RECR – 5

Enersource Refinery

Investigation & Excavation Report

12/4/09

Part 1 of 2

INTERA Incorporated
6000 Uptown Blvd, NE
Suite 100
Albuquerque, NM 87110
Telephone: (505) 246-1600
Fax: (505) 246-2600

December 4, 2009

Mr. Jim Griswold
Hydrologist
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Remedial Investigation and Removal Action Report, Former Enersource Facility, Monument New Mexico

Dear Mr. Griswold,

Please find enclosed the above referenced report. Thank you for the opportunity to work on this project and if you have any questions, please contact me at (505) 246-1600.

Sincerely,
INTERA Incorporated

Joe Galemore
Senior Project Manager

Enclosures

JAG/jep

FILE: NMO-ENE-03-01

REMEDIAL INVESTIGATION and REMOVAL ACTION REPORT
Former Enersource Facility
Monument, Lea County, New Mexico

Prepared for:

New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Prepared by:

INTERA Incorporated
6000 Uptown Boulevard, NE
Suite 100
Albuquerque, New Mexico 87110

December 4, 2009

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

ACRONYMS AND ABBREVIATIONS

AST	aboveground storage tank
BTEX	benzene, toluene, ethyl benzene, and total xylenes
bgs	below ground surface
CFR	Code of Federal Regulations
COC	contaminant of concern
DPT	direct-push technology
DRO	diesel range organics
EDC	1,2-dichloroethane
EPA	U.S. Environmental Protection Agency
FID	flame ionization detector
GRO	gasoline range organics
HEAL	Hall Environmental Analysis Laboratory
HSA	hollow-stem auger
INTERA	INTERA Incorporated
LNAPL	light non-aqueous phase liquids
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MRO	motor oil range organics
msl	mean sea level
MW	monitoring well
NMWQCC	New Mexico Water Quality Control Commission
OCD	Oil Conservation Division (New Mexico Energy, Minerals, and Natural Resources Department)
PAH	polynuclear aromatic hydrocarbon
PO	purchase order
ppmv	parts per million by volume
PVC	polyvinyl chloride
RA	removal action
RI	remedial investigation
Site	former Enersource facility

TDS	total dissolved solids
TOC	top of PVC casing
TPH	total petroleum hydrocarbons
ug/l	micrograms per liter
USGS	U.S. Geological Survey
VOC	volatile organic compound

1.0 INTRODUCTION

INTERA Incorporated (INTERA) has completed remedial investigation (RI) and removal action (RA) services at the former Enersource Facility (Site) for the New Mexico Energy, Minerals, and Natural Resources Department, Oil Conservation Division (OCD). The services were conducted under General Services Department Price Agreement number 80-805-00-03337. Authorization to conduct this work was provided by OCD purchase order (PO) numbers 52100-00000019248 dated May 18, 2009 and 52100-0000021403 dated August 10, 2009. The earlier PO was for project planning and field activities; the later PO was for the preparation of this report.

This report provides a description of the RI and a RA activity performed in May and June 2009. The remainder of this section provides a summary of the project history and a brief description of the Site's physical setting. The sections following this introduction detail site RI/RA activities, present results and provide conclusions and recommendations. A map showing the location of the project is provided in Figure 1.

1.1 Project History

The project summary provided in this Section is based on information obtained from a review of historical aerial photographs, interviews with local residents and OCD personnel, and review of property ownership records at the Lea County Courthouse. A more comprehensive description of the project history is provided in INTERA's *Phase I and II Remediation Report* (INTERA, 2007). Copies of historical aerial photographs are provided in Appendix A.

An evaluation of historical aerial photographs, as well as interviews with local residents and OCD personnel, indicate that development at the Site occurred after 1949 and operations ceased prior to 2005. In the 1960s and 1970s the Site was operated by Famariss Energy Refinery and produced jet fuel. The 1966 and 1978 aerial photographs contain numerous aboveground storage tanks (ASTs) that are located within and slightly outside the property boundary and are arranged into an eastern and a western cluster (Figure 2; Appendix A). The AST sizes within the western area of the Site are, in general, larger than the ASTs in the eastern area. It has been speculated that the larger tanks located in the western area were used to store crude and the smaller tanks in the eastern area stored refined product. The two clusters of tanks are separated by a central refining processing area that contains buildings and, based on the tall, narrow shape of the shadows, cracking and/or distillation towers (Figure 2; Appendix A). A semi-tractor trailer can be seen in the 1978 historical aerial photograph just north of the central processing area and numerous underground pipes were observed at the concrete basin labeled on Figure 2 (INTERA, 2007), suggesting that this area was used for product loading (Figure 2). Enersource became the property owner in 1985 and used the Site to reclaim crude oil until sometime prior to 2006.

The 2005 photograph and visits to the Site in circa 2006 revealed that: (1) ASTs and heavily stained soils were present, (2) the central processing area had been razed, and (3) large pieces of debris were buried in the west-central portion of the Site (Figure 3). Furthermore, a pit containing liquid waste was discovered on New Mexico State Land Office property (Figure 3) (INTERA, 2007). The discovery of this pit precipitated subsequent investigations.

INTERA was contracted in 2006 to perform a Phase I investigation and removal action, which included the testing of the existing ASTs and their fluids/sludge for naturally-occurring radioactive materials and subsequent removal of these materials from the Site. The ASTs and some underground piping were removed from the Site and disposed of at an off-site facility in the summer of 2006. Limited soil sampling and testing was performed and the results are illustrated on Figure 3.

In April 2007, a Phase II investigation and removal action, which included a geophysical survey and removal of underground piping and buried objects, was performed. The geophysical survey revealed the presence of several thousand feet of underground piping and large metal objects scattered throughout the Site. From May to June, 2007, INTERA and its subcontractor, Controlled Recovery, Incorporated, removed these subsurface materials and disposed of them at an off-site facility. Trenching performed during the piping removal, and soil samples collected during the Phase I investigation, revealed grossly (i.e., contamination that was visually and olfactorily observed) contaminated soils in several areas (INTERA, 2007). These areas are illustrated on Figure 3.

A survey performed in 2006 by John West Surveying Company established the boundary of the property owned by Enersource (INTERA, 2007). As indicated on Figure 3, some facilities believed to have been used by Enersource (e.g., the pit, which is located southwest of the property boundary and is the subject of this removal action) are believed to be outside of the property boundary.

1.2 Physical Setting

The Site is located within the High Plains section of the Great Plains physiographic province. The High Plains is predominantly used for rangeland and agriculture. Land in the vicinity of the Site is used for oil and gas production and cattle ranching. The Versado Gas Processing Plant (OCD remediation permit # 1R-281) is located immediately adjacent to the northern property boundary and El Paso Natural Gas operates a facility within 500 feet of the eastern property boundary (Figure 1). Numerous oil/gas production wells/storage tanks and the Climax Chemical Company, which is a U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System site, are in the vicinity.

Soils have a high to medium-high permeability and are well drained. Annual precipitation rates average approximately 15 inches and mean annual temperature is about 60 degrees Fahrenheit. The majority of the precipitation occurs in the summer monsoon months. Lake evaporation rates range from 60 to 70 inches per year (Leedshill-Herkenhoff, Inc., et al. 2000).

Figure 1 illustrates the location of the Site on the Monument North and Monument South 7.5 minute Quadrangles, U.S. Geological Survey Topographic Maps (USGS, 1985a and 1985b). The Site covers 9.56 acres and is located in the northwest quarter of Section 1, Township 20 South, Range 36 East, Lea County, New Mexico. The Site is at an elevation of approximately 3,580 feet above mean sea level (msl). The ground surface slopes down from northwest to southeast at a gradient of approximately 0.003 feet/foot (16 feet/mile). Monument Draw, a northwest to southeast flowing intermittent stream, is located about 2½ miles south of the Site.

The surface geology of the Site consists of a thin layer of recently deposited wind-blown sands and silts (Leedshill-Herkenhoff, Inc., et al. 2000). The Ogallala Formation exists below this layer and consists of sand, silt, clay, gravel, and caliche. The thickness of this formation is up to 350 feet, and is further described as follows:

> *"Sand, fine- to coarse-grained quartz, silty in part, cemented locally by calcite and silica, locally crossbedded, various shades of gray and red. Minor silt and clay with caliche nodules, massive, white, gray, olive green, maroon. Gravel, not everywhere present, composed of pebbles and cobbles of quartz, quartzite, minor chert, igneous rock, metamorphic rock, limestone, and abraded Gryphaea in intraformational channel deposits and in basal conglomerate. Caliche, sandy, pisolitic, forms caprock, may include some caliche of Pleistocene age. Where stippled pattern shown, overlain sporadically by 14 to 30 inches of brownish gray to brown to reddish brown, calcareous sand and silt of pre-Illinoian age…"* (Leedshill-Herkenhoff, Inc., et al. 2000).

The Site is located within the Lea County Underground Water Basin, which obtains water from the Ogallala Aquifer. As of 1998, depth to water at the Site was estimated to be 40 feet bgs and the groundwater flow direction was generally to the southeast (Leedshill-Herkenhoff, Inc., et al. 2000).

A search of the Office of the State Engineer WATERS database revealed seven permitted water wells within 1 mile of the Site and two within Section 1 (Figure 1). The closest well included in the database is a domestic supply well located approximately 2,000 feet north of the Site; no information concerning depth to water was provided in the WATERS database. The next closest well listed in the database is also a domestic supply well located about 3,000 feet east of the Site. The WATERS database lists the depth to water in this well as 40 feet bgs (INTERA, 2007). Other water wells may be located in the area but are not permitted by the Office of the State Engineer or the database does not contain sufficient information to be accurately mapped.

1.3 Scope of Work and Work Plan Deviations

A scope of work for the following activities was submitted to OCD on April 24, 2009:

- Drill and sample soil from 50 soil borings advanced to the water table or drilling refusal, whichever comes first, using direct push technology (DPT) methods.
- Drill and sample soil from 6 borings advanced to approximately 10 feet below the water table using hollow-stem auger (HSA) methods.
- Screen soil samples for the presence of volatile organic compounds (VOCs) using a field flame ionization detector (FID).
- Analyze 3 soil samples per boring for hydrocarbons, VOCs, and chlorides.
- Convert the 6 HSA borings to groundwater monitoring wells and develop, survey, and sample the six wells.
- Analyze 6 groundwater samples for VOCs, chlorides, and total dissolved solids (TDS).
- Excavate and haul 4,000 cubic yards of contaminated soil from the pit located in the southwest corner of Site (Figure 3); dispose of contaminated soil in either landfarm or landfill; and backfill excavation.

Deviations to the RI portion of the Work Plan included: (1) advancing only 45 borings, instead of 50; (2) not obtaining field screening results for soils collected from some borings; and (3) not analyzing any soil samples from DPB-44 and DPB-45. The number of boring was reduced because of time constrains. Soil screening was not performed from soils collected from DPB-38 to DPB-45 and MW-02, MW-03 and part of MW-05 because the FID was not working properly during the period that these borings were advanced. No soil samples were collected for laboratory analysis from boring DPB-44 and DPB-45 because these borings were advanced into soils containing obviously contaminated soils associated with the pit.

No deviations occurred to the RA scope of work; however, uncertainty concerning the appropriate disposal method of contaminated soils excavated from the pit was resolved after work authorization was provided. The work plan specified that pit materials be disposed of in a landfarm if chloride concentrations were less than 1,000 milligrams per kilogram (mg/kg); otherwise, the materials were to be disposed of in a landfill. The results of testing indicated that pit materials contained chloride concentrations above the 1,000 mg/kg limit. Therefore, the excavated materials were landfilled.

2.0 FIELD ACTIVITIES

RI/RA activities were performed from June 9, to June 26, 2009. Notes and photographs taken while in the field are provided in Appendix B and Appendix C, respectively. Details of the field activities are discussed in the following subsections.

2.1 Soil Boring Advancement, Soil Screening, and Soil Sampling

During the time period from June 9 to June 18, 2009, 45 soil borings, designated DPB-01 through DPB-45, were advanced using DPT drilling and sampling methods and 6 boring, designated MW-01 through MW-06, were advanced using HSA drilling and sampling methods. DPT and HSA boring locations are illustrated on Figure 4 and details of the drilling, sampling and screening methods are provided below.

2.1.1 DPT Borings

As indicated on Figure 4, DPT borings were spaced approximately 100 feet apart in the majority of the site; however, borings were more closely spaced in areas where shallow contamination was observed (e.g., near MW-04, the concrete basin, the eastern portion of the Site, and the pit). The DPT borings were advanced until refusal was reached, which varied between 5 and 16 feet below ground surface (bgs) and averaged 7.5 feet bgs. The decontamination and other quality assurance methods are provided in the Work Plan (INTERA, 2009).

Soil samples were collected continuously in 4-foot intervals in the borings drilled by DPT methods. Once collected, the soil samples were characterized by an INTERA scientist, screened for the presence of VOCs using a heated headspace method and a FID and put in laboratory-provided containers for possible chemical analysis. Soil characterization and soil screening data are provided on the boring logs, which are included in Appendix D. Soil screening data is also summarized in Table 1 and maximum VOC concentrations as determined by heated-headspace methods are illustrated on Figures 5 and 6.

Approximately three soil samples were collected for laboratory analysis (if soil recovery allowed) from each boring. The decision to select samples for possible laboratory analysis was based on physical appearance, presence of odor and/or highest field screening results. The soil samples collected were containerized, preserved, and submitted under chain of custody to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico. The samples were analyzed for total petroleum hydrocarbons (TPH) – gasoline range organics (GRO [C6 to C10]), diesel range organics (DRO [C10 to C 28]), and motor oil range organics (MRO [C28 to C36]) by EPA Method 8015B; for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8260B, and for chlorides by EPA Method 300.0. In addition, ten percent of the samples containing the highest concentrations of TPH were analyzed for VOCs by EPA Method 8260B.

A copy of the analytical chemistry laboratory reports are provided in Appendix E and a summary of the data are provided in Table 2. The spatial distribution of TPH, benzene, BTEX and chloride is provided in Figures 7 through 14.

In accordance with the Work Plan, drilling and sampling equipment were decontaminated prior to commencement of drilling and between borings. The FID was calibrated daily. Soil cuttings generated during drilling were spread thin on the ground within the Site boundaries. The boreholes were backfilled with bentonite and hydrated at the surface.

2.1.2 HSA Borings

HSA borings were advanced at the locations illustrated on Figure 4 to a depth of approximately 45 feet bgs (i.e., approximately 10 feet below the water table). The augers used in the drilling and sampling had a 10-inch outer diameter and a 6-inch inner diameter. The drilling, sampling, well installation and development methods are summarized below. The decontamination and other quality assurance methods used are provided in the Work Plan (INTERA, 2009).

During advancement of the HSA borings, soil samples were collected using 5-foot long split-barrel and 2-foot long split-spoon samplers. Soil samples were characterized, screened for VOCs and put in laboratory provided containers for chemical analysis in accordance with the Work Plan by an INTERA scientist. Logs of the borings, which contain soil descriptions and soil screening results, are included in Appendix D. Soil screening results are also provided in Table 3 and maximum VOC concentrations as determined by heated-headspace methods are illustrated on Figures 5 and 6.

Three to seven soil samples per HSA boring were containerized, preserved, and submitted under chain of custody to HEAL. The laboratory analyzed the samples for TPH-DRO, GRO, and MRO by EPA Method 8015B; for BTEX by EPA Method 8260B; and for chlorides by EPA Method 300.0. In addition, 10 percent of the samples containing the highest concentrations of TPH were analyzed for VOCs by EPA Method 8260B. A copy of the analytical chemistry laboratory reports are provided in Appendix E and a summary of the data are provided in Table 3. The spatial distribution of TPH, benzene, BTEX, and chloride is provided in Figures 7 through 14.

In accordance with the Work Plan, drilling and sampling equipment were decontaminated prior to commencement of drilling and between borings and the FID was calibrated daily (INTERA, 2009). Soil cuttings generated during drilling were spread thin on the ground within the Site boundary. The boreholes were converted to monitoring wells as detailed below.

2.2 Monitoring Well Installation, Development, Surveying and Sampling

The six HSA borings were converted to 4-inch polyvinyl chloride (PVC), flush threaded, schedule 40, groundwater monitoring wells designated MW-01 through MW-06 (Figure 4). Each well contained 15 feet of 0.020 inch slot screen with an end cap and blank casing to the surface. The annular space of each well was back filled with 10/20 gradation silica sand (filter pack) to 2 feet above the top of the well screen. Three feet of hydrated bentonite chips were placed above the filter pack followed by cement/bentonite grout to 3 feet below grade. A hinged lid surface well vault was emplaced in the concrete pad approximately 3 feet above ground. The groundwater monitoring wells were installed and completed with three bollards surrounding the 2 foot by 2 foot by 4 inch thick concrete surface pad. Well construction diagrams and Office of the State Engineer permits are included in Appendix D. A summary of screen intervals for monitoring wells is provided on Table 4.

Upon completion, each well was surged and bailed for one hour to remove fines and to clean the sand filter pack. Approximately 45 gallons of water were removed from MW-01, 80 gallons from MW-02, 82 gallons from MW-3, 60 gallons from MW-04, 60 gallons from MW-05, and 7.5 gallons from MW-06. The turbidity, pH, specific conductance, and temperature of the groundwater were monitored and recorded during development. Development results are included in the field notes provided in Appendix B. Water produced during development was discharged to an on-site impervious surface and allowed to evaporate.

The location and elevation of the north side of the top of the PVC casing (TOC) were surveyed by a licensed surveyor in June 2009. This north side of the TOC was used as a measuring point for fluid levels and total depth of the monitoring well. A copy of the survey is included in Appendix F and a listing of well elevations is provided in Table 4.

Fluid (i.e., groundwater and light non-aqueous phase liquid [LNAPL]) levels were measured in each monitoring well on June 25, 2009 and groundwater was sampled from each monitoring well on June 26 or June 27, 2009 using an interface probe and dedicated disposable bailers in accordance with INTERA standard operating procedures which are included in the Work Plan (INTERA, 2009). A minimum of three casing volumes of groundwater were purged from each well prior to sample collection. Fluid level depths, temperature, specific conductance, and pH of the groundwater was measured and recorded in the log book during purging activities (See Appendix B) and a summary of fluid levels are provided in Table 4. Samples were containerized, preserved, and submitted under chain of custody to HEAL.

Each sample was analyzed for VOCs by EPA method 8260B, for polynuclear aromatic hydrocarbons (PAHs) by EPA Method 8310, for chlorides by EPA Method 300.0, and for total dissolved solids by EPA method SM 2540C. Trip blanks were analyzed for VOCs in order to

assess the potential for cross contamination during shipping. A copy of the analytical chemistry laboratory reports are provided in Appendix E and a summary of the data are provided in Table 5. The spatial distribution of TPH, benzene, BTEX, and chloride in groundwater collected from the monitoring wells is provided in Figure 16.

2.3 Pit Removal Action

As mentioned above in Section 1.3, the Work Plan specified that materials located in a pit used for liquid and sludge waste disposal were to be excavated and disposed of at an off-site facility. The Work Plan specified that excavated material was to be disposed of in a landfarm if chloride concentrations materials were less than 1,000 mg/kg; otherwise, the materials were to be disposed of in a landfill. In order to determine appropriate disposal methods, one sample of pit materials was collected from the surface of the eastern portion of the pit and one from the surface of the western portion of the pit on June 8, 2009. Samples were submitted to Cardinal Laboratories in Hobbs, New Mexico and tested for BTEX, TPH, and chloride. As indicated on Table 2 and in Appendix E, the maximum concentrations of chloride were 596 mg/kg in the "east" designated sample. This value is below the landfarming standard of 1,000 mg/kg, so, at that time, landfarming was believed to be an appropriate disposal method.

After excavating and stockpiling approximately 1,400 cubic yards of soil on June 9 and 10, 2009, it became clear from screening results that the previously collected "east" and "west" designated samples were not representative of the material to be disposed and concentrations of VOCs, and potentially chloride, were much higher. Consequently, excavation activities were temporarily halted on June 10, 2009 until further characterization of the pit materials could be conducted.

A sample of the more contaminated pit material was collected at depths of 10 and 15 feet bgs at pit location N35E15, which is 35 feet north and 15 feet east of the origin of the excavation grid illustrated on Figure 4. As indicated on Table 2 and illustrated on Figure 15, the maximum chloride and BTEX concentrations in these samples was 3,120 mg/kg and 25 mg/kg, respectively, so landfarming was determined to be inappropriate. Furthermore, because of the high concentrations of BTEX and the fact that the Site was used for refining operations, there was concern that the waste may meet the definition of a hazardous waste as specified in 40 Code of Federal Regulations (CFR) Part 261 Subpart C.

In order to determine if the waste was hazardous, a composite sample was collected from the stock piled material and analyzed for hazardous waste characteristics. A composite sample of the material was collected and analyzed for ignitability, corrosivity, reactivity, and toxicity using toxicity characteristic leaching procedures. Results of the testing revealed that the material was not characteristically hazardous as defined by the Resource Conservation and Recovery Act and,

therefore, a decision was reached to haul the material to Sundance Landfill. A copy of the laboratory report for these tests is provided in Appendix E.

The following subsections discuss excavating, hauling, disposing, and backfilling activities associated with the removal of the pit. Photographic documentation of these activities is provided in Appendix C.

2.3.1 Excavating, Hauling, and Disposal Activities

Excavating, hauling, and disposal activities occurred from June 9 to June 26, 2009. After one day of removal action activities, work was halted for 19 days. As mentioned above, excavation activities were initially stopped on June 10 to allow time for the testing of pit materials and decision making concerning waste disposal. Further delay was caused by a thunderstorm on the morning of June 10, which produced over an inch of rain in less than 30 minutes (Targa/Versado employee pers. comm., June 10, 2009) resulting in the flooding of the pit.

Excavation of the pit restarted on June 19, 2009. Approximately 4,000 cubic yards of material and some metal piping were removed from the pit using a trackhoe type excavator. The excavation boundaries are illustrated on Figure 4. The excavated materials were temporary stockpiled by the pit before a front-end loader was used to load the stockpiled material into 20 cubic yard haulers that were used to transport the material approximately 20 miles to a landfill operated by Sundance Services, Inc. just east of Eunice, New Mexico. Copies of waste disposal documents are provided in Appendix H. Excavated piping was stockpiled on Site.

2.3.2 Excavation Backfilling

Backfill material consisted of fine-grained sand, which was hauled from the Sundance facility. Once on site, the backfilled material was stockpiled on the west side of the Site (Photograph # 3). A front end loader was used to dump the backfill into the excavation and the trackhoe was used to redistribute the backfill into 2-foot lifts (Photograph # 4 and 5). Both the trackhoe and front-end loader were then used to compact each lift until final grade was reached.

2.3.3 Soil Sampling and Screening

Soil samples were collected periodically during the excavation of pit materials and the samples were screened for VOCs using a heated headspace technique and a FID. Results of the screening were recorded in the field log book, a copy of which is included in Appendix B.

Grab soil samples for VOC screening were collected by gloved hand from the trackhoe in order to avoid entering the excavation. The approximate location from which the trackhoe obtained the grab soil sample was noted and recorded in the field book. VOCs were analyzed using a FID and

following the OCD "Guidelines for Remediation of Leaks, Spills, and Releases" (OCD, 1993). Once the FID result was obtained for each soil sample, the glass jars used for sample collection and analysis were decontaminated using Liquinox® soap and distilled water. Field VOC results are provided in the field notes contained in Appendix A.

The location that the samples were collected was determined by establishing a grid, the origin of which was at the intersection of the southern fence line and the western edge of the pit (Figure 4). Flagging was placed at 5 foot intervals along the fence and these markings were used to locate samples collected from within the pit. For example, and as mentioned above, location N35E15 is 35 feet north of the fence and 15 feet east of the west side of the pit. Relative to the origin established for the geophysical grid used in 2007 (INTERA, 2007), the pit location grid origin is 65 feet south and 10 feet east.

In addition to the field analysis for VOCs, 24 soil samples were collected for laboratory analysis from the bottom and walls of the pit. The samples were containerized and submitted to HEAL for TPH analysis by EPA Method 8015B. A copy of the analytical chemistry laboratory reports are provided in Appendix E and a summary of the data are provided in Table 2. The spatial distribution of TPH is provided in Figure 15.

3.0 DISCUSSION OF FINDINGS

This section presents the findings from the RI and pit RA. The section is divided into three subsections: site hydrogeology, distribution of contaminants in soil, and distribution of contaminants in groundwater.

3.1 Site Hydrogeology

The following two subsections discuss the Site hydrogeology. The discussion is based on regional geologic studies; information obtained during the drilling and sampling of the 45 DPT borings and 6 HSA borings; and the installation, gauging, and sampling of groundwater in 6 monitoring wells. Boring logs of the DPT and HSA borings and monitoring well construction diagrams are provided in Appendix D.

3.1.1 Stratigraphy

Three stratigraphic units were encountered in the approximately 45 feet that was explored during the remedial investigation. These units are illustrated in the generalized hydrostratigraphic column included in Figure 17.

As illustrated in Figure 17, the upper most unit encountered at the Site consisted of very fine-grained sand and clayey sand. Caliche nodules were commonly contained in the clayey sand. The thickness of this unit varied from 3 to 12.5 feet.

Below this unit is a pale brown caliche with fine-grained sand. This unit was very hard and caused boring refusal in the DPT borings and, in MW-06, the drilling method had to be changed from HSA to air rotary in order to continue drilling in a timely manner. This unit was commonly impacted with hydrocarbons and, when impacted, was gray to black in color. The thickness of this unit varied from 22 feet in MW-01 to at least 37.5 feet in MW-06, which terminated in this unit.

In three of the HSA borings (MW-02, MW-05, and MW-06), clayey sand was observed interbedded with the caliche. MW-02 contained a ½-foot layer of clayey sand starting at 34.5 feet bgs. MW-05 contained a 1-foot layer starting at 34.5 feet bgs. MW-06 contained 2-feet of clayey sand starting at 30 feet bgs and ½-foot starting at 39.6 feet bgs.

The deepest unit encountered consisted predominantly of sandy clay and clayey sand. This unit was observed in all of the borings except MW-06, which terminated in the overlying caliche unit. The clayey layers contained caliche nodules and were typically plastic and wet. A ½-foot layer of coarse-grained sand with gravel was observed at a depth of 35.5 bgs and a ½-foot clayey,

coarse-grained sand was observed at a depth of 40 feet bgs in MW-03. An extremely hard layer of silica cemented sand was observed in MW-02 at a depth of 41.3 to 41.5 feet bgs.

3.1.2 Groundwater Conditions

The water table was encountered at approximately 35 feet bgs within either the caliche unit or the clayey unit below the caliche unit. The elevation of the water table on June 25, 2009, varied from a high of 3545.45 feet above msl in MW-01 to a low of 3543.51 above msl in MW-03 (Table 4; Figure 18). The estimated groundwater flow direction on this date was southeast and the hydraulic gradient was 0.002 foot/foot (approximately 10 feet per mile) (Figure 18).

While developing and purging the monitoring wells, temperature, specific conductance, and pH of the groundwater were measured and recorded. Results indicate that the approximate average groundwater temperature was 14.5 degrees Celsius (58 degrees Fahrenheit); average pH was 6.9, and the average specific conductance was 31 millisiemens/cm, or applying a conversion factor of 0.67, approximately 21,000 ppm TDS. Copies of the forms used to record temperature, pH, and specific conductance data are provides in Appendix B.

3.2 Distribution of Contaminants in Soil

3.2.1 Soil Screening Results

Field screening of soil samples for the presence of VOCs was performed during the remedial investigation and the results are summarized in Tables 1 and 3 and are illustrated in Figures 5 and 6. As indicated on these tables and in Figure 5, concentrations of VOCs greater than 100 parts per million by volume (ppmv) were present at depths of 6 feet or less, in an area occupying approximately 54,000 square feet of the Site. The areal extent of concentrations of VOCs greater than 100 ppmv in soils greater than 6 feet bgs was not estimated because of the lack of data from DPT borings below this depth.

Soil screening results from HSA borings indicate that VOC contamination extends to the water table; however, as indicated in the readings from MW-01 and MW-04, a reduction in VOC concentrations appears to occur near the base of and just below the caliche unit (Table 3). A decrease in VOC concentrations was not observed between the caliche unit and the water table in MW-06, which is located north of the pit. These results are consistent with the laboratory results that are discussed further below.

3.2.2 Laboratory Results

The contaminants of concern include TPH, benzene, BTEX, and chlorides. Table 2 provides a summary of contaminant of concern (COC) concentrations in soil. Figures 7 through 15 illustrate

the distribution of these COCs in soil and the areas impacted with COCs at concentrations greater than the following OCD action limits (INTERA, 2007):

- TPH = 500 mg/kg
- Benzene = 0.2 mg/kg
- BTEX = 50 mg/kg
- Chloride = 500 mg/kg (0 to 6 feet bgs)
- Chloride = 1,000 mg/kg (> 6 feet bgs)

Two figures per COC are provided, one for the depth interval from the surface to 6 feet bgs and one from depths greater than 6 feet bgs to the water table.

As indicated on Figure 7 and Figure 15, soils from 0 to 6 feet bgs are impacted with TPH above action limits in an on-Site area (i.e., within the Site boundary) covering approximately 100,000 square feet (approximately 2.3 acres) and extends to off-site locations. The highest concentration of TPH in soil from 0 to 6 feet bgs was 41,000 mg/kg and was measured in the sample collected from DPB-40, located in the north central section of the Site, at a depth of 2.5 feet bgs. The petroleum hydrocarbons in this sample were all DRO and MRO. The highest TPH-GRO concentration was 1,400 mg/kg and was measured in DPB-30, located in the south-central portion of the Site, at a depth of 3.5 bgs.

Soils from 0 to 6 feet bgs are also impacted with benzene, BTEX, and chloride and the impacts extend to off-site locations (Figures 8 through 10; and Figure 15); however, the area impacted by these COCs appears to be less than the areal extent of TPH. The highest concentration of benzene and BTEX in soil from 0 to 6 feet bgs was 19 mg/kg and 95 mg/kg, respectively, and was measured in DPB-27, located in the south-central portion of the Site, at a depth of 2.0 feet bgs. The highest concentration of chloride in soil from 0 to 6 feet bgs was 980 mg/kg and measured in DPB-07 from a depth of 6.0 feet bgs.

COC concentrations in soils from a depth greater than 6 feet bgs to the water table are illustrated on Figures 11 through 15. This data is limited because the DPT borings, on average, did not extend past a depth of 7.5 feet bgs; therefore, an estimate of the areal extent of contamination is not illustrated on these figures. Based on the limited data that is available, TPH impacts above action levels appears to exist throughout the Site and extends to off-Site locations. Benzene and BTEX contamination above action levels appear to be restricted to the Pit and the south-central and southeastern areas of the Site.

3.3 Distribution of Contaminants in Groundwater

The results of groundwater sampling from the 6 monitoring wells are provided in Table 5 and illustrated on Figure 16. As indicated on Table 5 and Figure 16, one well, MW-03, contained 1.42 feet of LNAPL and was, therefore, not sampled.

Three of the remaining five wells contained benzene at concentrations ranging from 330 micrograms per liter (ug/l) in MW-05 to 3,100 ug/l in MW-06, which are orders of magnitude above the New Mexico Water Quality Control Commission (NMWQCC) standard of 10 ug/l. The ratio of benzene concentrations to BTEX concentrations was high (i.e., > 60%) in the groundwater samples collected from wells MW-02, MW-05, and MW-06 indicating a refined product or gas condensate release. 1,2-dichloroethane (EDC), a gasoline additive, was detected in one sample, MW-05, at a concentration of 3.4 ug/l, which is less than the NMWQCC standard of 10 ug/l.

The PAHs, including total naphthalenes, phenanthrene and fluorene, were measured in groundwater samples collected from MW-02, MW-05, and MW-06. Concentrations of total naphthalenes above the NMWQCC standard of 30-ug/l were detected in MW-05 (58 ug/l by EPA Method 8260B) and MW-06 (38 ug/l by EPA Method 8310). Concentrations of fluorene and phenanthrene ranged from 0.94 to 2.6 ug/l. A NMWQCC standard for these compounds does not exist.

Chloride concentrations in samples collected from the five monitoring wells not containing LNAPL ranged from 5,300 to 7,900 milligrams per liter (mg/l), which are over one order of magnitude above the NMWQCC standard of 250 mg/l. TDS values in these wells ranged from 11,000 to 20,000 mg/l, which is an order of magnitude over the 1,000 mg/l NMWQCC standard.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Results of the RI/RA indicate that a release, or releases, of hydrocarbons at the former Famariss Energy Refinery and/or Enersource facility have impacted soil and groundwater at the Site. The presence of GRO and EDC coupled with the high benzene to BTEX concentration ratios indicate that a portion of the release was refined product or gas condensate. The high TPH, DRO, and MRO concentrations suggest that a release of crude oil also occurred at the Site.

Shallow soils (i.e., surface to 6 feet bgs) consist of sand, clayey sand, and caliche (Figure 17). An area greater than 2 acres contains TPH in soils at concentrations above action levels (Figure 7). Benzene, BTEX, and chlorides at concentrations above action levels are also present in shallow soils but within smaller areas (Figures 7 through 10; Figure 15). The most impacted areas containing benzene above action levels are present in the pit, central processing, product loading, and eastern AST areas (Figures 8 and 15). A map that integrates the estimated areal extent of all of the COCs above action limits with historic uses is provided in Figure 19.

Deep soils (i.e., > 6 feet bgs) consist of caliche, clayey sand, and sandy clay. The water table exists in these units at a depth of about 35 feet bgs. These soils are impacted with TPH, benzene, BTEX, and chlorides over a large area. This area could not be defined because the DPT borings could not be advanced past a very hard caliche layer that exists at an average depth of 7.5 feet bgs.

Excavation of the pit located in the southwest corner of the Site to a depth of 10 feet bgs resulted in the removal of approximately 4,000 cubic yards of contaminated soil. The excavated soil was disposed of in a nearby landfill because high chloride concentrations precluded disposal in a landfarm. Confirmation soil sampling indicated that soil containing TPH (and possibly benzene, BTEX, and chloride) above action levels remain below and along the side walls of the excavation (Figure 15).

The estimated groundwater flow direction on June 25, 2009 was towards the southeast and the hydraulic gradient is estimated to be 0.002 foot/foot (Figure 18). TDS values average approximately 15,000 mg/l.

LNAPL was present on the water table in MW-03 at a thickness of 1.42 feet (Figure 16). It is noteworthy that this is the most downgradient well installed at the Site suggesting that LNAPL may be present at off-site locations. Dissolved-phase benzene was present in groundwater at concentrations that were one to two orders of magnitude above NMWQCC standards in samples collected from MW-02, 03, 05, and 06.

It is noteworthy that the highest concentration of chloride was measured in a groundwater sample collected from MW-01, which is the most upgradient well. This suggests that the high chloride, and high TDS values, may be representative of background conditions.

Based on these results, INTERA recommends the following:

- Initiate LNAPL removal from MW-03
- Perform a more detailed water supply well search
- Obtain off-site access and complete the delineation of LNAPL and contaminated soil and groundwater
- Conduct periodic groundwater quality monitoring
- Integrate investigations at nearby facilities such as the Versado Gas Processing Plant and the Climax Chemical Company
- After determining the magnitude, nature, and extent of contamination, perform a feasibility study to evaluate remedial options and estimated cost

5.0 REFERENCES

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Tables

Table 1
Soil Screening Results - Direct Push Boring
Draft Enersource Remedial Investigation and Removal Action Report

Sampling Dates: June 9, 2009 through June 18, 2009

Depth (ft bgs)	FID Readings (ppm)												
	DPB-01 (12 ft bgs)[1]	DPB-02 (12 ft bgs)[1]	DPB-03 (16 ft bgs)[1]	DPB-04 (6 ft bgs)[1]	DPB-05 (14 ft bgs)[1]	DPB-06 (6.5 ft bgs)[1]	DPB-07 (15 ft bgs)[1]	DPB-08 (7 ft bgs)[1]	DPB-09 (12 ft bgs)[1]	DPB-10 (8 ft bgs)[1]	DPB-11 (7 ft bgs)[1]	DPB-12 (7 ft bgs)[1]	DPB-13 (6 ft bgs)[1]
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-	-	-	-	-	-	6.7	-	-	-	-	-	-
1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
2.0	-	-	-	-	0.0	-	-	-	-	-	8.0	-	-
2.5	-	-	-	-	-	-	-	-	-	-	-	-	-
3.0	-	-	-	-	-	-	6.8	6.9	6.7	-	-	-	-
3.5	-	0.0	-	-	-	-	-	-	-	-	-	6.8	-
4.0	0.0	-	0.0	0.0	0.0	16.5	-	-	-	783.6	8.5	-	7.1
4.5	-	-	-	-	-	-	-	-	-	-	-	-	7.0
5.0	-	-	-	0.0	-	-	-	6.9	-	-	7.5	-	-
5.5	-	-	-	-	-	-	-	-	-	-	-	-	-
6.0	-	-	-	-	-	-	18.8	-	-	-	-	-	7.1
6.5	-	-	-		-	7.2	-	7.0	-	-	-	-	
7.0	-	0.0	0.0		-		-	-	-	-	8.6	6.8	
8.0	-	9292.0	0.0		0.0		9.2		-	240.8			
8.5	-	-	-		-		-		347.3				
9.0	-	-	-		-		-		-				
9.5	-	-	-		-		-		-				
10.0	-	-	0.0		0.0		16.2		-				
11.0	11.8	-	-		0.0		-		-				
12.0	846.3	-	1435.0		0.0		183.6		1623+				
12.5			1845.0		-		-						
13.0			-		-		418.1						
14.0			-		4358+		-						
15.0			6510.0				1023+						
16.0			-										

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Soil Screening Results - Direct Push Boring
Draft Enersource Remedial Investigation and Removal Action Report

Sampling Dates: June 9, 2009 through June 18, 2009

Depth (ft bgs)	FID Readings (ppm)												
	DPB-14 (6 ft bgs)[1]	DPB-15 (7.5 ft bgs)[1]	DPB-16 (11 ft bgs)[1]	DPB-17 (6 ft bgs)[1]	DPB-18 (6.5 ft bgs)[1]	DPB-19 (5.5 ft bgs)[1]	DPB-20 (7 ft bgs)[1]	DPB-21 (6 ft bgs)[1]	DPB-22 (5.5 ft bgs)[1]	DPB-23 (4 ft bgs)[1]	DPB-24 (10 ft bgs)[1]	DPB-25 (6 ft bgs)[1]	DPB-26 (7 ft bgs)[1]
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-	-	6.5	-	-	-	-	-	-	-	-	-	-
1.5	-	-	-	-	-	-	-	-	-	-	-	-	-
2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
2.5	-	-	-	-	-	-	-	-	-	-	-	-	72.7
3.0	6.9	-	-	-	164.7	14.7	0.9	7.0	1.6	-	0.0	-	-
3.5	-	-	10.2	-	-	-	-	-	-	-	-	-	-
4.0	-	6.6	-	74.7	14.0	-	95.6	-	-	0.2	-	0.1	6.4
4.5	-	-	-	-	8.7	-	-	3.8	-		-	-	-
5.0	-	-	-	400.5	-	2.4	111.2	-	-		0.0	-	6.6
5.5	-	-	-	-	-	-	-	-	0.9		-	-	-
6.0	6.9	-	-	-	-		2420.0	8.9			-	2.1	13.6
6.5		-	-		38.8		-				-		-
7.0		6.5	10.0				-				-		14.8
8.0			20.8								0.0		
8.5			10.7								-		
9.0			-								-		
9.5			113.4								-		
10.0			-								0.0		
11.0			1023+										
12.0													
12.5													
13.0													
14.0													
15.0													
16.0													

Table 1
Soil Screening Results - Direct Push Boring
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Sampling Dates: June 9, 2009 through June 18, 2009

Depth (ft bgs)	FID Readings (ppm)												
	DPB-27 (7 ft bgs)[1]	DPB-28 (6 ft bgs)[1]	DPB-29 (6.5 ft bgs)[1]	DPB-30 (7 ft bgs)[1]	DPB-31 (7 ft bgs)[1]	DPB-32 (6.5 ft bgs)[1]	DPB-33 (10 ft bgs)[1]	DPB-34 (5 ft bgs)[1]	DPB-35 (6 ft bgs)[1]	DPB-36 (6.5 ft bgs)[1]	DPB-37 (5.5 ft bgs)[1]	DPB-38* (5.5 ft bgs)[1]	DPB-39* (6.5 ft bgs)[1]
0.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1.5	2612.0	-	-	-	-	-	-	-	-	-	-	-	-
2.0	2758.0	-	10.9	2214.0	-	-	-	-	-	-	-	-	-
2.5	-	-	-	-	-	-	-	-	-	-	-	-	-
3.0	-	-	-	-	-	-	-	-	-	-	-	-	-
3.5	-	-	-	-	-	-	-	-	-	-	-	-	-
4.0	103.6	0.0	456.7	2332.0	1.9	3.6	2.4	2.0	6.9	2.3	2.0	-	-
4.5	-	-	982.3	-	-	-	-	2.1	-	-	1.7	-	-
5.0	39.1	-	-	2333.0	1.9	2.7	2.3	-	429.4	2.2	-	-	-
5.5	-	0.0	927.5	-	-	-	-		-	-	1.8	-	-
6.0	-	-	-	2268.0	-	28.9	-		103.4	-	-		-
6.5	163.1		-	-	-	-	-			2.3	-		-
7.0	-		-	886.0	48.1	-	2.4						
8.0							-						
8.5							-						
9.0							-						
9.5							5.4						
10.0							-						
11.0													
12.0													
12.5													
13.0													
14.0													
15.0													
16.0													

Table 1
Soil Screening Results - Direct Push Boring
Draft Enersource Remedial Investigation and Removal Action Report

Sampling Dates: June 9, 2009 through June 18, 2009

Depth (ft bgs)	FID Readings (ppm)					
	DPB-40* (7.5 ft bgs)[1]	DPB-41* (7 ft bgs)[1]	DPB-42* (7.5 ft bgs)[1]	DPB-43* (6 ft bgs)[1]	DPB-44* (6 ft bgs)[1]	DPB-45* (7.5 ft bgs)[1]
0.0	-	-	-	-	-	-
1.0	-	-	-	-	-	-
1.5	-	-	-	-	-	-
2.0	-	-	-	-	-	-
2.5	-	-	-	-	-	-
3.0	-	-	-	-	-	-
3.5	-	-	-	-	-	-
4.0	-	-	-	-	-	-
4.5	-	-	-	-	-	-
5.0	-	-	-	-	-	-
5.5	-	-	-	-	-	-
6.0	-	-	-	-	-	-
6.5	-	-	-			-
7.0	-	-	-			-
8.0	-		-			-
8.5						
9.0						
9.5						
10.0						
11.0						
12.0						
12.5						
13.0						
14.0						
15.0						
16.0						

Notes:

* FID not available for screening

- = Not Measured

1 = Total depth of boring

FID = flame ionization detector

ft = foot/feet

ppm = parts per million

Gray shading shows total depth of boring

bgs= below ground surface

Table 2
Summary of Analytical Chemistry Results - Soil
Draft Enersource Remedial Investigation and Removal Action Report

Boring ID	Date	Sample Depth (bgs)	Concentration (mg/kg)												
			Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1,2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1,4]	TPH GRO	TPH DRO + MRO	Total TPH	Chloride
OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
DPB-01	6/15/2009	8.0	< 0.10	< 0.10	< 0.10	< 0.20	< 0.20	< 0.10	< 0.10	< 0.10	< 0.40	< 5.0	< 50	< 50	69
		11.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	12	12	59
		12.0	< 0.25	< 0.25	0.32	< 0.50	0.32	< 0.25	< 0.25	< 0.25	< 1.0	42	150	192	130
DPB-02	6/15/2009	7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	26	26	74
		8.0	< 0.25	< 0.25	3.6	11	14.6	< 0.25	< 0.25	< 0.25	5.11	360	620	**980**	130
		12.0	< 0.25	2.4	14	35	**51.4**	< 0.25	< 0.25	< 0.25	6.3	670	940	**1610**	76
DPB-03	6/15/2009	11.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	17	17	16
		12.0	< 0.25	0.8	4.4	12	17.2	< 0.25	< 0.25	< 0.25	3.44	250	530	**780**	16
		15.0	< 0.25	5.6	14	36	**55.6**	< 0.25	< 0.25	< 0.25	3.8	300	570	**870**	17
DPB-04	6/15/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	18
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	14
DPB-05	6/15/2009	10.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	39
		11.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	22	22	24
		13.0	< 1.0	< 1.0	1.6	2.4	4	< 1.0	< 1.0	< 1.0	< 4.0	390	1300	**1690**	37
DPB-06	6/15/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	163	163	19
		6.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	700
DPB-07	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	152	152	130
		6.0	**0.71**	0.33	2.7	3.9	7.64	< 0.25	< 0.25	< 0.25	< 1.0	99	2130	**2229**	**980**
		14.5	< 0.050	< 0.050	1.1	3.9	5	< 0.050	< 0.050	< 0.050	0.88	150	330	480	970
DPB-08	6/16/2009	5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	180	159	339	61
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	74
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	57
DPB-09	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	470	470	21
		8.0	**0.36**	0.083	1.7	0.95	3.09	< 0.050	< 0.050	< 0.050	1.9	67	10300	**10367**	34
		11.0	**2.8**	6.4	18	18	45.2	< 0.50	< 0.50	< 0.50	15.8	460	11700	**12160**	42
DPB-10	6/16/2009	4.0	**2.3**	< 0.25	18	27	47.3	< 0.25	< 0.25	< 0.25	21.8	650	7800	**8450**	47
		7.5	< 0.50	< 0.50	7	14	21	< 0.50	< 0.50	< 0.50	31.5	340	4100	**4440**	67
		8.0	< 0.050	0.073	0.68	1.5	2.25	< 0.050	< 0.050	< 0.050	2.52	310	2200	**2510**	48
DPB-11	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	70	70	18
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	11
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	40

Table 2
Summary of Analytical Chemistry Results - Soil
Draft Enersource Remedial Investigation and Removal Action Report

Boring ID	Date	Sample Depth (bgs)	Concentration (mg/kg)												
			Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1,2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1,4]	TPH GRO	TPH DRO + MRO	Total TPH	Chloride
OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
DPB-12	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	33
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	58
DPB-13	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	242	242	110
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	37
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	30
DPB-14	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	29
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	26
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	29
DPB-15	6/16/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	290
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	**670**
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	350
DPB-16	6/16/2009	3.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	2
		8.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	13	13	1.9
		11.0	**0.76**	4.9	15	49	17.42	< 0.50	< 0.50	< 0.50	15.5	310	1100	**1410**	6.9
DPB-17	6/16/2009	3.5	< 0.25	< 0.25	0.55	< 0.50	0.55	< 0.25	< 0.25	< 0.25	14.1	< 250	17000	**17000**	43
		5.5	< 0.050	< 0.050	< 0.050	0.11	0.11	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	88	88	110
		6.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	50	50	69
DPB-18	6/16/2009	2.5	< 0.50	< 0.50	< 0.50	1.6	1.6	< 0.50	< 0.50	< 0.50	2.6	71	5800	**5871**	110
DPB-19	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	1800	**1800**	23
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	220
DPB-20	6/17/2009	3.5	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 2.0	< 50	2600	**2600**	**850**
		5.0	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	13.5	58	3900	**3958**	**700**
		7.0	< 1.0	2.7	14	56	**72.7**	< 1.0	< 1.0	< 1.0	46.9	610	6400	**7010**	190
DPB-21	6/17/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	1130	**1130**	220
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	210
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	66
DPB-22	6/17/2009	4.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	81	81	76
		4.5	< 0.050	< 0.050	< 0.050	0.17	0.17	< 0.050	< 0.050	< 0.050	0.33	< 5.0	28	28	37
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	45
DPB-23	6/17/2009	2.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	164	164	93
		3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	197	197	28

Table 2
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Draft Enersource Remedial Investigation and Removal Action Report

Boring ID	Date	Sample Depth (bgs)	Concentration (mg/kg)												
			Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1,2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1,4]	TPH GRO	TPH DRO + MRO	Total TPH	Chloride
OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
DPB-24	6/17/2009	6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	51
		8.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	23
		10.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	16
DPB-25	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	8.6
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	19
DPB-26	6/17/2009	2.5	< 2.5	< 2.5	< 2.5	< 5.0	< 5.0	< 2.5	< 2.5	< 2.5	< 10	< 250	12200	**12200**	330
		3.5	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 4.0	< 100	9300	**9300**	420
		6.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	320
DPB-27	6/17/2009	2.0	**19**	29	14	33	**95**	< 0.50	< 0.50	< 0.50	4.5	660	27800	**28460**	250
		3.5	< 0.25	2.2	4.9	12	19.1	< 0.25	< 0.25	< 0.25	3.6	340	2650	**2990**	520
		6.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	310
DPB-28	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	24
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	**530**
DPB-29	6/17/2009	2.5	**0.33**	< 0.25	2.4	< 0.50	2.73	< 0.25	< 0.25	< 0.25	6.3	220	21500	**21720**	35
		3.5	**0.41**	< 0.25	3.5	< 0.50	3.91	< 0.25	< 0.25	< 0.25	8.5	240	24700	**24940**	51
		7.0	**2.1**	< 0.25	5.7	1.4	9.2	< 0.25	< 0.25	< 0.25	5.14	210	6900	**7110**	35
DPB-30	6/17/2009	2.5	**3.6**	< 0.50	9.8	9.2	22.6	< 0.50	< 0.50	< 0.50	11.3	690	11200	**11890**	55
		3.5	**7.1**	1.7	21	37	**66.8**	< 0.50	< 0.50	< 0.50	33.9	1400	10700	**12100**	190
		5.8	**1.5**	2.3	11	27	41.8	< 0.50	< 0.50	< 0.50	21.6	810	2600	**3410**	160
DPB-31	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	350	350	100
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	216	216	75
		7.0	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 2.0	< 50	2500	**2500**	89
DPB-32	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	237	237	320
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	190	190	470
		6.0	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50	< 2.0	< 50	3800	**3800**	**510**
DPB-33	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	250
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	83
		9.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	17	17	30
DPB-34	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	13
		4.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	140	140	8.9

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			Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1,2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1,4]	TPH GRO	TPH DRO + MRO	Total TPH	Chloride
OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
DPB-35	6/17/2009	3.5	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	< 0.25	< 0.25	< 0.25	< 1.0	< 25	2400	**2400**	**810**
		4.5	< 2.5	< 2.5	< 2.5	13	13	< 2.5	< 2.5	< 2.5	57	410	8700	**9110**	**660**
		6.5	< 1.0	< 1.0	1	4.4	5.4	< 1.0	< 1.0	< 1.0	17.7	< 100	1200	**1200**	570
DPB-36	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	7.9
		4.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	9.1
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	16
DPB-37	6/17/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	152	152	65
		4.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	400
		5.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	210
DPB-38	6/18/2009	3.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	750	**750**	17
		4.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	1110	**1110**	50
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	65	65	56
DPB-39	6/18/2009	3.5	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	-	-	-	-	< 100	18600	**18600**	85
		5.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	93	93	87
DPB-40	6/18/2009	2.5	< 0.50	< 0.50	< 0.50	< 1.0	< 1.0	-	-	-	-	< 100	41000	**41000**	51
		5.0	< 0.50	< 0.50	0.76	< 1.0	0.76	-	-	-	-	< 100	29000	**29000**	56
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	329	329	51
DPB-41	6/18/2009	2.5	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	-	-	-	-	< 50	4300	**4300**	24
		3.5	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	-	-	-	-	100	21900	**22000**	24
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	< 50	< 50	43
DPB-42	6/18/2009	2.6	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	-	-	-	-	< 100	8200	**8200**	17
		4.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	1330	**1330**	38
		7.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	< 50	< 50	47
DPB-43	6/18/2009	2.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	690	**690**	22
		3.0	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	-	-	-	-	< 100	20100	**20100**	95
		6.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	-	-	-	-	< 5.0	2050	**2050**	24
East	6/8/2009	-	<0.05	<0.05	<0.05	<0.3	<0.3	-	-	-	-	<50	366	366	592
MW-01	6/10/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	6.5	420	426.5	0.39
		34.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	870
		41.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	940

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OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
MW-02	6/13/2009	1.0	**0.22**	< 0.050	< 0.050	< 0.10	0.22	< 0.050	< 0.050	< 0.050	< 0.20	6.5	2800	**2806.5**	-
		4.0	**2.4**	< 0.50	13	7.6	23	< 0.50	< 0.50	< 0.50	18.5	370	10500	**10870**	140
		10.0	**56**	11	120	200	**387**	< 2.5	< 2.5	< 2.5	56	4000	17200	**21200**	130
		20.0	**15**	< 2.5	84	150	**249**	< 2.5	< 2.5	< 2.5	< 10	2300	3500	**5800**	410
		30.0	< 0.50	< 0.50	9.8	14	23.8	< 0.50	< 0.50	< 0.50	8.2	280	530	**810**	430
		35.0	**0.2**	0.08	4.6	6.3	11.18	< 0.050	< 0.050	< 0.050	1.83	150	420	**570**	550
		40.0	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	< 0.25	< 0.25	< 0.25	< 1.0	7.2	< 50	7.2	**1300**
MW-03	6/12/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	280	280	490
		10.0	< 0.50	< 0.50	12	23	35	< 0.50	< 0.50	< 0.50	8.7	300	26	326	770
		20.0	< 0.50	< 0.50	13	25	38	< 0.50	< 0.50	< 0.50	11.1	300	810	**1110**	520
		30.0	< 0.50	< 0.50	9	21	30	< 0.50	< 0.50	< 0.50	18.6	< 250	2100	**2100**	360
		35.5	**15**	< 1.0	20	21	**56**	< 1.0	< 1.0	< 1.0	32.1	470	11000	**11470**	680
		42.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	5.5	81	86.5	940
MW-04	6/11/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	2070	**2070**	20
		17.5	< 0.50	< 0.50	13	7.4	20.4	< 0.50	< 0.50	< 0.50	30.7	360	10500	**10860**	38
		35.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	960
		43.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	990
MW-05	6/11/2009	1.0	< 0.25	< 0.25	< 0.25	< 0.50	< 0.50	< 0.25	< 0.25	< 0.25	< 1.0	< 10	5300	**5300**	76
		4.0	< 0.25	< 0.25	< 0.25	1.9	1.9	< 0.25	< 0.25	< 0.25	1	39	11500	**11539**	84
		34.5	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	19	19	590
		41.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	740
MW-06	6/9/2009	1.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	187	187	8.9
		35.0	**2.9**	< 0.25	14	4.5	21.4	< 0.25	< 0.25	< 0.25	3	350	1700	**2050**	55
	6/10/2009	43.0	< 0.050	< 0.050	< 0.050	< 0.10	< 0.10	< 0.050	< 0.050	< 0.050	< 0.20	< 5.0	< 50	< 50	720
N35E15-10	6/9/2009	10.0	<0.05	<0.05	<0.05	<0.3	<0.3	-	-	-	-	<10	<10	<10	**2240**
N35E15-15	6/9/2009	15.0	**0.737**	1.4	7.91	14.6	24.647	-	-	-	-	345	959	**1304**	**3120**
West	6/8/2009		<0.05	<0.05	<0.05	<0.3	<0.3	-	-	-	-	<10	<10	<10	96
CS1	6/23/2009	5.0	-	-	-	-	-	-	-	-	-	420	5400	**5820**	-
CS2	6/23/2009	5.0	-	-	-	-	-	-	-	-	-	< 5.0	< 50	< 50	-
CS3	6/23/2009	10.0	-	-	-	-	-	-	-	-	-	1200	5000	**6200**	-
CS4	6/23/2009	5.0	-	-	-	-	-	-	-	-	-	< 5.0	< 50	< 50	-

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Boring ID	Date	Sample Depth (bgs)	Concentration (mg/kg)												
			Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1,2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1,4]	TPH GRO	TPH DRO + MRO	Total TPH	Chloride
OCD Standard			0.2	-	-	-	50	-	-	-	-	-	-	500	500[a] 1000[b]
CS5	6/23/2009	5.0	-	-	-	-	-	-	-	-	-	79	1720	**1799**	-
CS6	6/23/2009	10.0	-	-	-	-	-	-	-	-	-	96	1490	**1586**	-
CS7	6/23/2009	5.0	-	-	-	-	-	-	-	-	-	360	3500	**3860**	-
CS13	6/24/2009	5.0	-	-	-	-	-	-	-	-	-	< 10	56	56	-
CS15	6/25/2009	5.0	-	-	-	-	-	-	-	-	-	< 5.0	< 50	< 50	-
CS19	6/25/2009	5.0	-	-	-	-	-	-	-	-	-	< 5.0	< 50	< 50	-
CS21	6/25/2009	5.0	-	-	-	-	-	-	-	-	-	< 50	1170	**1170**	-
CS22	6/25/2009	10.0	-	-	-	-	-	-	-	-	-	420	210	**630**	-
CS23	6/25/2009	5.0	-	-	-	-	-	-	-	-	-	< 5.0	< 50	< 50	-
CS24	6/25/2009	20.0	-	-	-	-	-	-	-	-	-	510	530	**1040**	-

Notes:

- = Not Tested or Not Applicable

Bolding indicates values in excess of the soil standards.

1 = Analyzed by EPA Method 8260B

2 = Total BTEX includes sum of benzene, toluene, ethylbenzene, and total xylenes. PQL for BTEX = highest PQL for individual compounds; when summing detections, values listed as "<" PQL are assumed to be 0.

3 = Analyzed by EPA Method 8260B

4 = Total naphthalenes includes the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. PQL for Total Napthalenes = highest PQL for individual compounds; when summing detections, values listed as "<" PQL are assumed to be 0.

a = ≤ 6 feet bgs = 500

b = > 6 feet bgs = 1,000

bgs = below ground surface
BTEX = benzene, toluene, ethyl benzene, and total xylenes
CS = confirmatory sample
DPB = direct push boring
DRO = diesel range organics
EDB = 1,2-dibromoethane
EDC = 1,2-dichloroethane
EPA = U.S. Environmental Protection Agency
GRO = gasoline range organics
mg/kg = milligrams per kilogram
MRO = motor oil range organics
MTBE = methyl tertiary-butyl ether
MW = monitoring well
OCD Standard = Site-Specific standard established by Oil Conservation Division
PQL = practical quantification limit
TPH = Total Petroleum Hydrocarbons

Table 3
Soil Screening Results - Hollow Stem Auger Borings
Draft Enersource Remedial Investigation and Removal Action Report
Sampling Dates: June 9, 2009 through June 18, 2009

Depth (ft bgs)	FID Readings (ppm)					
	MW-01 (42 ft bgs)[1]	MW-02* (44 ft bgs)[1]	MW-03* (45 ft bgs)[1]	MW-04 (43 ft bgs)[1]	MW-05* (43 ft bgs)[1]	MW-06 (43 ft bgs)[1]
0	-	-	-	0	2.8	-
1	3.9	-	-	-	-	-
2	-	-	-	0	5.3	0.6
3	3.8	-	-	-	-	-
4	-	-	-	0	3575+	0.5
5	3.2	-	-	-	-	0.5
6	2.6	-	-	0	3575+	
6.5	-	-	-	-	-	0.5
7	-	-	-	-	-	-
8	2.6	-	-	0	380.2	-
9	-	-	-	-	-	2500
10	2.6	-	-	89.3	-	-
11	-	-	-	-	-	
12	2.6	-	-	200.8	-	3814
13	-	-	-	-	-	
13.5	-	-	-	-	-	3814
14	31.1	-	-	1447	-	-
15	-	-	-	-	-	-
16	2408	-	-	2230	-	-
16.5	-	-	-	-	-	3814
17	-	-	-	-	-	-
18	3681+	-	-	3575+	-	3814
19	-	-	-	-	-	2270
20	3681+	-	-	3575+	-	3814
21	-	-	-	-	-	-
22	3681+	-	-	3575+	-	2335
23	-	-	-	-	-	3314
24	-	-	-	3575+	-	-
25	-	-	-	-	-	-
26	-	-	-	-	-	-
27	-	-	-	-	-	-
28	-	-	-	-	-	-
29	-	-	-	-	-	-
30	552	-	-	138.3	-	-
30.5	-	-	-	-	-	3814
31	-	-	-	-	-	-
32	-	-	-	-	-	-
33	-	-	-	-	-	-
34	-	-	-	-	-	-
35	23.3	-	-	-	-	3814
36	15.4	-	-	11.8	-	-
37	-	-	-	-	-	213
38	-	-	-	-	-	-
39	-	-	-	-	-	61
40	-	-	-	11.8	-	148
41	4.4	-	-	-	-	-
41.5	-	-	-	-	-	9
42	-	-	-	-	-	-
43		-	-	9.3	-	5.8
44						
45						

Notes:

* FID was not available to collect readings from MW-02, MW-03, and a portion of MW-05

- = Not Measured

1 = Total depth of boring

Gray shading shows total depth of boring

bgs= below ground surface

FID = flame ionization detector

ft = foot/feet

ppm = parts per million

Table 4
Fluid Level Measurements
Enersource Remedial Investigation and Removal Action Report

Well ID	Top of Casing (feet above msl)	Screen Interval (feet bgs)	Date	Depth to Product (feet below TOC)	Depth to Water (feet below TOC)	Product Thickness (feet)	Groudnwater Elevation
MW-01	3582.43	27' - 42'	6/12/2009	-	36.99	-	3545.44
	3582.43	27' - 42'	6/22/2009	-	36.98	-	3545.45
	3582.43	27' - 42'	6/25/2009	-	36.98	-	3545.45
	3582.43	27' - 42'	6/26/2009	-	36.97	-	3545.46
MW-02	3582.94	29' - 44'	6/22/2009	-	38.58	-	3544.36
	3582.94	29' - 44'	6/25/2009	-	38.58	-	3544.36
	3582.94	29' - 44'	6/26/2009	-	38.52	-	3544.42
MW-03	3581.84	30' - 45'	6/22/2009	37.96	37.96	0	3543.88
	3581.84	30' - 45'	6/24/2009	-	37.94	-	3543.9
	3581.84	30' - 45'	6/25/2009	37.98	39.4	1.42	3543.505
MW-04	3583.33	28' - 43'	6/12/2009	-	38.13	-	3545.2
	3583.33	28' - 43'	6/22/2009	-	38.02	-	3545.31
	3583.33	28' - 43'	6/25/2009	-	37.99	-	3545.34
	3583.33	28' - 43'	6/26/2009	-	37.98	-	3545.35
MW-05	3582.10	28' - 43'	6/12/2009	-	37.56	-	3544.54
	3582.10	28' - 43'	6/22/2009	-	37.5	-	3544.6
	3582.10	28' - 43'	6/25/2009	-	37.49	-	3544.61
	3582.10	28' - 43'	6/26/2009	-	37.47	-	3544.63
MW-06	3582.48	28' - 43'	6/12/2009	-	37.37	-	3545.11
	3582.48	28' - 43'	6/22/2009	-	37.57	-	3544.91
	3582.48	28' - 43'	6/24/2009	-	37.58	-	3544.9
	3582.48	28' - 43'	6/25/2009	-	37.58	-	3544.9
	3582.48	28' - 43'	6/27/2009	-	37.58	-	3544.9

Notes:

- = Not Measured

bgs= below ground surface

msl = mean sea level

TOC = top of casing

Table 5
Summary of Analytical Chemistry Results - Groundwater
Enersource Remedial Investigation and Removal Action Report

Monitoring Well	Date	Concentration (ug/L)									
		Benzene[1]	Toluene[1]	Ethylbenzene[1]	Total Xylenes[1]	Total BTEX[1, 2]	MTBE[1]	EDC[1]	EDB[3]	Total Naphthalenes[1, 4]	Chloride
NM-GS		10	750	750	620	-	-	10	0.1	30	250
MW-01	6/26/2009	**7.9**	< 1.0	9.5	7.2	24.6	< 1.0	< 1.0	< 1.0	< 4.0	**7900**
MW-02	6/26/2009	**2000**	< 5.0	400	180	2580	< 5.0	< 5.0	< 5.0	< 20	**7700**
MW-04	6/26/2009	< 1.0	< 1.0	< 1.0	< 1.5	< 1.5	< 1.0	< 1.0	< 1.0	< 4.0	**7800**
MW-05	6/26/2009	**330**	15	58	120	523	< 1.0	3.4	< 1.0	**58**	**5700**
MW-06	6/27/2009	**3100**	22	280	170	3572	< 5.0	< 5.0	< 5.0	< 20	**5300**

Notes:

- = Not Tested or Not Applicable

Bolding indicates values in excess of the groundwater standards.

1 = Analyzed by EPA Method 8260B

2 = Total BTEX includes sum of benzene, toluene, ethylbenzene, and total xylenes. PQL for BTEX = highest PQL for individual compounds; when summing detections, values listed as "<" PQL are assumed to be 0.

3 = Analyzed by EPA Method 504.1 or Method 8260B

4 = Total naphthalenes includes the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. PQL for Total Napthalenes = highest PQL for individual compounds; when summing detections, values listed as "<" PQL are assumed to be 0.

bgs = below ground surface

BTEX = benzene, toluene, ethyl benzene, and total xylenes

ug/L = micrograms per liter

EDB = 1,2-dibromoethane

EDC = 1,2-dichloroethane

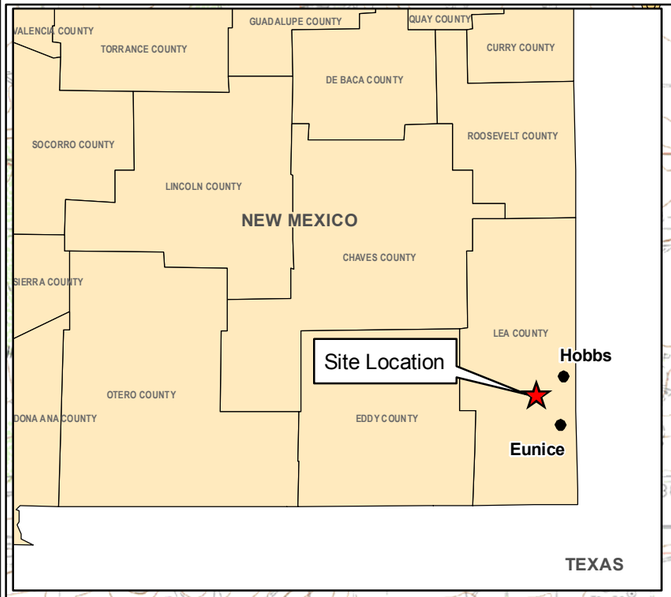
EPA = U.S. Environmental Protection Agency

MTBE = methyl tertiary-butyl ether

MW = monitoring well

NM-GS = Groundwater Standards as defined by the State of New Mexico Water Quality Control Commission

Figures



Versado Gas Processing Plant

El Paso Natural Gas Facility

Monument

Monument

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0 1,000 2,000 4,000 Feet

USGS 7.5 Minute Topographic Map:
Monument North Quadrangle,
1985, Contour Interval 10 Feet;
Monument South Quadrangle,
1985, Contour Interval 5 Feet;
Hobbs West and Hobbs SW Quadrangles,
1969/revised 1979, Contour Interval 5 Feet
Site Location: NW¼ Sec. 1; T20S; R36E

Legend

- Property Boundary

WATERS Database Well Locations

- DOM - Domestic
- PRO - Prospecting/Dev. of Natural Resources
- EXP - Exploration
- MUL - Multiple Domestic
- POL - Pollution Control
- STK - Livestock Watering
- IRR - Irrigation
- SAN - Sanitary

Source(s):
Wells – WATERS database, 2008;
Topos – MapTech/USGS.

Figure 1
Project Location Map
with Vicinity Wells

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure1.mxd

Source(s): 1978 aerial photo – NMDOT;
Property boundary – John West Surveying Co., Hobbs, NM.

N
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0 50 100 200 Feet

Legend
- Property Boundary
- Barbed Wire Fence
- Cinder Block Fence

INTERA

Figure 2
Historical Site Operations

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure2.mxd

Source(s): 2004 aerial photo – EDAC;
Property boundary – John West Surveying Co., Hobbs, NM;
Data – INTERA Inc, 2007.

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0 50 100 200 Feet

Legend

- Geophysical Grid Origin
- Sample Location
- Investigation and Process Area
- Property Boundary
- Barbed Wire Fence
- Cinder Block Fence
- Grossly Impacted Soil Observed
- Oil Sludge
- Oil Spill

Notes: Results are in mg/Kg
Bold indicates concentrations above NMOCD Action Levels
DRO = Diesel Range Organic
MRO = Motor Oil Range Organic
Cl = Chloride
ND = Not Detected above practical quantification limit

INTERA

Figure 3
Phase I & II Investigation Findings

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure3.mxd

Source(s): 1978 aerial photo – NMDOT;
Property boundary – John West Surveying Co., Hobbs, NM.

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0 50 100 200 Feet

Legend

- Soil Boring Location
- Monitoring Well Location
- Geophysical Grid Origin
- Excavation Grid Origin
- Property Boundary
- Excavation Area
- Investigation and Process Area
- Barbed Wire Fence
- Cinder Block Fence

Note(s):
See Figure 15 for pit area details.

INTERA

Figure 4
Excavation, Soil Boring and Monitoring Well Locations

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure4.mxd

DPB-39 NA
MW-04 2.0': 0.0
DPB-14 6.0': 6.9
DPB-12 3.5': 6.8
DPB-41 NA
DPB-40 NA
DPB-38 NA
DPB-13 4.0': 7.1
DPB-11 4.0': 8.5
DPB-42 NA
MW-05 4.0': 3,575
DPB-43 NA
DPB-10 4.0': 783.6
Concrete Basin
DPB-17 5.0': 400.5
DPB-18 3.0': 164.7
DPB-22 3.0': 1.6
MW-01 1.0': 3.9
DPB-16 3.5': 10.2
DPB-15 4.0': 6.6
DPB-23 4.0': 0.2
DPB-19 3.0': 14.7
DPB-06 4.0': 16.5
DPB-07 6.0': 18.8
DPB-08 3.5': 6.9
DPB-09 3.0': 6.7
DPB-37 4.0': 2.0
DPB-36 4.0': 2.3
DPB-35 5.0': 429.4
DPB-34 4.5': 2.1
DPB-21 6.0': 8.9
DPB-20 6.0': 2,420
DPB-29 4.5': 982.3
DPB-33 4.0': 2.4
MW-06 2.0': 0.6
DPB-03 4.0': 0.0
DPB-04 2.0': 0.0
MW-02 NA
DPB-30 5.0': 2,333
DPB-31 4.0': 1.9
DPB-32 6.0': 28.9
MW-03 NA
DPB-01 4.0': 0.0
DPB-05 2.0': 0.0
DPB-02 3.5': 0.0
DPB-28 4.0': 0.0
DPB-27 2.0': 2,758
DPB-26 2.5': 72.7
DPB-25 6.0': 2.1
DPB-24 3.0': 0.0
DPB-44 NA
DPB-45 NA

Source(s): 2004 aerial photo – EDAC;
Property boundary – John West Surveying Co., Hobbs, NM.

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0 50 100 200 Feet

Legend
- Monitoring Well Location
- Soil Boring Location
- Property Boundary
- Pit
- Estimated Areal Extent of VOCs Exceeding 100 ppmv (~53,895 ft^2 within property boundary)
- (Dashed where Inferred)

Sample Location
Depth, feet bgs: Result

Note(s):
Results are in ppmv as measured by FID
NA = FID Not Available for screening

Figure 5
Maximum VOC Concentration by Heated-Headspace Method, June 2009 (0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

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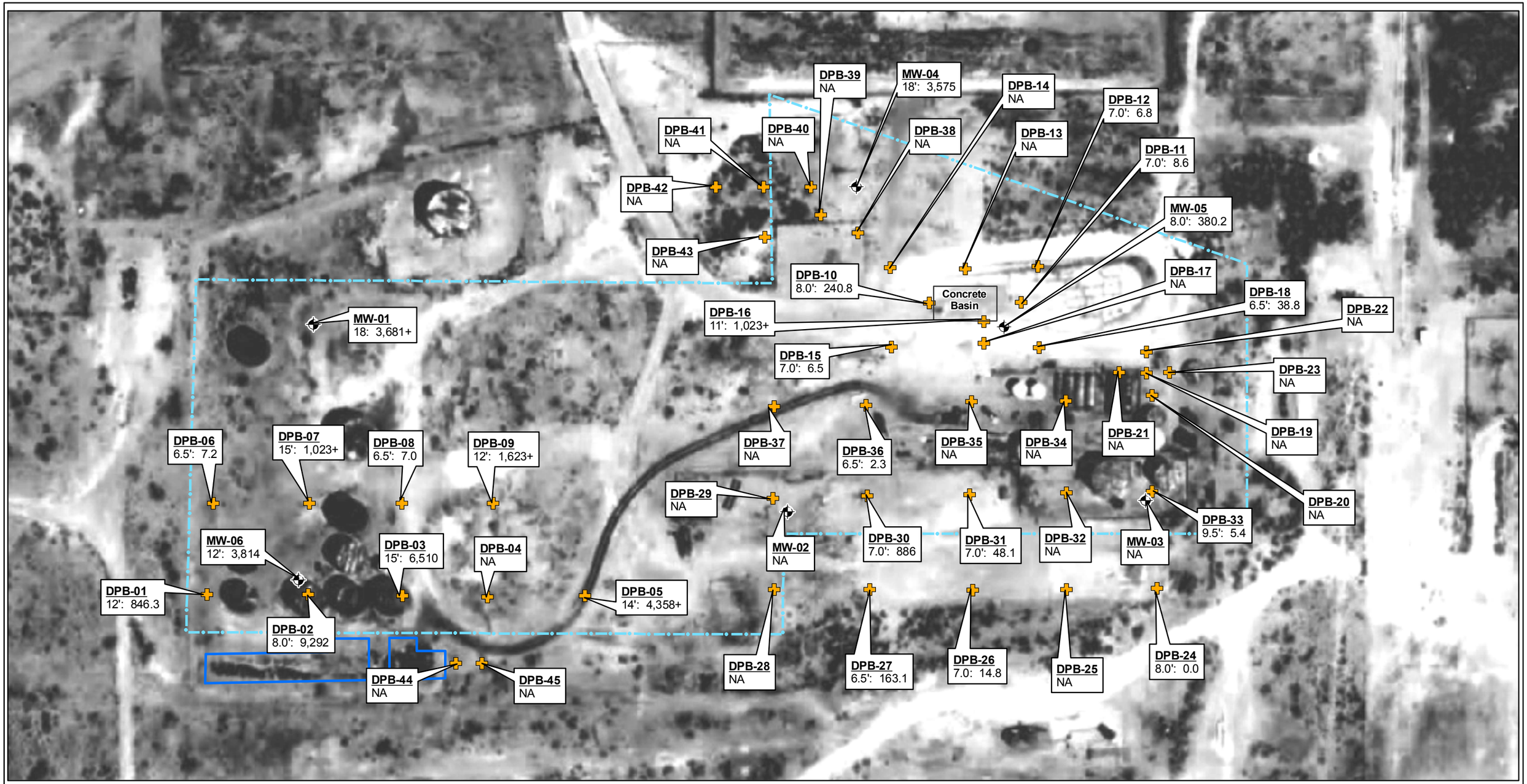

Source(s): 2004 aerial photo – EDAC;
Property boundary – John West Surveying Co., Hobbs, NM.

N

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0 50 100 200 Feet

Legend
- Monitoring Well Location
- Soil Boring Location
- Property Boundary
- Excavation Area

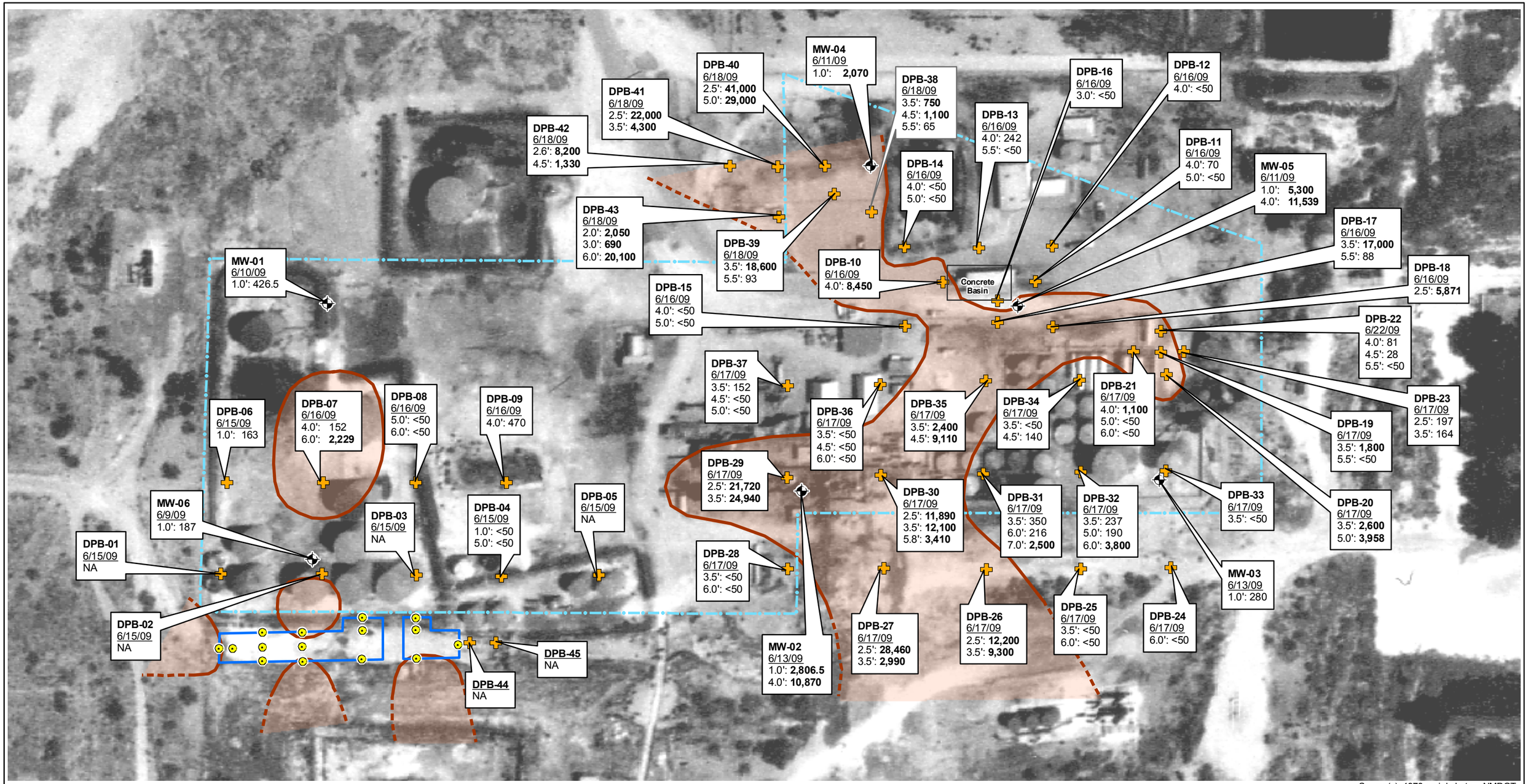
Sample Location
Depth, feet bgs: Result

Note(s):
Results are in ppmv as measured by FID
NA = FID Not Available for screening
or boring terminated above 6 feet

Figure 6
Maximum VOC Concentration by Heated-Headspace Method, June 2009 (>6 Feet Below Ground Surface)

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure6.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend

- Soil Boring Location
- Monitoring Well Location
- Confirmation Sample Location
- Property Boundary
- Excavation Area
- Estimated Areal Extent of TPH Exceeding Action Level (~96,346 ft^2 within property boundary)
- (Dashed where Inferred)

Sample Location
Sample Date
Depth (feet bgs): Result

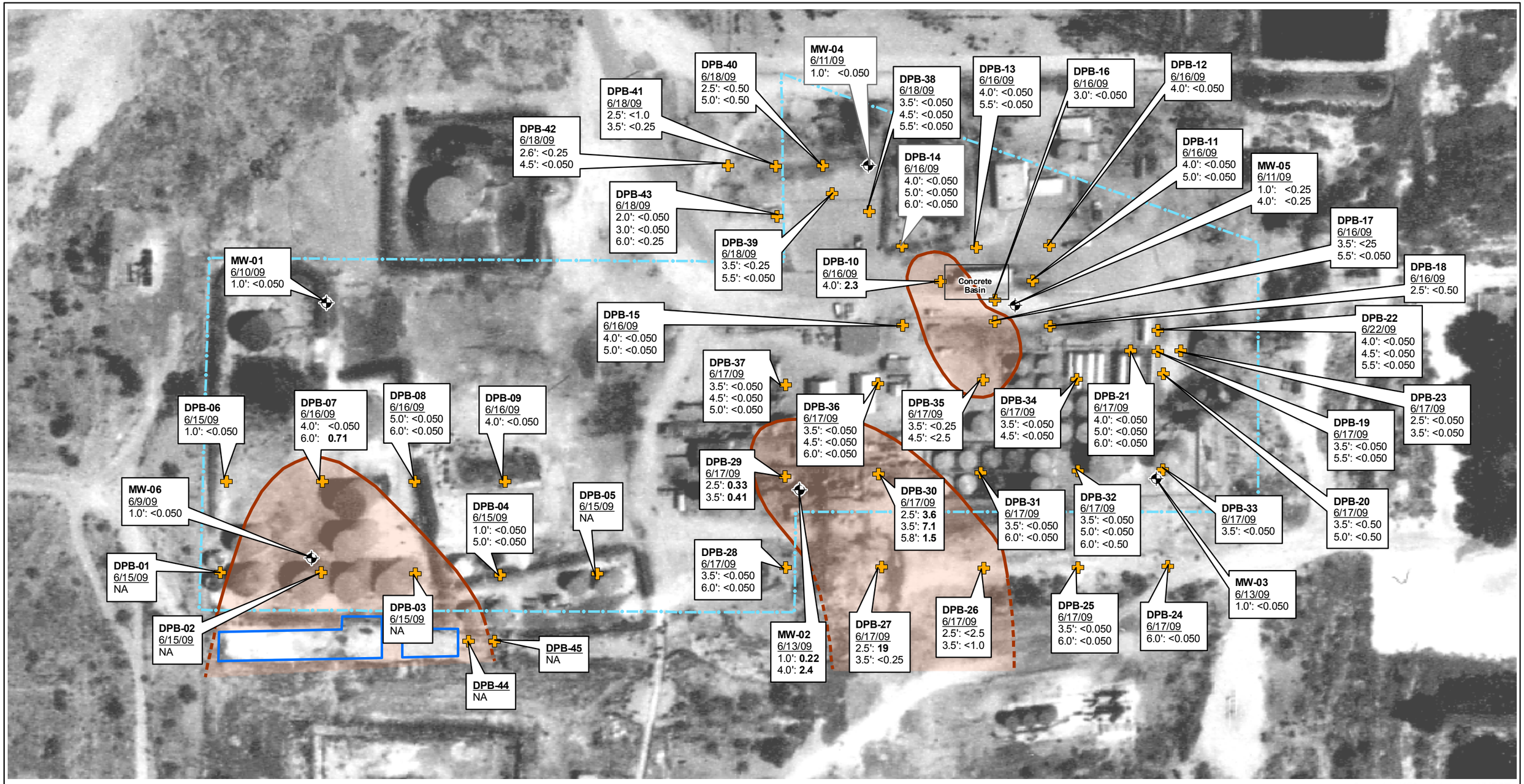
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD TPH Action Level of 500 mg/kg
3. NA = Not Applicable
4. See Figure 15 for pit area results

INTERA

Figure 7
Distribution of TPH in Soil (0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure7.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend

- Monitoring Well Location
- Soil Boring Location
- Property Boundary
- Excavation Area
- Estimated Areal Extent of Benzene Exceeding Action Level (~60,657 ft^2 within property boundary)
- (Dashed where Inferred)

Sample Location
Sample Date
Depth (feet bgs): Result

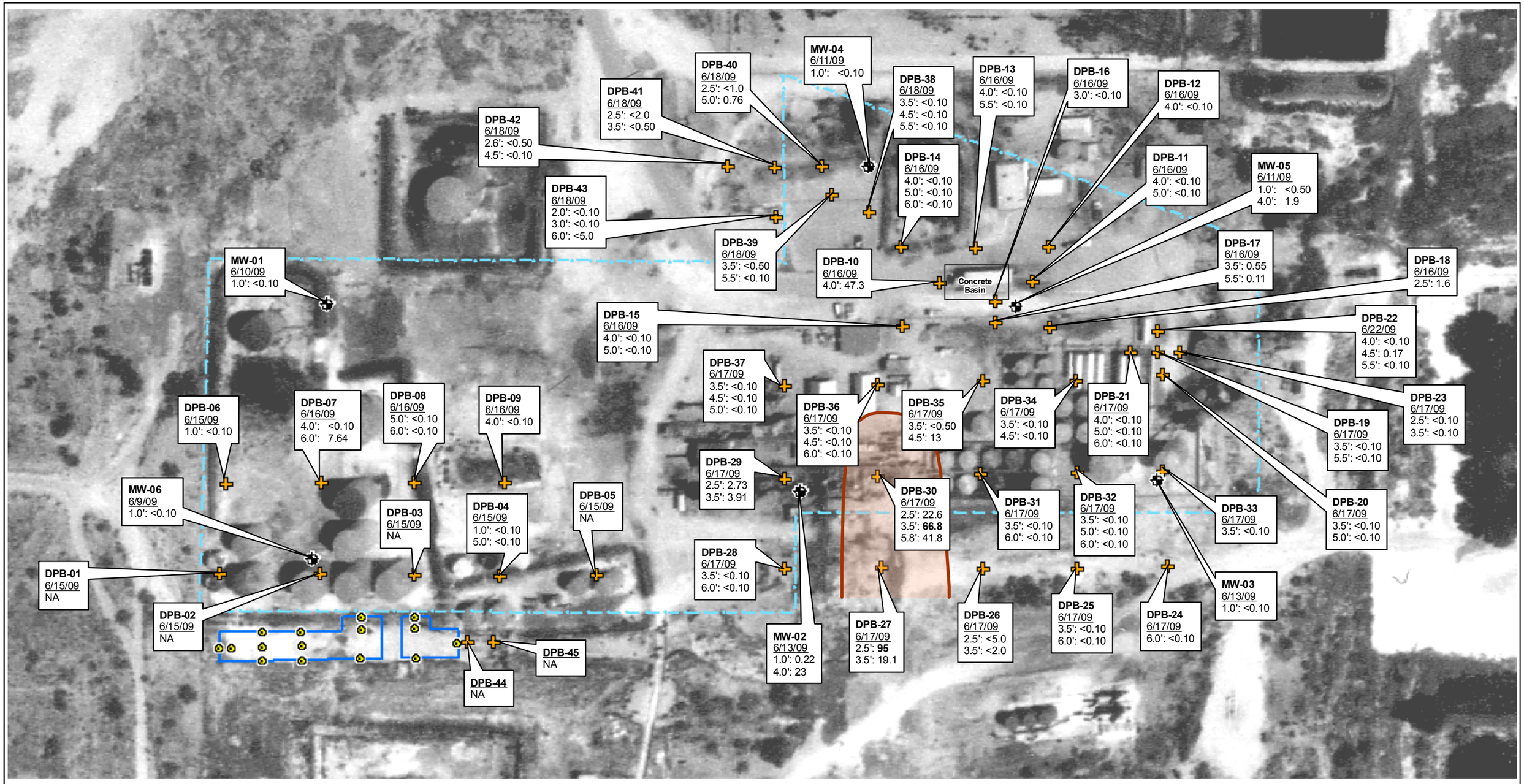
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD Benzene Action Level of 0.2 mg/kg
3. NA = Not Applicable

Figure 8
Distribution of Benzene in Soil (0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure8.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend

- Monitoring Well Location
- Soil Boring Location
- Confirmation Sample Location
- Property Boundary
- Excavation Area
- Estimated Areal Extent of BTEX Exceeding Action Level (~10,006 ft^2 within property boundary)

Sample Location
Sample Date
Depth (feet bgs): Result

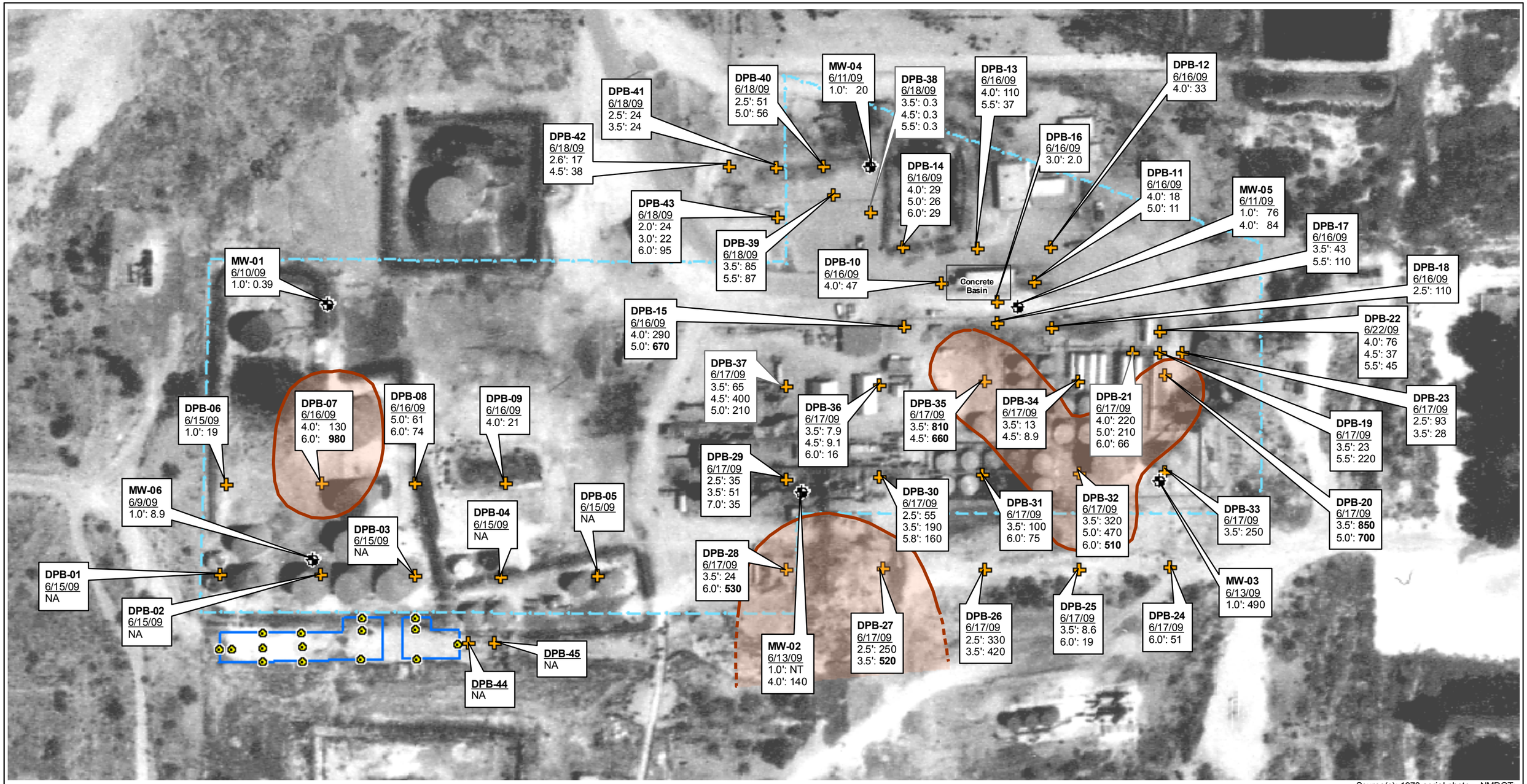
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD BTEX Action Level of 50 mg/kg
3. NA = Not Applicable
4. Σ BTEX = Sum of Benzene, Toulene, Ethyl benzene, and total Xylenes concentrations
5. See Figure 15 for pit area results

INTERA

Figure 9
Distribution of BTEX in Soil
(0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure9.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

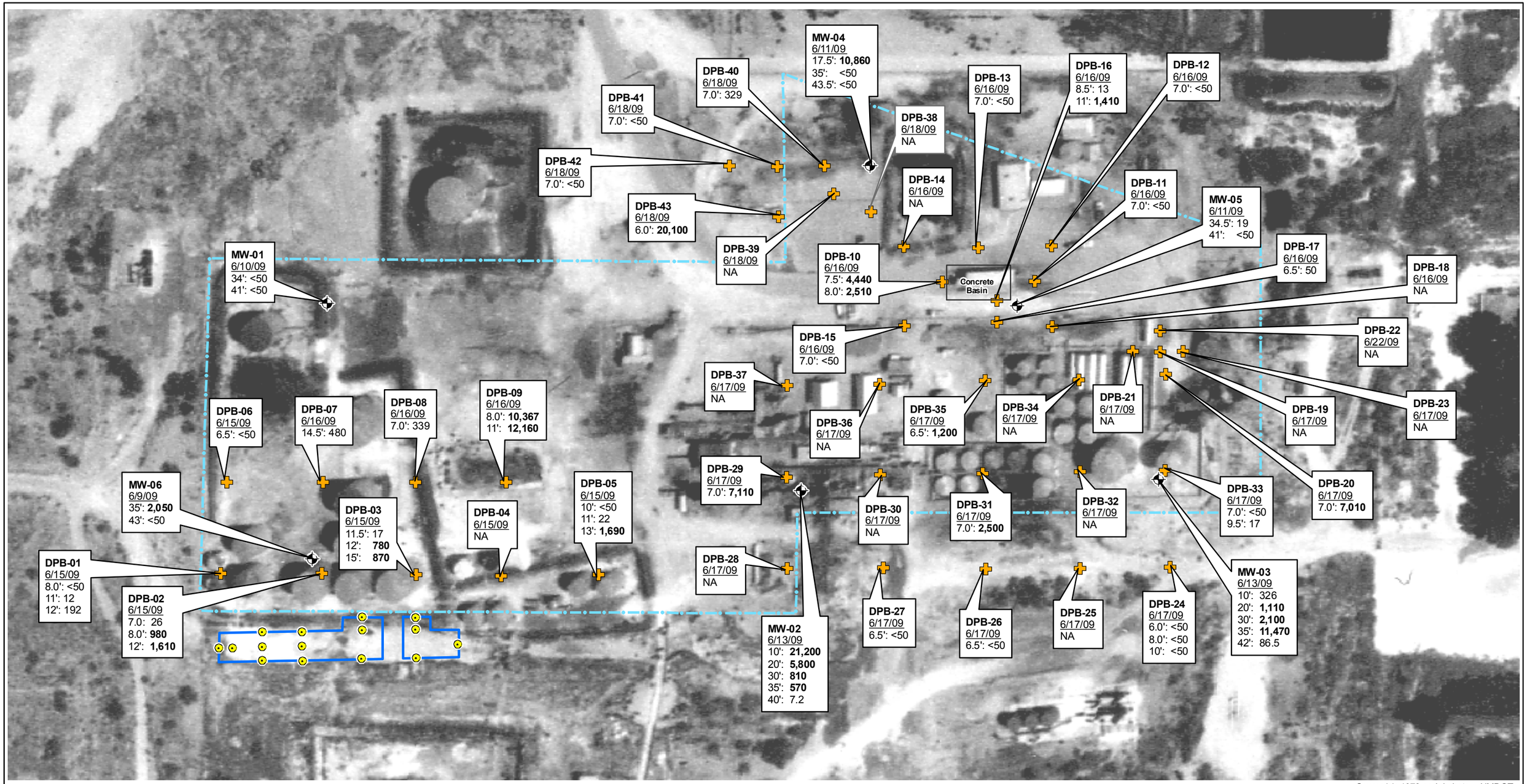
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD
   Chloride Action Level of 500 mg/kg for soil ≤ 6 feet bgs
   Chloride Action Level of1,000 mg/kg for soil > 6 fee bgs
3. NA = Not Applicable
4. See Figure 15 for pit area results

Figure 10
Distribution of Chloride in Soil
(0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure10.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend
- Monitoring Well Location
- Soil Boring Location
- Confirmation Sample Location
- Property Boundary
- Excavation Area

Sample Location
Sample Date
Depth (feet bgs): Result

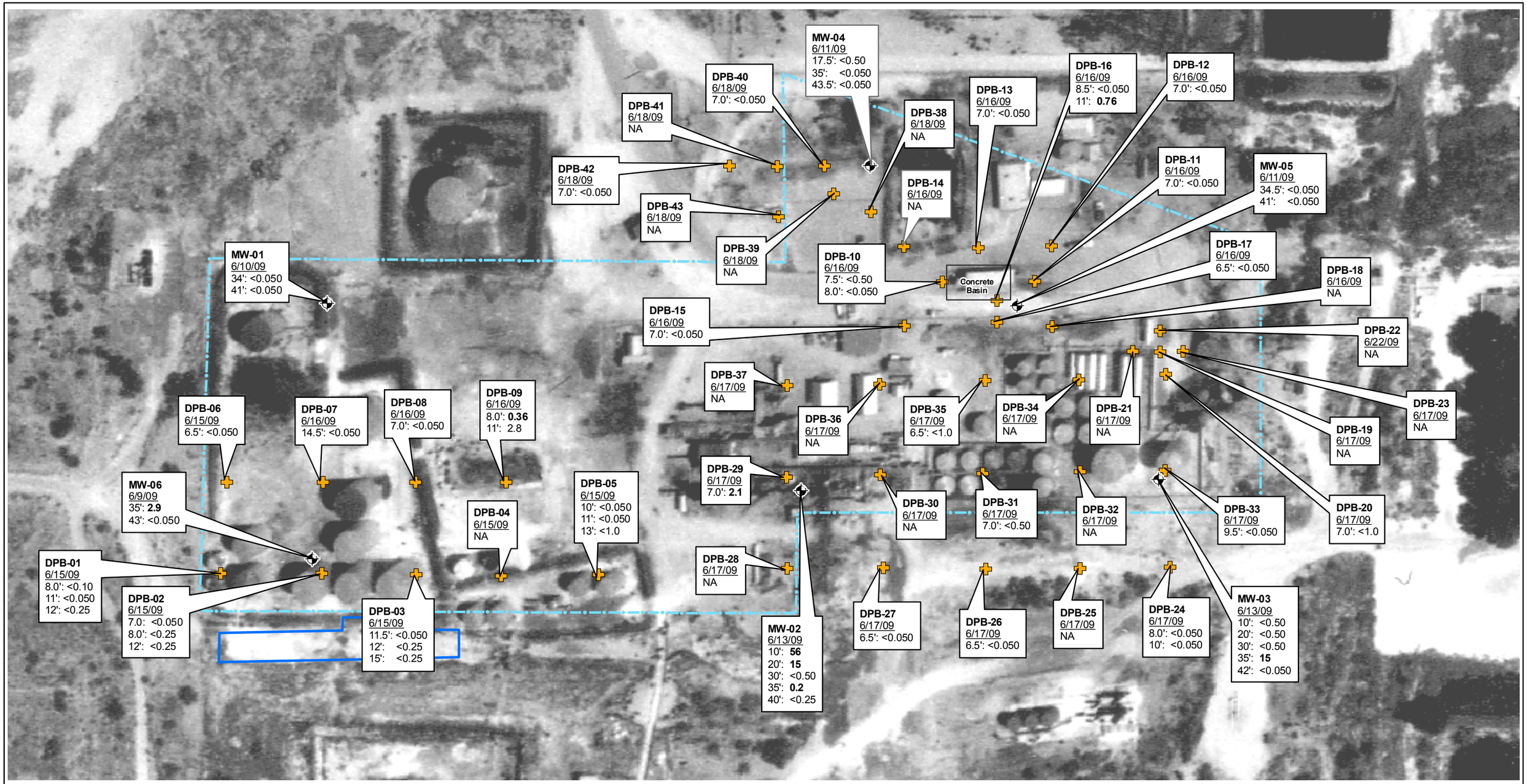
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD TPH Action Level of 500 mg/kg
3. NA = Not Applicable
4. See Figure 15 for pit area results

INTERA

Figure 11
Distribution of TPH in Soil
(>6 Feet Below Ground Surface)

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure11.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend
- Monitoring Well Location
- Soil Boring Location
- Property Boundary
- Excavation Area

Sample Location
Sample Date
Depth (feet bgs): Result

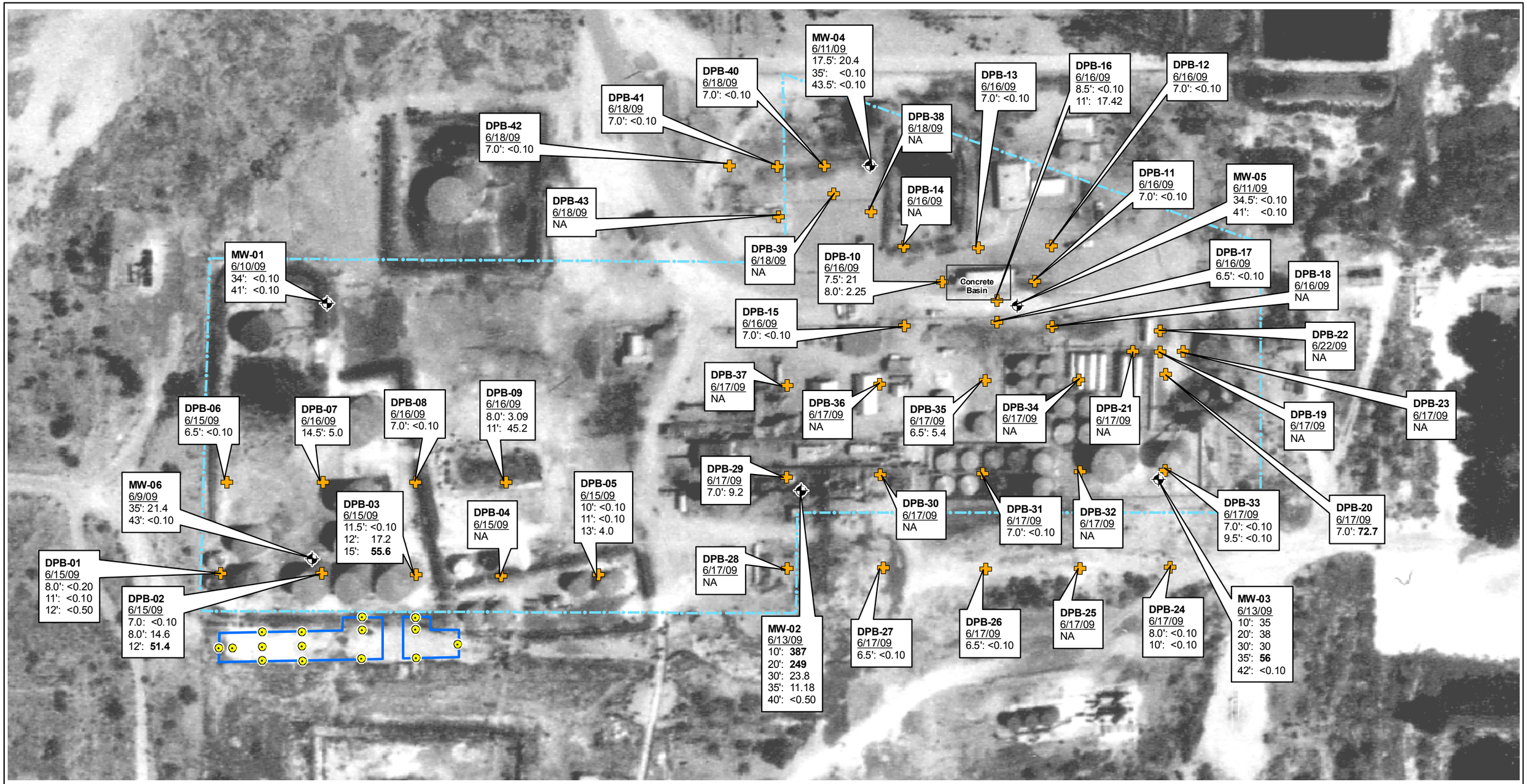
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD Benzene Action Level of 0.2 mg/kg
3. NA = Not Applicable

Figure 12
Distribution of Benzene in Soil (>6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure12.mxd



N

S

0 50 100 200 Feet

Legend

- Monitoring Well Location
- Soil Boring Location
- Confirmation Sample Location
- Property Boundary
- Excavation Area

Sample Location
Sample Date
Depth (feet bgs): Result

Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD BTEX Action Level of 50 mg/kg
3. NA = Not Applicable
4. 3. Σ BTEX = Sum of Benzene, Toulene, Ethyl benzene, and total Xylenes concentrations
5. See Figure 15 for pit area results

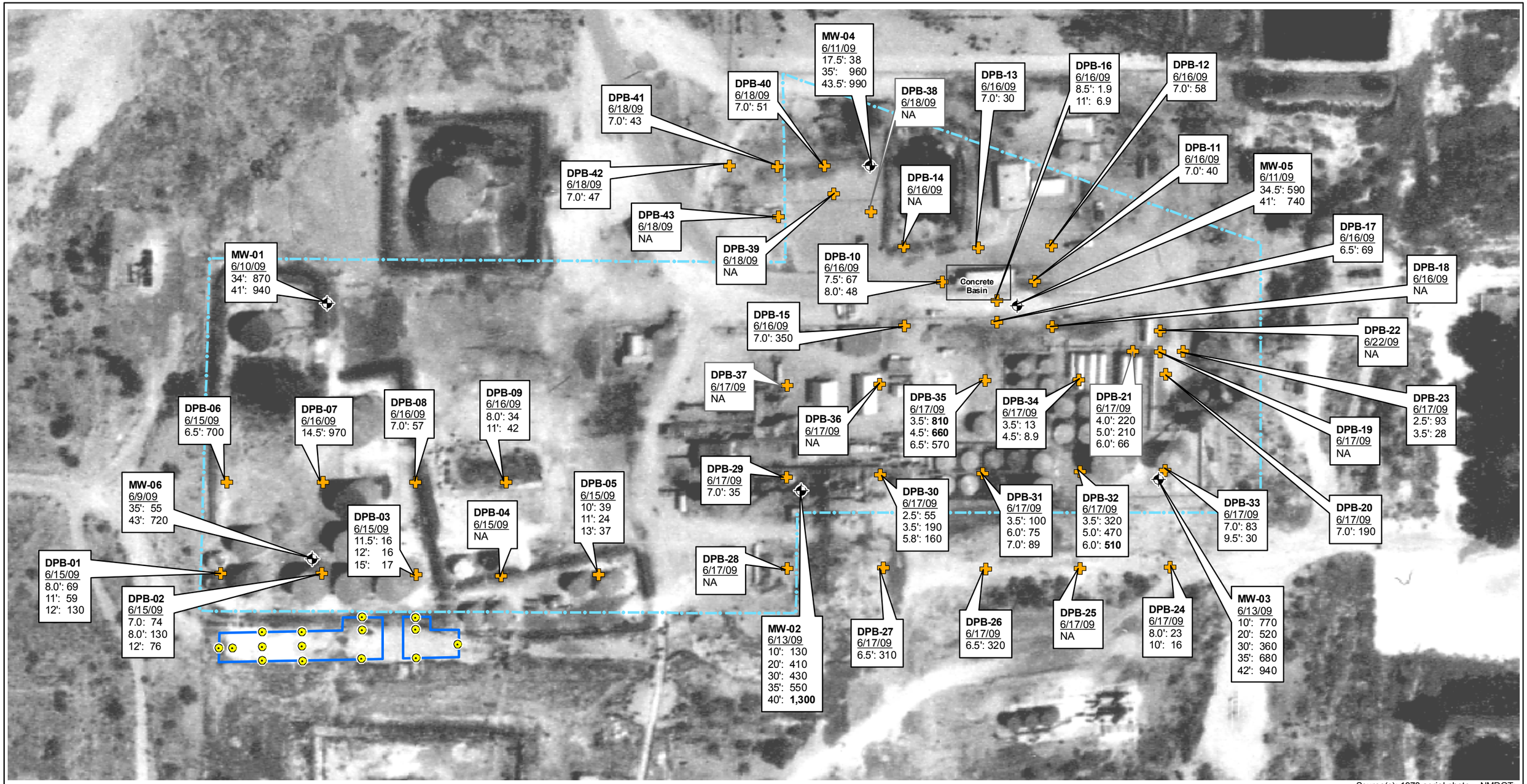
Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

Figure 13
Distribution of BTEX in Soil (>6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure13.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend
- Monitoring Well Location
- Soil Boring Location
- Confirmation Sample Location
- Property Boundary
- Excavation Area

Sample Location
Sample Date
Depth (feet bgs): Result

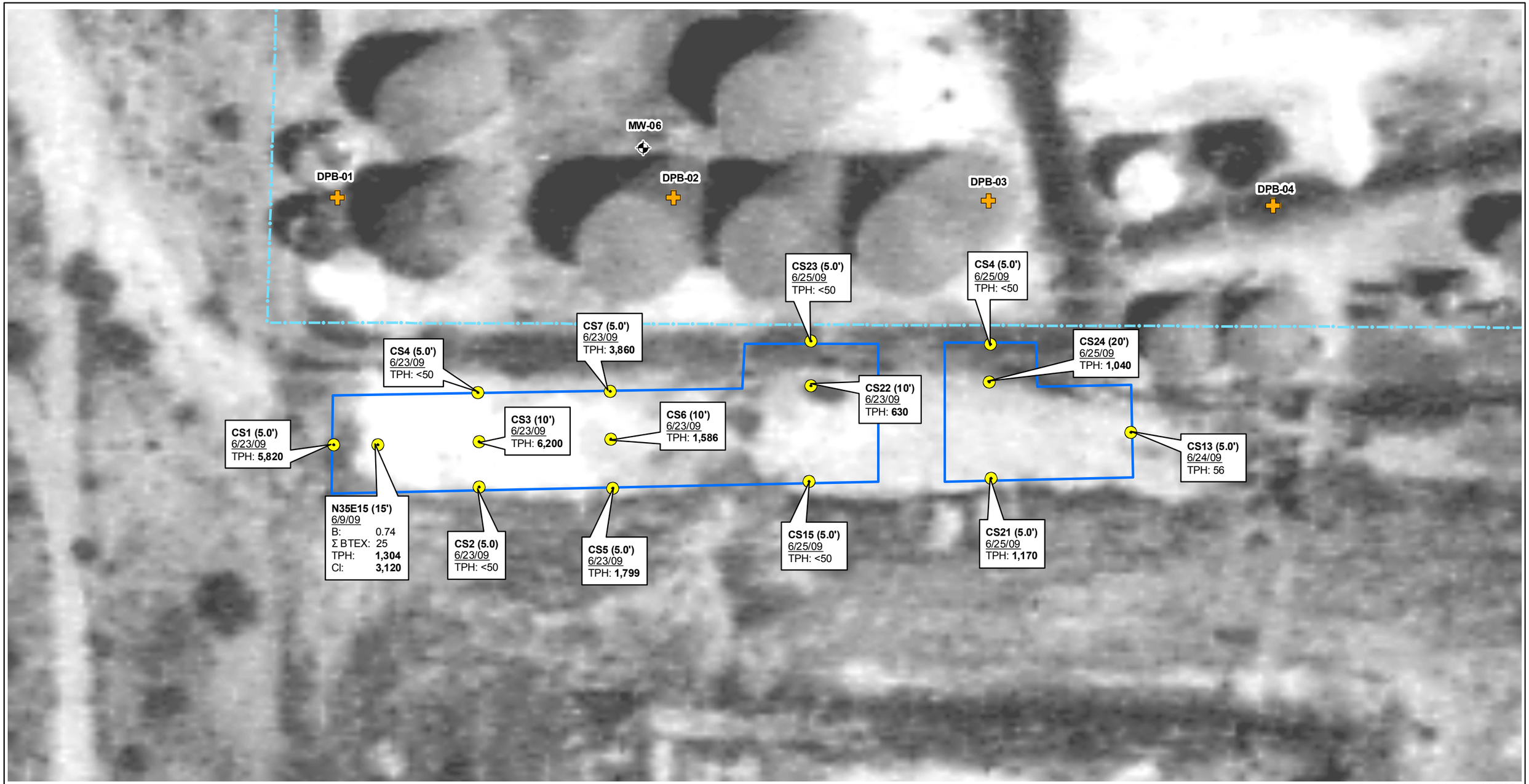
Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD
   Chloride Action Level of 500 mg/kg for soil ≤ 6 feet bgs
   Chloride Action Level of1,000 mg/kg for soil > 6 fee bgs
3. NA = Not Applicable
4. See Figure 15 for pit area results

Figure 14
Distribution of Chloride in Soil
(>6 Feet Below Ground Surface)

Enersource Site – Monument, NM

INTERA

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure14.mxd



N

S

0 15 30 60 Feet

Legend
- Confirmation Sample Location
- Monitoring Well Location
- Soil Boring Location
- Excavation Area
- Property Boundary

Sample Location (Depth, feet bgs)
Sample Date
Analyte: Result

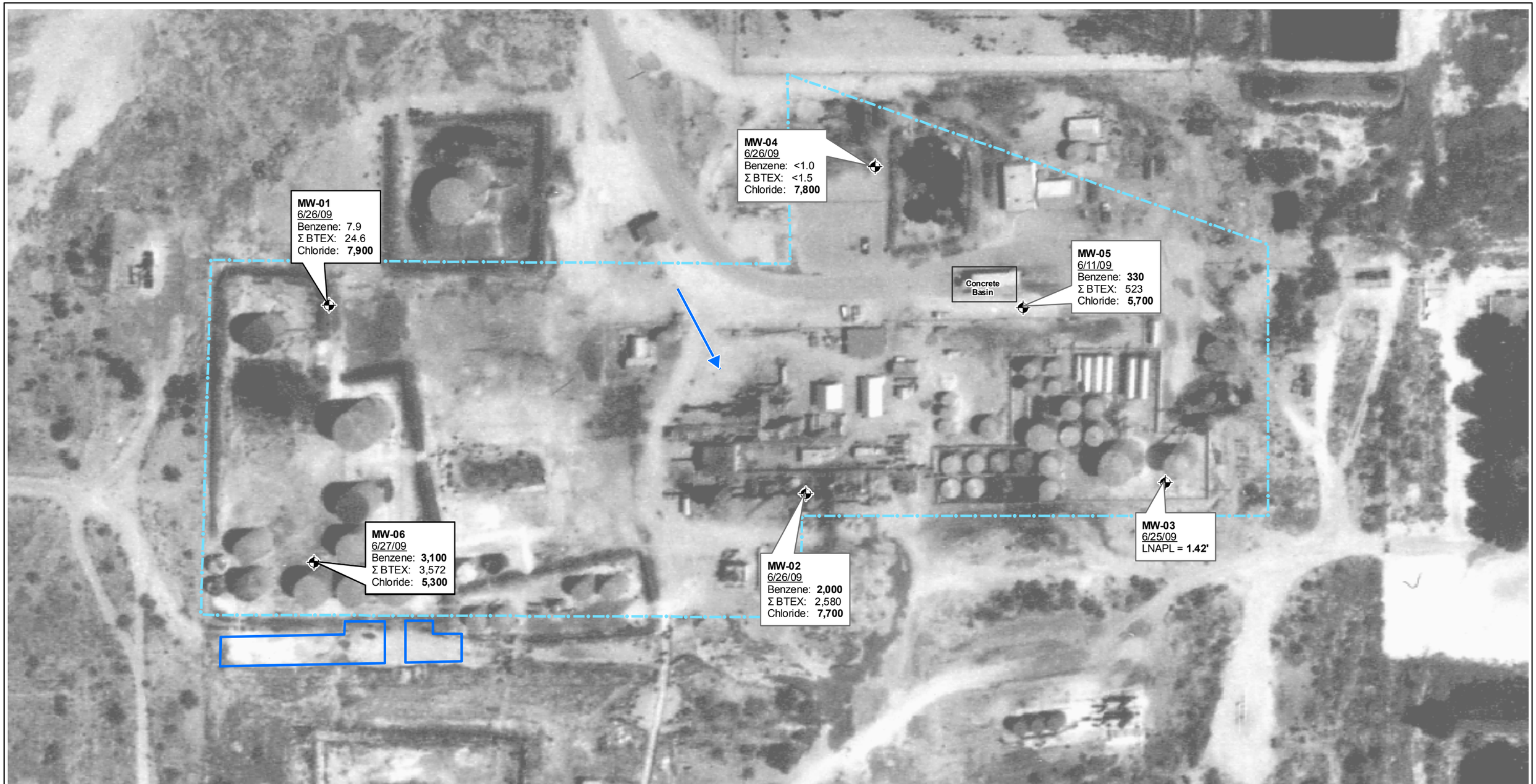
Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

Notes:
1. Results are in mg/Kg
2. **Bold** indicates concentration above NMOCD Benzene Action Level of 0.2 mg/kg; TPH Action Level of 500 mg/kg; and Chloride Action Level of 1,000 mg/kg
3. Σ BTEX = Sum of Benzene, Toulene, Ethyl benzene, and total Xylenes concentrations

Figure 15
Distribution of Contaminants in Soil within Pit

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure15.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N

S

0 50 100 200 Feet

Legend

- Monitoring Well Location
- Estimated Groundwater Flow Direction, 6/25/09
- Property Boundary
- Excavation Area

Sample Location
Sample Date
Analyte: Result

Notes:
1. Results are in µg/L except Chloride (mg/L)
2. **Bold** indicates concentration above NMWQCC Standard
3. Σ BTEX = Sum of Benzene, Toulene, Ethyl benzene, and total Xylenes concentrations

Figure 16
Distribution of Contaminants in Groundwater, June 2009

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure16.mxd

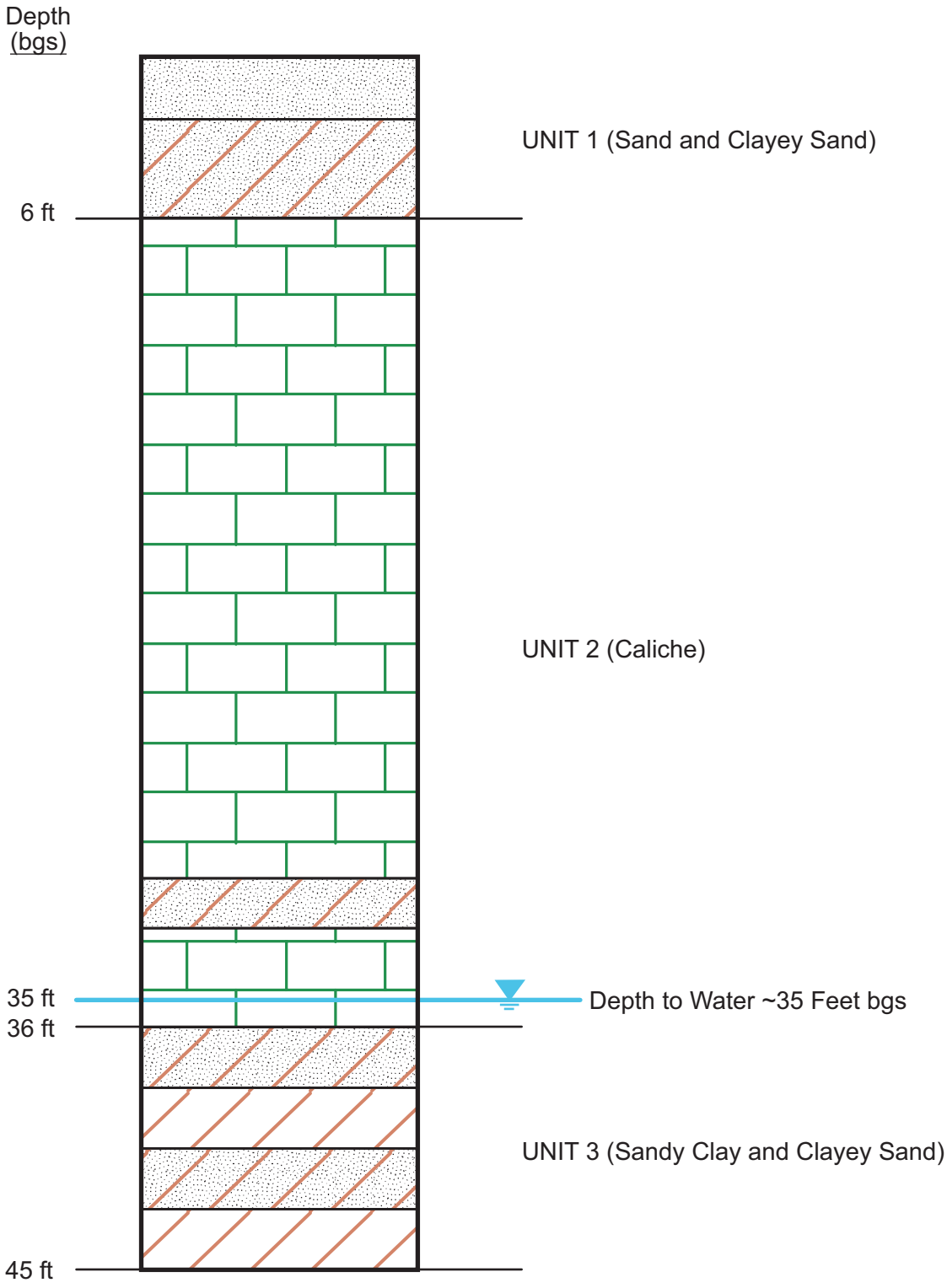
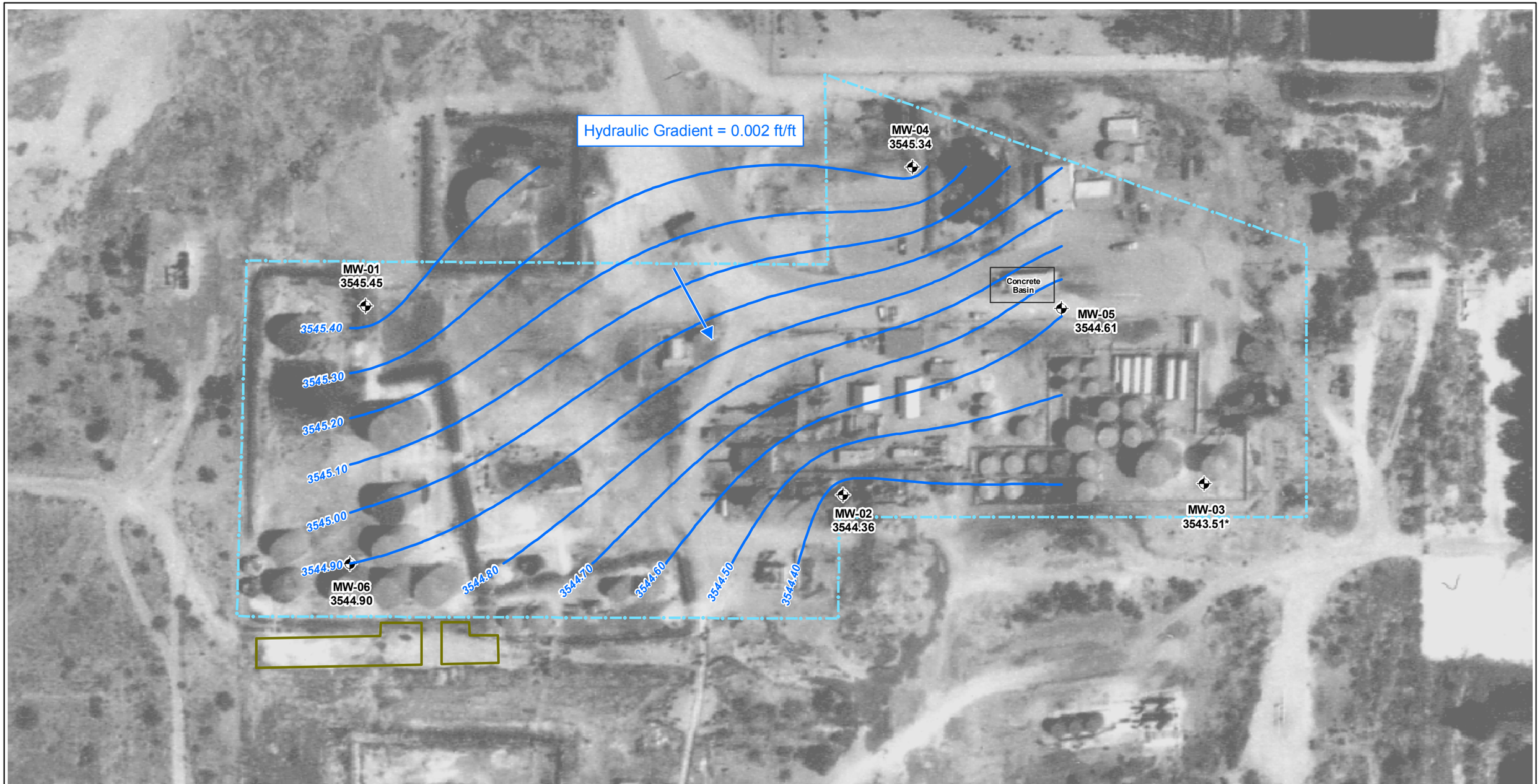


Figure 17
Generalized Hydrostratigraphic Column

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\Figure17.fh10



Source(s): 1978 aerial photo – NMDOT;
Property boundary/monitoring wells – John West Surveying Co., Hobbs, NM.

N
S

0 50 100 200
Feet

Legend

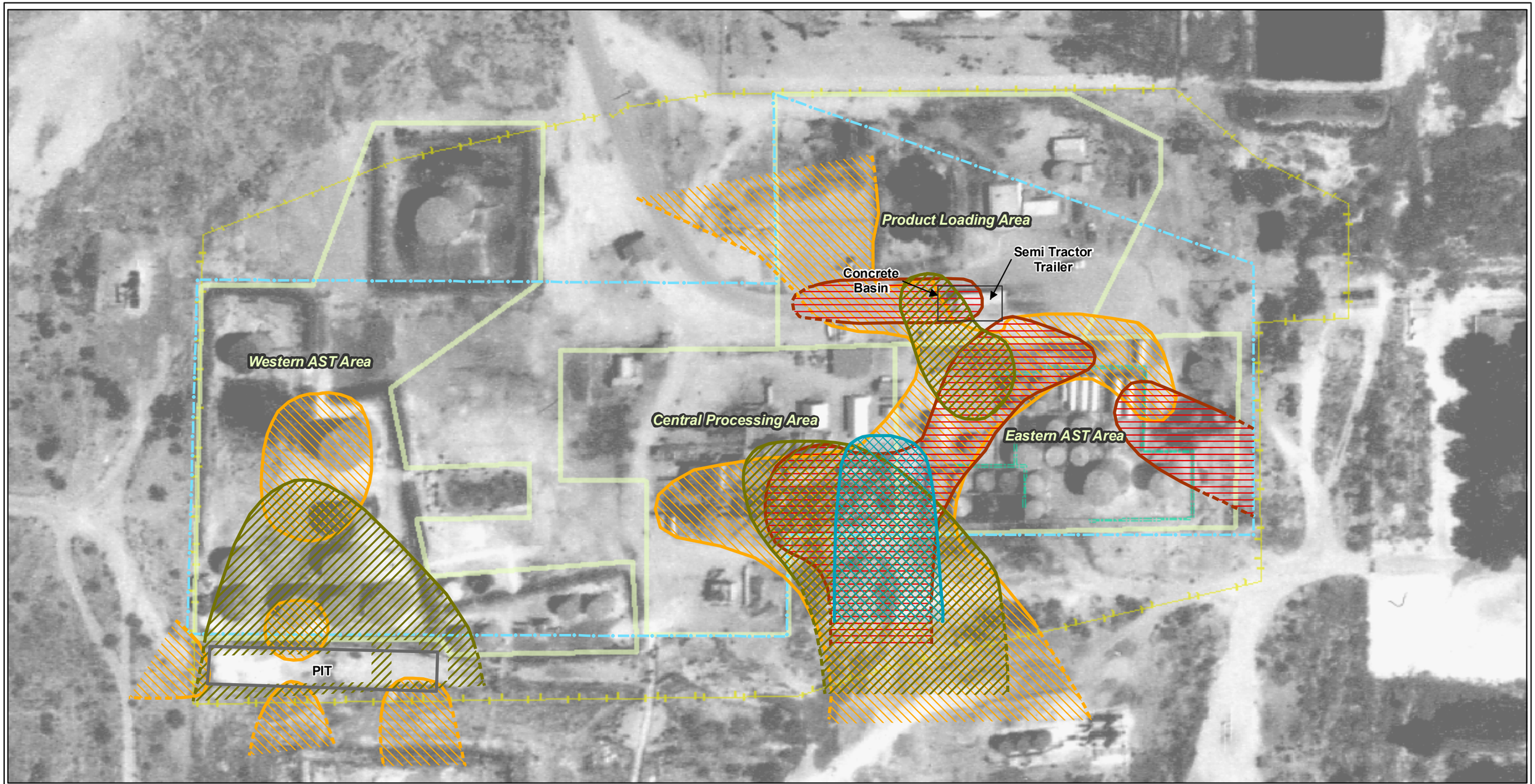
- Monitoring Well Location w/ Groundwater Elevation (feet above mean sea level)
- Property Boundary
- Excavation Area
- Groundwater Elevation Contour (feet above mean sea level)
- Estimated Groundwater Flow Direction

* = MW-03 was not used in contouring due to presence of product.

Figure 18
Groundwater Elevations,
June 25, 2009

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure18.mxd



Source(s): 1978 aerial photo – NMDOT;
Property boundary – John West Surveying Co., Hobbs, NM.

N
S
0 50 100 200
Feet

Legend

- Estimated Areal Extent of BTEX Exceeding Action Level
- Estimated Areal Extent of Benzene Exceeding Action Level
- (Dashed where Inferred)
- Estimated Areal Extent of VOCs Exceeding 100 ppmv
- (Dashed where Inferred)
- Estimated Areal Extent of TPH Exceeding Action Level
- (Dashed where Inferred)
- Property Boundary
- Barbed Wire Fence
- Cinder Block Fence

INTERA

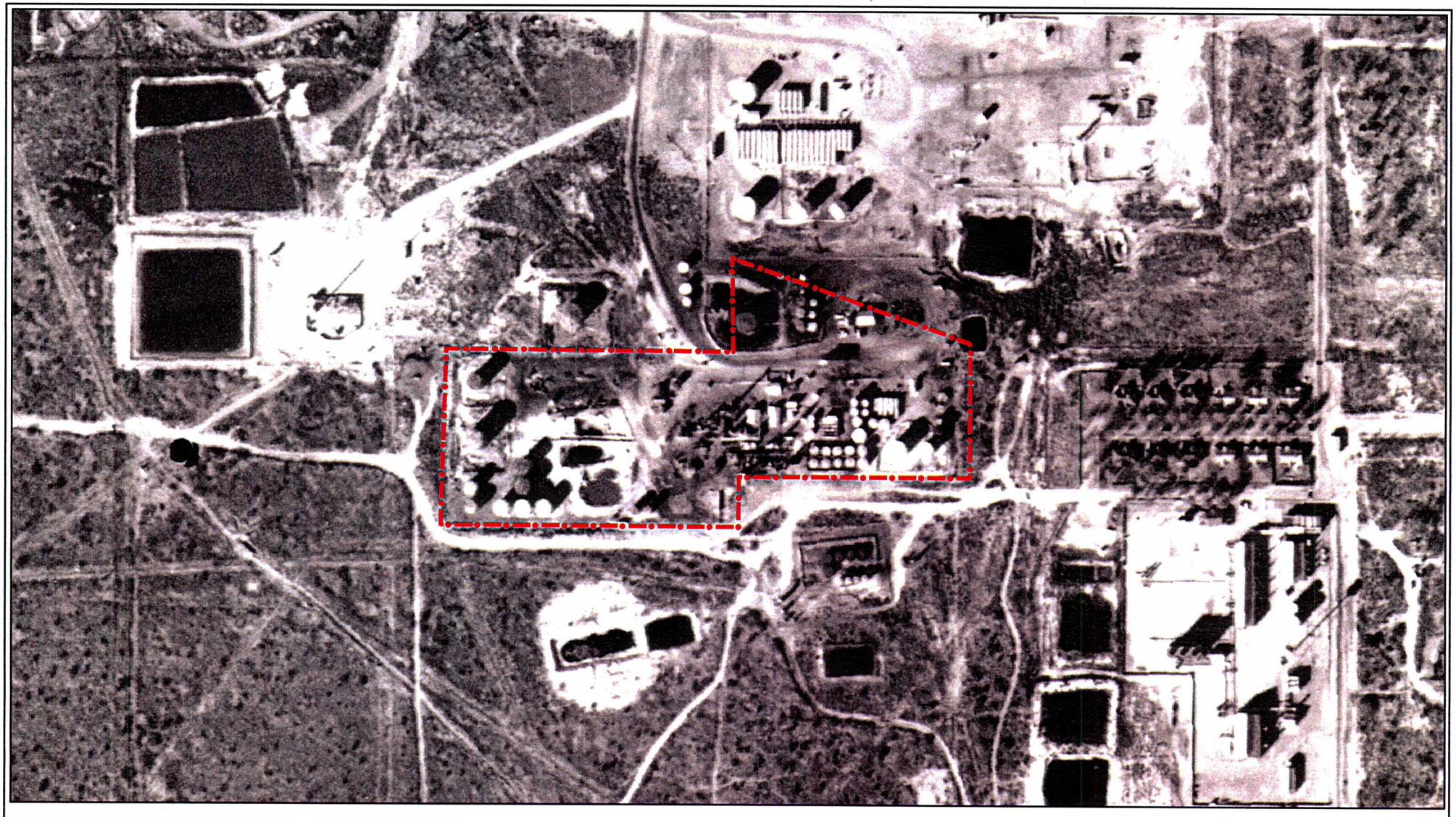
Figure 19
Areal Extent of Contaminants in Soil
(0 to 6 Feet Below Ground Surface)

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\figure19.mxd

Appendix A

Historical Aerial Photographs



N

S

0 150 300 600

Feet

Legend

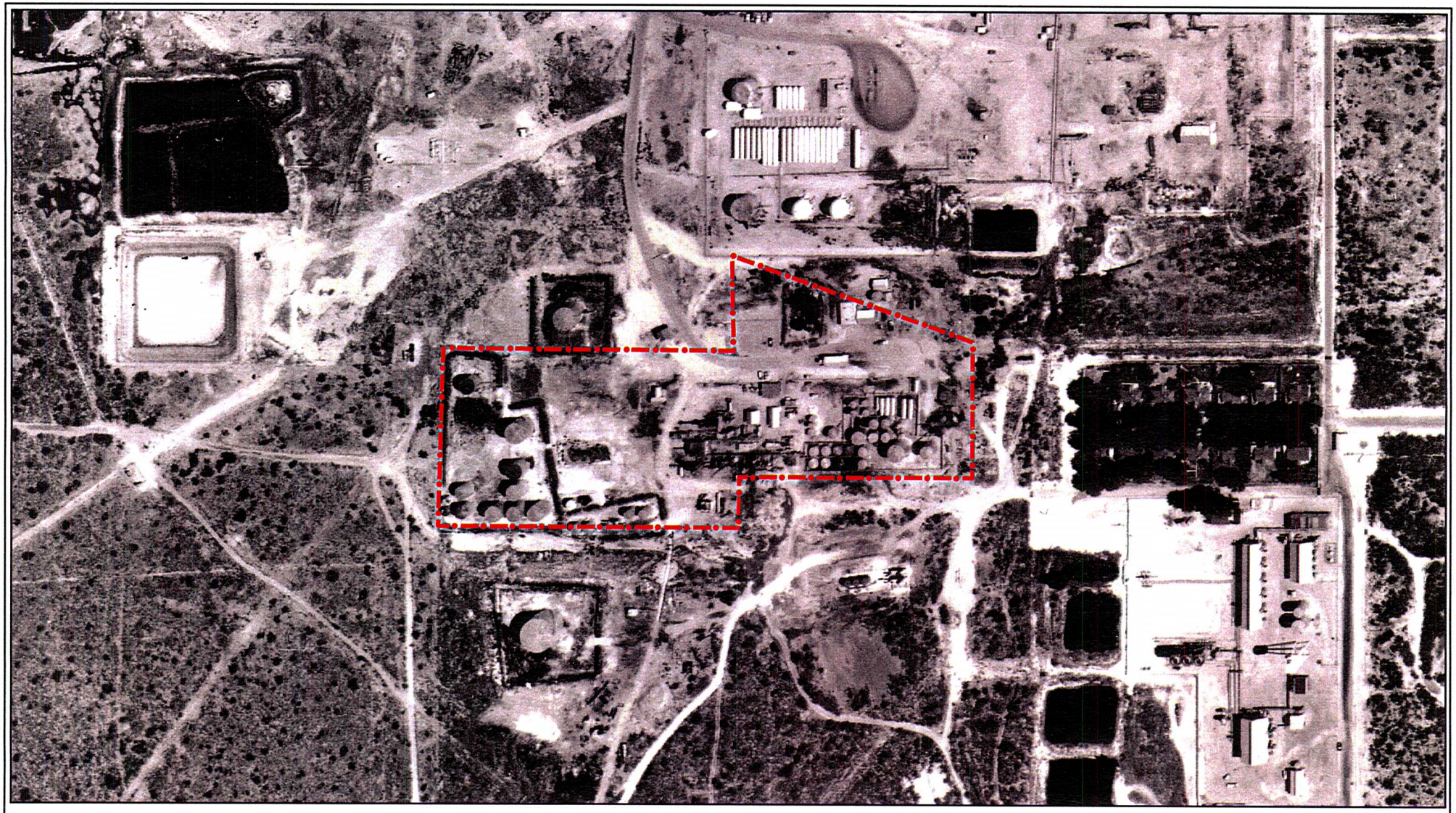
Property Boundary

INTERA

Historical Aerial – 1966

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\ES_hist-1966.mxd



N

S

0 150 300 600 Feet

Legend

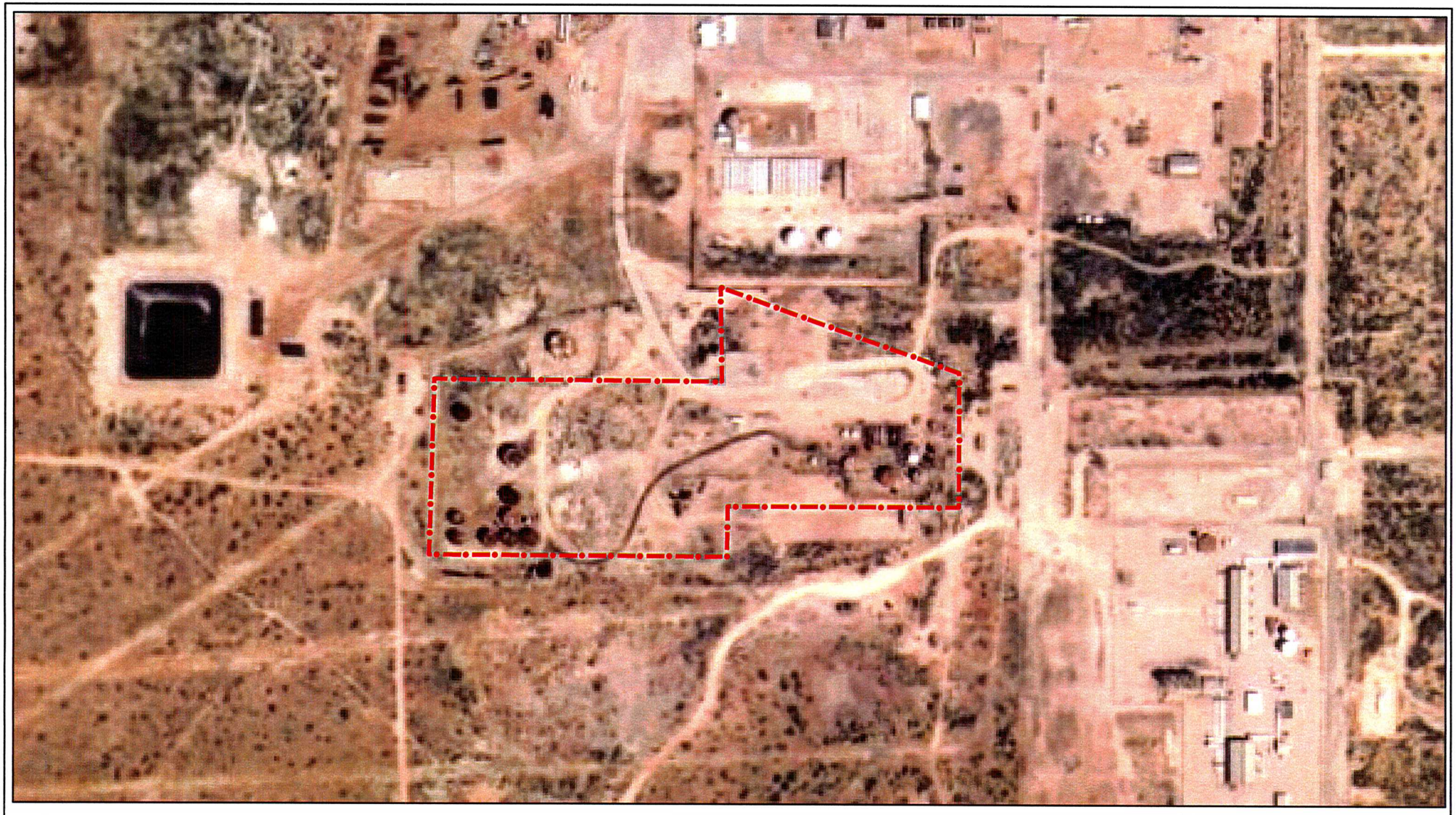
Property Boundary

INTERA

Historical Aerial – 1978

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\ES_hist-1978.mxd



Aerial Source: Earth Data Analysis Center

N

S

0 150 300 600 Feet

Legend

Property Boundary

INTERA

Historical Aerial – 2005

Enersource Site – Monument, NM

S:\Projects\OCD - Enersource Facility\graphics\Monument NM\GIS\September2009\ES_hist-2005.mxd

Appendix B
Field Notes

6-09-2009 Joe A. Galemore

0930 On site w/ Lynda Price and Jeff Palmer. Rodgers Drilling shows up

0900 Gandy Corp shows up. Conduct H&S briefing Lynda Price is site H&S officer. Discuss activities for project which are:
1) Install 6 MWs
2) Excavate 4,000 yards^3 of contaminated soil from SW pit

1030 Begin drilling MW-6 Target depth ≈ 36 feet, Begin excavating pit; start in very SW corner; Grossly contaminated soils at ≈ 3' bgs. Take sample for lab analysis to determine proper disposal. Earlier results from sample collected by Rick D. were

	GRO	DRO	Cl	BTEX
East	<10	356	512	<0.3
West	<10	<10	96	<0.3

1100 Drilling down to ≈ 10'

Joe A. Galan 6-9-2009

1100 (cont) Cont. observed at ~ 7' bgs; took picture cont continues downward in calcite; Cont in pit also extends to 15+ feet; Jeff P. will transfer FID readings.

~1230 Break for lunch;

1315 Drill to ~ 24 feet BGS; switch to air rotary; Water at ~ 33 according to John.

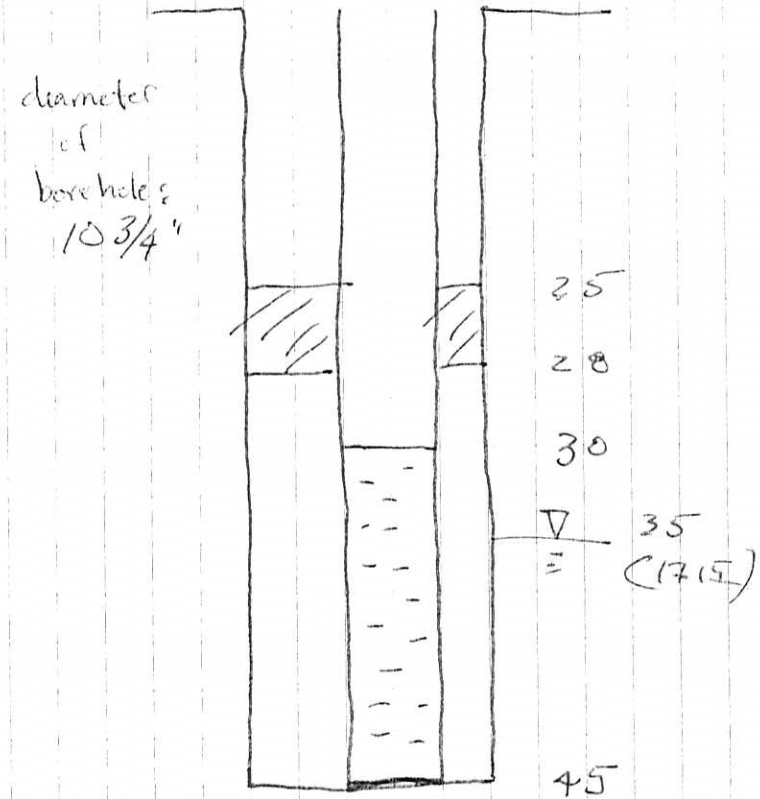
~1500 Talk to Jim Grossmoll and Brad. Determine that waste is non exempt.; Excavated

1715 DTW measured at 34.8 ft bgs

65 ft x 40 ft x 15 ft ≈ 39,000 ft³ ≈ 1,400 yd³

Joe A. Galan 6-9-2009

MW-06 (Proposed)



1807 Drill to 45 attempt to sample; Sampler stuck; will try to remove in am. 2" FID not working; off site

Joe A. Galan

ENERSOURCE

6/9/09 JEFF PALMER NOTES OF THE DAY

08:30 MEET DRILLING CREW AT SITE, DISCUSS SAFETY QUESTIONS SIGN OFF ON SAFETY DOCUMENTS.

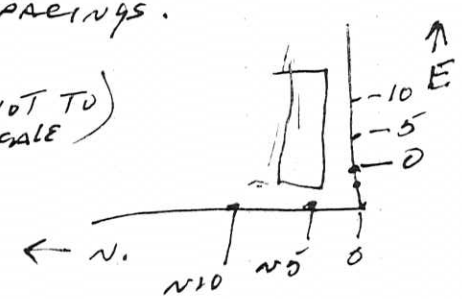
09:30 TAKE PICTURES OF SITE, CHECK OPERATION OF TWO FID INSTRUMENTS, ONE SEEMS TO HAVE A PROBLEM.

10:00 DISCUSS A PLAN OF ACTION ABOUT THE SEQUENCE NEEDED TO REMOVE THE FILL IN THE PIT. BACKHOE STARTS FILL REMOVAL.

10:20 LOCATE ABANDONED PIPE LINE RUNNING THROUGH BACK SIDE OF PIT, WILL DIG AROUND IT.

10:30 SET UP GRID TO DOCUMENT SAMPLE LOCATIONS. FIVE FOOT SPACINGS.

(NOT TO SCALE)



ENERSOURCE

6/9/09 JEFF PALMER NOTES (CONT.)

10:30 EXAMPLE OF SAMPLE NAME. N35 E15-10

11:00 TAKE FIRST SAMPLES:

5' SAMPLE N35 E15-5

1. 5' SAMPLE = 1600 ppm
2. 5' SAMPLE = 2300 ppm
3. 15' SAMPLE = 3800 ppm

11:45 RELEASE SAMPLES TO CANDY OIL FIELD SERVICE, TRANSPORT TO HOBBS FOR QUICKER ANALYSIS.

13:00 CONTINUE FILL REMOVAL TO PLACE IN STAGING AREA TO BE TAKEN TO LAND FILL LATER.

14:35 GRAB SECOND SET OF SAMPLES

2' SAMPLE N35 E55-2
3814 ppm

14:40 5' SAMPLE N35 E55-5
3600 ppm

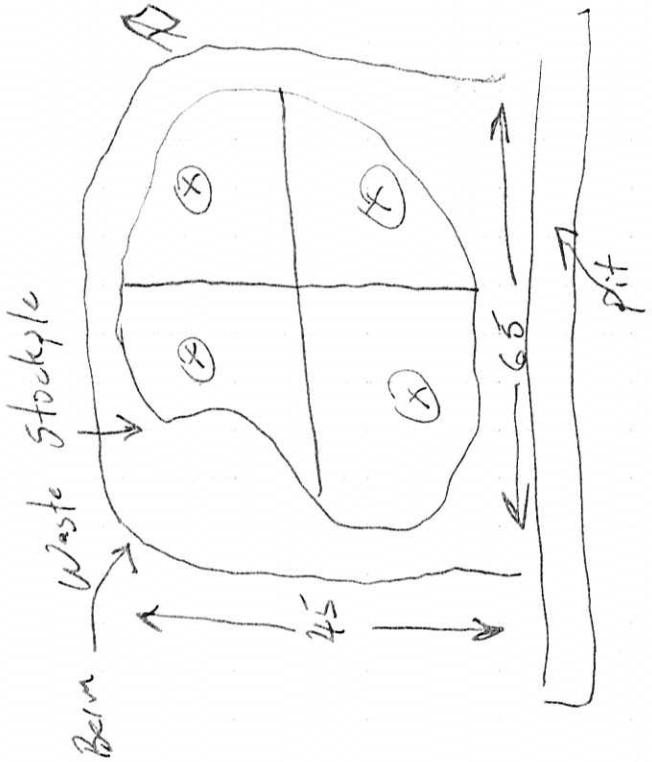
14:45 10' SAMPLE N35 E55-10
870 ppm

17:00 CONSTRUCT BERM AROUND FILL REMOVED FROM PIT TO PROTECT AREA FROM POTENTIAL RAIN RUN OFF.

18:30 LEAVE SITE

June 10, 2009 Joe A. Galvan

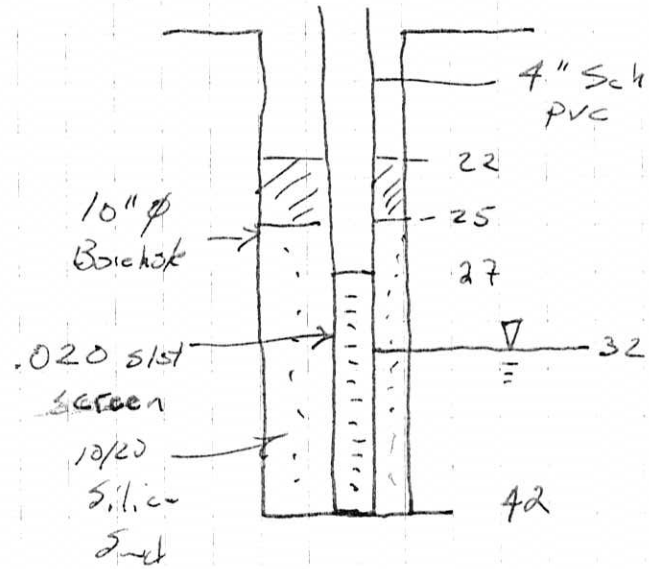
1447 Jeff P. will transfer into into log book. Objective now is to sample waste pile. Sample name will be waste pile 1 ; Waste pile dimensions is about 65 ft x 40 ft x 15 ft high ≈ 1,400 yd³



6-10-2009 Joe A. Galvan

1500 - Collect four samples as indicated on previous page, composite in bussic transfer to 4, 40z soil jars, label, put on ice. Analysis is for TCLP: VOCs / SVOCs / metals reactivity, ignitability corrosivity, paint filter. Complete COC.

1705 Wet drill rig at ~ 32 ft bgs; MW-01 proposed well.



ENERSOURCE

6/10/09 Jeff Palmer Notes of the Day

Delayed Because of Heavy Rain

08:30 On Site - Drill Crew on Site

~7:30 Pit over half full of Rain Water. Berm around Waste Pile seems to have held.

09:00 Start Drilling operations.

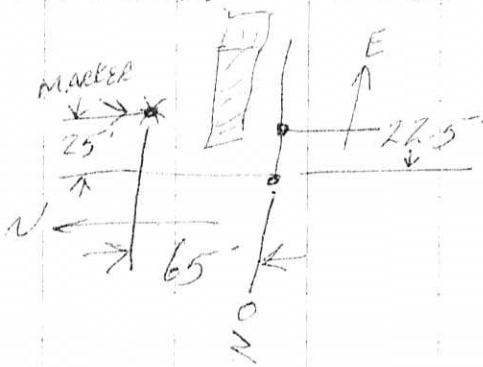
01:15 Found FID Cal. Procedures. Jar Calibrate on Site.

09:30 Fill Area where Rain Water is getting into Pit.

10:45 Locate and Flag Remaining Well locations

13:00 Rig Crew Equip. Stuck in Mud Hole Moving to next well location.

14:10 Set up Grid Corners at Pit Area Relative to Fence.



ENERSOURCE

6/10/09 Jeff Palmer Notes (Cont.)

14:30 Finish Grid Measurements.

14:45 Set up to Sample Waste Pile with Jar Calibrate. Sample Name: Waste Pile 1-4

15:00 Sample in Random Areas From Waste Pile - Prepare Samples for Shipping.

17:15 Water in Pit Down ~18" from Origin.

17:30 Drill Crew leaves site, Jar Calibrate Also Leaves.

18:00 Leave Site.

6/11/09 Jeff Palmer Notes

08:30 Meet with Gandy + Co. Will Build Berm to Avoid Any More Rain Water From Entering Pit. Pit Water still ~18" from original Point. Discuss option to pump water out from Pit.

09:00 Gandy + Co. off site Berm Completed.

09:15 Go to Air Gas (Hobbs) for FID Gas

ENERSOURCE

6/11/09 JEFF Palmer NOTES
10:45 RETURN TO SITE WITH GAS FOR FID. WILL FILL AS NEEDED.
12:00 LEAVE SITE (JEFF Palmer)

6/15/09 MONDAY ENERSOURCE SITE
0730 MEET LYNDA PRICE TO DISCUSS WORK ACTIVITIES.
0815 TRAVEL TO AIR GAS FOR HYDROGEN GAS TO FILL FID.
1130 CAL. FID USING METHANE 500ppm, HAD SOME DIFFICULTY.
1300 DIRECT PUSH RIG ON SITE HAVE SAFETY BRIEFING, DECON EQUIP.
1330 TAKE FIRST SAMPLE - HAVE TROUBLE WITH FID HAD TO USE METH #2 AFTER CALIBRATING AGAIN.
1830 LYNDA AND JEFF LEAVE SITE LOUIS LEAVES SITE @ 1730.
1930 TRAVEL TO LOWES FOR SUPPLIES

JBL JEFF Palmer LP LYNDA PRICE

6/16/09 ENERSOURCE
TUESDAY
0630 WORK ON SAMPLES TO PACK, LOG, AND SHIP TODAY. COMPLETE PAPERWORK.
0845 ON SITE, HAVE SAFETY BRIEFING LYNDA, JEFF, LOUIS. CONTINUE WITH SOIL SAMPLING.
0930 HAVING TROUBLE WITH FID CAN'T KEEP FLAME LIT. CALL SUPPLIER, WORK THROUGH IT.
1050 MOVE TO CEMENT PAD TO CONTINUE SAMPLING.
1310 JBP MAKES TRIP TO TOWN FOR EQUIPMENT OF JARS.
1415 JBP BACK WITH SUPPLIES - FID NOW LOW ON GAS - CONTINUE WITH SAMPLING.
1630 LOUIS LEAVES SITE.
1645 LOCATE DPB #19 - FINISH PAPERWORK, FID OUT OF GAS AGAIN. REFILL TOMORROW AM.
1800 LP, JBP LEAVE SITE

6/17/09 WEDNESDAY ENERSOURCE CONT.
0700 JBP TRAVEL TO AIR GAS FILL FID GET SUPPLIES

6/17/09 Enersource Jeff Blue
Wednesday Lynda Price

0815 JBB back on site with supplies - FID gas fail. Have trouble starting them again, call tech. working with end log message on screen.

0900 Calibrate again / 500ppm Methane

0930 Gandy Construction here need to discuss scheduling. Continue with soil sampling

1100 Moved one sample point Concern about high pressure line sign near by.

1120 Oil Conservation and Tax Revenue Dept. People on site. To tax property for delignent taxes - Geoffrey R. Lecking 575-393-6161 ex 113 and Tim Vega (Tax Division) 505-795-5311, 505-827-0883

1210 FID readings fail to 0.0 Flame out, call tech again. Start again continue readings-

6/17/09 Enersource Jeff Blue
Wednesday Lynda Price

1530 Louise leaves site for the day.

1540 Survey monitor well sites with GPS.

1600 LP, JBB, leave site

1900 Start work on logging, packing and preparing samples for shipment.

2400 Samples bagged, labled and in cooler, paper work mostly complete will finish in the morning.

6/18/09 Enersource Cont. LP
Thursday JBB

0600 Finish preparing samples for shipping.

0700 Try to call Gandy Const. (Rick) no answer - Samples out the door.

0800 Arrive at site continue soil sampling.

1115 NM State land office arrives to take pictures. Myra Harrison, 575 392 8736 Asked questions about property lines and ownership.

Jeff Palmer
Lynda Price

6/18/09 Enersource
Thursday

1045 State land office personal leaves site.

1135 Take samples near pit area, logged in. D.D not get good FID readings - Trouble again.

1210 Louis leaves site with sample rig and equip.

1230 LP, JBP leave site to complete paper work and prepare to ship next sample shipment.

1400 Travel to Air Gas, fill FID again.

1500 Start preparing samples for next bagging. Fill out tables - Etc.

6/19/09 Enersource Cont.

07:30 Call Rick (Gandy Const) Start Down Hauling today, landfill to wet for trucks - Get last of Equip. off site, table etc.

08:30 JBP off site.

Jeff Palmer

6/19/09 Enersource

09:00 Unload Equip from truck, Clean and or discard unneeded jars.

10:30 Finish Forms for lab Shipment. Ice Cooler -

12:00 Repack Equip. into boxes etc to store over weekend.

13:30 Make arrangements with Hotel management to store some Equip here until Monday. Move boxes etc into storage area (shed) and locked it up.

16:45 Conference Call with Joe Calendine and Joe Hillen to discuss needs and scheduling for next weeks activities - Jon will return Monday with supplies also to familiarize Joe H. with the routine.

6-22-09 Enersource JH.

0730 - F. Hiller & J. Palmer on site debriefing
0800 - L. Dunlap on site
0810 - 3 trucks on site
0815 - H+S tailgate briefing
0830 - work underway; front end loader, loading trucks; track hoe continuing to dig pit.
- front end loader is John Deere 724-J
- track hoe is John Deere 350-D
0923 - soil samples collected for FID analysis @ 75'E @ 5' depth & 10' depth. black discoloration of dirt @ both depths - HC odor ditto
933 - FID flame started then flame went out; Jeff offsite to get supplies
945 - purging to FID; called Jeff - he advises to let the FID cool for several minutes - gone to cooling mode.

6-22-09 Enersource JH.

1004 - no product detected on water level meas'd DTW @ MW-6
DTW: 37.57 ft below PVC
TD: 46.5' below PVC casing
1035 - collected FID samples @ 5' & 10' depths @ 90'E
- discolouration noted in pit from 60'E to present location @ 90'E (& beyond); discolouration appears from depth of ~2' bgl to 10' bgl (& deeper)
(* see note below)
1044 - foto (#1) looking east from west end of pit to note black discolouration of soil in pit starting at 60 east of west end of pit
1120 - Results of FID reading
Thus far:
75 5' = 675
75-10' = 923 ppm
90 5' = 531 ppm
90 10' = 95 ppm
1130 - FID difficulties; will not read.

NOTE: JH advised by JF that discoloration is throughout the pit. The recent rains have caused settling over the discoloration of 0-60' East.

6-22-09 EnerSource JH

1200 collected 5' + 10' samples @ 105' E for FID.

1305 · FID readings
105-5' = 1623 ppm
105-10' = 699 ppm
· FID works but inconsistantly; J.P. currently in town to charge up spare FID

1340 JP returns to spare FID charged up

1355 JP departing site

1410 · collected samples for FID @ 120'-5' & 120'-10'
... but FID malfunction; will allow it to cool & try again

1425 · monitoring @ MW-1
DTW = 36.98 ft below PVC
TD = 44.43 ft below PVC
· no product detected.

1430 monitoring @ MW-4
DTW = 38.02' below PVC
TD = 45.32 below PVC

6.22.09 EnerSource JH

· no product indicated on water level of MW-4

1436 · monitoring @ MW-5
· DTW = 37.50 ft below PVC
· TD = 45.34 ft below PVC
· no product detected on water level surface.

1444 · monitoring @ MW-3
product level · DTW = 37.96 ft below PVC
· TD = 46.81 ft below PVC.
~~No significant~~ product detected to uncertain depth.

1450 · monitoring @ MW-2
· DTW = 38.58 ft below PVC
· TD = 45.76 ft below PVC.
· no product detected.

1455 · returned to truck; FID continues to malfunction;
· setting up to work w/ standby FID (green case) which JP charged w/ Hz.

6-22-09 Emmersource JH

1515 - standby PID unit unable to ignite

1520 - Calling Geotech Environmental for help

1530 - Reading PID:
120-5' = 73 ppm
120-10' = 98 ppm
- Geotech walked thru the setup procedure to take grab samples; this followed just enough time to read the 2 - 120' samples then it quit, will wait til it's needed again before attempting to use it.
- Geotech suggested starting the standby unit & allowing it to stand 5-10 minutes; this procedure is current status.

1545 - Collected samples 135-5' & 135-10' for PID readings

1600 - 135-10' = 137 ppm
135-5' = 247 ppm

6-22-09 Emmersource JH

1550 - JH left phone message for T. Calemore to return call.

1630 - stopped digging ops; trench length is ~140'
- # of loads taken out today = ~~27 30 35~~ 35
- # of loads of clean fill brought in & stockpiled at
- Current outside Temp = 108°F
- front end loader cleaning up clean fill pile to prepare for morning's startup
- loading ~~5~~ more trucks

1650 - foto (#2) looking E along pit to note proximity of power pole & line that is suspended over next portion of pit to be excavated.

1700 - front end loader building berm on east side of open pit.
- current temp = 111°F

1705 - stopped all ops; JH departing site
- 35 loads of excavated soil out.
- 27 loads of clean fill in.

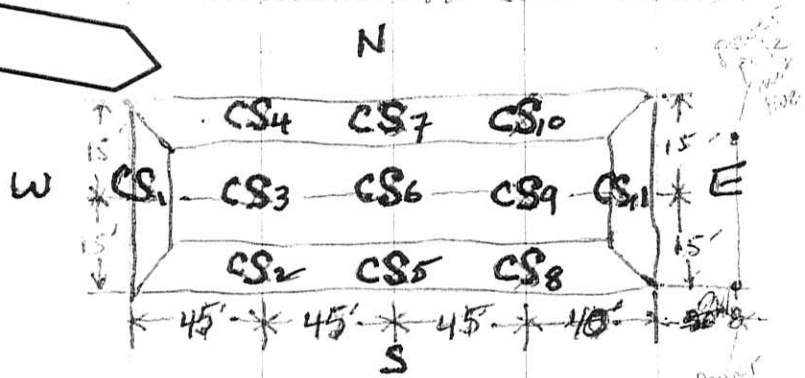
6-23-09 Innersource JH.

0700 · JH on site; truckers on site
· H+S tailgate to truckers
0705 · loading underway.
0730 · 8 trucks loaded + departed.
0835 · trucks back on site to clean fill
0930 · thus far 17 loads of dirty fill taken out today + 8 clean fill brought in
0940 · Michael Patterson of Sundance Services on site to introduce himself + left off some pastries for the crew.
1025 · 6 trucks are pulling on site to unload clean fill + pickup dirty stuff
1030 · R. Dunlop on site; he talked to JG + it was decided that the pile of dirty soil from pit will be loaded & transported before further excavation goes ahead
1100 · JH spoke to JG + was advised that soil sampling at 11 locations

6-23-09 Innersource JH
in the pit should be undertaken.
1105 · JH spoke to R Dunlop + Rick passed instructions to have track hoe operator to come to site + assist with soil sampling; RD departing site.
1125 · JH received a call from ~~Richard Patterson~~ Dave Berger to advise that Richard Barr (Landsurveyor) will be on site tomorrow @ 08:30 to survey the 6 monitor wells.
1200 · Track hoe operator on site; JH explained how he wants representative samples collected at 11 locations, hoe operator will take a lunch break + he'll get right to it.
1210 · truckers returning for more loading
1230 · track hoe moving around to bottom of pit to facilitate soil sampling.
1300 · JH samples of soil collected at X-sections of pit by JH w assistance of track hoe; JH gave R. Dunlop go ahead to commence filling pit w clean fill.

JH. Tanerscource 6-23-09

Excavation pit (SW corner).



	Sample #	Sample Time	Sample Location
CS1	~~X-1~~	12:33	West endwall
CS2	~~X-2~~	12:35	SW sidewall
CS3	~~X-3~~	12:38	W bottom middle
CS4	~~X-4~~	12:40	NW sidewall
CS5	~~X-5~~	12:43	S middle sidewall
CS6	~~X-6~~	12:45	Center bottom
CS7	~~X-7~~	12:47	N middle sidewall
CS8	~~X-8~~	12:51	SE sidewall
CS9	~~X-9~~	12:53	East bottom middle
CS10	~~X-10~~	12:56	NE sidewall
CS11	~~X-11~~	12:58	East endwall

Note - Samples collected @ endwalls + sidewalls are from 5' bgs.
- samples from bottom (3) from 10' bgs.

JH Tanerscource 6-23-09

All samples of soil (11) from pit placed in cooler, on ice.

1345 - R. Dunlap offsite.

1415 - thus far today, 38 loads transported (dirty) from site, + 29 loads (clean) brought to site.

1425 - attempted to return call to JG, left a message.

1430 - talked to JG on cell phone, he advised that numbering prefix for 11 soil samples collected from pit be "CS."
- JG also advised to maintain these 11 samples on ice + keep them till opportunity to submit them to Hall Envirol.

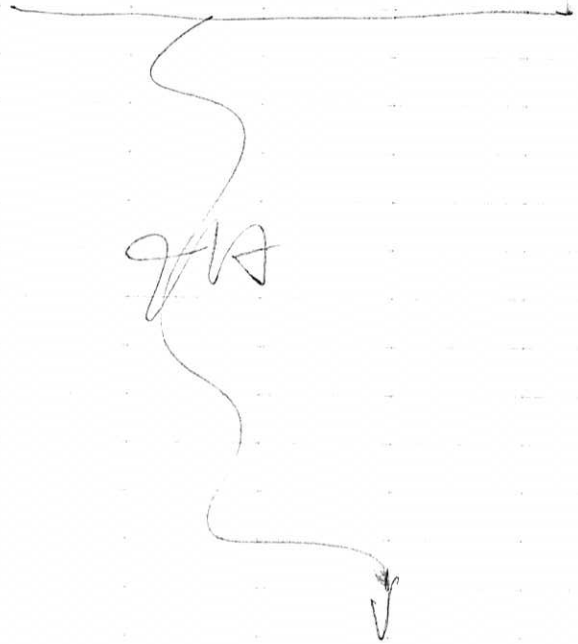
NOTE: a 9th truck was added to the rotation this am.

1500 - currently 60 degrees, no gusty winds from the SE 20-30 mph

1530 - 3 fotos (3,4,5) from E. end of pit looking W.; from E. end of pit looking NW at clean fill pile; at E. end of pit looking E. at machinery @ pit.

6-23 09 Innersource JH

1700 · 2 fotos: (6,7) looking from E. end of pit; looking NW @ clean pile
- stopped op's; JH departing site
- total loads of dirty fill taken out today = 46
- total clean fill brought in = 37.



6-24-09 Innersource JH

0700 · JH onsite, truckers onsite
0710 · H+S meeting.
0720 · loading trucks underway;
0730 · JH gave hoe operator to continue digging.
0800 · collected FID samples at 150-5' & 150-10'
0815 · FID readings at 150'
150-5' @ 138 ppm
150-10' @ >1023 ppm
0830 · collected FID @ 165'
· the pit bottom is very discolored
0840 · FID readings @ 165'
165-5' = >1023 ppm
165-10' = >1023 ppm
· surveyors onsite; JH spoke to Richard & provided brief orientation of what's going on
0853 · foto (s); looking along 165'-180' digging at E. end of pit

0903 · 10 loads transported out thus far this AM.

6.24.09 Innersource JH

0930 · FID samples taken @ 5' + 10' depths @ 175' E along pit

0945 · FID Readings:
175'-5' = 77 ppm
175-10' = 337 ppm

0953 · 2 fotos (9, 10)
1st looking into pit at SE corner from
· 2nd - about 20' W of previous foto

1956 10 foto (11) - looking NW into pit - filling bell clean gravel

1009 · foto (12) - looking into SW corner at discoloration approx 3' along bottom of S. wall
· spoke to Joe Epiraton + he will take another 4' slice out of S wall from ~ 30 length -

1020 · the discoloration on the bottom face of the S wall runs out

6-24 09 Innersource JH

rapidly as the loc clawed into; decided to suspend this little procedure

TD = 46.50

1055 · MW-6 DTW = 37.58' blk.
8.92

$V = \pi r^2 h$
$= 3.14 \left(\frac{3}{12}\right)^2 8.92 (7.4)$
$= 5.9$ gal (1 BV
3 BV = 3(5.9) = 17.7 gal

1110 · started bailing MW-6

1205 · 3 BV (18 gal) bailed

1210 ~~· Sampling MW-6 6-27-09 JH~~
~~· 500ml plastic, 3 40ml via, 1 amber~~
~~all unfiltered 6-27-09 JH~~
No sample collected 6-27-09

1320 · 1 foto (12) - looking into E end of extended pit (east of power pole) @ 240' E

1335 · collected soil sample # CS12 @ E end of extended pit @ 5' depth
· collected 240-5' for FID
· collected 240-10' for FID

1345 · collected FID sample @ 225-10'

1347 · collected FID sample @ 225-5'

6-24-09 Innersource JH

1405 FID Readings: 240-10 = 89 ppm
240-5 = 6.8 ppm
225-10 = 2.4 ppm
225-5 = 2.8 ppm

1420 · collected FID Samples at:
255-5' = 3.1 ppm
255-10' = 1.7 ppm
also CS13 @ 255-5'
middle of E. end of pit.
- the discoloration dissipates here & FID Samples indicate

· hoe operator commencing to excavate from 225' westward towards power poles.

1428 1- foto (#13) from S side looking N bottom of pit @ 255'
NOTE: 4" dia pipe has been pulled up for entire length of pit "on South side."

1446 1- foto (#14) looking W from E end of pit, noting that discoloration trends

6-24-09 Innersource JH

upward from 10' @ E end of pit to 2' bgs @ 220' E.

1505 FID sample taken from 210-5' = 298 ppm

1508 · 210-10' = 38 ppm (deodored caliche)

1525 · setting up to purge/bail MW-3
DTW = 37.94
product indicated & the liquid has a distinct HC odor & sheen.
· 3 BV requires 3(5.9) = 17.7 gal to be removed.
· abandoned site due to Hurricane Ike
serious amount of product standing on water in well.

1615 · picked up FID samples:
200-10' = 45.8 ppm
200-5' = 5.7 ppm
· also CS14 @ 5' depth on W endface of extended pit
· this sample (CS14) is clean

6-24-09 ENERSOURCE JH.

1645 - JH checked in front end loader operators [illegible]

1700 - Wrapped up [illegible]

43 clean fill in
47 loads (dirty) out today.

6-25-09 Enersource JH.

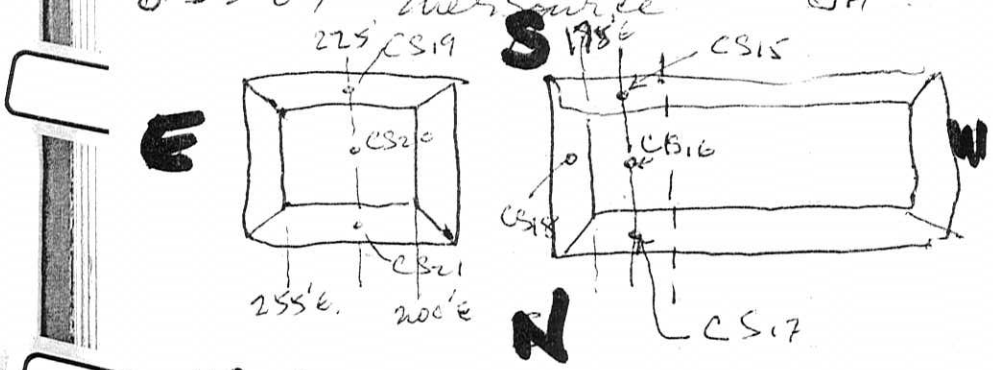
0700 - JH, truckers, on site
0715 - H+S meeting - tailgate
0720 - truck loading underway.
0830 - JH checked in w/ line + front loader operators then went to town to FEDEX spare 710 + fuel up
0930 - JH back on site; met w/ Jay Miller, H+S Inspector on behalf of ENSY; JH's concerns were (1) beware of live power lines on S. side of pit - as pit is filled the line gets increasingly closer to the line, (2) that a safe distance is maintained from the poles + power line that across the excavated pit; always to take care when machinery is in that vicinity.

J. Miller, Safety Consulting Services, Ltd.

0925 CS15
0927 CS16
0930 CS17
0933 CS18

} soil samples taken additionally from pit which was expanded eastward, after, previous samples were collected CS1 - CS14

6-25-09 Enersource JH



(CS19)
(CS21)

Additional soil samples collected from Pit Extension
CS19 obtained at 0942
CS20 " " 0944
CS21 " " 0947
- Soil samples were placed on ice

1042. J. Miller probed a couple of wells w/ a multimeter device measuring LEL, P.I.D, CO, H_2S + found levels that sent this meter levels to the top. He advised that the interface probe be grounded w/ a cable + alligator clips to ensure that static does not buildup

6.25.09 Enersource JH.

1050. J. Miller departs site.

1105. Measuring water levels
MW-3 (4" PVC) Depth to fluid = 37.98'
Depth to water = 39.40'

1111 MW-5 Depth to fluid = ϕ
Depth to water = 37.49' btoc

1115 MW-4 Depth to fluid = ϕ
Depth to water = 37.99' btoc

1120 MW-2 Depth to fluid = ϕ
Depth to water = 38.18' btoc

1125 MW-1 Depth to fluid = ϕ
Depth to water = 36.98' btoc

1130 MW-6 Depth to fluid = ϕ
Depth to water = 37.58

1145. Thus far, 25 loads (dirty) out, + 16 loads (clean) in.

6-25-09 Enersource JH.

1250 - 31 loads out (dirty)
22 loads in (clean).
- unofficial calculations indicate 3180 yd³ transported offsite at this point.

1310 - JH directed track hoe operator to expand the original pit's width by 15' - starting at E. end near pole + working Westerly about 40'.
- Wayne Trammell (Gandy) on site; discussed current status of deg + dirty pile removal; WT is in agreement w current assessment

1350 - WT off site

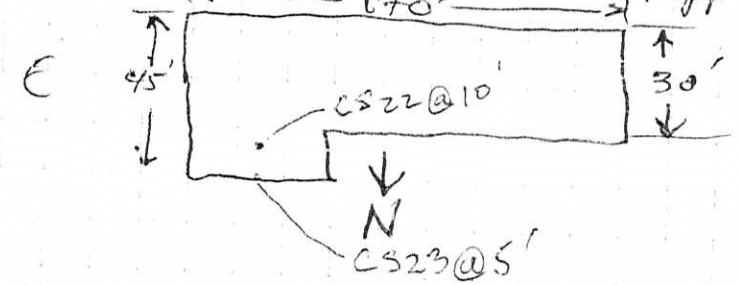
1410 - JG called + was brought up to date; JG concurred with decision to expand width by 40 x 15' from E. end.

1425 - Fotos (4-6) collected showing

6-25-09 Enersource JH.

aspect of the pit width expansion + discoloration. It appears that actual width of pit is close to the current expanded width (45')
- collected FID samples at:
135' - 5' x 45' W = 21.8 ppm
135' - 10' x 45' W = 516 ppm
150' - 5' x 45' W = 23.8 ppm
150' - 10' x 45' W = 229 ppm

1510 - collected FID Samples @:
165' x 5' x 45' W = 30.5 ppm
165' x 10' x 45' W = 219 ppm



1525. collected soil sample CS22
1530. collected CS23 (see above diagram for location)

6-25-09 Eversource JH

1535 · 1 foto (#21) taken from SE corner of original pit looking into the expanded piece of removal volume (45x15x10)

1540 · 43 dirty loads out today
34 clean loads in today
· track hoe operator finished digging 45'x15'x10' expansion piece; now moving to the 2nd pit beyond the power pole.

1545 · JH discussed status of digging w/ hoe operator; he will suspend digging until further word tomorrow
· both the hoe operator & the front end loader operator are fine with working this weekend to fill the open pits w/ clean sand.

1620 · hoe operator is working @ backfilling w/ clean sand.

6-26-09 Eversource JH.

0700 · JH, truckers on site; 11th Stailgate, drivers were requested to submit tickets to "Sparky" after returning from each load in order that a tight recon on the 4000 yd bottomline can be made

0730 · JH moved to MW-2; setting up to purge & collect water samples
· no booklet/manual with the multi-meter/water quality parameter

0740 · placed a call to JG & updated him; he suggested calling C. Price for info, also Fairwest Rental & left a message for LP to return my call.

0800 · talked to Travis @ Fairwest & he provided directions to calibrate HORIBA 22 monitor

0810 · JH calibrated HORIBA water quality monitor

6 6-26-09 Enersource JH.

0815 meas'd water level @ MW-2 @ 38.52' bTOC.
"No Product" was indicated by interface probe.
TD = 45.76' bTOC
DTW = 38.58' bTOC
h = 7.18'
$V = \pi r^2 h$
$= 3.14 (0.028)^{ft^2} 7.18^{ft} \cdot 7.5 \frac{gal}{ft^3}$
$= 4.73$ gal.
3 BV = 14.2 gal

0915 • purged 16 gal from MW-2

0920 • collecting water samples @ MW-2

0935 • water level @ 38.59 after sampling

0955 • "Sparky" front end loader advises that 15 loads have gone out thus far - that leaves 12 more; these numbers are based on yesterday's transport of 45 loads from site.

1003 • 1 foto (~22) looking N into 2nd pit at expansion cut, that is, 15' additional width
• the discoloration appears to be deeper from 8'-10' depth
• this expansion of 2nd pit's dimensions @ 200'-225' E, + 45' width
• since the discoloration is running deeper JH advises the operator to dig deeper in this expanded section of 2nd pit.

1020 • 2 fotos (~23, 24) looking N into depths of expanded pit 2, showing that discoloration continues below depth of 15'

1025 • collected 1 soil sample + CS24 from ~~18~~ 20' depth @ 215' E x 30' W x 20' depth
• 1 foto (~25) looking S. into deep (~20') portion of pit after CS24 & 710 samples taken

1045 • 710 = 533 ppm (215' x 30' x 20' depth)

1050 • 710 Samples 255' x 5 = 175 ppm
255'-10' = 281 ppm

6 6-26-09 Enersource JH.

6-26-09 Enersource JH.

1105 - setting up to purge + sample MW-1
TD = 44.43 ft bPVC
DTW = 36.97 ft bPVC
7.46' of H2O in well
1155 - 3 BV = 14.7 gal purged
1200 - collecting samples @ MW-1
1215 - 26 dirty loads out today
~~1215~~ 1230 - JH to town for ice
1345 - 26 loads sand (clean) brought in today.
1355 - all trucks off site; JH called TG to update him
1400 - JH @ MW-5 to purge + sample
TD = 45.34 ft bPV
DTW = 37.47 ft bPV
7.87 ft of H2O
1452 - 3 BV = 16. gal bailed out
1500 - water samples collected at MW-5.

6-26-09 Enersource JH.

1515 - setting to load + sample MW-4.
1518 - TD = 45.32 ft bPVC
1517 - DTW = 37.98 ft bPVC
7.34 ft of water in well.
3 BV = ~~24.5~~ 24 gal - baled out
1600 - Gandy crew - live operator + shovel operator off site
1630 - collected water samples @ MW-4
1640 - water level @ 38.01' bpvc
1650 - loaded gear
1700 - JH departing site

6-27-09 ENERSOURCE JH

0730 · JH on site to meet Ivo + loader operators, todays agenda is to fill + compact the open pits w stockpiled clean fill; also to purge + Sample MW-6

0750 · Gandy crew (Sparky + Jose) on site

0800 · H + S tailgate meet

0810 · JH to MW-6 to purge + collected water Samples.
TD = 46.50 ft bPVC
DTW = 37.58 ft bPVC
8.92 ft of water in well

0922 3 BV = 17.7 Gal.

0920 · no product detected on water

0942 · 2 fotos from S side mid-section of 2nd pit; 1st looking N + 2nd looking W.

0958 · 1 foto looking E into 2nd pit as Ivo moving fill.

0930 · collecting water Samples @ MW-6 + placing on ice in cooler.

6-27-09 ENERSOURCE JH.

0940 · 2 fotos looking NW over 1st pit + looking NE as machinery fill 2nd pit

1005 · JH to Boss for ice

1108 · foto from East end of pits looking W as Ivo in foreground

1132 · 2 fotos from E end of pits looking W as both machines ground the fill ~~over~~ pit.

1144 · 1 foto looking W at grooming op's

1147 · 1 foto @ E end of pit/fill looking S @ 30 yo pipe.

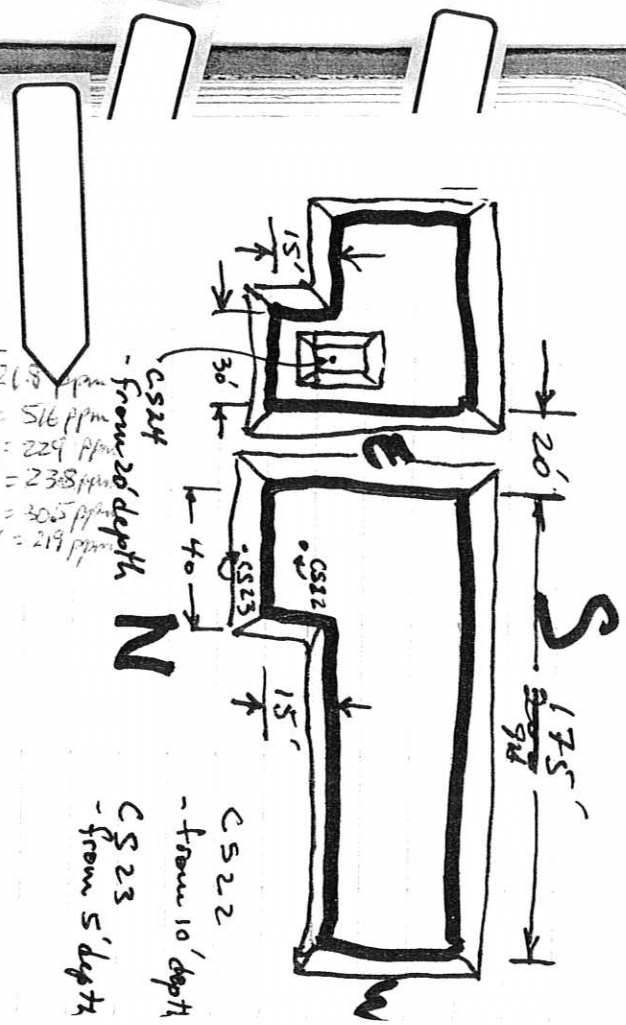
1150 · 1 foto looking W from E end of 1st pit and.

1230 · load grooming fotos, looking W

1300 · 3 fotos
1st @ E end looking W
2nd + 3rd @ W end looking E.
· stopped grooming op's; crew fueling machinery
· JH departing Site

1840 · drive home to K.R.

JH



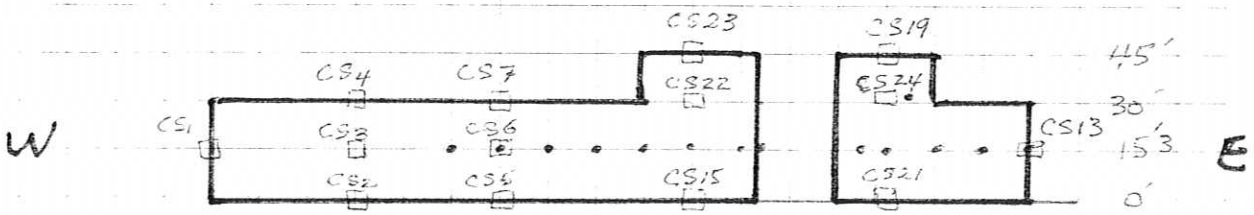
FID RESULTS

75' x 30' x 5' = 675 ppm
75 x 30' x 10' = 923 ppm
90' x 30' x 5' = 537 ppm
90' x 30' x 10' = 95 ppm
105 x 30 x 10' = 697 ppm
105 x 30 x 5' = >1023 ppm
120' x 30' x 5' = 731 ppm
120' x 30' x 10' = 98 ppm
135 x 30 x 5' = 247 ppm
135 x 30 x 10' = 137 ppm
150 x 30 x 5' = 138 ppm
150 x 30 x 10' = >1023
165 x 30 x 5' = >1023
165 x 30 x 10' = >1023
175 x 30 x 5' = 77
175 x 30 x 10' = 357
200 x 30 x 5' = 57
200 x 30 x 10' = 45.8
210 x 30 x 5' = 298
210 x 30 x 10' = 38
225 x 30 x 5' = 31
225 x 30 x 10' = 31.7
240 x 30 x 10' = 68
240 x 30 x 5' = 59

135' x 45 x 5' = 215 ppm
135 x 45 x 10' = 516 ppm
150 x 45 x 10' = 229 ppm
150 x 45 x 5' = 238 ppm
165 x 45 x 5' = 305 ppm
165 x 45 x 10' = 219 ppm

255 x 30' x 10' = 28.1 ppm
255 x 30' x 5' = 17.5 ppm
215' x 30' x 20' = 533 ppm

0 15 30 45 60 75 90 105 120 135 150 165 180 195 210 225 240 255



□ CONFERMATION SAMPLE SITES
• FID sample site

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CONTENTS

PAGE REFERENCE DATE

Joe Galamore 505·239·6414

Jeff Palmer 505·263·8340

Lynda Price 512·492·2072

Louis Trujillo (DPT) 505·321·2449

Rodgers & Co. (John Aguirre)
505·610·6900

Tuesday June 9, 2009
Sunny, Windy 80's-90's
L. Price, J. Galamore, J. Palmer (excavation site)

700 Met J. Galamore & J. Palmer in hotel lobby to formalize a plan and discuss the day's work.

745 Left hotel for Enersource Site in Monument, TX.

820 Arrived at site and walked around familiarizing ourselves w/ the site and where the pit and 1st well will be placed. (6 GW wells total)

845 Drillers arrived and a Health & Safety Meeting was performed.

900 Excavation crew arrives and they are shown the pit area and they devise a plan of where to stockpile soil and bring trucks in & out of site.

950 L. Price + J. Galamore begin setting up to sample MW-06. Drillers set up @ MW-06.

1028 Drillers begin MW-06

We collected samples for FID ~~samples~~ approx. every 2'.

1155

2'	0.6 ppm	
4'	0.5 ppm	
5'	0.5 ppm	
6.5'	0.4 ppm	
9'	2500 ppm	In the caliche formation
12'	3814 ppm	
13.5'	3814 ppm	

Drillers leave for lunch

1215 Price, Galamore, Palmer leave for lunch

1250 Returned from lunch and started up again

1315 Had to switch to air rotary @ 24' & 5' split spoons

FID Readings:

1345

16.5'	3814 ppm
18'	3814 ppm
19.5'	2270

1545

20'	3814 ppm
22'	2335 ppm
23'	[redacted] 3314 ppm
30.5'	3814 ppm

1740

35'	3814 ppm
37'	213 ppm
39'	61 ppm

1600 Water was hit @ 34.8'

J. Galamore decided to set the well @ 45', approx 10' below the water table.

1740 Drillers are at approx 44' and we decided to finish up in the morning (set the well) because it was getting late.

LP 6/9/09

Wednesday June 10, 2009
Stormy in am. with rain + hail, sunny late morning + pm. 90's
L. Price, J. Galamore, J. Palmer.

630 Galamore decides that The Intera staff needs stay in Hobbs until the storm passing through Monument (our site) and Hobbs passes.

He contects the drillers to inform them but they are already at the site.

830 L. Price recieves call from Galamore saying its time to head out.

900 Price arrives at site and meets drillers + J. Palmer.

* The rain from the storm created muddy working conditions, standing water in low spots. Borehole was not damaged.

915 Health + Safety meeting was conducted.

Drillers took out the last sampler and new DTW was @ 33.4

930 Galamore arives on site and we decide to put well at 43' due to new water level.

Drillers begin to set well.

FID is calibrated w/ Methane (500ppm)

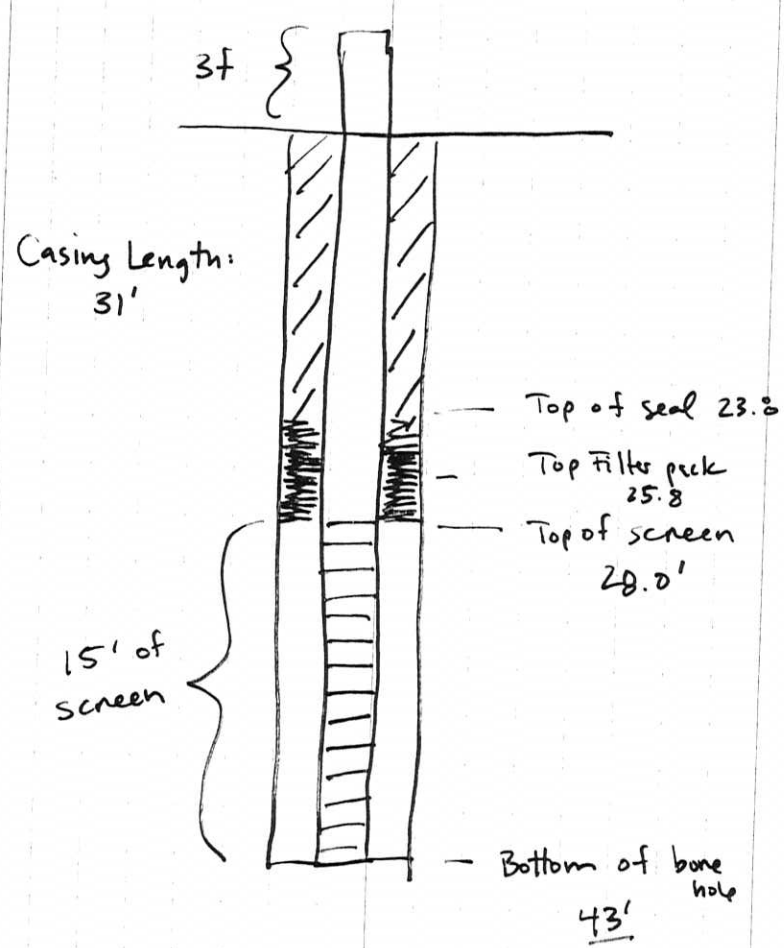
Last 5' of well is logged and sampled.

FID Readings:

1055

40'	148 ppm
41.5'	9.0 ppm
43	5.8 ppm

MW-06



1115 Drillers are finished setting MW-06. They clean up & take lunch break, leaving site.

Coordinates of MW-06: UTM
13 S 0658235
3608971
* Used a Garmin etrex legend GPS unit from Intera Austin's office.

L. Price starts cleaning and packing up MW-06 and moving to the next well location.

Currently, Galamore and Palmer are marking and flagging the 5 other MW locations.

1215 Price, Galamore & Palmer leave for lunch & drillers return

Drillers prep to cement & grout the well

1305 Price, Galamore & Palmer return from lunch and find that the driller's truck & trailer are stuck in the muddy standing water that was created from the a.m. storm. They are trying to pull it out.

1335 The drillers pull everything out of the mud hole and move to MW-01 to set up.

Price and Galamore determine that sampling locations from the future boreholes should be at the surface, at the water table, and bottom of well. FID screenings will be continued to be taken at 2' intervals with results recorded.

(FID readings have been taken by putting soil cuttings in a pint canning/jelly jar, sealing the top w/ aluminum foil, and screwing the lid over the foil. We wait so the soil has a chance to warm up & release vapors, then stick the FID tube through the foil to record the readings)

MW 01

FID Readings

1555	Background =	3.5 (ppm)
	1'	3.9
	3'	3.8
	5'	3.2
	6'	2.6
	8'	2.6
	10'	2.6
	12'	2.6
	14'	31.1
	16'	2408
	18'	3681 +
	20'	3681 +
	22'	3681 +
	30'	552
	35'	23.3
	36'	15.4
	41'	4.4

1600	Drillers removed 5' continuous core, inserted center bit to see if they could get through the hard caliche formation (23'-28'). They hammered down a split spoon and got through..
	Logging stopped @ 23' and began again at 29'.
1645	Water was hit @ 32', TD will be 42'.
1715	Galamore prepped to leave site + drive back to Abq. He left all the equip he brought with L. Price (coolers, sample jars, bailers). Palmer + Galamore labeled + iced the 6 samples collected from MW-06 & MW-01 and the samples collected from the stockpile. Galamore will drop them off at Hall lab in Abq tomorrow morning.

1725 Galamone left the site

Drillers drilled to 42', they clean the area and left too.

Palmer and Price began cleaning and packing up the sampling area.

1800 Palmer + Price left the site

L 6/10/09

Thursday June 11, 2009
Sunny, clear, 90-100°F, HOT!
L. Price

700 Price arrives at Enersource site.

710 Drillers arrive at site

720 Health + Safety Meeting is conducted.

Drillers go collect well materials from their staging area to begin setting the well.

750 Drillers begin setting MW-01.

815 Price calibrates FID with Methane, 500 ppm
Cal = 510.2 ppm

830 Palmer arrives w/ excavation crew and they begin building a berm around the edge of the pit.

855 Drillers finish setting the well and start mixing concrete to make 2×2 pad.

915 Drillers finish up and move to MW-04 location to start setting up to drill.

Excation crew finishes biding the burm around the pit and the leave the site.

925 J. Palmer leaves the site to take the FID to Air Gas in Hobbs so it can be refilled with Hydrogen. Will return ASAP.

940 Drilling begins & Price finishes setting up for sampling, logging & FID screening.

1030 J. Palmer returns to the site with a Hydrogen gas tank for the FID. Will fill the FID tomorrow.

MW-04

FID Readings:

Background = 0 ppm

1100	0'	0 ppm
	2'	[redacted] ppm
	4'	[redacted] ppm
	6'	[redacted] ppm
1125	8'	0 ppm
	10'	89.3 ppm
	12'	200.8 ppm
	14'	1447 ppm
	16'	2230 ppm
	18'	3575+ ppm
1215	20'	3575+
	22'	3575+
	24'	3575+
	30'	138.3
1340	Background = 4.3	
	36'	11.8
	40'	11.8
	43	9.3

1115 Drillers leave for lunch

Drillers hit hard rock @ 24.5' - 26.5'. They switched to split spoons.

1145 J. Palmer leaves site, back home to Carlsbad.

1205 Driller return from lunch and start drilling.

Hit water at approximately 34'

Will set well at 43'

1310 Drilling finished, begin setting well.

Note: Could not take photo of the 34.5 - 36.5' spoon because there was ≈ 50% recovery and it all went into a sample jar + a mason jar for screening.

1325 Returned J. Galamore's phone call. Filled him in on today's work.
He asked me (Price) to verify that the flagging dictating MW-05's location was in the SE corner of the former concrete basin, about 5' out from the fence post. It was about 15' out so I moved it closer to the post.

1410 Drillers finished setting well.

They have run out of clean augers so we can't start ~~the~~ a new well, they will start deconing all the augers — they'll have enough to finish the last 3 w/ no more decon.

They decided they will leave one at the site to decon while the other two run to Eunice to buy cement for the last couple days of work.

1430 Coordinates of MW-04:

UTM 13 S 0658422
3609106

(Accuracy: 12 ft)

Coordinates of MW-01

UTM 13 S 0658242
3609056

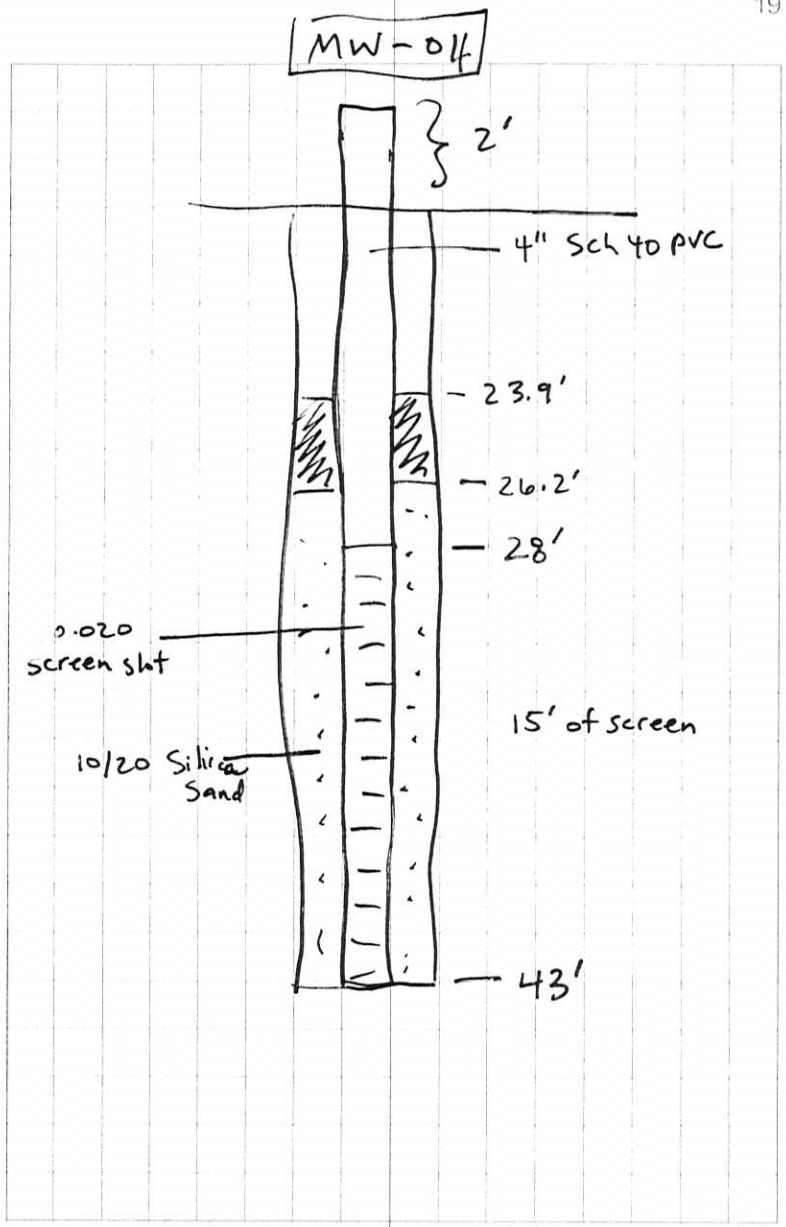
(Accuracy: 12 ft)

Augers are being pressure washed.

1445 2 Drillers leave site for Eunice to pick up cement.

Price walks to MW-06, MW-01, and MW-04 and takes photos of each well in each cardinal direction (N, E, S, W)

Takes photos of the burm that was made this morning.



1550 Drillers return and start loading up the clean augers + moving equip to MW-05 location.

1620 Drilling of MW-05 begins

* Impacted soils are detected at a more shallow depth compared to the other 3 wells. (3.5') Black in color.

1700 Drillers pack up + leave site

Price cleaned and packed up soil equipment

1730 Called J. Galamore to give him an update

1745 Left site

FID Readings (ppm)

	Background	4.2
1715	0	2.8
	2	5.3
	4	3575+
	6	3575+
	8	380.2

6/11/09

Friday June 12, 2009
Sunny, clear, 70's-100's, Hot!, breezy
L. Price

700 Arrived at site with drillers

715 Had safety meeting. Drilling started back up again @ 9.5'-14.5' on MW-05.

Calibrated FID w/ Methane (500 ppm)
Cal = 498.9 ppm

905 Water at 33' according to John, drill rod is wet.

930 Joe Galamore called to talk about scheduling for this weekend, next week.

1000 Well TD is 43', Drillers will begin setting well.

Tried to start up FID but H_2 gas is too low. Must fill.

1010 Attempted to refill FID H_2 cylinder but the cylinder refused to take ~~[illegible]~~ in the H_2 - something wrong with the valve to the FID H_2 cylinder? Call Jim Farr of Farr West Envir. Supply and we troubleshoot w/ him but no luck. We think maybe because the H_2 tank was on its side, horizontal instead of vert, the gas settled. Its upright now + will attempt to fill the FID again soon

1040 MW-05 is set & and drillers ~~and~~ are setting up at MW-03. Ground is too soft for the rig to stabilize on so they must buy blocks.

1105 All three drillers head out to buy blocks for rig stabilization and lunch to-go.

Price unhooks valves + tubes from H_2 tank + will try again later.

	Well ID	DTW (ft)
1200	MW-05	37.56
1215	MW-04	38.13
1228	MW-06	37.37
1240	MW-01	36.99

* Used an interface probe and no product was detected. Deconed btwn wells.

1255 Drillers return. Price sets FID back up to refill H_2 cylinder. Once again doesn't work. Call Jim Farr again, we trouble-shoot; checking valves, adapters, tubes, check for leaks w/ soapy water, detatch + reattach several times... nothing!

1400 Call Joe Galamone to let him know the FID doesn't work since it can't be refilled w/ H_2. We decide to overnight another FID, collect lab samples every 2' at MW-03 (no FID screening), and tomorrow start developing wells to buy time for the FID to arrive so we can use it on the last well, MW-02.

1425 Call Geotech and overnight another FID.

1430 Drillers are back @ MW-03 and start drilling.
- Switched to split spoons @ 16'
- Water @ 35', TD = 45'

1705 Drilling is finished. Hole is too hot to set wells now, have to do it in the a.m. Drillers clean-up and leave site.

1735 Call Joe Galamone to give him update and talk about scheduling. DPT will mob on Sunday and will start pushing Monday a.m. Palmer will help starting on Monday.

1755 Price leaves site

6/12/07

Saturday June 13, 2009
Sunny, clear, breezy, 90's-100's
L. Price

655 Arrive at site.

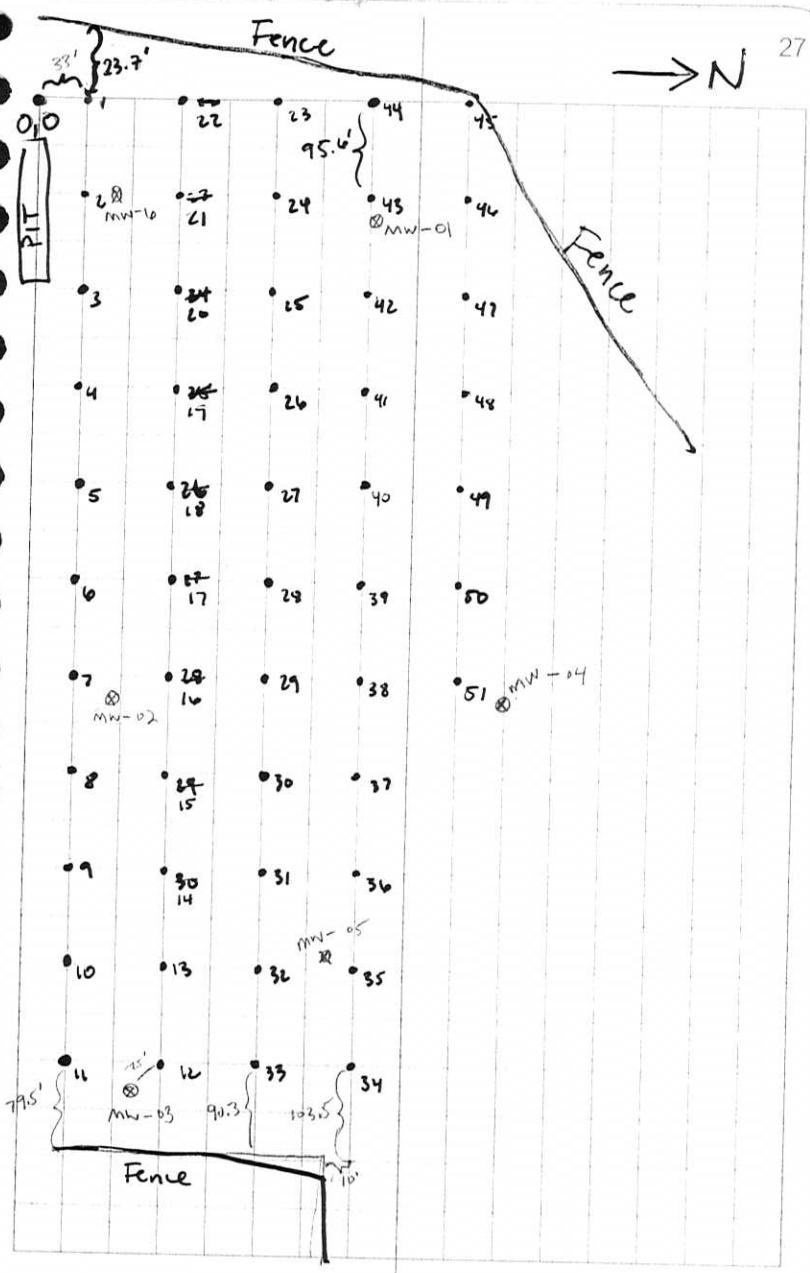
705 Drillers on site and begin setting MW-03. after Health and Safety meeting.

755 Finished setting MW-03, move to last well, MW-02, to set up.

805 Two drillers leave to pick up tubing for the purge pump so we can start developing.

One of the drillers (Nicky) and I start flagging the locations of the direct push borings for Monday.

50 borings, 100' spaced apart



1130 Drillers return to site and set up at MW-06 to develop with pump.

Nicky + I continue with staking DPT locations

1105 DPT locations are finished

There is not enough water in well to use pump so drillers will use bailers.

1130 Call Joe Galamore to discuss development. Decide that drillers can record water quality parameters and amt. purged while I collect samples from MW-02 and drilling continues

1150 Get a call that FID is at hotel. I leave to pick it up while drillers get set-up at MW-02 and for bailing and for a lunch break.

1250 Return to site and set up new FID to refill its tank (it was shipped empty) Tank is still not filling the FID's H_2 cylinder.

Drillers start drilling MW-02.

1320 Call Joe G. to let him know the FID is not filling up. Decide to take lab samples every 5 to 2' again, same as MW-03.

John tells me the rig is down + he needs to find a welder in town so he can fix it. He and Juan leave.

1350 Start developing MW-06. Not recharging quickly so well goes dry quickly. Will wait 10 minutes but only 0.5 g (if that) is produced

1455 John + Juan return with welding machine & fix it in 10-15 minutes

Calibrate Horiba w/ Standard Sol pH 4. Cal = 4.00

1520 Juan + John leave to return equip.

Decide to stop developing MW-06 because it's not recharging well. 7.5 g are removed. Deconed equip + moved to MW-01

1550 Started developing MW-01. Very fast recharge. 45 g pulsed in 1 hr. Decon.

1430 Juan + John return and we resume drilling.
Water @ ≈34', TD = 44'

1715 Started developing MW-04. Very fast recharge. 60 g removed in 1 hr

1830 MW-02 is @ TD, finished. Will install well in morning

1845 Call Joe G. and give him update

1900 Clean up and leave site

LP 6/13/09

Sunday June 14, 2009
Partly Sunny, slight breeze, 90's-100's.
L. Price

700 Arrive at site, drillers @ 710

720 Have Health + Safety meeting

725 MW-02 is being installed

730 Horiba is calibrated w/ standard Sol pH 4.
Cal = 3.99

732 Start developing MW-05
Quick recovery, 60 g purged during 1 hr.
Decon equip. (bailer)

855 Develop MW-03. Quick recovery, 82 g purged. Clear sheen on top, some brown product after 65 gals purged.

John leaves site to buy wood for making frames for well pads.

Note: Drillers are developing all wells using a 3" bailer.

I walk to the 50 staked proposed DPB locations and number each flagged stake and record the name and where wells are located in relation to stakes.

1000 John returns, frames are made, metal casings are put on MW-03, and MW-05, augers are collected from the site and placed on the trailer.

1100 John + Juan leave site to get some food to bring back. Nicky prepares to develop MW-02.

1105 ~~H05~~ MW-02 has a depth to water of 37.60', no product.

1120 Start developing MW-02 80 gal purged.

1135 John + Juan return

1220 MW-02 is finished. Rig is loaded up so it can be driven back to Arq today.

1335 Rig leaves site. John + Juan continuing to make pads and install bollards.

1530 Pads/Bollards are about finished. I leave them and the site. They will call if there are issues

6/14/06

Monday June 15, 2009
Sunny, breezy, 100's
L. Price + J. Palmer

730 Meet J. Palmer in hotel ~~foyer~~ lounge to discuss the day's/week's tasks.

815 Leave hotel to AirGas to get a new H_2 Tank.
* Turns out the tank we had didn't have enough pressure in it to fill the TID. Used a 4' tall table and filled the FID.

1000 Get more ice for the GW well samples and ice for today's DPB samples.

1015 Talked to Joe G. about today.
Left hotel for site.

1145 Calibrated FID w/ Methane 500 ppm
Cal = 500.1

1230 Louis Trujillo called and said he was 20 miles away.

1300 Louis arrives and we have a Health + Safety meeting.

Start pushing at the SW corner of the site, move east ~~X~~ and push/sample for 5 locations. Head back to the west and start pushing on the next row of locations.

Direct push rig jams either at 6/7' or 12-14' at caliche formation.

1730 Louis leaves site.
L. Palmer + I troubleshoot w/ the FIDs calling Farr West for help. We get our questions answered + FID is working.

1830 Palmer + I leave site.

LP 6/15/09

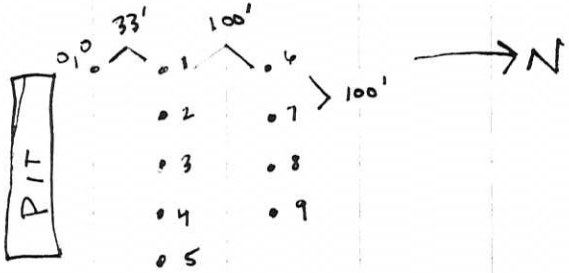
Tuesday June 16, 2009
Sunny, breezy 100's
Lynda Price & Jeff Palmer

0830 Start packing samples (Well borings) in cooler to ship to Abq.

840 Arrive on site and get set up for DPB-07

Troubles with FID! Wo-Flame won't light so call Jim Farr. Working after cold starting it 3 times.

1000 Finishing DPB-09 + call Joe to determine if we should continue down this row or move to the pad. We are moving to the pad

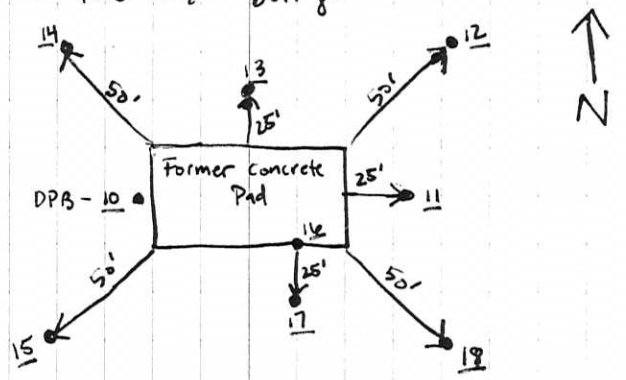


1215 Finish DPB-10 & 11 by the old concrete pad. Call hotel to them to call me when sample jars arrive. – Until then we're out.

1230 Take break for lunch – waiting for more sample jars + call from Joe so we can determine where to put the next borings.

1300 Hotel calls and jars are in. Jeff leaves to pick up.

1315 Joe calls and we decide the locations for the next borings



1410 Jeff arrives back to site w/ sample jars. We begin pushing @ 12 and move counter clockwise around the pad.

1630 We finishing pushing and Lovis leaves site for the day.

Jeff + I measure out distance to DPB-19, a location SE of the pad where a tank used to exist.

1730 Call Joe G. and give him an update

1800 Leave site

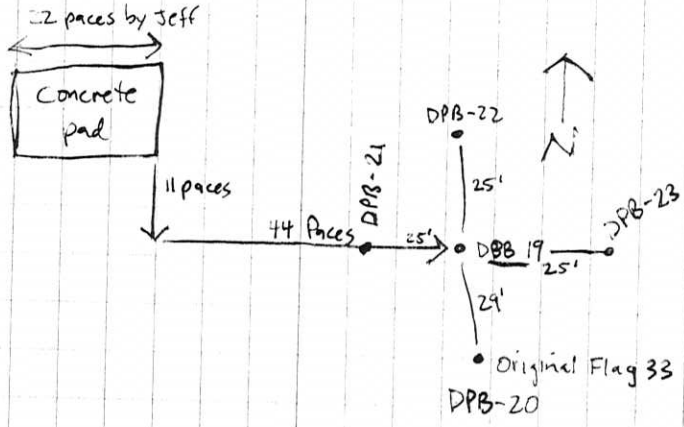
LP 6/16/09

June 17, 2009 Wednesday
Sunny, breezy, 90's-100's, partly cloudy
L. Price, Jeff Palmer

700 Arrive @ site and meet Lovis. Jeff is in Hobbs filling the FIDs with H_2.

715 Conduct a Health + Safety meeting

720 Start pushing at DPB-19



735 Call Joe and get instruction to sample 25' in each cardinal direction around DPB-19 and start sampling in the SE corner, ~~and~~ following the original grid

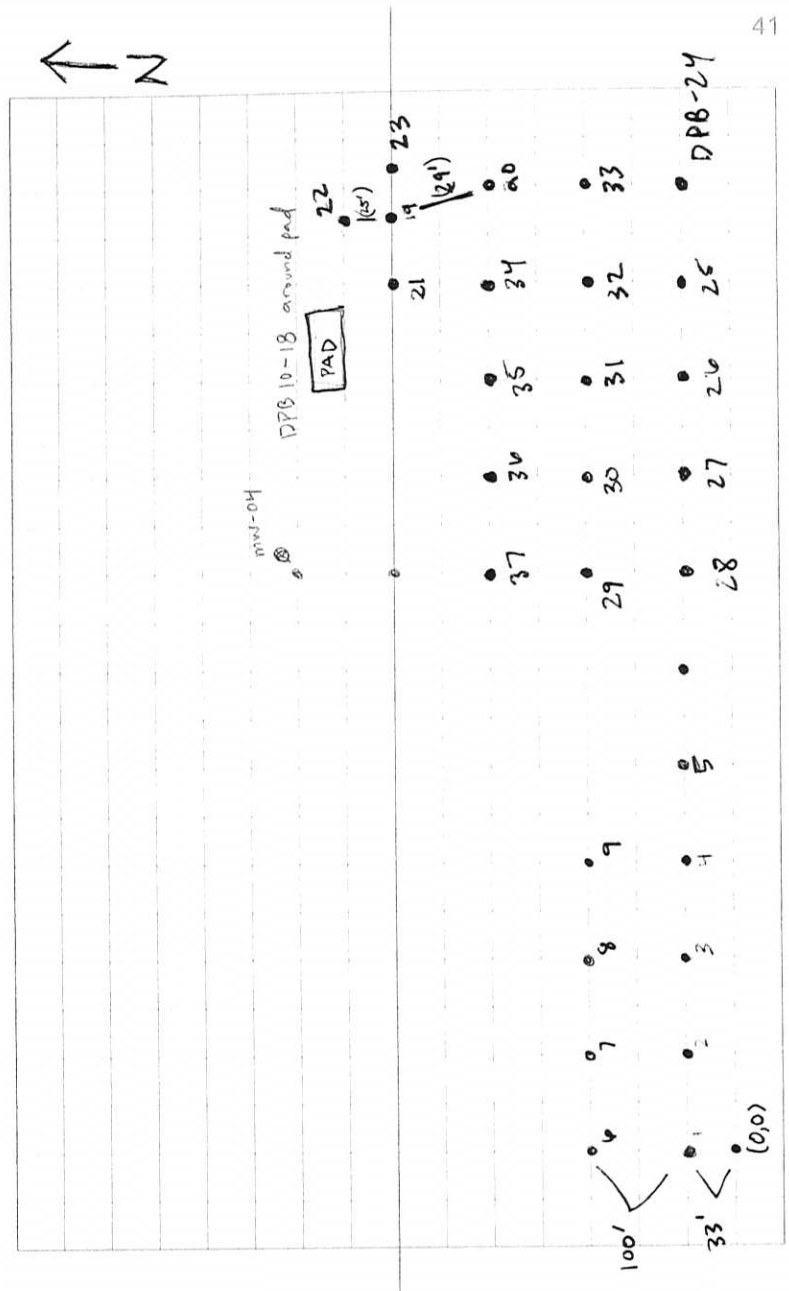
815 Jeff Palmer arrives on site with full FIDs. Have difficulties starting them. Call Geotech to ask about the "endlog" on screen. Turns out it works fine.

900 Calibrate FID with Methane (500ppm)
Cal = 499.2

Jeff takes readings on all the samples I collected.

925 Rick from Gandy arrives and asks about excavation schedule. He calls Joe.

945 We resume with pushing in the SE corner of the site. The first point here is in a former pit, on the East side slope of ct. DPB-24



1130 People from the NM Taxation and Revenue Dpt. show up and post a ticket on the Enersource property stating Enersource didn't pay their taxes.

1230 Jeff leaves for lunch and we continue to push.

1305 Jeff returns.

1510 We finish with DPB-37, Louis has work his contracted 8 hrs so we are done pushing borings for the day.

1530 Louis leaves site.

Jeff & I finish collecting samples and begin cleaning up.

We collect GPS coordinates of MW-05, MW-03, MW-02

Coordinates of MW-05:

UTM 13 S 0658469
3609059

Coordinates of MW-03:

UTM 13 S 0658514
3609001

Coordinates of MW-02

UTM 13 S 0658398
3608998

1630 Leave site

JK 6/17/09

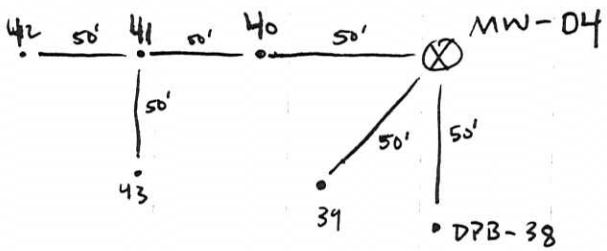
(1930 - 2400 Prepping samples for shipment to HEAL.)

Thursday June 18, 2009
Sunny, breezy, 90's -100's
L. Price, J. Palmer

600 Continue preppiy samples to set out the door to the lab (ice, signing COCs, FedEx labels, taping up)

800 Arrive at site. Conduct Health + safety meeting.

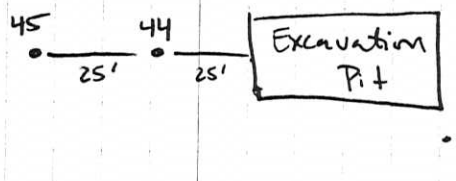
815 Set up around MW-04 to collect boring samples.



Shallow contamination was found at DPB-40 so we headed west to delineate the extent. Found contam. at DPB-41 so went 50' further West. No contam. at DPB-42. No contam. was found south

of DPB-41 at DPB-43. ~~#~~ Since no contam. was discovered at DPB-39, we determined that there was no contamination 50' south of DPB-40. ~~They were are roughly~~.

1105 Called Joe Galemore to discuss next move. Decided to ~~take~~ push two holes east of the pit



1210 Louis leaves site

1230 Leave site to organize paper work to hand of to Jeff Palmer.

Price is flying back to Austin in p.m.

6/18/09

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Enersource WELL NO.: MW-02
PROJECT NO.: _____ DATE: 6/14/09 FORM COMPLETED BY: LP

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): _____ BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): _____ WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: □ YES □ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): 37.60
LINEAR FEET OF WATER: _____
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Bailing
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 1120 TIME DEVELOPMENT COMPLETED: 1220
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6/14/09 730	Horiba		Stnd pH 4	LP	grd.

WATER QUALITY READINGS DURING DEVELOPMENT

(rainbow sheen) over 20% of surface

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☒°C □°F	CONDUCTIVITY (µS) m/s	pH	TECH	COMMENTS
1140	23.5 g	15.09	2.7	7.62	LP	Cloudy, pink, hydrocarbon odor, sheen
1159	54 g	13.04	2.9	7.56	LP	same as above
1220	80 g	13.52	2.8	7.37	LP	same as above

COMMENTS: _____

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Enersave WELL NO.: MW-03
PROJECT NO.: _____ DATE: 6-14-09 FORM COMPLETED BY: _____

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): _____ BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): _____ WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: ☐ YES ☐ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): _____
LINEAR FEET OF WATER: _____
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Bailing
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 8:55 TIME DEVELOPMENT COMPLETED: 955
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-14-09 855					

sheen looks more like canola/vegetable oil

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☐°C ☐°F	CONDUCTIVITY ~~(µS)~~ S/m	pH	TECH	COMMENTS
6/14/09 ~~855~~ 913	20 g	8.12	2.4	7.27	LR	cloudy, pink, sheen on surface odor
930	60 g	8.07	2.4	7.51	LR	(same as above)
947	82 g	3.67	2.9	7.52	LR	cloudy, pink, product (brown oily bubbles (balls)

COMMENTS: _____

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Enersource WELL NO.: MW-05
PROJECT NO.: _____ DATE: 6/14/09 FORM COMPLETED BY: Jeff Meeks

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): _____ BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): _____ WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: ☐ YES ☐ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): _____
LINEAR FEET OF WATER: _____
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: _____
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 732 TIME DEVELOPMENT COMPLETED: 8:30
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6/14/09 730	Horiba		Standard pH 4	LP	good

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☐°C ☐°F	CONDUCTIVITY (µS)	pH	TECH	COMMENTS
7:50	20	10.16	2.0	6.95		Faint Odor Murky
8:10	40	14.62	2.4	7.02		Faint Odor Pink
8:30	60	14.59	2.4	6.92		Faint Odor

COMMENTS: _____
_____

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Enersource WELL NO.: MW-0234
PROJECT NO.: _____ DATE: 6/13/09 FORM COMPLETED BY: Nicky Meeks

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): _____ BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): _____ WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: ☐ YES ☐ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): _____
LINEAR FEET OF WATER: _____
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Bailing
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 5:15 pm TIME DEVELOPMENT COMPLETED: 6:18
1715
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☒°C ☐°F	CONDUCTIVITY (µS)	pH	TECH	COMMENTS
6/13/09 1735	20	16.95	3.7	6.35		murky pink faint odor
1855 6:55	40	14.16	3.1	7.07		Faint odor, murky
1912 6:12	60	13.75	3.3	6.92		murky pink No odor

COMMENTS: _____

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Enersource WELL NO.: MW-06
PROJECT NO.: _____ DATE: 6/13/09 FORM COMPLETED BY: LP

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): 46 BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): 43 WELL DIAMETER INSIDE (IN): 4"
WELL PROTECTOR: ☐ YES ☐ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): 37.37
LINEAR FEET OF WATER: 37.37
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Bailing
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 1350 TIME DEVELOPMENT COMPLETED: 1535
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☒°C ☐°F	CONDUCTIVITY (µS) S/cm	pH	TECH	COMMENTS
6/13/09 1500	≈7.25	21.59	1.7	7.04	LP	cloudy, not opaque, hydro carbon odor
1515	7.5	20.12	1.7	7.05	LP	cloudy, odor

COMMENTS: Stopped bailing @ 1403, well is dry, ≈7 g purged. Start 1415, stopped at 1420, 1/2 gal purged, well dry. Started and stopped several more times.

WELL DEVELOPMENT & GENERAL DATA

PROJECT NAME: Energource WELL NO.: MW-01
PROJECT NO.: _____ DATE: 6/13/09 FORM COMPLETED BY: LP

WELL CONSTRUCTION

TOTAL DEPTH BELOW MEASURING POINT (BMP) (FT): _____ BOREHOLE DIAMETER (IN): _____
TOTAL DEPTH BELOW LAND SURFACE (BLS) (FT): 42' WELL DIAMETER INSIDE (IN): _____
WELL PROTECTOR: ☐ YES ☐ NO PADLOCK NO.: _____ WELL DIAMETER OUTSIDE (IN): _____
SAND PACK INTERVAL (BLS) (FT): _____ SCREEN INTERVAL (BLS) (FT): _____

WATER VOLUME CALCULATION

DATE/TIME OF MEASUREMENT: _____
MEASURING POINT: _____ ELEV.: _____
WATER LEVEL INSTRUMENT USED: _____
INITIAL WATER LEVEL (BMP) (FT): _____
LINEAR FEET OF WATER: _____
LINEAR FEET SATURATED GRAVEL PACK: _____
NOTE: Quantities are to be calculated prior to development

ITEM	WATER VOLUME	
	FT^3	GAL
Well Casing		
Sand Pack		
Drilling Fluids		
TOTAL		

DEVELOPMENT CRITERIA

METHOD OF DEVELOPMENT: Bailing
WATER VOLUME TO BE REMOVED (GAL): _____ WATER VOLUME ACTUALLY REMOVED (GAL): _____
TIME DEVELOPMENT STARTED: 1550 TIME DEVELOPMENT COMPLETED: 16:45
NOTE: Development is to be performed in accordance with Standard Operating Procedure

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6/13/09	Horiba	70303	pH 4 = 4.01	LP	

WATER QUALITY READINGS DURING DEVELOPMENT

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☒°C ☐°F	CONDUCTIVITY ~~(µS)~~ S/m	pH	TECH	COMMENTS
6/13/09 1610	16	16.25	4.1	6.90	LP	cloudy, pink, no odor
1428	36	15.70	2.9	6.38	LP	cloudy, pink, no odor
16:45	45	16.18	3.6	6.35		" " " no odor

COMMENTS: _____

WATER PURGING AND SAMPLING DATA

PROJECT NAME: ENERSOURCE SAMPLE LOCATION NO. OR BORING/WELL NO.: MW-1

PROJECT NO.: NMO-ENE-02.04 TECHNICAL CREW: J. HILLER

DATE: 06- FORM COMPLETED BY: J. HILLER

SAMPLING METHOD: BAILING

WELL CASING DIAMETER: 4" INITIAL WATER LEVEL (BMP) (FT): 36.97 @ TIME 1105

BORING (SANDPACK) DIAMETER: TOTAL DEPTH OF WELL (BMP) (FT) 44.43 @ TIME 1107

LENGTH OF WATER COLUMN (FT) 7.46

FINAL WATER LEVEL (BMP) (FT) 37.00 @ TIME 1212

WELL CASING VOLUME (GAL): $V_{WC} = \frac{\pi D^2 h}{4}$ WELL VOLUME (ANNULUS) (GAL): $V_{FP} = \left[\frac{\pi D^2 h}{4} - V_{WC}\right](n) V_{WC} = \frac{\pi D^2 h}{4}$

WELL VOLUME TO BE REMOVED (GAL): NUMBER OF CASING/WELL VOLUMES: TARGET VOLUME

TIME ELAPSED FROM FINAL DEVELOPMENT/PURGING: PUMPING RATES/SAMPLING:

SAMPLING DEPTH INTERVAL (BLS) (FT): SAMPLE COLLECTION PERIOD: START: 1200 FINISH: 1212

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-26-09/0800	HORIBA	U-22	pH 4.0		

WATER QUALITY READINGS DURING PURGING

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☒ °C ☐ °F	CONDUCTIVITY (µS/cm)	TURB (NTU)	pH	TECH DO	COMMENTS (COLOR/ODOR) DEP SAL TDS	ORP	
6-26-9/1122	1	17.20	2.5	120	5.71	3.8	0 1.7 1.7	144	12
↓/1130	3	9.48	3.2	-5	5.71	3.0	0 1.9 1.9	109	15
↓/1135	5	8.40	3.2	-5	5.68	3.4	0 1.9 1.9	97	15
↓/1140	7	8.00	3.2	-5	5.60	2.9	0 2.0 2.0	92	15
↓/1145	10	7.08	3.3	-5	551	3.7	-0 2.0 2.0	100	16
↓/1150	12	7.13	3.3	-5	550	3.5	-0 2.0 2.0	103	16
↓/1154	14	8.64	3.2	-5	5.48	3.3	-0 1.9 1.9	102	15
↓/1157	16	9.08	3.1	-5	543	4.9	-0 1.9 1.9	127	15

COMMENTS: - slight HC odor on water

WATER PURGING AND SAMPLING DATA

PROJECT NAME: ENERSOURCE SAMPLE LOCATION NO. OR BORING/WELL NO.: MW-2
PROJECT NO. NMO-ENE-02-04 TECHNICAL CREW: J. HILLER
DATE: 06/26/09 FORM COMPLETED BY: J. HILLER
SAMPLING METHOD: BAILING
WELL CASING DIAMETER: 4" INITIAL WATER LEVEL (BMP) (FT): 38.57 @ TIME 0815
BORING (SANDPACK) DIAMETER: TOTAL DEPTH OF WELL (BMP) (FT) 45.76 @ TIME 0816
LENGTH OF WATER COLUMN (FT) 7.18
FINAL WATER LEVEL (BMP) (FT) 38.59 @ TIME 0935
WELL CASING VOLUME (GAL): WELL VOLUME (ANNULUS) (GAL):

$$V_{WC} = \frac{\pi D^2 h}{4} \qquad V_{FP} = \left[\frac{\pi D^2 h}{4} - V_{WC}\right](n) V_{WC} = \frac{\pi D^2 h}{4}$$

WELL VOLUME TO BE REMOVED (GAL): NUMBER OF CASING/WELL VOLUMES: TARGET VOLUME
TIME ELAPSED FROM FINAL DEVELOPMENT/PURGING: PUMPING RATES/SAMPLING:
SAMPLING DEPTH INTERVAL (BLS) (FT): SAMPLE COLLECTION PERIOD: START: FINISH:

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-26-9/0810	HORIBA	U-22	pH 4.0		

WATER QUALITY READINGS DURING PURGING

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☑ °C ☐ °F	CONDUCTIVITY (µS/cm)	TURB (NTU)	pH	TECH DO	COMMENTS (COLOR/ODOR) DEP	SAL	TDS	ORP
6-26-9/0830	1 gal	15.55	2.6	0	6.45	2.4	0	1.6	16	-29
↓ 0838	3	14.34	2.4	-5	6.27	2.5	0	1.5	16	-48 11
↓ 0844	5	11.21	2.5	-5	6.25	2.5	-0	1.6	16	-51 12
↓ 0852	7	9.37	3.0	860	6.21	3.4	0	1.8	18	-59 14
↓ 0857	10	7.77	3.1	890	6.11	3.5	-0	1.9	19	~~-48~~ -6015
↓ 0904	12	8.53	3.1	810	6.04	3.6	-0	1.8	19	-60 14
↓ 0910	14	9.53	2.9	560	6.02	4.1	-0	1.7	18	-62 13
↓ 0915	16	10.50	2.9	480	6.02	3.6	-0	1.8	18	-63 13

COMMENTS:
• water has distinct HC odor.

WATER PURGING AND SAMPLING DATA

PROJECT NAME: ENERSOURCE SAMPLE LOCATION NO. OR BORING/WELL NO.: MW-4

PROJECT NO.: NMO-ENE-02-04 TECHNICAL CREW: J. HILLER

DATE: 06- FORM COMPLETED BY: J. HILLER

SAMPLING METHOD: BAILING

WELL CASING DIAMETER: 4" INITIAL WATER LEVEL (BMP) (FT): 37.98 @ TIME 1517

BORING (SANDPACK) DIAMETER: TOTAL DEPTH OF WELL (BMP) (FT) 45.32 @ TIME 1518

LENGTH OF WATER COLUMN (FT) 7.34

FINAL WATER LEVEL (BMP) (FT) 38.01 @ TIME 1640

WELL CASING VOLUME (GAL): WELL VOLUME (ANNULUS) (GAL):

$V_{wc} = \frac{\pi D^2 h}{4}$ $V_{FP} = \left[\frac{\pi D^2 h}{4} - V_{wc}\right](n) V_{wc} = \frac{\pi D^2 h}{4}$

WELL VOLUME TO BE REMOVED (GAL): NUMBER OF CASING/WELL VOLUMES: TARGET VOLUME

TIME ELAPSED FROM FINAL DEVELOPMENT/PURGING: PUMPING RATES/SAMPLING:

SAMPLING DEPTH INTERVAL (BLS) (FT): SAMPLE COLLECTION PERIOD: START: FINISH:

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-26-09/0810	HORIBA	U-22	pH 4.0		

WATER QUALITY READINGS DURING PURGING

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☑ °C ☐ °F	CONDUCTIVITY (µS/cm)	TURB (NTU)	pH	TECH DO	COMMENTS (COLOR/ODOR) DEP	SAL	TDS	ORP	DO
6269 1547	2	8.00	2.9	410	5.78	3.9	-0	1.9	18	114	14
1553	4	7.54	2.9	490	5.80	3.7	-0	1.7	18	94	14
1558	6	7.45	2.9	300	5.85	3.8	-0	1.7	18	59	14
1605	8	7.12	3.0	480	5.84	3.0	-0	1.9	19	53	14
1610	10	6.93	2.9	670	5.88	3.5	-0	1.8	18	52	14
1618	12	6.92	3.0	300	5.74	~~2.8~~ 2.5	-0	1.9	18	55	14
↓ 1625	~~DRY~~ 15	7.75	2.9	350	5.81	4.0	-0	1.7	18	45	14

COMMENTS:

WATER PURGING AND SAMPLING DATA

PROJECT NAME: ENERSOURCE SAMPLE LOCATION NO. OR BORING/WELL NO.: MW-5

PROJECT NO.: NMO-ENE-02-04 TECHNICAL CREW: J. HILLER

DATE: 06-26-09 FORM COMPLETED BY: J. HILLER

SAMPLING METHOD: BAILING

WELL CASING DIAMETER: 4" INITIAL WATER LEVEL (BMP) (FT): 37.47 @ TIME 1400

BORING (SANDPACK) DIAMETER: _____ TOTAL DEPTH OF WELL (BMP) (FT) 45.34 @ TIME 1402

LENGTH OF WATER COLUMN (FT) 7.87

FINAL WATER LEVEL (BMP) (FT) 37.52 @ TIME 1507

WELL CASING VOLUME (GAL): _____ WELL VOLUME (ANNULUS) (GAL): _____

$V_{WC} = \frac{\pi D^2 h}{4}$ $V_{FP} = \left[\frac{\pi D^2 h}{4} - V_{WC}\right](n) V_{WC} = \frac{\pi D^2 h}{4}$

WELL VOLUME TO BE REMOVED (GAL): NUMBER OF CASING/WELL VOLUMES: _____ TARGET VOLUME _____

TIME ELAPSED FROM FINAL DEVELOPMENT/PURGING: _____ PUMPING RATES/SAMPLING: _____

SAMPLING DEPTH INTERVAL (BLS) (FT): _____ SAMPLE COLLECTION PERIOD: START: _____ FINISH: _____

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-26-09/0810	~~HORIBA~~ U-22	U-22	pH 4.0		

WATER QUALITY READINGS DURING PURGING

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☑ °C ☐ °F	CONDUCTIVITY (µS/cm)	TURB (NTU)	pH	TECH DO	COMMENTS (COLOR/ODOR) DEP	SAL	TDS	ORP	DO
6-26-09/1421	1	14.47	1.8	610	7.32	2.6	0	1.1	12	-68	8
1428	3	10.20	2.1	740	7.31	3.0	0	1.2	13	-102	9
1427	5	7.95	2.2	~5	6.88	3.7	~0	1.3	13	-92	10
1433	7	8.67	2.1	-5	6.68	3.4	~0	1.2	13	-89	10
1438	10	9.24	2.1	-5	6.60	3.5	~0	1.2	13	-89	9
1444	12	10.50	2.0	-5	6.53	3.3	~0	1.2	12	-89	9
1448	15	12.88	1.9	660	6.40	3.6	~0	1.1	12	-83	8
1452	17	14.18	1.9	390	6.21	3.0	~0	1.1	12	-66	8

COMMENTS: _____

WATER PURGING AND SAMPLING DATA

PROJECT NAME: ENERSOURCE SAMPLE LOCATION NO. OR BORING/WELL NO.: MW-6

PROJECT NO.: NMO-ENE-02-04 TECHNICAL CREW: J. HILER

DATE: _____ FORM COMPLETED BY: J. HILER

SAMPLING METHOD: Bailing

WELL CASING DIAMETER: 4" INITIAL WATER LEVEL (BMP) (FT): 37.58 @ TIME 0810

BORING (SANDPACK) DIAMETER: _____ TOTAL DEPTH OF WELL (BMP) (FT) 46.50 @ TIME 0811

LENGTH OF WATER COLUMN (FT) 8.92

FINAL WATER LEVEL (BMP) (FT) _____ @ TIME _____

WELL CASING VOLUME (GAL): _____ WELL VOLUME (ANNULUS) (GAL): _____

$V_{wc} = \frac{\pi D^2 h}{4}$ $V_{FP} = \left[\frac{\pi D^2 h}{4} - V_{wc}\right](n) V_{wc} = \frac{\pi D^2 h}{4}$

WELL VOLUME TO BE REMOVED (GAL): NUMBER OF CASING/WELL VOLUMES: _____ TARGET VOLUME _____

TIME ELAPSED FROM FINAL DEVELOPMENT/PURGING: _____ PUMPING RATES/SAMPLING: _____

SAMPLING DEPTH INTERVAL (BLS) (FT): _____ SAMPLE COLLECTION PERIOD: START: _____ FINISH: _____

WATER QUALITY INSTRUMENTS

DATE/TIME	INSTRUMENT	SERIAL NO.	CALIBRATION PERFORMED	TECH	COMMENTS
6-27-9 / 0815	HORIBA	U-22	pH 4.0	JH.	

WATER QUALITY READINGS DURING PURGING

DATE/TIME	TOTAL WATER PURGED (gal)	TEMP ☑ °C ☐ °F	CONDUCTIVITY (µS/cm)	TURB (NTU)	pH	TECH DO	COMMENTS (COLOR/ODOR) ORP	SAL	TDS	eRP	OT
6-27-9 0832	2	10.99	2.3	550	7.32	3.6	-0	1.4	14	-98	10
0840	4	7.24	2.6	720	7.00	5.4	-0	1.5	16	-94	12
0850	6	5.80	2.7	-5	6.79	4.3	-0	1.6	17	-91	13
0856	8	5.64	2.7	500	6.73	4.8	-0	1.6	17	-88	13
0901	10	5.51	2.7	350	6.65	5.9	-0	1.6	17	-82	13
0905	12	5.23	2.8	200	6.65	6.3	-0	1.6	17	-81	13
↓ 0910	14	6.32	2.7	200	6.51	6.3	-0	1.6	17	-79	12
0918	16	6.40	2.7	190	6.49	6.4	-0	1.6	17	-77	12
0922	18	8.02	2.6	170	6.41	5.6	-0	1.5	16	-74	12

COMMENTS: no product detected on water.

PROJECT SAFETY MEETING FORM

DATE: 6-22-09 PROJECT NO.: NMO-ENE-02-01 (prop fund 02-04)

PROJECT TITLE: Envirosource

PROJECT TASK: pit excavation + disposal

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

truck routing, digging, loading, sampling procedures
- All personnel instructed to ~~have~~ eye-to-eye contact w/ equipment operator + anyone in vicinity of machinery
- Workers advised of slow speed requirements anywhere on site

ATTENDEES

NAME (PRINTED)	SIGNATURE
Jose Espinoza	Jose Espinoza
Larry Solberg	Larry Solberg
Rudy Sanchez	Rudy Sanchez
Rick Dunlap	Rick Dunlap
Jim Trujillo - Jim Trujillo	Jim Trujillo
Jeff Palmer	Jeff Palmer
Robert Gonzalez	Robert Gonzalez
Tom L. Peveler	Tom L Peveler
Gary Melton	Gary Melton
Gary Armitage	Gary Armitage

Meeting Conducted by:

Joe Hiller — Joe Hiller

Name Printed — Signature

PROJECT SAFETY MEETING FORM

DATE: 6-22-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE

PROJECT TASK: pit excavation + disposal

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	_____	Emergency Procedures	_____
Chemical Hazards	_____	Hospital	_____
Physical Hazards	_____	Special Equipment	_____

Other _____

ATTENDEES

NAME (PRINTED)	SIGNATURE
JAMES HILLARD	James Hillard
Juan Rede	Juan Rede

Meeting Conducted by:

Joe Hiller
Name Printed

Signature

INTERA

PROJECT SAFETY MEETING FORM

DATE: 6-23-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE

PROJECT TASK: pit excavation & disposal

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

- discussed speed onsite; boots, hard hat, slips, trips, falls

ATTENDEES

NAME (PRINTED)	SIGNATURE
Rick Rowley	Rick Rowley
DAVID DeVORE	David DeVore
Robert Gonzalez	Robert Gonzalez
Juan Rede	Juan Rede
Rudy SANCHEZ	Rudy Sanchez
GARY MELTON	Gary Melton
TOM L. PEVELER	Tom L Peveler
Larry Solberg	Larry Solberg
James Hillard	James Hillard
Jim TRUJILLO	Jim Trujillo
BILL NOACH	Jose Espinoza

Meeting Conducted by:

Name Printed	Signature
JOE HALLER	

INTERA

PROJECT SAFETY MEETING FORM

DATE: 6-24-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE

PROJECT TASK: pit excavation + disposal

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

slips, trips, falls; watch speed anywhere especially on site; make eye contact w/ anyone in proximity; wear proper PPE;

ATTENDEES

NAME (PRINTED)	SIGNATURE
Rudy SANChez	Rudy Sanchez
Juan Rede	Juan Rede
Aristeo Hernandez Jr.	Aristeo Hernandez
Robert GONZalez	Robert Gonzalez
RUSSell L CLarK	Russell L Clark
TOM L. PEVELER	Tom L Peveler
Larry Solberg	Larry Solberg
GARY MELTON	Gary Melton
James Hilland	Jose Espinoza - James Hilland
GARY Armitage	Gary Armitage

Meeting Conducted by:

JOE MUER — Name Printed

Signature

INTERA

PROJECT SAFETY MEETING FORM

DATE: 6-25-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE

PROJECT TASK: pit excavation & disposal.

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

- watch speed; make eye contact w anyone in proximity of machinery; wear appropriate PPE when out of vehicle; always be aware of the ever hazardous "slips, trips & falls."

ATTENDEES

NAME (PRINTED)	SIGNATURE
JOM L. PEVELER	
Rudy SANCHEZ	
Chilo MONTEZ	
GARY MELTON	
Juan Rael	
Robert GONZALEZ	
James HILLARD	
Kunell L Clark	
Larry Solberg	
Grey Armitage	

Meeting Conducted by:

JOE HILLER

Name Printed Signature

207, 310, 211, 371, 367, 369, 333, 368, 119, 209

Wayne Tramm (575) 370-2480

PROJECT SAFETY MEETING FORM

DATE: 6-26-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE.

PROJECT TASK: Pit Excavation + Materials Disposal

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

- watch speed; make eye contact w anyone in vicinity of machinery; wear appropriate PPE when out of vehicle; BEWARE of slips, trips, falls.

ATTENDEES

NAME (PRINTED)	SIGNATURE
RUDY SANCHEZ	Rudy Sanchez
TOM L. PEVELER	Tom L Peveler
GARY MELTON	Gary Melt
Robert Gonzalez	Robert Gonzalez
JAMES HILLARD	James Hillard
Gary Armitage	Gary Armitage
Russell L Clark	Russell L Clark
Juan Rede	Juan Rede
Jose Espinoza	
Larry Solberg	Larry Solberg

Meeting Conducted by:

JOE HILLER — Name Printed

Signature

INTERA

PROJECT SAFETY MEETING FORM

DATE: 6-27-09 PROJECT NO.: NMO-ENE-02-04

PROJECT TITLE: ENERSOURCE

PROJECT TASK: to fill pit to clean Sand utilizing 1-trackhoe & 1 front end loader

SAFETY TOPICS PRESENTED

Protective Clothing/Equipment	✓	Emergency Procedures	✓
Chemical Hazards	✓	Hospital	✓
Physical Hazards	✓	Special Equipment	

Other

- keep an eye for the other guy when maneuvering & backing; watch your footing around pit area where steep drop offs & loose material might give way; wear appropriate PPE.
- Beware! Always! Slips, trips & falls.

ATTENDEES

NAME (PRINTED)	SIGNATURE
Jose Espinoza	
Larry Solberg	Larry Solberg

Meeting Conducted by:

JOE HILLER
Name Printed

Signature

Appendix C

Photographic Documentation

No. 1 – Soil core from MW-01 from 5-10 ft bgs.

No. 2 – Soil core from MW-01 from 9.5-14.5 ft bgs; note the caliche.

No. 3 – Soil core from MW-03 from 10-15 ft bgs; note the gray impacted soil.

No. 4 – Soil core from MW-03 from 20-21.5 ft bgs; note the gray impacted soil.

No. 5 – Soil core from MW-03 from 40-42 ft bgs; note the saturated soil.

No. 6 – Soil core from MW-04 from 29.5- 30.5 ft bgs.

No. 7 – Soil core from MW-04 from 39.5-41.5 ft bgs; note wet clayey sand.

No. 8 – Soil core from MW-04 from 41.5-43.5 ft bgs; note the saturated soil.

No. 9 – View looking southwest at drill rig at MW-06; note excavation pit behind the rig.

No. 10 – View looking northeast at an 8'' HSA advancing a soil boring; boring was completed into MW-06.

No. 11 – Soil core from MW-06 from 7 ft bgs; Note the gray impacted soil.

No. 12 – View looking north at MW-06.

No. 13 – Direct Push Technology (DPT) rig used for DPB-01 through DPB-45.

No. 14 – DPT rig set up on DPB-17; note MW-05 in foreground and MW-02 in left background.

No. 15 – DPT rig being loaded for transport; MW-01 in foregoround.

No. 16 – Installing 4" diameter PVC in MW-06.

No. 17 – View of Site after storm event on June 10, 2009.

No. 18 – View to west of Pit excavated as part of the project removal action.

No. 19 – View looking east at excavated pit and track hoe used for excavation. Note stockpiled soils in background, berms around pit and stockpiled soil, and dark soils south of trackhoe.

No. 20 – View looking east at front end loader used to load excavated soils into haulers.

No. 21 – View looking north at trackhoe excavating pit; note metal pipe in pit.

No.22 – View looking west at track hoe compacting backfill material.

No. 23 – View looking northwest at north side of excavation, metal pipe in side wall of excavation, and surface completion for monitoring well MW-06 in background by stockpiled backfill materal.

No. 24 – View looking west at backfilling activities.

No. 25 – View looking west at excavation east of power poles; note discolored soils in bottom of excavation.

No. 26 – View looking east at western limit of excavation; note surface completion for MW-02 in background.

No. 27 – View of loading of contaminated soil into 20 cubic yard belly dump hauler. Note MW-06 in foreground.

No. 28 – View looking west at backfilled excavation.

No. 29 – View looking east at backfilled excavation.