National Cooperative Refinery Association

Corrective Action Plan
Former McPherson Terminal Site

June 28, 2013
Revised November 4, 2013

Michael F. Kraeski, P.E.
Principal-in-Charge

Craig W. Borgmeyer, P.E.
Project Manager

Justin T. Onwiler, P.G.
Project Consultant

Environmental Resources Management
10955 Lowell Avenue, Suite 1060
Overland Park, Kansas 66210
(913) 661-0770
Fax: (913) 661-0839
TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SUMMARY OF SITE CONDITIONS 1

2.1 SITE LOCATION 1

2.2 HISTORICAL OPERATIONS SUMMARY 1

2.3 SITE GEOLOGY AND HYDROGEOLOGY 1
  2.3.1 Regional Overview 1
  2.3.2 Site Geology 2
  2.3.3 Site Hydrogeology 2

2.4 NATURE AND EXTENT OF CONTAMINATION 3
  2.4.1 Soil Impacts 3
  2.4.2 Groundwater Impacts 3
  2.4.3 LNAPL 3

2.5 SITE RISKS AND SELECTED REMEDIAL ACTION 4

3.0 IMPLEMENTATION OF REMEDIAL ALTERNATIVE 5

3.1 REMEDIAL OBJECTIVES 5

3.2 REMEDIATION AREAS 5

3.3 REMEDIATION ACTIVITIES 5
  3.3.1 Installation of Monitoring Wells 6
  3.3.2 Monitoring Frequency 8
  3.3.3 Environmental Use Control Agreement 9
  3.3.4 Reporting 10
  3.3.5 Permitting/Regulatory Involvement 10

3.4 CONTINGENCY PLAN 10

4.0 SCHEDULE 12

5.0 REFERENCES 13
LIST OF FIGURES

Figure 1   Site Location Map
Figure 2   Site Layout
Figure 3   2012 Potentiometric Map
Figure 4   LNAPL Plume Map
Figure 5   Well Design

Appendices

Appendix A   Ground Water Sampling Log
1.0 INTRODUCTION

This Corrective Action Plan (CAP) has been prepared by Environmental Resources Management, Inc. (ERM) on behalf of the National Cooperative Refinery Association (NCRA) for the former El Paso Merchant Energy-Petroleum Company (El Paso) McPherson Terminal Site located in McPherson, Kansas (Site). The Kansas Department of Health and Environment (KDHE) agreed to include the Site in the Amended Consent Agreement and Final Order (CAFO) with NCRA, Case No. 00-E-0190, on December 31, 2012. The Site was originally managed under CAFO Case No. 96-E-0073. A Final Interim Corrective Action Decision (CAD), prepared by the KDHE and dated May 2, 2013, was submitted to NCRA on May 6, 2013.

This CAP has been prepared to be consistent with the KDHE Bureau of Environmental Remediation (BER) Remedial Section Scope of Work (SOW) for a Corrective Action Plan (CAP) / Corrective Action (CA) Policy (BER-RS-023), which requires that a CAP be submitted to the KDHE for review and acceptance prior to implementation. The objectives of the CAP are to:

- Provide a preliminary conceptual design of the CA and a description of the tasks necessary to implement the CA consistent with the CAD;

- To obtain data, if necessary, to support the development of the detailed design plans and specifications;

- Provide detailed design plans and specifications including an Operations and Maintenance (O&M) Manual for the corrective action system;

- Provide a Contingency Plan that identifies an alternative corrective action to be implemented in the event of a significant failure of the corrective action system;

- Identify and obtain necessary easements and permits required for the implementation of the corrective action; and

- Create a Site Monitoring and Performance Evaluation Plan to monitor the effectiveness of the corrective action.

The primary objectives of the CA are described as follows:
- To implement the CAP as approved by KDHE;

- To operate and maintain the corrective action systems as described in the approved O&M Manual;

- To evaluate and monitor the performance of the corrective action as described in the approved Site Monitoring and Performance Evaluation Plan;

- To determine whether corrective actions goals have been attained, or are likely to be attained;

- To confirm attainment of corrective action goals by conducting post-corrective action monitoring as described in the approved Site Monitoring and Performance Evaluation Plan;

- To implement the approved Contingency Plan to design, install and operate additional or alternative corrective action measures in the event the implemented corrective action is unable to attain corrective action goals within a reasonable timeframe as determined by KDHE;

- To document and report to KDHE all activities performed pursuant to the corrective action;

- To submit a final report to KDHE for approval which briefly describes the CA implemented at the Site, and provides the appropriate data documenting that site-specific CA goals have been attained; and

- If desired, to submit a site reclassification plan to KDHE for approval, which transfers a site to resolved status on the Kansas Identified Sites List.
2.0 SUMMARY OF SITE CONDITIONS

A detailed description of the Site setting, historical operations and previous investigations is presented in the Interim CAD dated May 2, 2013 (KDHE, 2013). A summary description is presented below.

2.1 SITE LOCATION

The Site is located within the eastern half of the southeast quarter of Section 5, Township 20 South, Range 3 West in McPherson County, Kansas (Figure 1). The Site occupies approximately 12 acres southeast of the NCRA Refinery along south Main Street in McPherson, Kansas (Figure 2). The remaining properties in the immediate vicinity of the Site include agricultural properties and the Kansas Department of Transportation right-of-way.

2.2 HISTORICAL OPERATIONS SUMMARY

Operations at the Site consisted of a bulk, refined petroleum storage and terminal facility for El Paso from 1933 to 1982. Razing of the terminal was completed in 1992 and the Site has remained inactive to the present day.

2.3 SITE GEOLOGY AND HYDROGEOLOGY

2.3.1 Regional Overview

The regional information summarized below was compiled from the thesis Analysis of Chloride Plume Migration Based on Aquifer Characteristics, Water Well Pumping Rate, Soil, and Stratigraphic Properties, National Cooperative Refinery Association, McPherson, Kansas, prepared by Kurt Shobe in November 2000 (Shobe, 2000).

The Refinery lies within the McPherson Valley, an area characterized by Pleistocene unconsolidated slope and stream deposits that collectively make up the McPherson Formation. The McPherson Formation is reported to vary in thickness (up to 260 feet in borings northwest of McPherson), but is approximately 170 to 190 feet thick beneath the Site. In the upper 40 to 70 feet, it is mainly clay and silty clay with very thin (approximately three feet or less) layers of carbonate concretions and silt. The lower part of the McPherson Formation is mainly sand and gravel with clay interbeds and lenses. Clay sections in the lower part of the
formation range from approximately 3 feet to 20 to 30 feet thick. An erosional unconformity separates the formation from the underlying Permian Wellington Shale (Shobe, 2000).

The Wellington Shale is gray, bluish gray and grayish green, medium soft to hard and calcareous, with thin argillaceous limestone and gypsum interbeds (Shobe, 2000). Water is scarce in the Wellington Shale, however, salt deposits are known to be imbedded in the shale and brine water has been reported from the Wellington Shale.

2.3.2 Site Geology

The general geologic progression summarized below was compiled from the borings logs for monitoring wells, C-1 through C-7, completed by Groundwater Consultants of Norman, Oklahoma in 1996.

- Ground surface to 35 feet below ground surface (bgs) - Silty clay;
- 35 feet bgs to 49 feet bgs - Fine sand with silty clay stringers;
- 49 feet bgs to 66 feet bgs - Clayey silt with fine sand stringers;
- 66 feet bgs to 97 feet bgs - Medium to coarse sand; and
- 97 feet bgs to 99 feet bgs - Silty clay.

2.3.3 Site Hydrogeology

The Equus Beds aquifer of the McPherson Formation is the primary aquifer located at the Site. Historic water level measurements from previously installed monitoring wells show ground water being encountered at approximately 80 feet bgs. Regionally, ground water typically flows to the west. However, ground water in the vicinity of the Site is influenced by the operation of the ground water and light non-aqueous phase liquid (LNAPL) containment/ extraction system operating at the NCRA Refinery resulting in a flow towards the northwest. A potentiometric map from the 2012 Annual Underground Oil Recovery (UGOR) System Report (prepared by TriHydro) is presented as Figure 3.
2.4 NATURE AND EXTENT OF CONTAMINATION

The Comprehensive Investigation (CI) for the Site was conducted in multiple phases from 1993 through 2007. Results from these phased investigations revealed the presence of benzene, toluene, ethylbenzene, and xylene (BTEX), total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO), naphthalene, ethylene dibromide (EDB), 1,2-dichloroethane (1,2-DCA), and lead in soil and ground water at concentrations that exceeded the KDHE Risk-Based Standards for Kansas, RSK Manual, 5th Version (KDHE, 2010) Tier 2 levels. In addition to the elevated concentrations, LNAPL was present on ground water across the Site.

2.4.1 Soil Impacts

A detailed examination of the nature and extent of soil impacts for the Site are discussed in Section 3.3 of the Interim CAD. Benzene and TPH are the most widespread constituents of concern (COCs) and were utilized to provide a basis for evaluating the overall distribution of the other Site-related COCs. Benzene and TPH-GRO impacts exceeding the KDHE RSK Tier 2 levels are reported to be present across approximately one-third of the Site in the shallow zone (0 to 25 feet bgs). The footprint of COCs impacts is reported to decrease with the next two intervals of 25 to 40 feet bgs and 40 to 60 feet bgs. In the deepest zone (greater than 60 feet bgs) the distribution of COCs becomes more extensive than the shallower intervals.

2.4.2 Groundwater Impacts

A detailed examination of the nature and extent of ground water impacts for the Site are discussed in Section 3.3 of the Interim CAD. Ground water impacts are reported to be consistent with the soil impacts. A higher benzene concentration area is located near monitoring well MW-3 (KDHE-3) and corresponds to the consistent observation of LNAPL in this well.

2.4.3 LNAPL

Between February 2004 and July 2011, LNAPL has been observed at least once in the following monitoring wells: C-4, C-5, C-6, MW-2 (KDHE-2), MW-3 (KDHE-3), and MW-5 (KDHE-5). Thickness ranged from 0.8 foot to 4.5 feet. Figure 4 presents an estimated LNAPL plume distribution based on the observations made during this time period. Monitoring wells C-1 through C-7 and MW-3 through MW-5 were abandoned in the fall of 2011 when a parking lot was constructed across the Site.
2.5 SITE RISKS AND SELECTED REMEDIAL ACTION

A formal risk assessment has not been developed for the Site. The Interim CAD states that an informal conceptual risk context for the Site concludes that there is no exposure risk associated with the Site under the current use conditions for both the soil and ground water pathways. There is a potential for future exposure risks if the current use restrictions are terminated without other protective measure in place and/or the currently operating UGOR system ceases to operate and a suitable Site-specific replacement or alternative is not implemented.

Four remedial action alternatives were evaluated in the Interim CAD by KDHE. The selected remedial action alternative for the Site includes the implementation of EUCs, hydraulic containment, and product skimming. Since the current NCRA UGOR system provides capture of the LNAPL and ground water contaminant plumes at the Site, this alternative requires that the existing NCRA UGOR system be maintained and operated for as long as the NCRA Refinery is in operation and/or as prescribed in the forthcoming NCRA Corrective Action Study and CAP. A contingency plan will also be in place in the event that the UGOR system is shut down or fails and LNAPL and COCs impacts are not cleaned up to residential standards. The selected remedial action alternative and contingency plan are detailed in the following sections.
3.0 IMPLEMENTATION OF REMEDIAL ALTERNATIVE

3.1 REMEDIAL OBJECTIVES

The remedial action objectives (RAOs) for ground water and soil at the Site are as follows:

- Prevent human and ecological exposure to ground water and soil that is contaminated above acceptable levels;

- Remove LNAPL from the subsurface;

- Prevent off-site migration of LNAPL and dissolved-phase plumes; and

- Development of contingency actions and implementation criteria if in the future the selected remedial actions do not satisfy the other RAOs.

Residual soil and dissolved-phase ground water contamination will be addressed in the future as part of the NCRA Refinery remediation. The scope of the NCRA Refinery remediation will be determined during the forthcoming Corrective Action Study for the Site.

3.2 REMEDIATION AREAS

A summary of the nature and extent of contamination is provided in Section 2.4 of this CAP. Based on historical data from the previously installed monitoring well system, a system of 10 monitoring wells will be installed at the locations proposed in the Interim CAD (Figure 2).

3.3 REMEDIATION ACTIVITIES

Contractors performing remedial construction and post-remediation groundwater sampling will prepare Site-specific Health and Safety Plans (HASPs) for their work prior to starting field activities. It is the responsibility of the remedial construction contractor to clear subsurface utilities at the Site before starting any excavation. Kansas One-Call will be contacted in advance and a Site meeting will be scheduled with the utility companies that are potentially affected in order to identify any underground utilities that may be crossing the Site.
3.3.1 Installation of Monitoring Wells

This remedial measure includes the targeted installation of ten 4-inch diameter monitoring wells at the locations shown on Figure 2. The objective of the installation of the 10 monitoring wells is to screen for the presence of LNAPL and monitor the shallow Equus Bed aquifer, typically encountered at 80 feet bgs. The tasks required to implement this component of the Site remedy are described below.

Task 1 – Borehole Advancement

Based on previous monitoring well installations in this area, it is anticipated that rotary-sonic will be the method implemented to advance the boreholes. Rotary-sonic drilling methods will minimize potential mobilization of contaminants, allow accurate logging of borehole stratigraphy, and reduce drilling derived waste. The monitoring well will be constructed by initially drilling with 9-inch diameter sonic drill rods to a depth of approximately 100 feet bgs.

Task 2 – Monitoring Well Design

The monitoring well will be constructed of 4-inch diameter, Schedule 80 polyvinyl chloride (PVC) well screen (30 feet in length with 0.010-inch slot size) and Schedule 80 PVC casing. Based on the assumed static water level of 80 feet bgs and the maximum LNAPL thickness exhibited of 4.5 feet, the wells are proposed for screening from 70 feet bgs to 100 feet bgs. This screening interval will accommodate ground water level and potential LNAPL fluctuations. Sand filter pack will be placed in the annulus around the well screen to approximately two feet above the screen; a two-foot thick bentonite seal will be installed above the filter pack. The remaining borehole annulus will be grouted using a tremie line from the top of the seal to the ground surface. The monitoring well design is shown on Figure 5.

Site monitoring wells will be completed above grade in accordance with the KDHE Bureau of Water (BOW) regulations. The well completion will include a locking protective cover and concrete pad, sloped to divert surface water runoff away from the wellhead. Three protective bollard posts (painted yellow) will be placed around each well. A water well record form (Kansas Form WWC-5) will be completed for each monitoring well. Copies of the well record form will be provided to the KDHE BOW and retained by NCRA.
Task 3 – Field Observations

Continuous core will be collected starting at the surface to the total boring depth. The core will be visually inspected by a field geologist who will identify lithology/stratigraphy and any staining or odor that may be present. The core will also be screened with a photoionization detector (PID) to identify zones of elevated volatile organic compounds (VOCs). This information will be recorded in a field log book and/or on a field boring log. After logging, the soil cores will be containerized and managed in accordance with the NCRA soil management plan (SMP).

Task 4 – Decontamination

All non-disposable and non-dedicated tools used in drilling, well construction, well development, well purging and ground water sampling activities will be decontaminated prior to reuse at the Site and upon the completion of well installation activities. Equipment decontamination will include a multi-step decontamination process (de-ionized water, Alconox or Liquinox, isopropanol) or steam/power washer cleaning. Decontamination fluids will be containerized for subsequent waste characterization and disposal.

Task 5 – Monitoring Well Development

Following completion of well construction activities, the monitoring well will be developed by surging during pumping. The turbidity and stabilization parameters (temperature, pH and specific conductance) will be monitored during well development to determine when the well has stabilized. Well development will be considered complete once these parameters have stabilized (i.e., consecutive measurements after removal of each borehole volume within plus or minus 10 percent) or 10 borehole volumes, whichever comes first. After the monitoring wells have been developed, ground water levels will be allowed to recharge to pre-development levels.

Task 6 – Surveying

The top-of-casing elevation and coordinates of the monitoring well will be determined by a registered land surveyor licensed in the State of Kansas. The well location will be provided in state plane coordinates and the elevation will be referenced to the National Geodetic Vertical Datum.
Task 7 – Investigation Derived Waste

Decontamination fluids and development/purge water will be containerized for temporary storage on-site. The decontamination fluids and development/purge water will be transferred to the NCRA Refinery and discharged to the wastewater treatment system.

Soil cuttings generated during the installation of the monitoring well will be containerized and managed in accordance with the NCRA SMP. The soil cuttings will be stored in a roll-off container with a proper cover to prevent exposure to precipitation. Soil cuttings will be sampled and subjected to the toxicity characteristic leaching procedure (TCLP). The leachate will be analyzed for metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) and benzene to determine if the soil should be classified as a hazardous waste or non-hazardous. If the soil is classified as a non-hazardous, the soil will be land farmed in accordance with the NCRA SMP. If the soil is classified as a hazardous waste, it will be disposed off-site at a facility permitted to manage hazardous waste.

3.3.2 Monitoring Frequency

Following the installation and development of the monitoring well network at the Site, the ten wells will be gauged for the presence of LNAPL and to determine post-development static water levels. Also, a baseline sampling event will be conducted to collect an initial round of data for the Site. Each well will be purged using low-flow procedures prior to sampling. Alternatively, the wells may be sampled be a methodology approved by KDHE. Low flow purging methods will be utilized to minimize the volume of purge water to be managed and to reduce sample turbidity. Where low-flow purging method is used, purging will be conducted with a Grundfos Redi-Flow 2 or similar pump and water quality parameters (turbidity, temperature, pH, and specific conductivity) will be monitored using a flow cell. Details of the purging will be recorded on a Ground Water Sampling Log (Appendix A).

Well purging will be considered complete once the field parameters stabilize. Stabilization will be considered to be achieved when three consecutive readings, taken at three to five minute intervals, are within the following limits:

- Temperature (3 percent);
• Temperature (3 percent);

• Turbidity less than 10 nephelometric turbidity units (10 percent);

• Specific conductivity (3 percent); and

• pH (± 0.1 standard unit).

Once purging is complete, a sample will be collected from each well and submitted to Pace Analytical in Lenexa, Kansas, or another qualified lab, for the following parameters:

• TPH-GRO and TPH-DRO by USEPA SW-846 Method 8015; and

• Volatile organic compounds (VOCs) including BTEX by SW-846 Method 8260.

For quality assurance/quality control (QA/QC) purposes, one duplicate sample will be collected during the sampling event.

If LNAPL is encountered in the well, effort will be made to remove the product. The method of removal will be dependent upon the amount of LNAPL observed. An amount between two inches and one foot will be removed by a hand bailer. LNAPL amounts greater than one foot in thickness will be removed by a Site-dedicated Grundfos Redi-Flow 2 pump.

Following the baseline sampling event, the 10 monitoring wells installed at the Site will be monitored on a quarterly schedule that coincides with the UGOR system monitoring program. The Site wells will be monitored in accordance with the work plan developed by TriHydro with exception to the analytical parameters. The Site wells will continue to be analyzed for TPH-GRO/DRO, VOCs, and BTEX only.

3.3.3 Environmental Use Control Agreement

An Environmental Use Control Agreement (EUCA) for the Site was established with the KDHE and recorded with the Register of Deeds, McPherson County, Kansas on December 8, 2010. The EUCA identifies restrictions on current and future use and site development. The EUCA for the Site includes the following:
• The Site shall not be developed for residential purposes including dwellings and public use areas (i.e. schools, day care centers, playground or similar structures or parks;
• Drilling is prohibited at the Site unless being conducted for investigational/monitoring purposes;
• A 15-day advance notification is required before filing a rezoning request;
• A 15-day notification is required prior to any excavation activity and any excavation activity must be conducted in accordance with the NCRA SMP; and
• Annual inspections must be conducted to determine compliance with the EUCA restrictions.

3.3.4 Reporting

A report will be submitted to the KDHE following the completion of the monitoring well installation and the baseline sampling event. This report will contain details of the monitoring well installation, water level measurements, well purging and sampling, ground water analytical data, and QA/QC data. This report will be submitted to the KDHE approximately 45 days after the baseline sampling event.

Subsequent reporting for the Site will be completed on an annual schedule coinciding with the NCRA Refinery UGOR system reporting.

3.3.5 Permitting/Regulatory Involvement

Monitoring well installation will be performed in accordance with KDHE BOW requirements by a licensed Kansas well driller. A field notifications form will be submitted to the KDHE at a minimum of seven days prior to the remedial action activities.

3.4 CONTINGENCY PLAN

In the event that LNAPL migration off-site is confirmed through performance monitoring in a direction or location that is outside the area
of influence of the NCRA UGOR system, or should the NCRA UGOR system become ineffective or inoperable, NCRA will design and implement an appropriate remedial measure, which could include the installation of additional monitoring wells, to continue addressing the contaminated ground water beneath the Site. This contingent remedial measure would be designed and implemented in cooperation with, and under the approval of, the KDHE.
4.0 SCHEDULE

Remedial contractor procurement and remediation activities will commence following approval of this CAP. The KDHE will be notified not less than one week prior to any scheduled field actions. The anticipated schedule and duration of the remedial action tasks is presented in the table below.

<table>
<thead>
<tr>
<th>Task</th>
<th>Duration (days)</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>90</td>
<td>Field preparation, contracting, and mobilization</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>Well Installation</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>Well Development</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>Surveying</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>Baseline Sampling Event</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
<td>Submittal of CAP Summary Report to KDHE</td>
</tr>
</tbody>
</table>

Following approval of the CAP, it is anticipated that the field actions presented in the above table will be initiated within 60 to 90 calendar days, dependent upon contractor availability. All field actions, excluding the quarterly sampling events, are anticipated to be completed within approximately 14 calendar days.

Subsequent to the completion of the monitoring well installation and the baseline sampling event, a final CAP Summary report will be submitted to the KDHE within 60 days following the sampling event.
5.0 REFERENCES

Kansas Department of Health and Environment – Bureau of Environmental Remediation; 2005; *Scope of Work (SOW) for a Corrective Action Plan (CAP)/Corrective Action (CA)*; December 2005.


Figures
Notes: Adapted from TriHydro UGOR 2012 Annual Report.
Locking, protective casing with 3 bollards

Ground surface

Silty Clay
Thickness = 35 ft

Approx. 35 ft bgs

Fine sand with silty clay stringers
Thickness = 14 ft

Approx. 49 ft bgs

Clayey silt with fine sand
Thickness = 17 ft

Approx. 66 ft bgs

Medium to coarse sand
Thickness = 31 ft

Approx. 97 ft bgs

Approx. 99 ft bgs

Silty Clay, Thickness = 2 ft

Legend

- Well Screen
- Well Case
- Grout
- Seal
- Sand Pack

Notes:
- ft bgs = feet below ground surface
- Sand pack will extend at least two feet above top of screen interval.

Environmental Resources Management
10935 Lowell Avenue
Suite 2000
Overland Park, Kansas 66213
(913) 684-0720

Proposed Well Construction

National Cooperative Refinery Association
McPherson, Kansas
Appendix A – Ground Water Sampling Log
<table>
<thead>
<tr>
<th>Project Number:</th>
<th>Well Number:</th>
</tr>
</thead>
</table>

**Well Purge Data**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Vapor (ppm)</td>
<td>Well Construction:</td>
</tr>
<tr>
<td>Water Level (ft)</td>
<td>1 2 3 4 5 6 8 10 12</td>
</tr>
<tr>
<td>Well Depth (ft)</td>
<td>Casing Type: PVC</td>
</tr>
<tr>
<td>Well Purge Equipment</td>
<td>Well Measurement Technique:</td>
</tr>
<tr>
<td>Purge Flow Rate</td>
<td>Electronic Water Level Meter</td>
</tr>
<tr>
<td>Purge Time (min)</td>
<td>Interface Probe</td>
</tr>
<tr>
<td>Well Recovery</td>
<td>Other</td>
</tr>
<tr>
<td>Drawdown (ft)</td>
<td>Total Volume Purged (gal)</td>
</tr>
<tr>
<td>Gal./Linear Foot</td>
<td>Pump is set at (ft)</td>
</tr>
<tr>
<td>Well Volume (gal)</td>
<td>3-Well Volumes (gal)</td>
</tr>
</tbody>
</table>

**Field Parameters**

<table>
<thead>
<tr>
<th>Purge Volume</th>
<th>Temperature</th>
<th>pH</th>
<th>Spec Cond</th>
<th>Dissolved Oxygen</th>
</tr>
</thead>
<tbody>
<tr>
<td>gal</td>
<td>°C</td>
<td>pL</td>
<td>µS</td>
<td></td>
</tr>
</tbody>
</table>

**Sample Collection Data**

<table>
<thead>
<tr>
<th>Date:</th>
<th>Odor</th>
<th>Yes / No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time:</td>
<td>Field Filter Metals</td>
<td>Yes / No</td>
</tr>
<tr>
<td>Color</td>
<td>Visual Turbidity</td>
<td>Yes / No</td>
</tr>
</tbody>
</table>

**Analyses**

<table>
<thead>
<tr>
<th>Number</th>
<th>Size</th>
<th>Acid</th>
<th>Analyses</th>
</tr>
</thead>
</table>

**Weather**

<table>
<thead>
<tr>
<th>Sunny</th>
<th>Cloudy</th>
<th>Partly Cloudy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Direction:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wind Speed (mph)</td>
<td>0-10</td>
<td>10-25</td>
</tr>
<tr>
<td>Temperature:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Note: LNAPL extent is based on Figure 27 (Kinder-Morgan) included in the Interim CAD.

Legend
- Proposed Monitoring Wells
- Abandoned Wells
- Estimated LNAPL
- Former Terminal