0.1 | 0.1 | NR |

| | | | | | | |
|----------|-------------|-------|-------|-------|-------|-------|
| METHODS: | SM4500-Cl-B | 375.4 | 310.1 | 310.1 | 150.1 | 160.1 |
|----------|-------------|-------|-------|-------|-------|-------|

Chemist

Date

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