1R - 347

APPROVALS

YEAR(S):

2004

Price, Wayne

From: Price, Wayne
Sent: Friday, May 21, 2004 1:43 PM
To: 'mmauk@brwncald.com'
Cc: Bob Patterson (E-mail)
Subject: Key work proposals for Eunice AND Hobbs

Attention Madeline S. Mauk:

OCD is in receipt of the work plans for the Key Energy Eunice Truck Wash and the Hobbs Brine Well system dated May 13, 2004 and OCD hereby approves of the work plans. Please submit the results of your investigation along with conclusions and recommendation by July 15, 2004.

Please be advised that NMOCD approval of this plan does not relieve (Key Energy) of liability should their operations fail to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD approval does not relieve (Key Energy) of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Please copy Mr. Gibson as I do not have his E-Mail.

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

1415 Louisiana
Suite 2500
Houston, Texas 77002
Tel: (713) 759-0999
Fax: (713) 308-3886
www.brownandcaldwell.com

May 13, 2004

BROWN AND CALDWELL

Mr. Wayne Price
New Mexico Oil Control Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Subject: Key Energy Services
Hobbs Saltwater Disposal Facility, 1502 West Broadway Place, Hobbs, New Mexico and
Eunice Truck Wash and Sump Facility, 2105 Avenue O, Eunice, New Mexico

Dear Mr. Price:

Brown and Caldwell is submitting the attached work plans on behalf of Key Energy Services, Inc. (Key) for the Hobbs Saltwater Disposal Facility located at 1502 West Broadway Place in Hobbs, New Mexico and for the Eunice Truck Wash and Sump Facility located at 2105 Avenue O (New Mexico Highway 176) in Eunice, New Mexico.

If you have any questions, please call Dan Gibson (Key) at (432) 571-7536 or Madeline Mauk (Brown and Caldwell) at (713) 759-0999.

Very truly yours,

BROWN AND CALDWELL

Madeline S. Mauk, P.E.
Supervising Engineer

MMAUK@BRWNCALD.COM

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Workplan for Monitoring Well Installation and Groundwater Sampling Activities
Key Energy Services
Eunice Truck Wash and Sump Facility
2105 Avenue O (New Mexico Highway 176)
Eunice, Lea County, New Mexico

Introduction

Brown and Caldwell has prepared this work plan for the installation and sampling of one permanent groundwater monitoring well at the Key Energy Services (Key Energy) facility in Eunice, New Mexico. Key Energy currently operates the truck washing facility at 2105 Avenue O (New Mexico Highway 176) in Eunice, New Mexico. Soil assessment activities were performed by ARCADIS G&M, Inc. (ARCADIS) on November 19, 2002 to determine potential soil impact associated with the Key Energy truck washing pad and sump. Findings from the November 19, 2002 field investigation indicated elevated concentrations of chlorides in soil surrounding the cement truck washing pad. No benzene, toluene, ethylbenzene or xylene (BTEX) were detected above the respective detection limits in samples collected by ARCADIS, consequently further sampling of soils for BTEX will not be performed.

Metals concentrations from the previous investigation conducted by ARCADIS have been screened against the New Mexico Environment Department (NMED) Soil Screening Levels (SSLs), February 2004 Revision 2. No metals concentrations were found to exceed the Industrial/Occupational SSLs, consequently further sampling of soils for metals will not be performed.

Field Activities

The following paragraphs present field procedures, methodologies, and analytical requirements to be utilized during the installation of one monitoring well at the southeast corner of the truck-washing pad where elevated levels of chlorides in soils were detected during the November 19, 2002 ARCADIS investigation. One groundwater sample will be collected from the monitoring well for laboratory analysis. Prior to drilling activities, utility clearance will be obtained through coordination with site personnel and by contacting the New Mexico One-Call at 1-800-321-ALERT. The New Mexico Oil Control Division (OCD) will be notified 24 hours in advance of commencement of field activities. All work conducted during the investigation will be documented in a bound field book and/or pre-printed field forms. All work will be conducted in accordance with the site-specific guidelines established in the Site Health and Safety Plan in order to minimize physical, chemical, and/or biological hazards potentially encountered or created by field activities associated with this project.

Monitoring Well Installation

Brown and Caldwell will install one (1) permanent groundwater monitoring well using a hollow stem auger/air rotary rig. Soil cores will be continuously sampled to a depth of 10 feet and thereafter sampled at 5 foot intervals using decontaminated split-spoon samplers and logged by a qualified field geologist. Upon auger refusal, air rotary drilling will be used to advance to the total depth of the borehole, while the field geologist logs soil cores and/or cuttings. Each sample interval will be logged for recovery length and lithology, visually observed for impacts, and field screened with a photo-ionization detector (PID). The lithologic description and moisture content

will be described in accordance with ASTM International Standard D 2488, Standard Practice for Description and Identification of Soils (Visual Manual Procedure), and classified in accordance with United Soil Classification System (USCS). The proposed monitoring well location is presented in Figure 1.

The monitoring well will be constructed with a minimum of 20 feet of 2-inch diameter, 0.010 machine slot, flush-threaded, Schedule 40 polyvinyl chloride (PVC) screen, and 2-inch diameter PVC casing to ground surface. The well screen will extend to a minimum depth of 15 feet into the saturated zone and will intersect the saturated interface in the formation. The wells will be completed a few inches below ground surface and protected with a flush-to-grade manhole set in a 3-foot square, concrete pad that is at least 4-inches thick. The area surrounding the concrete pad will be repaired with material equivalent to the original. It is anticipated that the well will be installed to a total depth of approximately 70 feet below ground surface (bgs). Groundwater is expected to occur at a depth of approximately 55 feet bgs. The well will be completed in accordance with New Mexico Environment Department (NMED) Ground Water Quality Bureau and Oil Conservation Division (OCD) guidance and standards.

Brown and Caldwell will develop the new monitoring well. Well development will be considered complete when the produced fluids are relatively free of suspended material, or after approximately 1 hour.

Brown and Caldwell will use a handheld Global Positioning System (GPS) device to determine the location of the monitoring well, as required by the New Mexico OCD.

Collection and Analysis of Groundwater Samples

Brown and Caldwell will measure the static water level in each well at the facility immediately prior to sampling and purging using a decontaminated oil/water interface probe. The monitoring well will then be purged using low flow/low stress purging procedures, as described below:

- The intake of the pump that will be used for well purging shall be placed as high in the water column as is possible under pumping conditions. This is done so that purging will draw water from the formation into the screened area of the well, and up through the casing, so that the entire static water column can be removed.

- Initially, groundwater withdrawal should occur no more than 3 to 5 feet below the water surface. If the recovery rate of the well is faster than the pump rate and no observable drawdown occurs, the pump should be raised until the intake is within 1 foot of the top of the water column for the duration of purging. If the pump rate exceeds the well recovery rate, the pump will have to be lowered as needed based upon the amount of drawdown. Ultimately the flow rate of the pump should be adjusted so that the water level in the well is maintained at no less than 80% of the static water level in the well.

- Field parameter measurements for pH, specific conductivity, turbidity, and temperature will be collected during the purging process for each well. A YSI 600 XL flow cell (or equivalent) will be used in measurement of these parameters at approximate ½-liter intervals. Instrument calibration data shall be recorded in the field notebook for the project. The wells shall be purged until groundwater stabilization occurs and a minimum of 5 liters of groundwater have been produced. Groundwater will be considered

stabilized when all of the following criteria are met, as measured during three successive incremental measurements:

- Variability of less than 3 percent for specific conductivity;
- Variability of less than 0.5° C for temperature;
- Variability of less than 0.1 pH unit;
- Turbidity of less than 10 nephelometric turbidity units (NTUs) or variability of less than 10 percent for turbidity is achieved.

Upon completion of purging operations, a groundwater sample will immediately be collected from the monitoring well at the pump discharge line after the flow cell has been disconnected. The sample will be transferred into laboratory-supplied, clean glass or plastic containers, labeled immediately, and placed on ice in an insulated cooler for shipment via overnight courier to the analytical laboratory using chain-of-custody procedures.

The groundwater sample collected from the new monitoring well will be analyzed for the following:

- Total dissolved solids (TDS) by EPA Method 160.1
- Chlorides by EPA Method 325.5

Decontamination

Field sampling equipment and utensils will be decontaminated by washing with a brush, laboratory grade non-phosphate detergent (e.g., Liquinox, Alconox) and tap or distilled water, followed by a distilled water rinse.

The drilling subcontractor will set up a decontamination pad and use high-pressure water or a steam cleaner to wash all down hole augers, rods and sampling equipment upon completion of drilling activities.

Waste Management

Soil cuttings generated during the well installation activities will be placed in clean, properly labeled 55-gallon steel drums. Decontamination water, well development water, and purge water produced during well installation and sampling activities will be placed in clean, properly labeled 55-gallon steel drums. All drummed waste will be moved to a central location pending offsite disposal.

The following information shall be marked on each separate drum on a drum label with indelible ink, or by using a paint pen:

- Contents (e.g., soil cuttings, purge water, decontamination water);
- Source, if specific to a particular source or process (e.g., MW-3); and
- Date that drum was filled.

Miscellaneous field-generated debris (e.g., paper towels, plastic and paper bags) not impacted by media of environmental concern shall be placed in plastic garbage bags, sealed, and stored onsite prior to offsite disposal by Key.

Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) measures will include sample collection techniques that produce samples representative of the target media and the target analytical constituents. One duplicate groundwater sample will be collected at the same time and location as the original groundwater sample.

Sample Handling Procedures

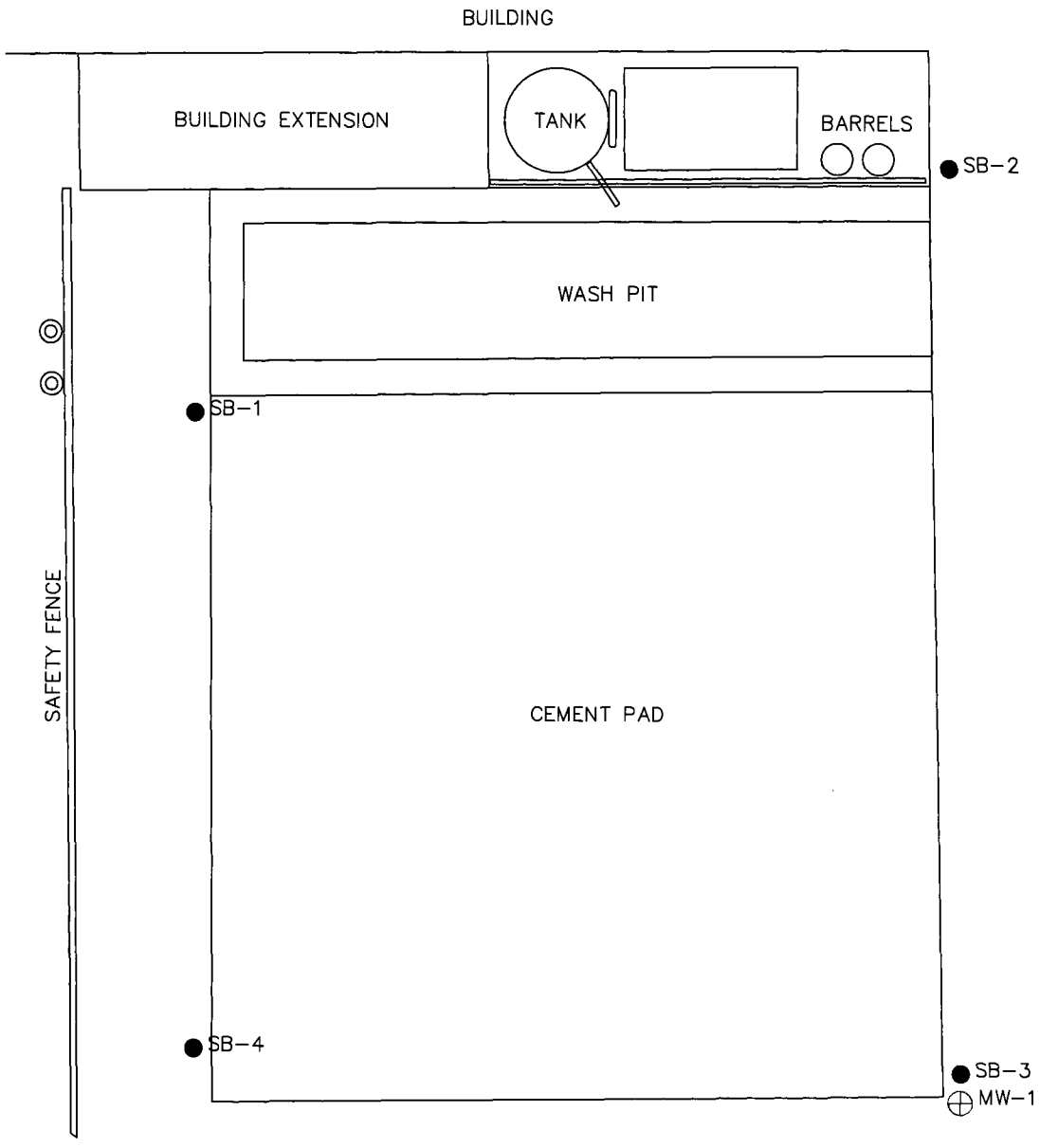
The groundwater sample and duplicate will be submitted to the analytical laboratory in laboratory-supplied clean sample containers. All sample containers will be labeled immediately upon filling of the container. Labeled and sealed sample containers will be placed on ice in a plastic cooler for delivery to the analytical laboratory under standard chain-of-custody procedures. Samples will be submitted to Severn Trent Laboratory (STL) in Houston, Texas by an overnight delivery service.

Samples will be submitted for analysis on the basis of a standard turn around time for reporting of analytical results.

Filled and labeled sample containers should be packed in bubble wrap as supplied by the analytical laboratory and then sealed within zip-lock plastic bags. Place the sample containers in an ice chest containing ice for temporary storage until ready to prepare the samples for shipment.

Reporting

Brown and Caldwell will prepare a letter report documenting monitoring well installation and groundwater sampling activities. The report will contain a summary of field methodologies, analytical results, the laboratory analytical report, associated figures, tables, monitoring well log, and conclusions and recommendations. A final report will be submitted to Key Energy and to the New Mexico OCD.



LEGEND:

SB-3 SOIL BORINGS (ARCADIS, NOVEMBER 19, 2002)
MW-1 PROPOSED MONITORING WELL

NOT TO SCALE

BROWN AND CALDWELL
1415 Louisiana
Suite 2500
Houston, Texas 77002
Tel: (713) 759-0999
Fax: (713) 308-3886

KEY ENERGY

KEY ENERGY EUNICE YARD SITE MAP
EUNICE, NEW MEXICO
FIGURE 1

May 13, 2004 - 12:48pm ckelly
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NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Lori Wrotenbery
Director
Oil Conservation Division

March 12, 2003

Mrs. M.A. Moats
1310 20 th Street
P.O. Box 1507
Eunice, NM 88231

Re: Letter Dated 4-15-02 from M.A. Moats to Ms. Jennifer Salisbury, Cabinet Secretary of the Energy, Minerals and Natural Resources Department concerning blowing dust and odors from the on-site wash-out pit at the Key Energy Eunice Yard.

Dear Mrs. Moats:

The New Mexico Oil Conservation Division (OCD) received your letter in late April of 2002 and immediately contacted Key Energy Services, Inc. about your concerns. The OCD subsequently met with Key Energy Services, Inc. personnel to determine what actions could be taken to alleviate the problems mentioned in your letter. To date Key Energy has been very cooperative and has instituted on-site controls for the blowing dust and has taken the on-site pit out of service.

If you have any questions or other concerns please contact me at (505-476-3487) or E-mail WPRICE@state.nm.us. On behalf of the OCD, I wish to thank all parties for their cooperation during this process.

Sincerely,

Wayne Price
OCD Environmental Bureau

cc: Senator Carroll H. Leavell – District 41
Mr. James Brown- Mayor City of Eunice NM
Key Energy Services, Inc.

Price, Wayne

From: Price, Wayne
Sent: Thursday, March 06, 2003 9:21 AM
To: 'Crowell, Royce'
Subject: RE: Key Energy Services-Eunice Yard

Yes, I received them. Please submit an action plan by April 15, 2003 for OCD approval to investigate if groundwater has been impacted and a plan to address the remaining contaminants.

-----Original Message-----
From: Crowell, Royce [mailto:rcrowell@keyenergy.com]
Sent: Wednesday, March 05, 2003 9:03 AM
To: Price, Wayne
Subject: RE: Key Energy Services-Eunice Yard

Wayne,
I wanted to make sure you had received page 3 & 4 that I had faxed to you.
Royce

-----Original Message-----
From: Price, Wayne [mailto:WPrice@state.nm.us]
Sent: Friday, February 28, 2003 2:10 PM
To: Crowell, Royce
Cc: 'rlang@arcadis-us.com'
Subject: Key Energy Services-Eunice Yard

The OCD is in receipt of the Arcadis report titled "Findings and Recommendations from a Soil Investigation of the Truck Wash Sump Eunice NM Yard" dated January 20, 2003. Please note pages 3 and 4 of the report are missing. There is no recommendations that OCD could find. In addition, there is no signature page from Key Energy or Arcadis. OCD assumes this was on page 3 or 4. Please note this is a voluntary investigation by Key Energy. It is a normal practice that operators supply to the OCD complete information including findings and recommendations. Otherwise, OCD will have to require that this site be permitted and the investigation will be handled under the permit or an abatement plan. It is OCD's recommendation that Key continue with the voluntary procedure allowed by WQCC and provide
OCD with a complete report.

Sincerely:
<<...OLE_Obj...>>
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