AP-39

ConocoPhillips
East Vacuum Playa

Correspondence
2013

Griswold, Jim, EMNRD

From: Griswold, Jim, EMNRD
Sent: Tuesday, August 20, 2013 4:13 PM
To: Hathaway, David C
Cc: Bockisch, Bernie (bbockisch@craworld.com); Hancock, Daniel
Subject: RE: Vacuum Glorieta Workplan

Mr. Hathaway,

The OCD has received and reviewed the plan dated January 8, 2013 for groundwater investigation and recovery of free phase hydrocarbon submitted on behalf of ConocoPhillips by Conastoga Rovers regarding the Vacuum Glorieta East Unit, East Battery Playa site (1R-413, AP-39) near Buckeye, NM. That plan is hereby approved. Please proceed with the effort as described under the condition that soil samples submitted for hydrocarbon assay by Method 8015 also be characterized for adsorbed benzene, toluene, ethylbenzene, and xylene via Method 8021 or 8260. Please retain this email for your records as no hardcopy will be sent. Thank you and feel free to contact me at any time.

Jim Griswold
Senior Hydrologist
EMNRD/Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505.476.3465
email: jim.griswold@state.nm.us

From: Bockisch, Bernie [mailto:bbockisch@craworld.com]
Sent: Monday, January 14, 2013 9:04 AM
To: Griswold, Jim, EMNRD
Cc: Hathaway, David C; Hancock, Daniel
Subject: Vacuum Glorieta Workplan

Jim,

I've attached the Vacuum Glorieta Workplan for your review and approval. We will follow this with a hard copy in the mail. Feel free to contact me if you have any questions.

Bernie

Bernard Bockisch, PMP
Conestoga-Rovers & Associates (CRA)
6121 Indian School Rd NE Ste. 200
Albuquerque, NM, USA 87110
Office: (505) 884-0672
Mobile: (505) 280-0572
Fax: (505) 884-4932
Email: bbockisch@craworld.com
www.CRAworld.com

CONESTOGA-ROVERS & ASSOCIATES

6121 Indian School Road NE, Suite 200
Albuquerque, New Mexico 87110
Telephone: (505) 884-0672 Fax: (505) 884-4932
www.CRAworld.com

January 8, 2013 Reference No. 075005

Mr. Jim Griswold
New Mexico Oil Conservation Division
District 1
1220 South St. Francis Dr.
Santa Fe, NM 87505

Dear Mr. Griswold:

Re: Workplan for Post Remediation Monitoring Activities
Vacuum Glorieta East Unit, East Battery Playa
Units N & O, Sec 27, T17S, R35E
AP 039 / 1RP 413
Lea County, NM

On behalf of ConocoPhillips, Conestoga-Rovers and Associates (CRA) is pleased to present this work plan to the New Mexico Oil Conservation Division (NMOCD). This work plan presents our proposed approach to post remediation monitoring and is an addendum to the originally approved Abatement Plan No. 039.

PROJECT INFORMATION

The Site is located on land owned by the New Mexico State Land Office in the SW¼, SE ¼, Section 34, Township 17S, Range 35E, within Lea County, New Mexico (32° 47.932' N, 103° 26.726' W, see Figure 1). Impacts to soil and groundwater are believed to be associated with a release that was reported to the NMOCD on October 28, 2002. The affected area was estimated to be approximately 80 feet by 150 feet in size. Approximately 80 barrels of oil and 20 barrels of water were recovered after the release.

An initial Site investigation was performed by B&H Environmental Services (B&H) in November 2002. A total of seven shallow soil borings were advanced during the investigation. Soil samples collected from the borings indicated the presence of chlorides and petroleum hydrocarbons above NMOCD regulatory limits.

Maxim Technologies (Maxim) installed three monitoring wells and performed a GeoProbe soil survey in the vicinity of the site in February 2004. Based on the results of the assessment, a remediation plan was presented and accepted by the NMOCD in August 2004.

Excavation of affected soil began in August 2004 and was extended to a depth of approximately 20 ft bgs. Approximately 3,240 cubic yards of petroleum impacted soil were excavated from the site and disposed of at a regulated facility.

However, historical hydrocarbon concentrations were observed during excavation and additional assessment work was required. The excavation was backfilled and additional soil borings and monitoring wells were installed.

Based on the results of the additional assessment work, A Stage I and II Abatement Plan was submitted to the NMOCD in October 2007. The Abatement Plan proposed additional excavation of impacted soils and the placement of a geo-membrane liner prior to backfilling and reseeding the area of excavation. The abatement plan included the installation of groundwater monitoring wells, followed by 8 quarters of groundwater monitoring.

The additional excavation work that was approved under the October 2007 Abatement Plan was performed in November and December 2008. One monitoring well was abandoned (VG-1) because it was located within the footprint of the excavation. Approximately 1,000 cubic yards of soil was excavated. During the excavation, a significant rain event occurred which caused flushing of the soils. Due to the rain event, it was agreed by the NMOCD that a geo-membrane liner was not required to be installed prior to backfilling. Backfilling and reseeding of the excavation was approved and performed in July 2009. Following backfilling and reseeding, one groundwater monitoring well, VG-4, was installed within the footprint of the excavation.

On October 6, 2011, CRA conducted groundwater gauging of the onsite monitoring wells. Figure 2 displays the groundwater elevation and groundwater flow direction. The approximate depth to groundwater is 50 feet (ft) below ground surface (bgs). Groundwater sampling of VG-2 and VG-3 was also performed. Monitor well VG-4 was not sampled because it contained 0.17 ft of LNAPL (see Figure 3). The groundwater at the site was sampled for chlorides. The groundwater analytical results indicated concentrations of chlorides below the regulatory limit (VG-2, 103.0 mg/L and VG-3, 42.0 mg/L).

SCOPE OF WORK

Based on the site history and groundwater sampling performed in October 2011, we recommend the addition of three groundwater monitoring wells. The wells would further define the northern, western, and eastern extent of hydrocarbons and chlorides in the groundwater (see Figure 4). Additional work scope would include the installation of hydrocarbon adsorbing socks to facilitate the removal of LNAPL from VG-4 and ground water monitoring of the site.

Task 1 - Project Preparation

This task includes preparing and submitting this work plan and other project preparation activities that occur after work plan approval, but before fieldwork mobilization. After receiving authorization to proceed, CRA will:

- Develop a Health and Safety Plan (HASP) and job safety analyses (JSAs) that address field work specified in the Work Plan; and
- Develop work orders and contracts for subcontractors.

The drilling contractor will notify New Mexico One-Call to facilitate location of underground utilities and pipelines prior to drilling activities.

Task 2 – Field Program

A NMOCD representative (if available), CRA, and the selected drilling contractor employees will mobilize to the site to perform a project kickoff meeting. Prior to performing site work, a CRA representative will brief the contractor employees on site conditions as part of the project kickoff meeting. Also discussed during the project kickoff meeting will be the HASP, applicable JSA's, and stop work authority (SWA). Tailgate safety meetings will be conducted daily at the beginning of the day and as conditions change.

Prior to subsurface penetrations, each borehole location will be cleared using an air knife to a depth of 5 ft bgs. A CRA geologist or engineer will supervise the advancement of the soil borings at the site. Borings will be drilled using an air rotary drill rig. Borings will be advanced to a depth of 65 ft bgs or refusal. Samples will be collected at a depth of 10 ft bgs and every 10 ft thereafter using a 2-inch (in.) diameter by 24-in. long split spoon sampler. Cuttings and samples will be logged according to the Unified Soil Classification System. Field screening for petroleum hydrocarbons will be performed using the heated headspace method.

Each of the borings will be converted to a 2-in. diameter monitoring well. Each well will be constructed with 20 feet of 2-inch inside diameter (ID) polyvinyl chloride (pvc) machine slot 0.010 screen. The well screen will be placed 5 ft above and 15 ft below the apparent water table. The remainder of the well will be constructed with 2-in. diameter pvc blank casing.

The annulus of the borehole will be backfilled with 10/20 silica sand from the bottom of the borehole to approximately 2 feet above the well screen. A 2-ft thick seal of 3/8-in. bentonite pellets will be placed above the sand pack. The remainder of the borehole will be filled with a 95% cement/5% bentonite grout mix.

Each monitoring well will be completed with an above-ground locking well vault. The well vault will be placed within a 24 in. by 24 in. by 4 in. thick concrete pad.

The samples will be analyzed for gasoline, diesel, and heavy oil range total petroleum hydrocarbons (TPH-GRO, DRO, ORO) by EPA method 8015B modified and chlorides by EPA Method 300.0. Soil samples will be containerized in laboratory-prepared bottles. The soil samples will be placed on ice in a cooler and transported under chain of custody documentation. Samples will be submitted to Pace Analytical in Lenexa, Kansas (or other ConocoPhillips-approved laboratory) for analysis via overnight courier.

Well development will be performed by bailing, pumping, or a combination of both. Development of each well will be performed until the water is reasonably clear and parameters of pH, temperature, and specific conductance have stabilized (within a 10% margin).

The newly installed monitoring wells will be surveyed for horizontal and vertical control. Surveying will be performed by a ConocoPhillips-approved, State of New Mexico Registered Surveyor. The top of each casing will be surveyed to an accuracy of 0.01 ft.

Health and Safety Considerations

Personal protective clothing including fire retardant clothing, steel-toed work boots, gloves, safety glasses and hard hats will be required (basic Level D requirements) during all field tasks. The project HASP will be maintained onsite. It will be reviewed and signed by on-site personnel, subcontractors, and authorized visitors.

Investigation Derived Waste

Soil cuttings will be placed in DOT approved 55-gallon drums, sealed and labeled. Disposal of the soil will be based on analytical results of samples collected from the borings. Development and purge water will be placed in 55-gallon drums, sealed and labeled. Disposal of the water will be based on analytical results of water samples collected from each well.

Quality Assurance/Quality Control

Confirmation sampling will be completed in accordance with our standard Quality Assurance/Quality Control procedures designed to minimize cross-contamination between samples and to provide reliable laboratory results.

Task 3: Quarterly Groundwater Monitoring

Initial groundwater sampling will be conducted the day following well installation and every three months thereafter, up to a total of four quarters. Prior to groundwater sample collection, the depth to groundwater will be observed using an interface probe.

A disposable bailer will be used to purge and sample each well. A groundwater sample will be collected once specific conductance, pH, and temperature are determined to have stabilized (within a 10% margin). Records of each sampling event will be kept on CRA ground water sampling forms and in a bound field notebook dedicated to the Site.

Groundwater samples will be analyzed for BTEX by EPA Method 8260 and chlorides by EPA method 300.0. Groundwater samples will be containerized in laboratory-prepared bottles. The groundwater samples will be placed on ice in a cooler and transported under chain of custody documentation. Samples will be submitted to Pace (or other ConocoPhillips-approved laboratory) via overnight courier.

Monitoring well VG-4 will be checked for the presence of LNAPL. If LNAPL is present, a GeoSorb Selective Product Recovery Sock will be installed in the well. Used socks will be replaced with new ones during each quarterly groundwater monitoring event as long as LNAPL appears to be present.

Quarterly groundwater monitoring reports will be prepared for the Site. The first quarterly report will include a summary of the groundwater monitoring well installation and a brief narrative of the sampling events. The summary will include a Site description, project history, description of field events, a discussion of results, and recommendations (if any). The first report will also include:

- A scaled site plan showing the locations of the monitoring wells and other site features (including latitude and longitude coordinates);
- Boring logs and monitoring well construction diagrams; and
- Tabulation of field screening and laboratory analytical test results.

In general, the quarterly reports will include the date(s) the events occurred, copies of laboratory chain-of-custody documentation and results, laboratory quality assurance/quality control (QA/QC) documentation, tabulated groundwater elevations and groundwater concentrations, groundwater elevation maps, and a summary of findings. Starting with the second quarterly report, the groundwater elevations and groundwater analytical results from the previous quarter(s) will be tabulated with the results from the current quarter. Historical data will be included with the tabulated results.

Quarterly groundwater monitoring is being proposed for a total of one year (four quarters). The Fourth Quarterly Groundwater Monitoring Report will include recommendations for either additional activities to achieve site closure or an additional four quarters of monitoring.

WORKPLAN APPROVAL REQUEST

CRA is prepared to initiate the scope of work immediately, subsequent to ConocoPhillips approvals, the availability of resources, and stakeholder concurrence. Installation of the monitoring wells and sample collection is anticipated to require two to three days to complete. This does not include delays for inclement weather or other unforeseen events. The First Quarterly Monitoring Report will be submitted 60 days following the completion of field work. Subsequent quarterly monitoring reports will be submitted every 3 months following the first monitoring report submittal. A start date and schedule of report submittals will be provided following formal NMOCD approval.

If you have any questions or comments with regards to this work plan, please do not hesitate to contact our Albuquerque office at (505) 884-0672. Your timely response to this correspondence is appreciated.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

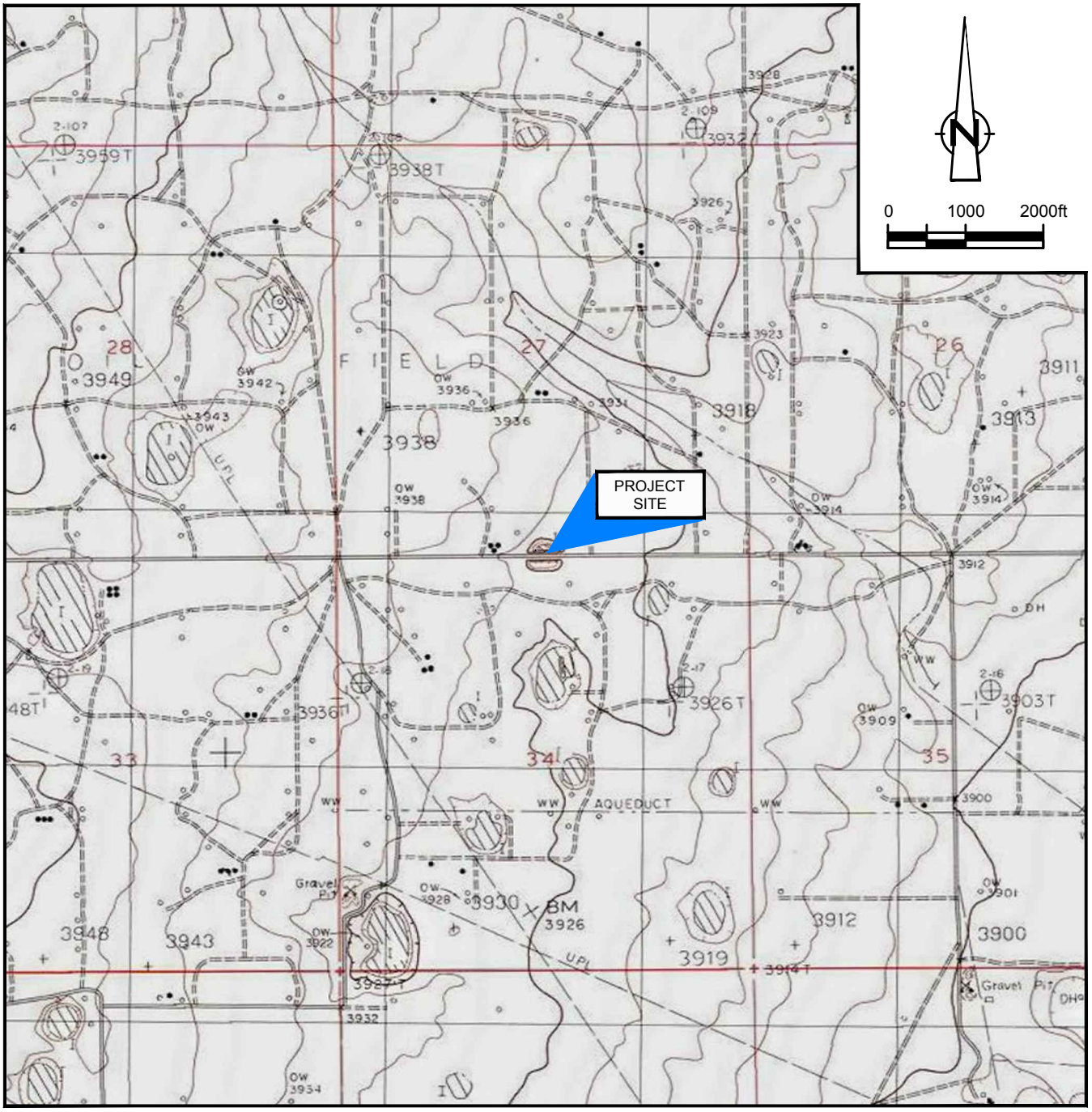
Bernard Bockisch
Senior Project Manager

Daniel Hancock
Project Manager

BB/mec/1

Enclosures:

Figure 1 - Site Location Map
Figure 2 – Release Location Map
Figure 3 – Chloride Concentrations in Groundwater
Figure 4 – Proposed Monitor Well Locations



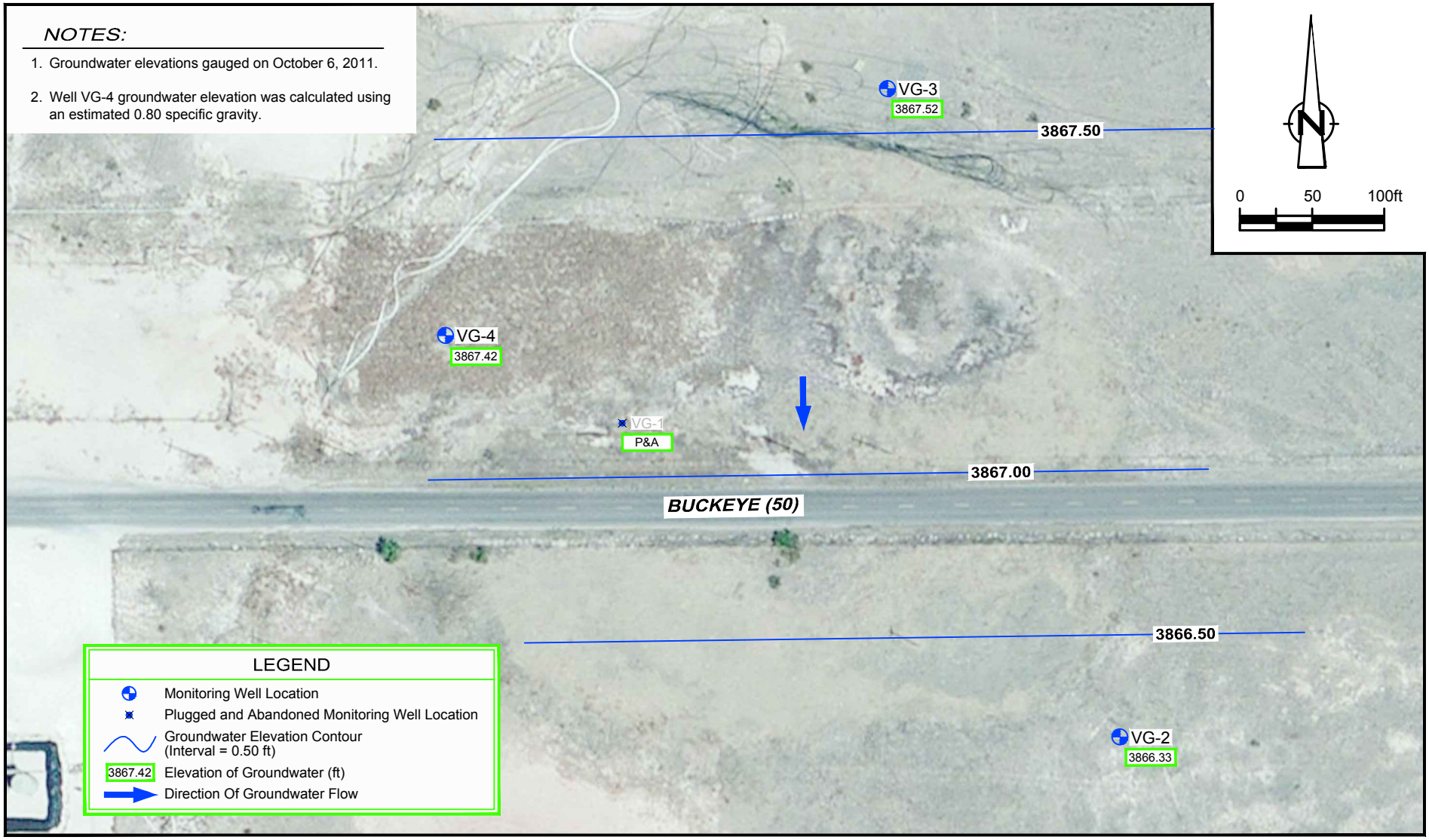
SOURCE: USGS 7.5 MINUTE QUAD
"LOVINGTON SW, NEW MEXICO"

LAT/LONG: 32.799° NORTH, -103.445° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 1

SITE LOCATION MAP
VACUUM GLORIETTA EAST UNIT, EAST BATTERY PLAYA
SECTION 34, T17S, R35E, LEA COUNTY, NEW MEXICO
ConocoPhillips Company

075005-3RM00(002)GN-DL001 JAN 16/2012



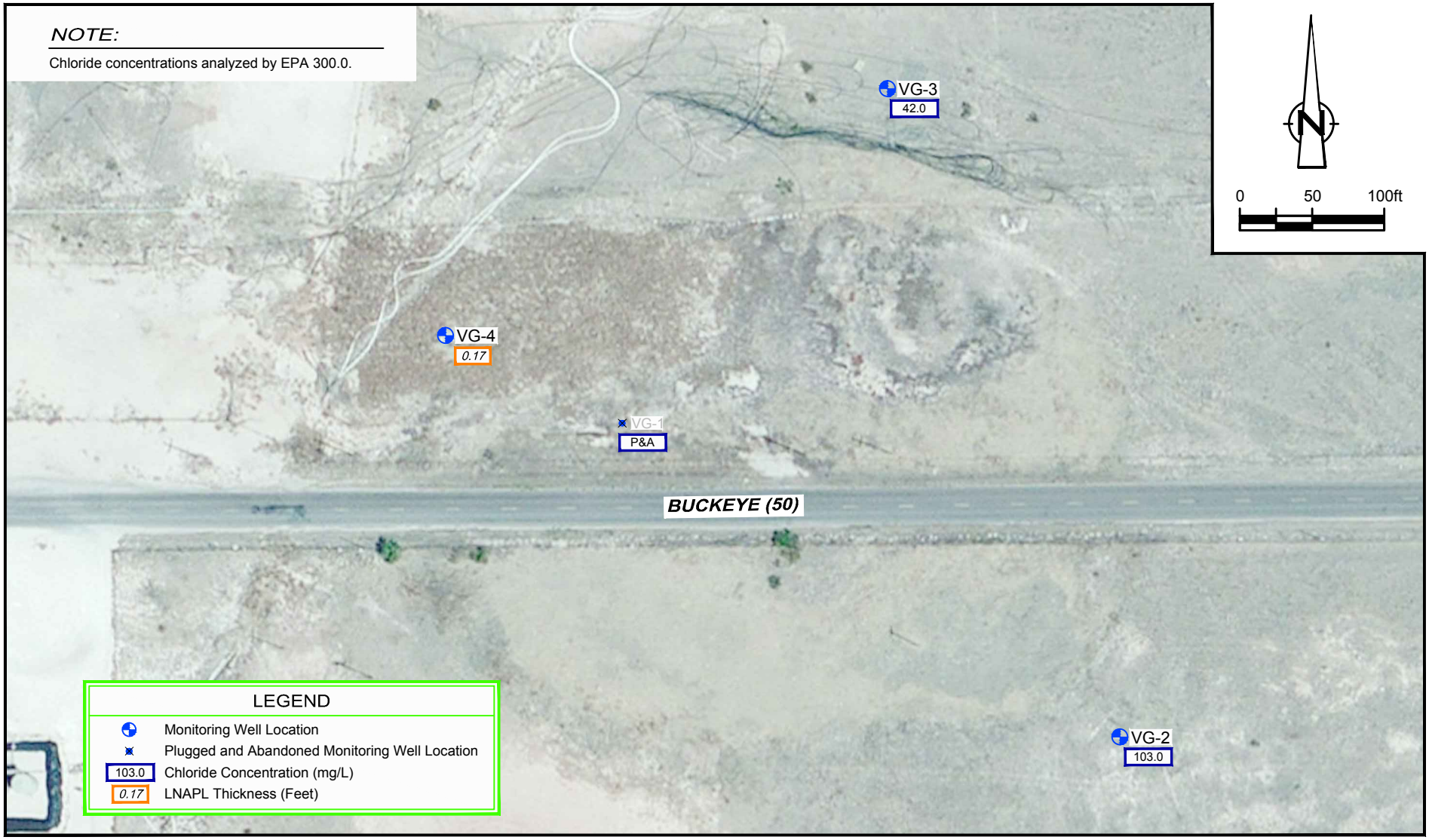
LAT/LONG: 32.799° NORTH, -103.445° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 2

SITE DETAILS AND GROUNDWATER ELEVATION MAP
VACUUM GLORIETTA EAST UNIT, EAST BATTERY PLAYA
SECTION 34, T17S, R35E, LEA COUNTY, NEW MEXICO

ConocoPhillips Company

075005-3RM00(002)GN-DL001 JAN 17/2012



LAT/LONG: 32.799° NORTH, -103.445° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 3

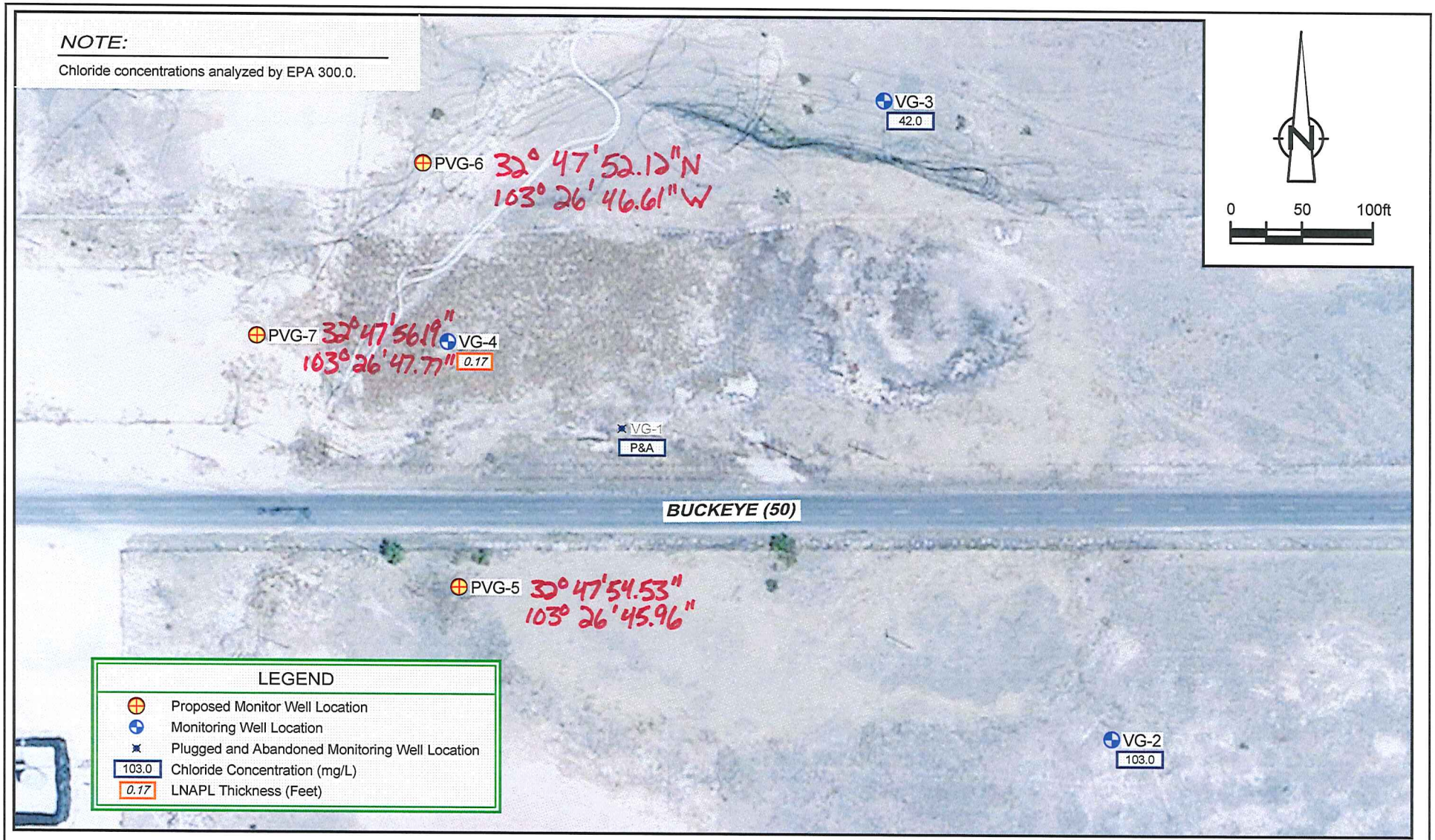
CHLORIDE CONCENTRATIONS IN GROUNDWATER
VACUUM GLORIETTA EAST UNIT, EAST BATTERY PLAYA
SECTION 34, T17S, R35E, LEA COUNTY, NEW MEXICO
ConocoPhillips Company

LAT/LONG: 32.799° NORTH, -103.445° WEST
COORDINATE: NAD83 DATUM, U.S. FOOT
STATE PLANE ZONE - NEW MEXICO EAST

Figure 4

PROPOSED MONITOR WELL LOCATIONS
VACUUM GLORIETTA EAST UNIT, EAST BATTERY PLAYA
SECTION 34, T17S, R35E, LEA COUNTY, NEW MEXICO
ConocoPhillips Company

075005-3RM00(002)GN-DL001 DEC 13/2012



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PROPOSED MONITOR WELL LOCATIONS
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