

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
811 S. First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural  
Resources Department

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-141  
Revised August 24, 2018  
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

## Release Notification

### Responsible Party

Responsible Party: BP America Production Co.	OGRID: 778
Contact Name: Steve Moskal	Contact Telephone: (505) 330-9179
Contact email: steven.moskal@bpx.com	Incident # (assigned by OCD)
Contact mailing address: 380 Airport Road, Durango CO, 81303	NVF 1878338890

### Location of Release Source

Latitude: 36.629012° Longitude: -108.175144°  
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Gallegos Canyon Unit 175E	Site Type: Natural Gas Production Well Pad
Date Release Discovered: September 21, 2018	API#: 30-045-26211

Unit Letter	Section	Township	Range	County
M	25	T28N	R13W	San Juan

Surface Owner: ☐ State ☐ Federal ☒ Tribal ☐ Private (Name: \_\_\_\_\_)

### Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Produced Water	Volume Released (bbls):	Volume Recovered (bbls):
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Condensate	Volume Released (bbls): <u>3 bbls</u>	Volume Recovered (bbls): <u>0 bbls</u>
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Failure of fiberglass flowline from the identified at the 90° fitting at 4' below the base of the production storage tank.

NMOC

OCT 02 2018

DISTRICT III

30

Incident ID	
District RP	
Facility ID	
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Was this a major release as defined by 19.15.29.7(A) NMAC?

☐ Yes ☒ No

If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

### Initial Response

*The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury*

- ☒ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Steve Moskal Title: Environmental Coordinator

Signature:  Date: October 2, 2018

email: steven.moskal@bpx.com Telephone: (505) 330-9179

**OCD Only**

Received by:  Date: 10/10/2018

Incident ID	
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## Site Assessment/Characterization

*This information must be provided to the appropriate district office no later than 90 days after the release discovery date.*

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>&lt;100</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas <b>not</b> on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

### **Characterization Report Checklist:** *Each of the following items must be included in the report.*

- ☐ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☐ Field data
- ☐ Data table of soil contaminant concentration data
- ☐ Depth to water determination
- ☐ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☐ Photographs including date and GIS information
- ☐ Topographic/Aerial maps
- ☐ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.



State of New Mexico  
Oil Conservation Division

Incident ID	
District RP	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Steve Moskal Title: Environmental Coordinator

Signature:  Date: October 2, 2018

email: steven.moskal@bpx.com Telephone: (505) 330-9179

**OCD Only**

Received by: 

Date: 10/10/18



Incident ID	
District RP	
Facility ID	
Application ID	

## Remediation Plan

**Remediation Plan Checklist:** *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

**Deferral Requests Only:** *Each of the following items must be confirmed as part of any request for deferral of remediation.*

- ☐ Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- ☐ Extents of contamination must be fully delineated.
- ☐ Contamination does not cause an imminent risk to human health, the environment, or groundwater.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Steve Moskal Title: Environmental Coordinator

Signature: 

Date: October 2, 2018

email: steven.moskal@bpx.com

Telephone: (505) 330-9179

**OCD Only**

Received by: Vanessa Fields Date: 10/10/2018

☐ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature: 

Date: 10/10/2018

Incident ID	
District RP	
Facility ID	
Application ID	

## Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

**Closure Report Attachment Checklist: Each of the following items must be included in the closure report.**

- ☐ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☐ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☐ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☐ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

email: \_\_\_\_\_ Telephone: \_\_\_\_\_

**OCD Only**

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

## Fields, Vanessa, EMNRD

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**From:** Fields, Vanessa, EMNRD  
**Sent:** Friday, October 5, 2018 1:45 PM  
**To:** Moskal, Steven  
**Cc:** Smith, Cory, EMNRD  
**Subject:** GCU 175E 30-045-26211 Soil Shredding Conditions of Approval

Good afternoon Steve,

After a review of BP'S Initial C-141 for the Soil Shredding remediation Plan and site assessment the OCD approves BP'S plan with the following condition of approvals:

Site Closure approved  $\leq 50$  feet

- The referenced site has two next Lower Order Tributary as referenced on Google earth as having a defined bed and bank.  
19.15.29.12.B(4) (4) If a release occurs within the following areas, the responsible party must treat the release as if it occurred less than 50 feet to ground water in Table I of 19.15.29.12 NMAC:  
(a) within (i) 300 feet of any continuously flowing watercourse or any other significant watercourse
- Closure Standard as referenced in Table I 19.15.29.12 NMAC:  
Chloride 600 mg/kg  
TPH 100 mg/kg  
(GRO/DRO/MRO)  
BTEX 50 mg/kg  
Benzene 10 mg/kg
- Provide 48 hours business notice prior to sampling.

Thank you,

Vanessa Fields  
Environmental Specialist  
Oil Conservation Division  
Energy, Minerals, & Natural Resources  
1000 Rio Brazos, Aztec, NM 87410  
(505)334-6178 ext 119  
Cell: (505) 419-0463  
[vanessa.fields@state.nm.us](mailto:vanessa.fields@state.nm.us)



## **BP Remediation Plan**

To: Cory Smith, Vanessa Fields(NMOCD), Emmanuel Adeloye (BLM)  
From: Steve Moskal (BP)  
CC: Jeff Blagg (Blagg Engineering)  
Date: 10/2/2018  
Re: Gallegos Canyon Unit 175E - Ex-situ Soil Remediation – Soil Shredding  
(M) S-25, T28N, R13W; API #30-045-26211; Federal Serial #I-149-IND-8471

Dear Mr. Smith, Mrs. Fields and Mr. Adeloye,

The Gallegos Canyon Unit (GCU )175E site is an active natural gas production well location within the San Juan Basin Gas Field in San Juan County, New Mexico. The site is located on land managed by the Bureau of Reclamation and Land Management Farmington Field Office (BLM-FFO) and is in an area primarily used for oil and gas production with surrounding rural residences. The production well was drilled in December of 2004.

### **Background**

An integrity failure of an aboveground production storage tank resulted in the release of approximately 3.0 bbls of natural gas condensate. This data is speculative based on the accessible and known area of impact surrounding a failed ninety degree fiberglass fitting on the two inch flowline running from the onsite separator to the production storage tank. The release discovery was confirmed with lab results on September 21, 2018. Initial site investigation determined additional delineation and remediation is required to define the extents of impacts. Vertical and lateral delineation of the site has not yet been performed. The well site is operated by BP Production.

### **Site Ranking**

Depth to groundwater at the release site is estimated to be greater than 100 feet. This estimation is based on data from Stone and others (1983), and depth to groundwater data obtained from water wells permitted by the New- Mexico State Engineer's Office (OSE, Figure 1). Based on a known depth to groundwater at the nearby water well SJ 01665, and considering a surface elevation difference of 577 feet, depth to water at the release site is estimated to be >500' from ground surface.

Local topography and proximity to adjacent water features are also considered. A topographic map of the site is provided as Figure 2 and demonstrates that the release site is not within 300 feet of any continuously flowing watercourse or within 200 feet of any other significant watercourse, lakebed, sinkhole or playa lake as measured from the ordinary high water mark. Figure 3 demonstrates that the release is not within 300 feet of a permanent residence, school, hospital, institution or church. Figure 4 demonstrates, based on a search of the OSE database and USGS topographic maps, that there are no freshwater wells or springs within 1000 feet of the release. Figure 5 demonstrates that the release site is not within a municipal boundary or a defined municipal freshwater well field. Figure 6 demonstrates that the release site is not within 500 feet of a wetland. Figure 7 demonstrates that the release site is not in an area overlying a subsurface mine. The release is not located in an unstable area. Figure 8 demonstrates that the release is not within the mapped FEMA 100-year floodplain.



Based on the siting criteria, the remediation site closure standards will be 2,500 ppm TPH, 1,000 ppm GRO+DRO, 50 ppm BTEX, 10 ppm benzene and 20,000 ppm chlorides.

### **Proposed Remediation – Soil Shredding**

Based on recent success of soil shredding technologies performed on BP remediation sites, BP proposes to use this technology at the subject site. To date, BP has successfully contracted soil shredding of nearly 165,000 cubic yards of soil to meet site closure standards.

Soil shredding involves the excavation of the impacted soil which is then placed in processing equipment, such as a shading bucket, hammer mill or pug mill, to mechanically process and break-up the soil. The soil becomes more uniform and is aerated during the mechanical processing. The soil is then ejected from the processing equipment and a chemical oxidizer is applied, in this case, a 35% solution of hydrogen peroxide and water. The applied concentration of hydrogen peroxide typically ranges from 3-8%. The hydrogen peroxide quickly oxidizes the hydrocarbon impacts (reagents), resulting in soil, water and carbon dioxide (products). Once the soil is processed, it is stockpiled and allowed to sit for approximately 2-5 days of residence time. A composite soil sample is collected from each segregated stockpile and submitted for laboratory analysis to determine the effectiveness of the ex-situ remediation process. If the laboratory results are of acceptable levels, the soil will be used as backfill to the excavation; if results are unsatisfactory, the soil is passed through the process once more and a subsequent laboratory sample will be collected for laboratory confirmation as described before. Typically, 24 hours of notice is provided to the regulatory agencies for the opportunity to observe and witness the stockpile sampling.

BP anticipates shredding approximately 500 cubic yards of contaminated soil. BP will monitor the effectiveness of the technology on the site specific soil type. If necessary and demonstrated as successful, soil shredding will continue beyond the 500 cubic yards. BP proposes to treat the impacted soil and segregate windrow stockpiles broken into 100 cubic yard increments. A single, five-point composite, soil sample will be collected to represent each 100 cubic yard stockpile. If necessary, once a baseline of approximately 1,000 cubic yards of soil is consistently and successfully treated, BP will propose to decrease the sampling frequency to 500 cubic yard stockpile segments. The 500 cubic yard sampling modification will be discussed with the NMOCD and BLM for approval and input prior to implementation. BP would expect to have a sampling modification approval from the agencies within 48 working hours from the time of request. The remediation will then continue until complete and sampling will be based on the regulatory agencies approved sampling plan.

Excavation sampling will be in accordance with a typical dig and haul. The sidewalls and base of the excavation will be sampled in a frequency based on the size and progress of the excavation. Agency notification of excavation sampling will also be issued in advanced, 24 hours if possible. The composite sampling area of the sidewalls and base will be determined based on the size and available area of the excavation at the time of each sampling event. This information will be communicated to each regulatory agency and agreed upon prior to sample submission.

BP is currently anticipates mobilizing to the location once this plan and the BLM Sundry is approved. BP plans to shut the well in and remove all necessary surface equipment. BP

requests that the BLM provides a 50' buffer from the pad disturbance in anticipation of any offsite activities, should it be necessary.

It is understood, that if soil remediation is not successful via the soil shredding, an alternative method such as a dig and haul or soil vapor extraction will be necessary. If soil shredding is not effective, BP will elect to perform an alternative type of remediation such as dig and haul, soil vapor extraction or other approved methods. BP will be in close communications with the agencies in the event an alternative remediation method is required.

#### **Site Closure and Reporting**

Once the soil shredding process is complete, the excavated area will be fully backfilled and compacted, and surface equipment will be re-set. Any necessary interim reclamation will be performed. Final reclamation of the well pad will occur at a later date, once the natural gas production well is plugged and abandoned.

A final remediation report will be delivered to NMOCD and BLM for approval of final site closure regarding the excavation and soil shredding activities within 60 days of the end of remediation.



## **SITING AND HYDRO-GEOLOGICAL REPORT FOR GALLEGOS CANYON UNIT 175E**

### **SITING CRITERIA 19.15.17.10 NMAC**

Depth to groundwater at the site is estimated to be greater than 100 feet. This estimation is based on data from Stone and others (1983), and depth to groundwater data obtained from water wells permitted by the New Mexico State Engineer's Office (OSE, Figure 1). Local topography and proximity to adjacent water features are also considered. A topographic map of the site is provided as Figure 2 and demonstrates that the below grade tank (BGT) is not within 300 feet of any continuously flowing watercourse or within 200 feet of any other significant watercourse, lakebed, sinkhole or playa lake as measured from the ordinary high water mark. Figure 3 demonstrates that the BGT is not within 300 feet of a permanent residence, school, hospital, institution or church. Figure 4 demonstrates, based on a search of the OSE database and USGS topographic maps, that there are no freshwater wells or springs within 1000 feet of the BGT. Figure 5 demonstrates that the BGT is not within a municipal boundary or a defined municipal freshwater well field. Figure 6 demonstrates that the BGT is not within 500 feet of a wetland. Figure 7 demonstrates that the BGT is not in an area overlying a subsurface mine. The BGT is not located in an unstable area. Figure 8 demonstrates that the BGT is not within the mapped FEMA 100-year floodplain.

### **Local Geology and Hydrology**

This particular site is located on a slope west of Gallegos Canyon. Broad shaley hills are interspersed with occasional sandstone outcrops, and systems of dry washes and their tributaries are common. The predominant geologic formation is the Nacimiento Formation of Tertiary age, which underlies surface soils and is often exposed. Deposits of Quaternary alluvial and eolian sands occur prominently near the surface of the area, especially near washes.

### **Regional Geology and Hydrology**

The San Juan Basin is situated in the Navajo section of the Colorado Plateau and is characterized by broad open valleys, mesas, buttes and hogbacks. Away from major valleys and canyons topographic relief is generally low. Native vegetation is sparse and shrubby. Drainage is mainly by the San Juan River, the only permanent stream in the Navajo Section of the Colorado Plateau. The San Juan River is a tributary of the Colorado River. Major tributaries include the Animas, Chaco and La Plata Rivers. Flow of the San Juan River across the basin is regulated by the Navajo Dam, located about 30 miles northeast of Farmington, New Mexico. The climate is arid to semiarid with an average annual precipitation of 8 to 10 inches. Soils within the basin consist of weathered parent rock derived from predominantly physical means mostly from eolian depositional system with fluvial having a lesser impact.

Cretaceous and Tertiary sandstones, as well as Quaternary Alluvial deposits, serve as the primary aquifers in the San Juan Basin (Stone et al., 1983). In most of the proposed area, the Nacimiento Formation lies at the surface and grades into the Animas Formation to the west. The lower part

of the Nacimiento Formation is composed of interbedded black, carbonaceous mudstones and white coarse-grained sandstones. The upper part is comprised of mudstone and sandstone. It is generally slope-forming, even within the sandstone units. Thickness of the Nacimiento ranges from 418 to 2232 feet (Stone et al., 1983). Aquifers within the coarser and continuous sandstone bodies of the Nacimiento Formation are between 0 and 1000 feet deep in this section of the basin. Wells within these bodies flow from 16 to 100 gallons per minute (gpm), and transmissivities are expected to be 100 ft<sup>2</sup>/d (Stone et al, 1983). Groundwater within these aquifers flows toward the San Juan River.

### **References**

Circular 154—Guidebook to coal geology of northwest New Mexico By E. C. Beaumont, J. W. Shomaker, W. J. Stone, and others, 1976

Stone, et al., 1983, Hydrogeology and Water Resources of the San Juan Basin, New Mexico, Socorro, New Mexico Bureau of Mines and Mineral Resources Hydrologic Report 6, 70 p



## GCU 175E - Release

(M) Section 25, T28N, R13W  
API #: 3004526211

Imagery date: 3/15/2015

WH GPS Coord.: 36.629218,-108.175511

Prod. Tank GPS Coord.: 36.629003,-108.175126



Production Tank



100 ft



# GALLEGOS CANYON UNIT # 175E

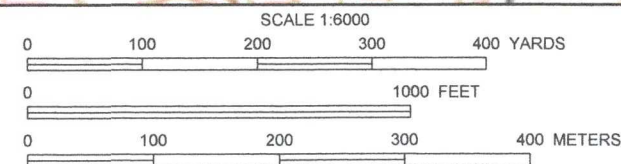
1,000 ft. radius  
from prod. tank center

300 ft. radius  
from prod. tank center

Production Tank Location  
GPS Coordinates:  
36.629033, -108.175126  
Ground Level Elevation: 5,957 ft.

Surface gradient  
direction: ENE

**Proximity to Watercourses**





# GCU 175E - Release

(M) Section 25, T28N, R13W  
API #: 3004526211

Imagery date: 3/15/2015  
WH GPS Coord.: 36.629218,-108.175511  
Prod. Tank GPS Coord.: 36.629003,-108.175126

WH

300 ft. radius  
from prod. tank center

Google Earth

© 2013 Google

300 ft





## LEGEND

● BGT Location

● Water Well Location

— Distance to BGT (Line of Sight)

○ 1 Mile Buffer

Groundwater Evaluation (Alluvial Geology)

Groundwater Likely Less Than 50 Feet BGS

Groundwater Suspected to be Less Than 50 Feet BGS

Ka - Animas formation

Kch - Cliff House sandstone

Kf - Fruitland formation

Kkl - Kirtland shale, lower shale member

Kkm - Kirtland shale, Farmington sandstone member

Kku - Kirtland shale, upper shale member

Kl - Lewis shale

Kmf - Menefee formation

Koa - Ojo Alamo sandstone

## Surficial Geology Units

Kpc - Pictured Cliffs sandstone

Kpl - Point Lookout sandstone

Lake

Qa - Alluvium

Qal - Alluvium

Qap - Pediment gravel

Qat - Terrace gravel

Qes - Eolian sand

Qg - Terrace gravel

Qgs - Gravelly sand

Qsw - Sheetwash alluvium

Tbg - Bridgetimber Gravel

Ti - Intrusive rocks

Tn - Nacimiento formation

Tsc - Cuba Mesa Member

Tsj - San Jose Formation

Tsr - Regina Member

TANK ID: 3004526211A  
WELL NAME: GALLEGOS CANYON UNIT 175E  
GROUND ELEV: 5957 ft.

POD Number	Well Depth	Water Depth	Elevation
SJ 01371	345	0	5742
SJ 00566	18	6	5302
SJ 00966	18	3	5302
SJ 01665	146	75	5380
SP 02475	0	0	5296



1 inch = 6,000 feet

0 3,000 6,000 12,000 Feet

PROJECTION: NAD 1983 StatePlane New Mexico West FIPS 3003 - Units (Feet)

Creation Date: 5/7/2010

File Path: X:\BP\PASS\Sector\_10\Sector\_10\IMX\Del3004526211A.mxd

Created by: PRW

Reviewed by: AGH



# GROUNDWATER LESS THAN 50 FT.

WELL NAME: GALLEGOS CANYON UNIT 175E

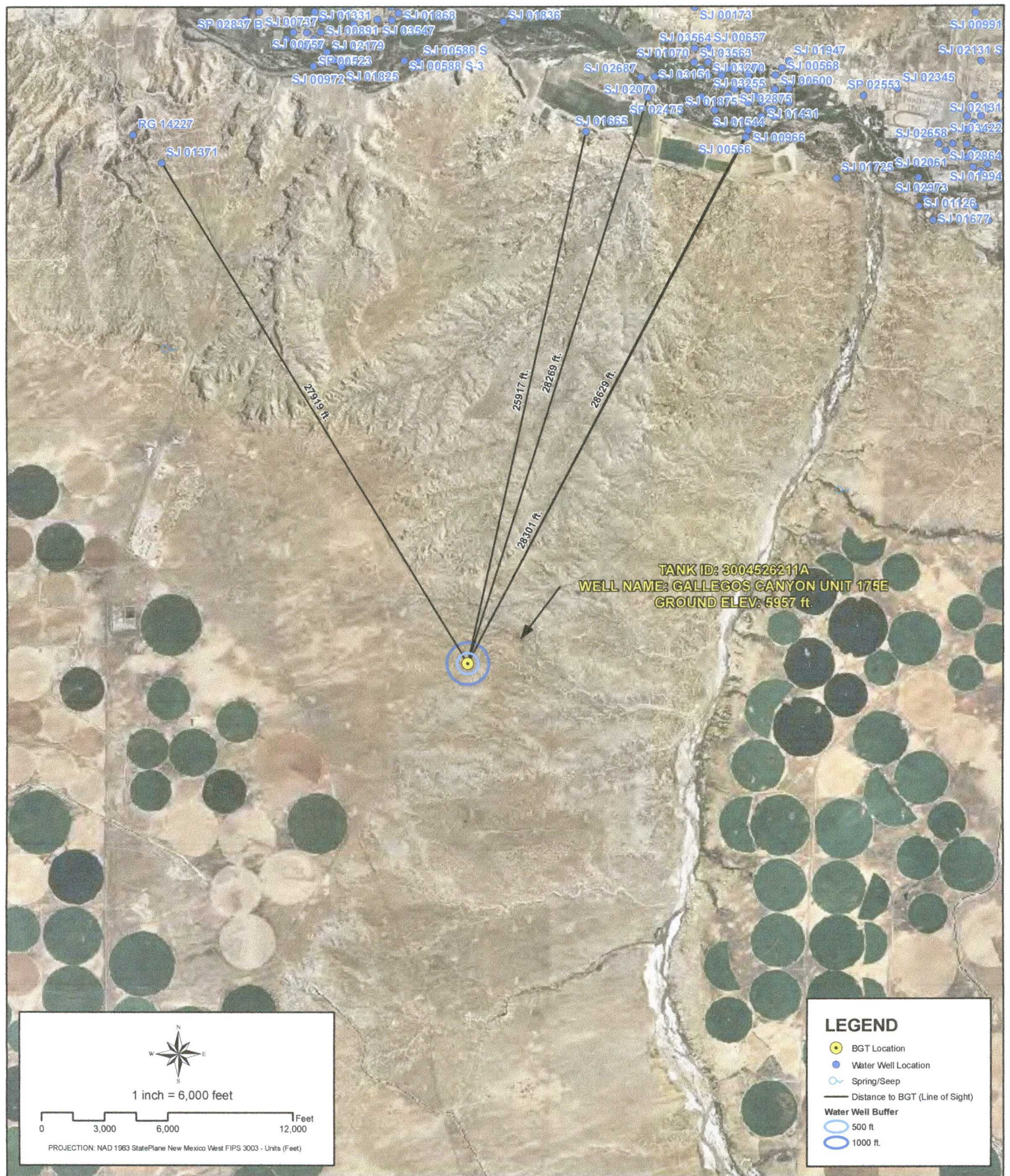
API NUMBER: 3004526211 TANK ID: 3004526211A

SECTION 25, TOWNSHIP 28.0N, RANGE 13W, P.M. NM23

FIGURE

1





## PROXIMITY TO WATER WELLS

**WELL NAME: GALLEGOS CANYON UNIT 175E**

API NUMBER: 3004526211 TANK ID: 3004526211A

SECTION 25, TOWNSHIP 28.0N, RANGE 13W, P.M. NM23

FIGURE

4





# *New Mexico Office of the State Engineer*

## **Wells with Well Log Information**

No wells found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 216047.52

**Northing (Y):** 4058438.69

**Radius:** 1610





# *New Mexico Office of the State Engineer* **Wells Without Well Log Information**

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No wells found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 216047.52

**Northing (Y):** 4058438.69

**Radius:** 1610



# *New Mexico Office of the State Engineer*

## **Point of Diversion with Meter Attached**

No PODs found.

**UTMNAD83 Radius Search (in meters):**

**Easting (X):** 216047.52

**Northing (Y):** 4058438.69

**Radius:** 1610



# GCU 175E Sampling Map

(M) S-25, T28N, R 13W  
Sample GPS:  
36.629012, -108.175144

GCU 175E Wellhead

## Legend

- GCU 175E Wellhead
- Sample Location SS-01
- Testhole Area

Sample Location SS-01

Google Earth



90 ft



## Analytical Report

### Report Summary

Client: BP America Production Co.

Chain Of Custody Number:

Samples Received: 9/18/2018 4:31:00PM

Job Number: 03143-0424

Work Order: P809035

Project Name/Location: GCU 175E

Report Reviewed By:



Date: 9/21/18

Walter Hinchman, Laboratory Director



Date: 9/21/18

Tim Cain, Project Manager



Envirotech Inc. certifies the test results meet all requirements of TNI unless footnoted otherwise.

Statement of Data Authenticity: Envirotech, Inc. attests the data reported has not been altered in any way.

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Envirotech, Inc. currently holds the appropriate and available Utah TNI certification NM009792018-1 for the data reported.



BP America Production Co.  
PO Box 22024  
Tulsa OK, 74121-2024

Project Name: GCU 175E  
Project Number: 03143-0424  
Project Manager: Steve Moskal

**Reported:**  
09/21/18 13:22

### Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
SS-01	P809035-01A	Soil	09/18/18	09/18/18	Glass Jar, 4 oz.

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BP America Production Co.  
 PO Box 22024  
 Tulsa OK, 74121-2024

 Project Name: GCU 175E  
 Project Number: 03143-0424  
 Project Manager: Steve Moskal

**Reported:**  
 09/21/18 13:22

**SS-01**  
**P809035-01 (Solid)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Volatile Organics by EPA 8021</b>									
Benzene	13200	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
Toluene	147000	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
Ethylbenzene	30200	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
p,m-Xylene	193000	2000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
o-Xylene	56700	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
Total Xylenes	250000	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
Total BTEX	441000	1000	ug/kg	10	1838015	09/19/18	09/20/18	EPA 8021B	
Surrogate: 4-Bromochlorobenzene-PID		90.2 %		50-150	1838015	09/19/18	09/20/18	EPA 8021B	
<b>Nonhalogenated Organics by 8015</b>									
Gasoline Range Organics (C6-C10)	2780	200	mg/kg	10	1838015	09/19/18	09/20/18	EPA 8015D	
Diesel Range Organics (C10-C28)	4260	250	mg/kg	10	1838018	09/20/18	09/20/18	EPA 8015D	
Oil Range Organics (C28-C40+)	ND	500	mg/kg	10	1838018	09/20/18	09/20/18	EPA 8015D	
Surrogate: 1-Chloro-4-fluorobenzene-FID		119 %		50-150	1838015	09/19/18	09/20/18	EPA 8015D	
Surrogate: n-Nonane		481 %		50-200	1838018	09/20/18	09/20/18	EPA 8015D	Surr2
<b>Anions by 300.0/9056A</b>									
Chloride	53.5	20.0	mg/kg	1	1838009	09/18/18	09/19/18	EPA 300.0/9056A	

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 Tulsa OK, 74121-2024

 Project Name: GCU 175E  
 Project Number: 03143-0424  
 Project Manager: Steve Moskal

 Reported:  
 09/21/18 13:22

**Volatile Organics by EPA 8021 - Quality Control**
**Envirotech Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1838015 - Purge and Trap EPA 5030A**
**Blank (1838015-BLK1)**

Prepared &amp; Analyzed: 09/19/18 1

Benzene	ND	100	ug/kg							
Toluene	ND	100	"							
Ethylbenzene	ND	100	"							
p,m-Xylene	ND	200	"							
o-Xylene	ND	100	"							
Total Xylenes	ND	100	"							
Total BTEX	ND	100	"							

Surrogate: 4-Bromochlorobenzene-PID 8020 " 8000 100 50-150

**LCS (1838015-BS1)**

Prepared &amp; Analyzed: 09/19/18 1

Benzene	5260	100	ug/kg	5000		105	70-130			
Toluene	5430	100	"	5000		109	70-130			
Ethylbenzene	5520	100	"	5000		110	70-130			
p,m-Xylene	11300	200	"	10000		113	70-130			
o-Xylene	5470	100	"	5000		109	70-130			
Total Xylenes	16800	100	"	15000		112	70-130			

Surrogate: 4-Bromochlorobenzene-PID 8000 " 8000 100 50-150

**Matrix Spike (1838015-MS1)**

Source: P809033-01

Prepared: 09/19/18 1 Analyzed: 09/19/18 2

Benzene	4500	100	ug/kg	5000	ND	89.9	54.3-133			
Toluene	4630	100	"	5000	ND	92.7	61.4-130			
Ethylbenzene	4720	100	"	5000	ND	94.5	61.4-133			
p,m-Xylene	9710	200	"	10000	ND	97.1	63.3-131			
o-Xylene	4700	100	"	5000	ND	94.0	63.3-131			
Total Xylenes	14400	100	"	15000	ND	96.1	63.3-131			

Surrogate: 4-Bromochlorobenzene-PID 8090 " 8000 101 50-150

**Matrix Spike Dup (1838015-MSD1)**

Source: P809033-01

Prepared: 09/19/18 1 Analyzed: 09/19/18 2

Benzene	5050	100	ug/kg	5000	ND	101	54.3-133	11.7	20	
Toluene	5220	100	"	5000	ND	104	61.4-130	12.0	20	
Ethylbenzene	5330	100	"	5000	ND	107	61.4-133	12.0	20	
p,m-Xylene	10900	200	"	10000	ND	109	63.3-131	11.7	20	
o-Xylene	5300	100	"	5000	ND	106	63.3-131	11.9	20	
Total Xylenes	16200	100	"	15000	ND	108	63.3-131	11.8	20	

Surrogate: 4-Bromochlorobenzene-PID 8080 " 8000 101 50-150

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BP America Production Co.  
 PO Box 22024  
 Tulsa OK, 74121-2024

 Project Name: GCU 175E  
 Project Number: 03143-0424  
 Project Manager: Steve Moskal

**Reported:**  
 09/21/18 13:22

**Nonhalogenated Organics by 8015 - Quality Control**
**Envirotech Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1838015 - Purge and Trap EPA 5030A**
**Blank (1838015-BLK1)**

Prepared &amp; Analyzed: 09/19/18 1

Gasoline Range Organics (C6-C10)	ND	20.0	mg/kg							
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.66		"	8.00		95.8	50-150			

**LCS (1838015-BS2)**

Prepared &amp; Analyzed: 09/19/18 1

Gasoline Range Organics (C6-C10)	47.4	20.0	mg/kg	50.0		94.7	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.98		"	8.00		99.7	50-150			

**Matrix Spike (1838015-MS2)**

Source: P809033-01

Prepared: 09/19/18 1 Analyzed: 09/19/18 2

Gasoline Range Organics (C6-C10)	51.0	20.0	mg/kg	50.0	ND	102	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.79		"	8.00		97.4	50-150			

**Matrix Spike Dup (1838015-MSD2)**

Source: P809033-01

Prepared: 09/19/18 1 Analyzed: 09/19/18 2

Gasoline Range Organics (C6-C10)	45.3	20.0	mg/kg	50.0	ND	90.6	70-130	11.8	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	7.91		"	8.00		98.9	50-150			

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 Project Name: GCU 175E  
 Project Number: 03143-0424  
 Project Manager: Steve Moskal

**Reported:**  
 09/21/18 13:22

**Nonhalogenated Organics by 8015 - Quality Control**
**Envirotech Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1838018 - DRO Extraction EPA 3570**
**Blank (1838018-BLK1)**

Prepared: 09/20/18 0 Analyzed: 09/20/18 1

Diesel Range Organics (C10-C28)	ND	25.0	mg/kg						
Oil Range Organics (C28-C40+)	ND	50.0	"						
Surrogate: n-Nonane	56.2		"	50.0		112	50-200		

**LCS (1838018-BS1)**

Prepared: 09/20/18 0 Analyzed: 09/20/18 1

Diesel Range Organics (C10-C28)	441	25.0	mg/kg	500		88.1	38-132		
Surrogate: n-Nonane	56.4		"	50.0		113	50-200		

**Matrix Spike (1838018-MS1)**

Source: P809033-01

Prepared: 09/20/18 0 Analyzed: 09/20/18 1

Diesel Range Organics (C10-C28)	443	25.0	mg/kg	500	ND	88.6	38-132		
Surrogate: n-Nonane	56.1		"	50.0		112	50-200		

**Matrix Spike Dup (1838018-MSD1)**

Source: P809033-01

Prepared: 09/20/18 0 Analyzed: 09/20/18 1

Diesel Range Organics (C10-C28)	440	25.0	mg/kg	500	ND	88.0	38-132	0.689	20
Surrogate: n-Nonane	56.4		"	50.0		113	50-200		

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 Project Name: GCU 175E  
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 Project Manager: Steve Moskal

**Reported:**  
 09/21/18 13:22

**Anions by 300.0/9056A - Quality Control**
**Envirotech Analytical Laboratory**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1838009 - Anion Extraction EPA 300.0/9056A**
**Blank (1838009-BLK1)**

Prepared &amp; Analyzed: 09/18/18 1

Chloride	ND	20.0	mg/kg							
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**LCS (1838009-BS1)**

Prepared &amp; Analyzed: 09/18/18 1

Chloride	253	20.0	mg/kg	250		101	90-110			
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**Matrix Spike (1838009-MS1)**

Source: P809034-01

Prepared &amp; Analyzed: 09/18/18 1

Chloride	293	20.0	mg/kg	250	29.8	105	80-120			
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**Matrix Spike Dup (1838009-MSD1)**

Source: P809034-01

Prepared &amp; Analyzed: 09/18/18 1

Chloride	294	20.0	mg/kg	250	29.8	106	80-120	0.255	20	
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Project Name: GCU 175E  
Project Number: 03143-0424  
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**Reported:**  
09/21/18 13:22

### Notes and Definitions

Surr2      The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.

DET      Analyte DETECTED

ND      Analyte NOT DETECTED at or above the reporting limit

NR      Not Reported

RPD      Relative Percent Difference

\*\*      Methods marked with \*\* are non-accredited methods.

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