

April 11, 2019

Ms. Victoria Venegas  
New Mexico Oil Conservation Division  
811 South First Street  
Artesia, New Mexico 88210

**RE: Sampling Variance Request  
James Ranch Unit #138 at JRU 19 Battery  
XTO Energy, Inc.  
Remediation Permit Number 2RP-4980  
Eddy County, New Mexico**

Dear Ms. Venegas:

LT Environmental, Inc. (LTE), on behalf of XTO Energy, Inc. (XTO), presents the following Sampling Variance Request to document initial response activities and propose alternative closure sampling to confirm the remediation of impacted soil at the James Ranch Unit (JRU) #138 at JRU 19 battery (Site) in Unit J, Section 36, Township 22 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The sampling described is designed to evaluate remediation and propose a variance to the New Mexico Oil Conservation Division (NMOCD) confirmation sampling requirements in 19.15.29.12.D(3) of the New Mexico Administrative Code (NMAC).

## **BACKGROUND**

On September 8, 2018, a failed check valve on the flow line header caused approximately 194 barrels (bbls) of crude oil and 667 bbls of produced water to be released at the entrance of the battery. The release impacted approximately 48,450 square feet on site at the well pad and 25,350 square feet off site for a total of 73,800 square feet of surface impacted materials. Free-standing fluid was recovered using a vacuum truck; approximately 180 bbls of crude oil and 620 bbls of produced water were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 on September 21, 2018, and was assigned Remediation Permit (RP) number 2RP-4980 (Attachment 1). XTO initiated remediation activities by excavating impacted soil at the Site in accordance with the New Mexico Administration Code (NMAC) Title 19, Chapter 15, Part 29 Remediation and Closure Guidelines for Oil and Gas Releases, dated August 14, 2018 (19.15.29 NMAC).

LTE characterized the Site according to Table 1, the *Closure Criteria for Soils Impacted by a Release*, of 19.15.29.12 NMAC. Depth to groundwater at the Site is estimated to be between 50 feet and 100 feet below ground surface (bgs) based on the nearest water well data and known



aquifer properties. The nearest permitted water well, water well number 02492, is located approximately 1.9 miles southeast of the Site. Depth to groundwater in the well is 85 feet bgs and total depth of the well is 135 feet bgs. The Site is located greater than 300 feet from any continuously flowing watercourse, 200 feet from any lakebed, sinkhole, or playa lake, and greater than 300 feet to a permanent residence, school, hospital, institution, church, or wetland. The Site is greater than 500 feet from a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes and greater than 1,000 feet to a freshwater well or spring. The Site is in a medium karst area and not within the 100-year floodplain or overlying a subsurface mine. Based on these criteria, the NMOCD site ranking for remediation action levels is 10, and the following remediation action levels apply: 10 milligrams per kilogram (mg/kg) benzene; 50 mg/kg total benzene, toluene, ethylbenzene, and total xylenes (BTEX); 1,000 mg/kg gasoline range organics (GRO) and diesel range organics (DRO); 2,500 mg/kg total petroleum hydrocarbons (TPH); and 10,000 mg/kg chloride.

## INITIAL RESPONSE

On September 12, 2018, LTE personnel inspected the Site to evaluate the release extent. The release extent was mapped using a handheld Global Positioning System (GPS) unit and is depicted on Figure 2. LTE personnel collected nine preliminary soil samples (SS01 through SS09) within the release area from a depth of 0.5 feet bgs to assess the lateral extent of soil impacts. The soil samples were screened for volatile aromatic hydrocarbons and chloride using a photo-ionization detector (PID) and Hach® chloride QuanTab® test strips. The soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, method of analysis, and immediately placed on ice. The soil samples were shipped at 4 degrees Celsius (°C) under strict chain-of-custody procedures to Xenco Laboratories (Xenco) in Midland, Texas, for analysis of BTEX by United States Environmental Protection Agency (USEPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0.

## DELINEATION

From September 26 to October 1, 2018, LTE personnel returned to the Site to conduct delineation sampling within the release area. LTE advanced 25 potholes to depths ranging from 1.5 feet to 4 feet bgs. Two soil samples were collected from each pothole: one sample from the interval with the highest field screening result and one sample from total depth. The soil samples were screened for volatile aromatic hydrocarbons and chloride using a PID and Hach® chloride QuanTab® test strips. The soil samples were handled, labeled, and analyzed as previously described.





## EXCAVATION

During site delineation efforts described above, three excavations were initiated to the north, south, and west of the pump jack equipment based on field screening results and visual observation of soil staining (Figure 3). Following the completion of excavation activities, 5-point composite confirmation soil samples were collected from the floors (samples labeled as “FS”) and sidewalls (samples labeled as “SW”) of the excavation areas. Each soil sample represented 200 square feet and the samples were handled as previously described. Approximately 175 cubic yards of impacted soil were removed from the excavation areas.

## PROPOSED SAMPLING

Additional excavation is necessary at the Site. Figure 4 illustrates soil samples locations with concentrations of analytes that exceed the NMOCD Table 1 remediation action levels. LTE will continue to excavate on pad in areas represented by SS04, PH08, PH09, PH14, PH21, and PH22 and sample those excavations for closure confirmation as specified in 19.15.29.12.D(c). LTE is requesting a variance to the 200-square foot confirmation sampling requirement for the area to be excavated off-pad, which would require an impractical number of confirmation samples to be collected and analyzed. Based on the size of the affected area, LTE proposes increasing the confirmation sampling size to a 1,000-square foot area and collecting a 5-point composite sample to represent each 1,000-square foot area. Additionally, discrete soil samples will be collected from any areas where wet or discolored soil is observed. An estimated 15 samples will be collected from the excavation floor and 21 samples collected from the excavation sidewalls. The attached Figure 5 illustrates the proposed sampling grids overlaying the release footprint. Figure 5 does not illustrate sidewall sample locations, which will also be collected to represent 1,000 square feet in area. The soil samples will be placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler, method of analysis, and immediately placed on ice. The soil samples were shipped at 4 °C under strict chain-of-custody procedures to Xenco in Midland, Texas, for analysis of BTEX by USEPA Method 8021B, TPH-GRO, TPH-DRO, and TPH-ORO by USEPA Method 8015M/D, and chloride by USEPA Method 300.0.

## REPORTING

When analytical results from all confirmation soil samples demonstrate compliance with NMOCD Table 1 closure criteria, XTO will provide the NMOCD with a final closure request.

## SCHEDULE

Excavation is underway and sampling activities will be conducted once field screening indicates potential compliance with NMOCD Table 1 closure criteria.





LTE appreciates the opportunity to provide this sampling plan to the NMOCD. We look forward to approval of the variance request. If you have any questions or comments, please do not hesitate to contact Ms. Adrian Baker at (432) 887-1255 or [abaker@ltenv.com](mailto:abaker@ltenv.com).

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink that reads "Adrian Baker". The signature is fluid and cursive.

Adrian Baker  
Project Geologist

A handwritten signature in blue ink that reads "Ashley L. Ager". The signature is fluid and cursive.

Ashley L. Ager, P.G.  
Senior Geologist

cc: Kyle Littrell, XTO  
Maria Pruett, NMOCD  
Jim Amos, BLM  
Shelly Tucker, BLM

Attachments:

Figure 1 – Site Location Map  
Figure 2 – Soil Sample Locations  
Figure 3 – Excavation & Soil Sample Locations  
Figure 4 – Sol Sample Results  
Figure 5 – Proposed Grid Sampling  
Table 1 – Analytical Results







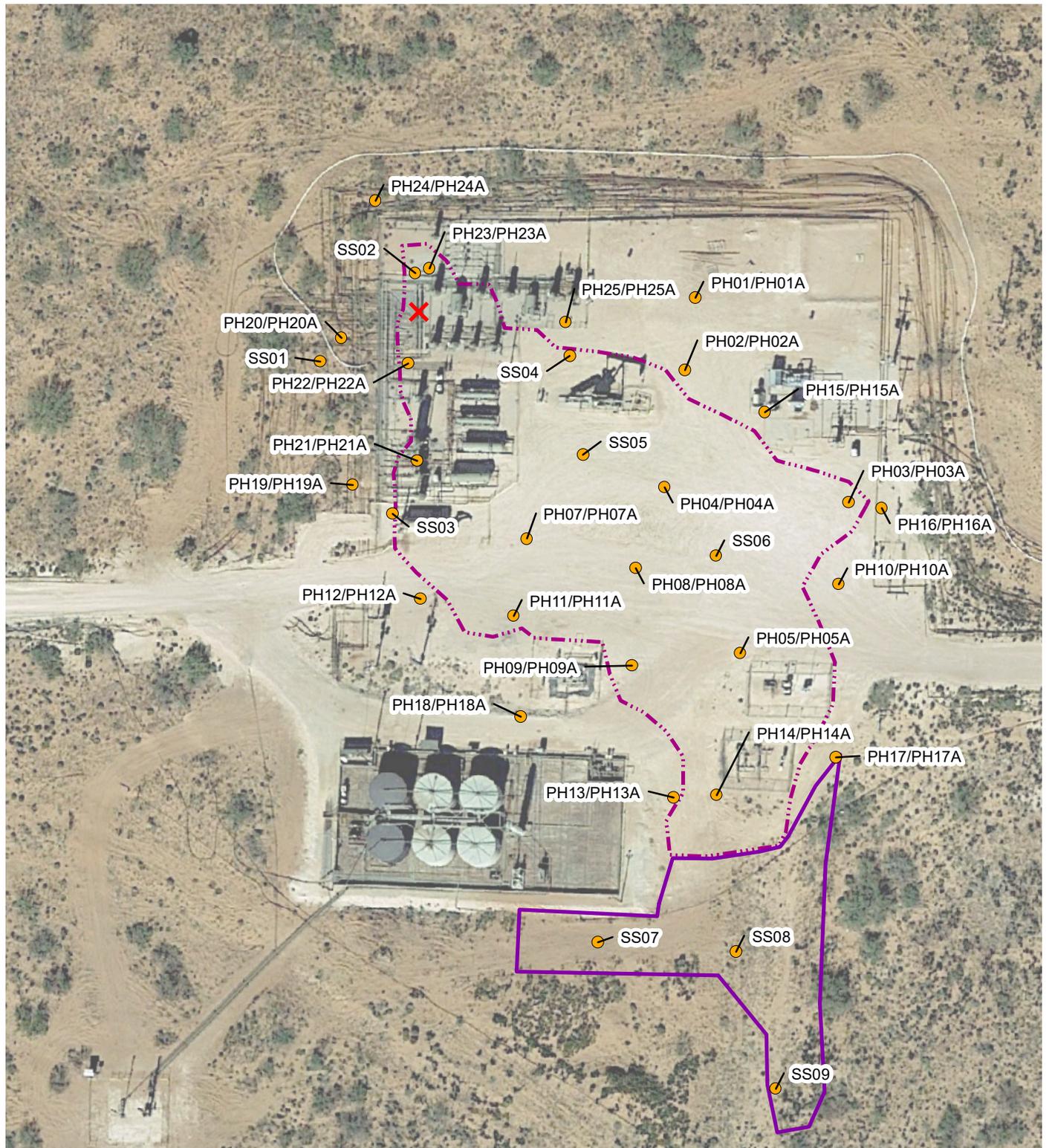
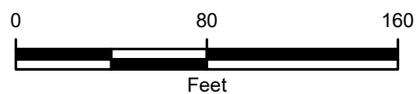


IMAGE COURTESY OF GOOGLE EARTH 2017

**LEGEND**

- X RELEASE LOCATION
- SOIL SAMPLE LOCATION
- ONSITE RELEASE FOOTPRINT
- APPROXIMATE OFFSITE RELEASE EXTENT



**FIGURE 2**  
**SOIL SAMPLE LOCATIONS**  
**JAMES RANCH UNIT #138 AT JRU 19 BATTERY**  
**UNIT J SEC 36 T22S R30E**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**



NOTE: REMEDIATION PERMIT NUMBER 2RP-4980

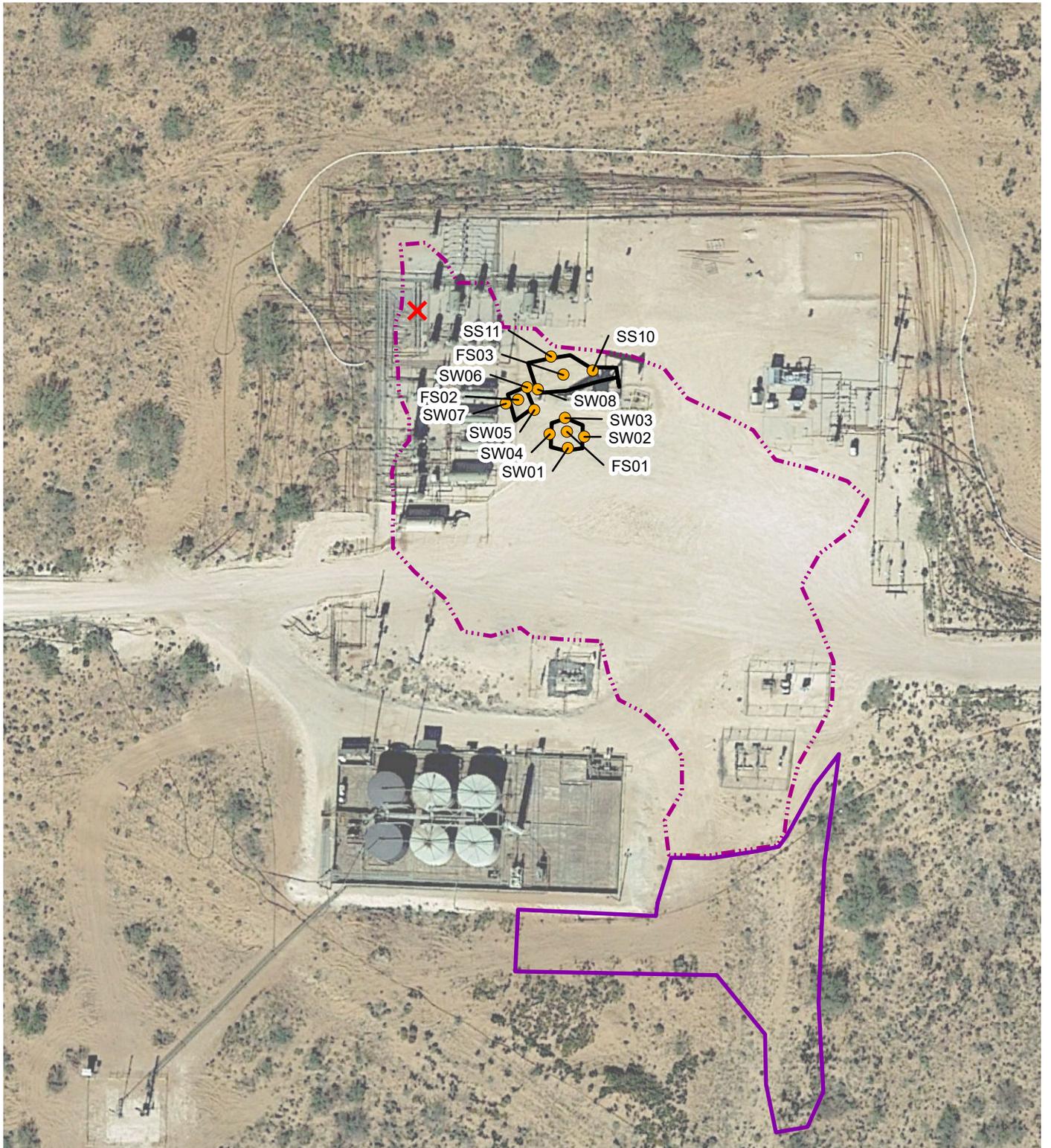
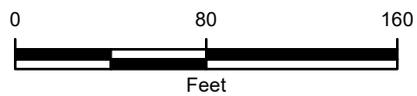


IMAGE COURTESY OF GOOGLE EARTH 2017

**LEGEND**

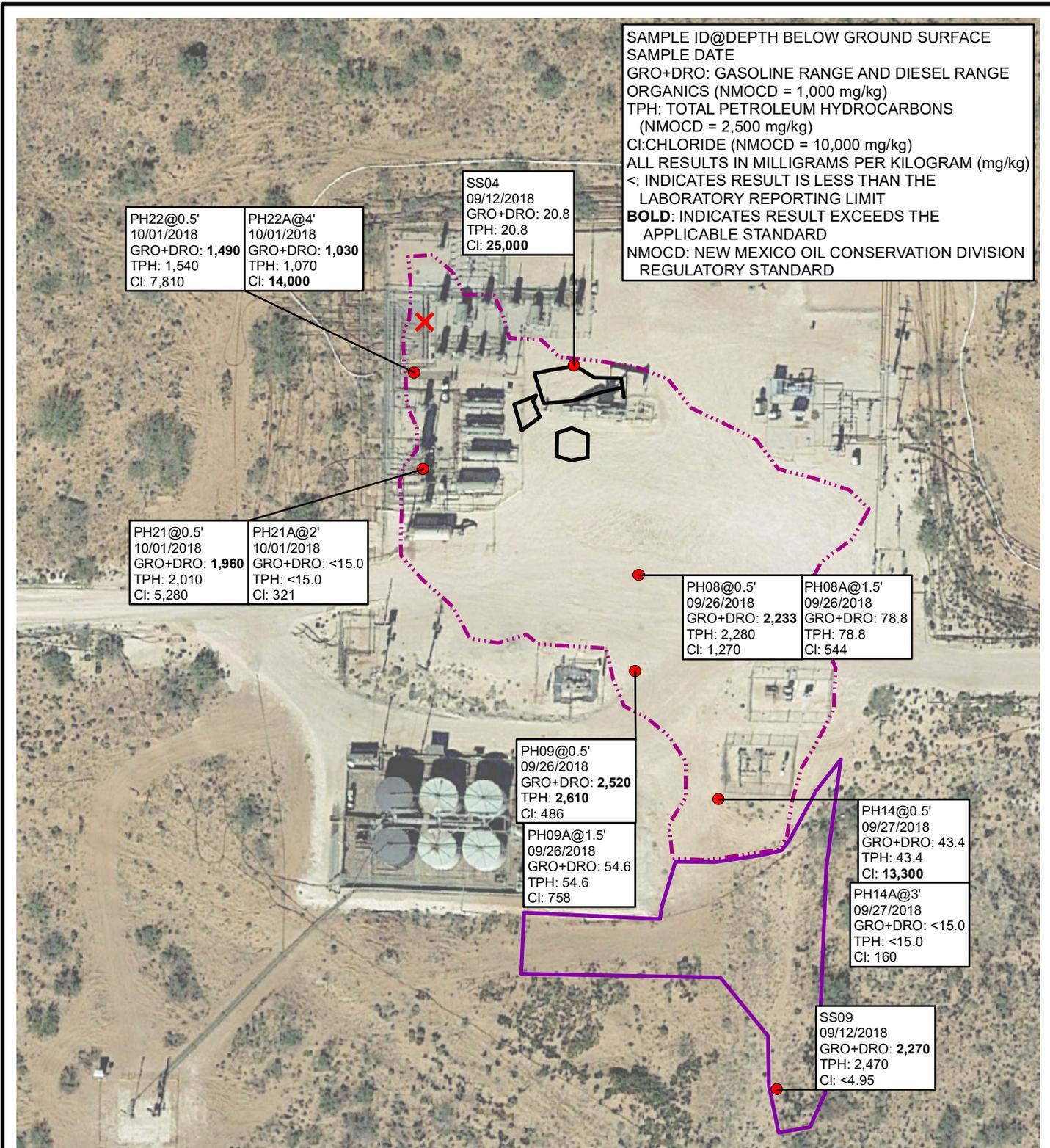
- X RELEASE LOCATION
- SOIL SAMPLE LOCATION
- EXCAVATION EXTENT
- ONSITE RELEASE FOOTPRINT
- APPROXIMATE OFFSITE RELEASE EXTENT

NOTE: REMEDIATION PERMIT NUMBER 2RP-4980



**FIGURE 3**  
**EXCAVATION & SOIL SAMPLE LOCATIONS**  
**JAMES RANCH UNIT #138 AT JRU 19 BATTERY**  
**UNIT J SEC 36 T22S R30E**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**





SAMPLE ID@DEPTH BELOW GROUND SURFACE  
 SAMPLE DATE  
 GRO+DRO: GASOLINE RANGE AND DIESEL RANGE ORGANICS (NMOCD = 1,000 mg/kg)  
 TPH: TOTAL PETROLEUM HYDROCARBONS (NMOCD = 2,500 mg/kg)  
 Cl: CHLORIDE (NMOCD = 10,000 mg/kg)  
 ALL RESULTS IN MILLIGRAMS PER KILOGRAM (mg/kg)  
 <: INDICATES RESULT IS LESS THAN THE LABORATORY REPORTING LIMIT  
**BOLD:** INDICATES RESULT EXCEEDS THE APPLICABLE STANDARD  
 NMOCD: NEW MEXICO OIL CONSERVATION DIVISION REGULATORY STANDARD

PH22@0.5'  
 10/01/2018  
 GRO+DRO: **1,490**  
 TPH: 1,540  
 Cl: 7,810

PH22A@4'  
 10/01/2018  
 GRO+DRO: **1,030**  
 TPH: 1,070  
 Cl: **14,000**

SS04  
 09/12/2018  
 GRO+DRO: 20.8  
 TPH: 20.8  
 Cl: **25,000**

PH21@0.5'  
 10/01/2018  
 GRO+DRO: **1,960**  
 TPH: 2,010  
 Cl: 5,280

PH21A@2'  
 10/01/2018  
 GRO+DRO: <15.0  
 TPH: <15.0  
 Cl: 321

PH08@0.5'  
 09/26/2018  
 GRO+DRO: **2,233**  
 TPH: 2,280  
 Cl: 1,270

PH08A@1.5'  
 09/26/2018  
 GRO+DRO: 78.8  
 TPH: 78.8  
 Cl: 544

PH09@0.5'  
 09/26/2018  
 GRO+DRO: **2,520**  
 TPH: **2,610**  
 Cl: 486

PH09A@1.5'  
 09/26/2018  
 GRO+DRO: 54.6  
 TPH: 54.6  
 Cl: 758

PH14@0.5'  
 09/27/2018  
 GRO+DRO: 43.4  
 TPH: 43.4  
 Cl: **13,300**

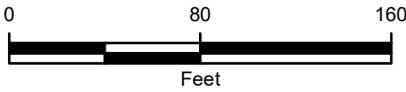
PH14A@3'  
 09/27/2018  
 GRO+DRO: <15.0  
 TPH: <15.0  
 Cl: 160

SS09  
 09/12/2018  
 GRO+DRO: **2,270**  
 TPH: 2,470  
 Cl: <4.95

**LEGEND**

- X RELEASE LOCATION
- SOIL SAMPLE RESULTS ABOVE NMOC LEVELS
- EXCAVATION EXTENT
- ONSITE RELEASE FOOTPRINT
- APPROXIMATE OFFSITE RELEASE EXTENT

NOTE: REMEDIATION PERMIT NUMBER 2RP-4980



**FIGURE 4**  
 SOIL SAMPLE RESULTS  
 JAMES RANCH UNIT #138 AT JRU 19 BATTERY  
 UNIT J SEC 36 T22S R30E  
 EDDY COUNTY, NEW MEXICO  
 XTO ENERGY, INC.



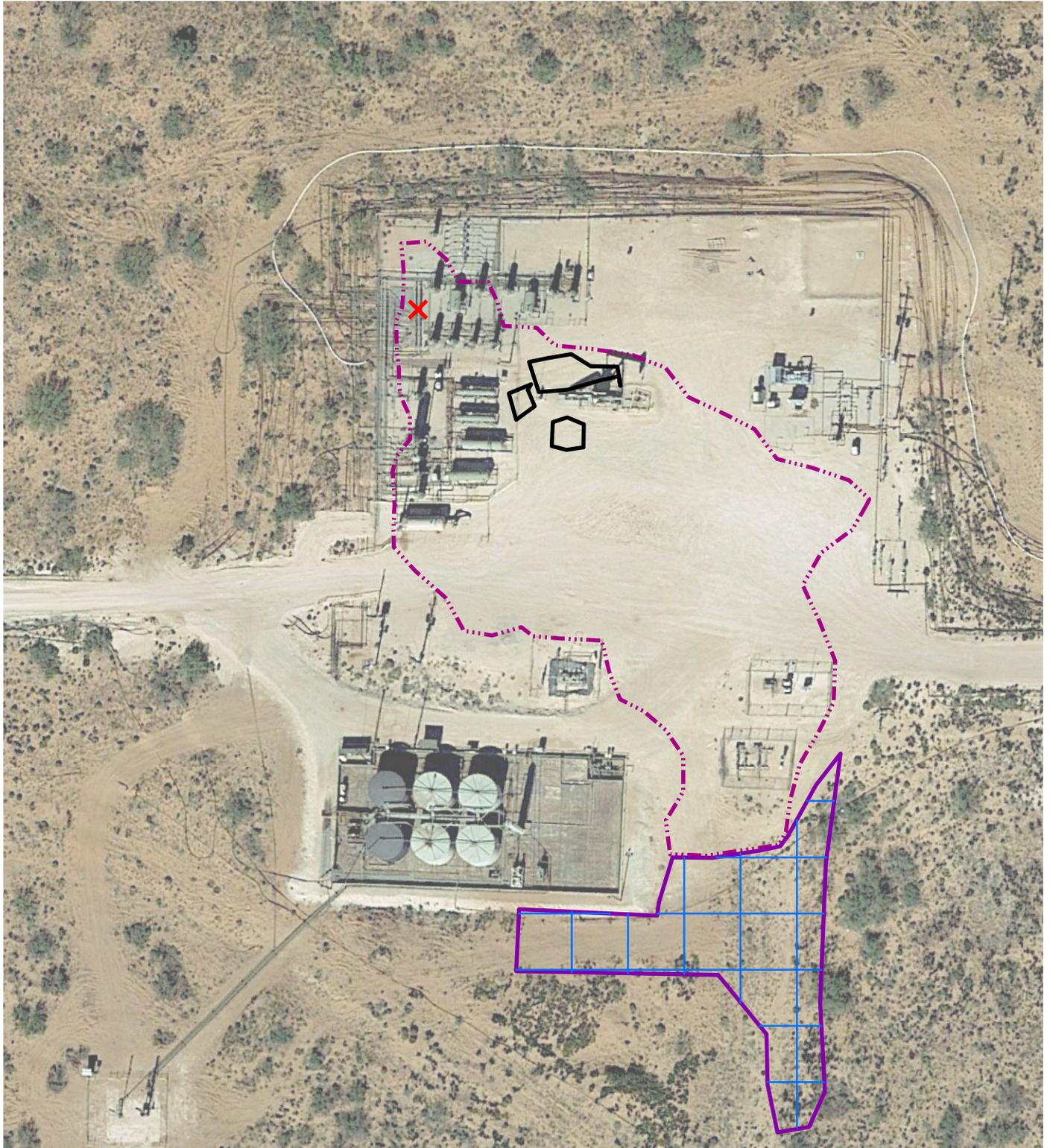
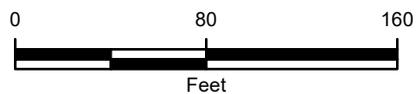


IMAGE COURTESY OF GOOGLE EARTH 2017

**LEGEND**

- ✕ RELEASE LOCATION
- 1,000 SQ FT GRID
- EXCAVATION EXTENT
- ONSITE RELEASE FOOTPRINT
- APPROXIMATE OFFSITE RELEASE EXTENT

NOTE: REMEDIATION PERMIT NUMBER 2RP-4980



**FIGURE 5**  
 PROPOSED GRID SAMPLING 1,000 SQ FT  
 JAMES RANCH UNIT #138 AT JRU 19 BATTERY  
 UNIT J SEC 36 T22S R30E  
 EDDY COUNTY, NEW MEXICO  
**XTO ENERGY, INC.**





**TABLE 1**  
**SOIL ANALYTICAL RESULTS**  
**JAMES RANCH UNIT #138 RELEASE AT JRU 19 BATTERY**  
**REMEDIATION PERMIT NUMBER 2RP-4980**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
SS01	0.5	09/12/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	<5.01
SS02	0.5	09/12/2018	<0.00202	<0.00202	0.00292	0.0235	0.0264	<15.0	653	89.0	653	742	860
SS03	0.5	09/12/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	404	68.0	404	472	5,420
SS04	0.5	09/12/2018	0.00580	0.00682	<0.00201	<0.00201	0.0126	<15.0	20.8	<15.0	20.8	20.8	<b>25,000</b>
SS05	0.5	09/12/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	16.5	<15.0	16.5	16.5	1,560
SS06	0.5	09/12/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	434
SS07	0.5	09/12/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	57.3	<15.0	57.3	57.3	6,430
SS08	0.5	09/12/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	<4.98
SS09	0.5	09/12/2018	0.110	0.372	1.90	10.8	13.2	290	1,980	204	<b>2,270</b>	2,470	<4.95
PH01	0.5	09/26/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	369
PH01A	1.5	09/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	373
PH02	0.5	09/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	186
PH02A	1.5	09/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	214
PH03	0.5	09/26/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	57.2	<14.9	57.2	57.2	1,910
PH03A	1.5	09/26/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	212
PH04	0.5	09/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<14.9	59.9	<14.9	59.9	59.9	3,360
PH04A	1.5	09/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	128
PH05	0.5	09/26/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	952	63.2	952	1,020	6,000
PH05A	1.5	09/26/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	63.4	<15.0	63.4	63.4	337
PH07	0.5	09/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	97.1	15.9	97.1	113	1,380
PH07A	1.5	09/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	39.3
PH08	0.5	09/26/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	23.1	2,210	49.6	<b>2,233</b>	2,280	1,270
PH08A	1.5	09/26/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	78.8	<15.0	78.8	78.8	544
PH09	0.5	09/26/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	2,520	89.8	<b>2,520</b>	<b>2,610</b>	486
PH09A	1.5	09/26/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	54.6	<15.0	54.6	54.6	758
PH10	0.5	09/27/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	362
PH10A	1.5	09/27/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	212
PH11	0.5	09/27/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	711	54.5	711	766	1,580



**TABLE 1 (Continued)**  
**SOIL ANALYTICAL RESULTS**  
**JAMES RANCH UNIT #138 RELEASE AT JRU 19 BATTERY**  
**REMEDIATION PERMIT NUMBER 2RP-4980**  
**EDDY COUNTY, NEW MEXICO**  
**XTO ENERGY, INC.**

Sample Name	Sample Depth (feet bgs)	Sample Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	C6-C10 GRO (mg/kg)	C10-C28 DRO (mg/kg)	C28-C40 ORO (mg/kg)	GRO and DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
PH11A	1.5	09/27/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	602
PH12	0.5	09/27/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	285
PH12A	1.5	09/27/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	47.8
PH13	0.5	09/27/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	<4.96
PH13A	1.5	09/27/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	<5.00
PH14	0.5	09/27/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	43.4	<15.0	43.4	43.4	<b>13,300</b>
PH14A	3	09/27/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	160
SS10	1.5	09/27/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	712
PH15	0.5	10/01/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	193
PH15A	1.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	214
PH16	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	10.0
PH16A	1.5	10/01/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<14.9	<14.9	<14.9	<14.9	<14.9	38.4
PH17	0.5	10/01/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	<4.96
PH17A	1.5	10/01/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<4.97
PH18	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	99.4
PH18A	1.5	10/01/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	106
PH19	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	114	35.6	114	150	103
PH19A	1.5	10/01/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	<15.0	44.8	<15.0	44.8	44.8	<4.96
PH20	0.5	10/01/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<14.9	31.8	<14.9	31.8	31.8	697
PH20A	1.5	10/01/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	188
PH21	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	1,960	53.3	<b>1,960</b>	2,010	5,280
PH21A	2	10/01/2018	<0.00202	<0.00202	<0.00202	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	321
PH22	0.5	10/01/2018	<0.00200	0.00274	0.00253	0.0249	0.0302	31.5	1,460	44.8	<b>1,490</b>	1,540	7,810
PH22A	4	10/01/2018	<0.00199	<0.00199	<0.00199	<0.00199	<0.00199	28.8	998	44.1	<b>1,030</b>	1,070	<b>14,000</b>
PH23	0.5	10/01/2018	<0.00198	<0.00198	<0.00198	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	<5.04
PH23A	1.5	10/01/2018	<0.00201	<0.00201	<0.00201	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<4.98
PH24	0.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.96
PH24A	1.5	10/01/2018	<0.00200	<0.00200	<0.00200	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<4.99



