

Hero Lands Company, L.L.C. vs.
Chevron U.S.A. Inc. et al

Expert Report of Angela Levert

Stella Oil & Gas Field
Plaquemines Parish, Louisiana

8 September 2020

Project No.: 0520061

Signature Page

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CONTENTS

1. INTRODUCTION	1
1.1 Area of Expertise	1
1.2 Basis of Suit.....	1
1.3 Work Performed.....	1
2. OVERVIEW OF ENVIRONMENTAL RISK ASSESSMENT AND LDEQ’S RISK EVALUATION/CORRECTIVE ACTION PROGRAM (RECAP).....	2
3. SUMMARY OF OPINIONS.....	4
3.1 Overview of the Subject Property	4
3.2 Listing of Opinions	5

ATTACHMENTS

ATTACHMENT 1 LITERATURE REVIEW

ATTACHMENT 2 RISK EVALUATION

ATTACHMENT 3 DATA SUMMARY AND SUPPORTING TABLES

ATTACHMENT 4 PROFESSIONAL PROFILE AND LISTING OF LITIGATION CASES

ATTACHMENT 5 DATA PROVIDED BY OTHERS

List of Tables

- 1 Soil Screening Evaluation for Surface Soil – Industrial Direct Contact**
- 2 MO-1 RECAP Evaluation for Surface Soil Industrial Direct Contact – BC-8 Area**
- 3 Soil Screening Evaluation for Surface Soil – Non-Industrial (Residential) Direct Contact**
- 4 MO-2 RECAP Evaluation for Surface Soil Non-Industrial (Residential) Direct Contact –
Hero Property**
- 5 MO-2 RECAP Evaluation for Surface Soil Non-Industrial (Residential) Direct Contact –
BC-8 Area**
- 6 Calculation of Arsenic Averages for Surface Soil**
- 7 Screening Evaluation for Groundwater**
- 8 MO-1 RECAP Evaluation for Class 3 Groundwater A Zone**
- 9 MO-1 RECAP Evaluation for Groundwater B and C Zones**
- 10 SPLP Results**
- 11 Screening Evaluation for Soil Protection of Groundwater**
- 12 MO-1 RECAP Evaluation for Soil Protection of Groundwater**

List of Figures

- 1 Site Location**
- 2 LDNR Registered Oil & Gas Wells**
- 3 Sample Zoom Extents**
- 4 Sample Locations – NW Tract**
- 5 Sample Locations – NE Tract**
- 6 Sample Locations – SE Tract**
- 7 Sample Locations – SW Tract**
- 8 Sample Locations – Outside Property**
- 9 Conceptual Site Model**
- 10 Monitoring Well Locations A Zone**
- 11 Monitoring Well Locations B and C Zones**
- 12 LDNR Registered Water Wells**
- 13 Potential Surface Water Receptor**
- 14 LDEQ Drainage Basin Subsegments**

1. INTRODUCTION

This report presents my findings and opinions concerning the Hero Lands Company, L.L.C. vs. Chevron U.S.A. Inc. et al matter, in which I have been retained by defendant Chevron U.S.A. Inc (Chevron). The opinions expressed herein are based upon the available data, and I reserve the right to modify this report as appropriate upon receipt and review of additional information.

1.1 Area of Expertise

I am an environmental chemist working in the practice of human health risk assessment. I have a Bachelor of Science degree in Chemistry from Spring Hill College and a Master of Science Degree in Environmental Chemistry from the School of Public Health at the University of North Carolina. I have practiced risk assessment for over twenty-nine years. Through education and practice, I am a recognized technical expert in environmental data evaluation, environmental risk assessment, and the Louisiana Department of Environmental Quality's (LDEQ's) Risk Evaluation/Corrective Action Program (RECAP).

1.2 Basis of Suit

The plaintiff filed suit based on alleged environmental damages to the plaintiff's property located in Plaquemines Parish, Louisiana, identified herein as the Hero property or site. The plaintiff claims that historical oil and gas exploration and production (E&P) activities conducted by the defendants resulted in the release of chemical constituents to soil and groundwater at concentrations that exceed regulatory levels protective of human health and the environment, and that extensive remediation is warranted to address these releases.

1.3 Work Performed

In preparing this report, I reviewed available information including the petition for damages, expert reports prepared on behalf of the plaintiff, and analytical data characterizing the property. The analytical data reviewed included results for samples collected by ICON Environmental Services, Inc. (ICON), Hydro-Environmental Technology, Inc. (HET), and ERM. I also reviewed scientific publications concerning the fate, transport, and toxicological effects of the substances at issue (e.g., hydrocarbons, inorganic compounds, metals) detected in soil or groundwater at the subject property (a list of references is provided in Attachment 1). Considering all available data, I evaluated the potential human health risk associated with exposure to constituent concentrations reported on the property using standard methods of the LDEQ, which are identified by LDEQ as consistent with U.S. Environmental Protection Agency (EPA) methods for the evaluation of human health risk.

The quantitative results of ERM's risk evaluation work are provided as Attachment 2 to this report. Supporting tables are provided in Attachment 3. My professional profile and a listing of prior litigation case work within the last four years are provided in Attachment 4. ERM's hourly rate for my service in this matter is \$220.

2. OVERVIEW OF ENVIRONMENTAL RISK ASSESSMENT AND LDEQ'S RISK EVALUATION/CORRECTIVE ACTION PROGRAM (RECAP)

The evaluation of human health risk provided herein was performed in response to the plaintiff's claims regarding impact to soil and groundwater with "toxic" and "hazardous" substances alleged to be harmful to human health.

Standard practices for the evaluation of risk to human health were initially developed by the EPA in the late 1980s, specifically to assess potential toxicity from exposure to chemical constituents in the environment. The risk assessment guidelines were developed and applied to environmental sites because it was understood that the level of cleanup necessary to protect the public differs depending on the nature of the chemical constituents released and other site-specific factors, including the potential for exposure. The methods and guidance developed by EPA provide a scientific basis for determining safe constituent levels in environmental media, and therefore provide a basis for consistency in site assessment and identification of protective concentrations.

The standard risk assessment methods were developed to ensure protection for not only the typical receptor, but also sensitive populations such as the elderly and small children. "Safety factors" are applied to toxicity values, for example, to ensure that risks will be overestimated and not underestimated (i.e., to purposely err on the side of caution in protecting the public). The LDEQ subsequently relied heavily upon the EPA risk assessment methods in developing its own guidance (the Risk Evaluation/Corrective Action Program, or RECAP) for performing risk assessment at sites in Louisiana. The RECAP program has been promulgated and effective since December 1998. This guidance for risk assessment in Louisiana expresses methods for determining protective concentrations of chemical constituents in environmental media (e.g., soil, groundwater) in order to support decisions regarding whether remediation is required to protect human health and the environment.

In accordance with Louisiana's Environmental Quality Act, risk to human health and the environment must be evaluated in the remedial decision-making process. Risk evaluation is therefore used to: (1) determine if corrective action is necessary for the protection of human health and the environment, and (2) identify constituent levels in environmental media that do not pose unacceptable risks to human health or the environment.

RECAP consists of a tiered framework composed of a Screening Option and three Management Options. As the Management Option level increases, the approach becomes more site-specific and, hence, the level of effort required to meet the objectives of the Option increases. Although the level of effort required for each Option varies, each Option achieves a common goal: protection of human health and the environment. The tiers are considered equally protective, and allow for the development of site-specific standards, which can be numeric or non-numeric.

EPA and LDEQ risk assessment methods ensure that safe concentration levels are developed consistently, and that risk to human health and the environment is a consideration when remedial decisions are made. The subject property falls under the jurisdiction of the Louisiana Department of Natural Resources (LDNR), which also uses risk assessment methods as a component of the corrective action decision process for E&P sites under its review (Notice of Intent for rule making, Louisiana Register Vol. 36, No. 1, January 20, 2010) and has routinely referenced RECAP as a resource for risk assessment methodology. The First Amended Memorandum of Understanding Between LDNR Office of Conservation and LDEQ Regarding Approval of RECAP Groundwater Evaluation and Remediation Plans at Oilfield Sites, February 25, 2011, identifies that LDNR is authorized to receive and approve RECAP assessments to address groundwater and source soils known or suspected to be affected with constituents from crude oil and natural gas E&P activities regulated under the jurisdiction of LDNR.

The RECAP program, effective since 1998, has been revised over time (2000, 2003) to reflect advances in the science of risk assessment and toxicology, such that appropriate scientific methods are used in the evaluation of potential risk at sites in Louisiana. Hundreds of projects have been conducted in Louisiana following RECAP risk assessment guidance, addressing the constituents, media, and potential exposure pathways relevant to the property under study. By regulation, and demonstrated through over two decades of RECAP implementation, estimated risk to human health and the environment is one of multiple factors considered in identifying the most appropriate response plan for a site. Agency decisions regarding the need for and scope of corrective action consider site-specific characteristics and balance factors such as actual and potential risk, confidence in site characterization and exposure scenarios, weight of scientific evidence for exposure and toxicity, background constituent levels, and the technical and economic feasibility of remediation.

3. SUMMARY OF OPINIONS

The basis of opinions expressed in this report includes the following evaluations and information provided by other investigators or experts:

Center for Toxicology and Environmental Health, LLC (CTEH), September 2020. Expert Report of John Kind, PhD, CIH, CSP, In the Matter of Hero Lands Company LLC v Chevron USA Inc, et al. September 8, 2020.

Environmental Resources Management, Inc. (ERM), September 2020. Expert Report of David G. Angle, P.G., CGWP and Michael Pisani, P.E. Hero Lands Company, L.L.C. vs. Chevron U.S.A. Inc. et al; Plaquemines Parish, Louisiana. September 8, 2020.

ICON Environmental Services, Inc. (ICON), July 2019. Expert Report and Restoration Plan for the Landowners, Hero Lands Company LLC v Chevron USA Inc, et al; Docket #64320 Div "A"; 25th JDC, Stella Oil Field, Plaquemines Parish, LA. July 12, 2019.

Omega EnviroSolutions, Inc., August 2019. Toxicological Evaluation and Risk Assessment Associated with Oil and Gas Operations on Hero Lands Company, L.L.C. Property within Stella Oil and Gas Field, Plaquemines Parish, Louisiana. Prepared by William J. Rogers, Ph.D. Hero Lands, L.L.C., vs. Chevron U.S.A. Inc., et al; Docket #64320 Div "A"; 25th JDC. Parish of Plaquemines, LA. August 26, 2019.

Templet Resources, Inc., August 2019. An Expert Report by Paul H. Templet, Ph.D. Hero Lands Co. LLC v Chevron USA Inc., et al; Docket #64320 Div. A; 25th JDC. Stella Oil Field, Plaquemines Parish, LA. August 12, 2019.

Additionally, a list of references reviewed in preparation of this report is provided in Attachment 1.

3.1 Overview of the Subject Property

The Hero property subject to investigation is approximately 155 acres located on the west bank of the Mississippi River in Belle Chasse, Louisiana in Plaquemines Parish (Figure 1 in Attachment 2). The property includes four tracts divided by LA Hwy 23 (Belle Chasse Hwy) into two eastern and two western tracts. The property is located within the Stella Oil and Gas Field, and portions of the property have been used for E&P activities since the first well was drilled on the property in 1940. The property is zoned industrial and all tracts include some ongoing E&P activities. There are currently 14 wells classified as active located on the property (Figure 2). Additional uses of the property currently include a barge cleaning facility, a maritime transportation business, and portions of the Chevron Oronite chemical production facility. The eastern tracts are bounded by the Mississippi River on the east, and a flood control levee runs through these tracts parallel to the river to provide critical flood protection for western properties. A batture area is located east of the levee. The Hero property west of Belle Chasse Hwy includes some undeveloped, wooded area, a residence on the northwestern tract along the highway, and a mobile home on the southwestern tract.

Surrounding property includes a Naval Air Station (NAS) Reserve Base, the Chevron Oronite Plant, and residences between the tracts west of Belle Chasse Hwy. The property owner has indicated a desire for future use (and any property development) to remain industrial given the highway, rail, and river front access to parts of the property.

3.2 Listing of Opinions

Site investigation activities were conducted on and near the subject property on behalf of the plaintiff and defendants beginning in 2017. Site characterization was performed within and adjacent to areas of E&P operations, including former pits, tank batteries, and well pad areas. Soil and groundwater data useful for quantitative human health risk evaluation were collected in these areas at sample locations identified in Figures 3 through 8. The analysis and discussion presented below, and in the attachments to this report, address the chemical characterization data in the context of human health risk and RECAP. Evaluation in the context of other relevant regulations such as Statewide Order 29-B is provided by other experts (Angle, et al; L. Holloway), and remediation has been proposed in some areas for the purpose of meeting the requirements of Statewide Order 29-B. This human health risk evaluation considers the current property conditions regardless of any remediation that may be performed, to provide an understanding of the baseline human health risk.

Soil and groundwater data collected on the northwestern tract are included in the risk assessment for complete information, however, it is my understanding that the tract was not part of the California Company operations. Soil and groundwater data were collected by ICON in a former E&P activity area outside of the Hero Lands property boundary just south of the northeastern tract as shown on Figure 5. The investigation area is referred to as the BC-8 area and is also included in the risk assessment because constituent concentrations were identified in this area above screening levels. Further risk evaluation is therefore provided herein.

Use of Risk Assessment to Evaluate Site Conditions

1. The Petition for Damages filed by the plaintiff alleges that chemical constituents present as a result of E&P activities are toxic and exceed regulatory standards. The toxicology of substances identified in the plaintiff's Petition for Damages has been well studied, and therefore it is appropriate scientifically and by Louisiana regulation to evaluate the potential risk or hazard to human health based on the measured concentrations of these substances and the use of the site (i.e., potential for exposure). Soil and groundwater samples were collected and analyzed for metals, hydrocarbons, and volatile and semivolatile organic constituents by laboratory analytical methods appropriate to support human health risk assessment. The available data were used to conduct a risk assessment consistent with the RECAP regulation and LDEQ guidance, and that assessment is presented in this report.
2. Expert reports prepared on behalf of the plaintiff did not provide a site-specific human health risk assessment and provided an incomplete assessment of applicable regulatory risk-based standards. For soil, the ICON report identifies concentrations of constituents in soil above generic Management Option 1 (MO-1) standards calculated by ICON as requiring corrective action when site-specific information is available to provide a more accurate assessment. For groundwater, no human health risk evaluation is provided beyond a comparison of groundwater concentrations to generic screening levels designed to support rapid elimination of constituents from further site-specific assessment. The exceedance of a generic screening level does not indicate an unacceptable risk to human health or that risk is present above the LDEQ's RECAP standards and safe levels. Furthermore, the exceedance of a generic screening level does not indicate that corrective action is warranted to protect health and the environment (LDEQ, 2003; EPA, 2020a; Risher and DeRosa, 1997). Rather, the screening evaluation is an optional starting point in the evaluation of human health risk, and when used, serves to identify those constituents and potential exposure pathways that warrant further evaluation in a site-specific assessment. The risk assessment presented in this report provides evaluation beyond a screening level, consistent with LDEQ regulations and guidance for conducting risk evaluation to accurately characterize the Hero property conditions.

Quantitative Risk Assessment

3. Data collected at the site by both the plaintiff's and defendants' investigators were considered in the evaluation of human health risk. The focus of the investigations in areas of E&P activities represents a biased sampling design, intended to characterize areas most likely to be impacted, and the results are therefore likely to overestimate risk for a typical human exposure scenario that includes movement during the assumed exposure duration (25 to 30 years) over a broad area, including some more affected and some less affected locations. LDEQ and EPA recognize this sampling design as supporting conservative (protective) risk evaluation, with recognition of the potential for high bias in the risk estimation. At the Hero property, soil samples were collected in former E&P-related pits and current and former operations areas. Investigation completed on behalf of the defendants included collection and analysis of samples to provide delineation around locations identified as having potential E&P-related constituents at concentrations above initial screening levels. The resulting sampling distribution is focused on (biased towards) areas most likely to have been impacted by E&P operations.
4. Chemical analytical results for over 250 soil samples, including split samples, were used in the evaluation of human health risk. Following ICON's investigation and identification of areas of interest, the investigation by ERM focused on providing delineation and collection of data needed to support detailed RECAP evaluation. Soil samples were collected from over 75 borings completed by ICON and ERM on the Hero property tracts (Figures 4 through 8). In most boring locations, at least two discrete samples were collected, and constituents useful for human health risk assessment were analyzed in samples to a maximum depth of 18 feet below ground surface (bgs). The chemical analytical data are summarized in Attachment 3. The following parameters useful for human health risk evaluation were analyzed: metals, hydrocarbons, dioxins, and/or semivolatile organic constituents including polycyclic aromatic hydrocarbons (PAHs). Many of the sampling locations selected by ERM were chosen to provide further delineation of constituent concentrations (as noted above) and to gather the following RECAP-specific data: analysis of specific metals, hydrocarbon fractions, hydrocarbon indicator constituents (PAHs), and Synthetic Precipitation Leaching Procedure (SPLP) metals. Analyses were performed using EPA and LDEQ-recommended methods and were reported with supporting Quality Assurance/Quality Control (QA/QC) data by the laboratories. Samples were also collected at many locations and additional depths for analysis of Statewide Order 29B indicators of salinity and sodicity associated with agronomic objectives but unrelated to human health risk (e.g., chlorides, SAR), and these results are addressed by others (e.g., L. Holloway and Angle, et al).

For the samples analyzed for total petroleum hydrocarbons by ICON, the analysis was performed using the "mixtures" method, with the results expressed as total petroleum hydrocarbons in the gasoline, diesel, and oil ranges (TPG-GRO, TPH-DRO, and TPH-ORO). This analytical method actually provides a measure of total extractable organics and not total petroleum hydrocarbons. To evaluate the potential presence of petroleum hydrocarbons, the ERM samples were analyzed using the more specific and precise hydrocarbon fractionation method. Because hydrocarbon fractionation data provide more accurate information for risk assessment than mixture data and provide a more detailed understanding of TPH concentrations, sample locations where only mixture data were collected initially by ICON were generally resampled for further analysis of fractions by ERM. Because hydrocarbon fractionation data provide more accurate and detailed information, both Louisiana and federal regulators recommend using TPH fractionation data instead of mixture data for risk evaluation (LDEQ, 2003; TPHCWG 1997 and 1998; EPA, 2009). A separate report prepared by Dr. John Kind provides further examination of the limitations associated with TPH mixture analysis and demonstration that the most scientifically reliable method to evaluate the risk of petroleum hydrocarbons is the fractionation method (CTEH, 2020). As such, hydrocarbon fractionation data were used in this risk analysis. The site-specific evaluation of potential health risks and site

management decisions are based upon fractionation data in accordance with Appendix D of the RECAP regulation.

Consistent with RECAP guidance, the specific land use of the study area was considered in the evaluation of risk to human health from direct contact (see exposure pathway analysis in Figure 9, Attachment 2). The current zoned use is commercial/industrial, and the property owner's anticipated future use for the property (as indicated in testimony) remains commercial/industrial. The RECAP standards applicable to this land use are industrial standards. To address alternative use of the property (or portions of the property) as residential, risk evaluation was also performed using the default non-industrial (residential) exposure scenario of RECAP. Active flow lines, associated rights of way, the flood control levee, and batture result in limitations to unrestricted land use in some areas of the property, however, for purposes of this assessment all soil boring locations were included in the human health risk evaluation. The assessment of non-industrial exposure represents the most conservative approach to assessing health risks in accordance with RECAP because it assumes the greatest amount of exposure: direct soil contact is assumed to occur for an adult and child 350 days per year for 30 years, with ingestion of the soil, dermal contact, and inhalation each day.

Soil from the ground surface to a depth of 15 feet bgs is considered potentially available for direct human contact per RECAP definition, and the soil data within this interval were therefore evaluated relative to health-protective standards for contact including dermal contact, soil ingestion, and inhalation. As a practical matter, repeated contact is limited to the surface material, and evaluation of soil samples collected deeper than the upper sample interval (typically 0-2 feet) represents a hypothetical scenario which, to be relevant, requires that soil be excavated, spread, and left at the surface permanently. All samples and depth intervals to 15 feet were included in the risk evaluation. Constituent concentration distribution in soil is identified in figures provided in Attachment 5 (arsenic, barium, and hydrocarbon fractions).

As a first step in the RECAP risk evaluation, soil concentrations were compared to industrial screening standards to identify constituents warranting further site-specific evaluation (Table 1). The maximum reported concentrations at any depth and on all tracts of property are less than the screening standards, protective for current and future commercial/industrial use of the Hero property.

Concentrations reported in the BC-8 area are further evaluated under MO-1 in Table 2, and the maximum reported concentrations are less than risk-based MO-1 standards for the default industrial scenario, protective of human health for continued commercial/industrial use. The maximum reported dioxins concentration provides an estimated risk within target risk range for industrial land use. No significant risk is identified for industrial use of the BC-8 area. Hydrocarbon fraction concentrations do not comply with the RECAP aesthetic guideline of 10,000 mg/kg in the 2 to 6 foot bgs interval (at BC-8 and BC-8R2; see figure in Attachment 5 for NE tract), and a remediation scope (soil removal) that addresses concentrations above the aesthetic limit is identified in the expert report provided by Angle, et al.

Although residential development of the property is not consistent with the plaintiff's identified plans for the property (George Hero deposition, 2020), assessment of the RECAP non-industrial scenario was performed to address the very limited current residential use and to provide information responsive to plaintiff's experts' assessment. Following comparison to non-industrial screening standards to identify constituents warranting further site-specific evaluation (Table 3), the constituents were evaluated further under RECAP Management Option 2 (MO-2) for the Hero property. Based upon comparison of reported soil concentrations to MO-2 standards for the default non-industrial scenario, concentrations reported in soil are less than risk-based standards protective of human health for unrestricted use of the Hero property, including recreational and residential use (Table 4).

Mean arsenic concentrations in soil are below the LDEQ-identified state-specific background level, adopted by LDEQ as the RECAP standard protective for unrestricted land use. RECAP does not provide a screening or MO-2 standard for dioxins, therefore the EPA Regional Screening Level is shown on both the screening and MO-2 tables, and a risk of 1.4×10^{-6} is estimated using the maximum reported 2,3,7,8-TCDD concentration on the Hero property. The resulting risk estimate is equal to the low end of the target risk range identified in RECAP, protective for unrestricted land use.

Concentrations reported in the BC-8 area are evaluated under MO-2 in Table 5. The reported concentrations of hydrocarbon fractions exceed the non-industrial (residential) standards in the BC-8 and BC-8R2 locations in the 2 to 6 foot bgs interval, in the same locations of the exceedances of the aesthetic guideline. As noted previously, a remediation scope (soil removal) that addresses concentrations above the non-industrial standard and aesthetic guideline is provided in the report provided by Angle, et al., and would be applicable in the unlikely event that land use of the area changes to residential in the future.

The foregoing evaluation provides conclusions of the RECAP evaluation using concentrations expressed in wet weight (i.e., at field conditions) in accordance with RECAP definition of exposure concentrations and risk-based RECAP standards. Evaluation in accordance with EPA guidance, including assessment using dry weight concentrations, is provided by other experts (CTEH). The additional evaluation of soil concentrations performed in accordance with EPA guidance results in no change to the conclusion that concentrations reported in soil on the Hero property tracts are protective for unrestricted land use.

5. In the assessment of human exposure, and therefore risk, the average concentration is more representative than any single sample location of the chemical concentration that would be contacted at a site over time because an individual can be expected to move throughout the area rather than remain stationary at a single sampling location. As an individual moves across an area that has a constituent present in the soil at various concentrations, the spatially averaged constituent concentration across the area is most representative of the true exposure that occurs over time (EPA, 2015; EPA, 2002a; EPA, 1989; LDEQ RECAP, 2003). LDEQ utilizes this exposure concentration principle for soil in RECAP under all Management Options. The analysis completed for the Hero property followed a standard, step-wise approach to risk evaluation: point-by point comparisons to RECAP standards were made as a first step to identify locations subject to further exposure concentration evaluation, and no further exposure concentration evaluation was required for the Hero property. For arsenic, in accordance with RECAP (2003), the arithmetic mean concentration (instead of the maximum concentration) is used for comparison to the RECAP standard based on background concentrations. It is appropriate to incorporate the exposure concentration approach into future evaluation of site data, if additional evaluation is warranted.
6. The geology and hydrogeology of the site were characterized by ERM based upon relevant literature, borings completed up to 92 feet bgs on the Hero property, and information in the public record for the adjacent Chevron Oronite Plant (ERM, 2020). The soils and subsurface geology down to a depth of approximately 88 feet below the ground surface consists of primarily clay and silt based upon the ERM boring logs. The tops of the shallow water bearing zones were encountered at depths ranging from approximately 4 to 14 feet bgs (A zone), 16 to 26 feet bgs (B zone), and 76 to 80 feet bgs (C zone). The A zone consists of a laterally variable and discontinuous silt zone and the B and C zones consist of silty sand. Based on regional data, the Gramercy Aquifer underlies the area at approximately 200 feet bgs and contains naturally salty groundwater. The following water-bearing zones, were sampled beneath the Hero property by investigators:

- A zone - screened intervals generally within the upper 20 feet bgs;
- B zone - screened intervals generally falling between 20 and 52 feet bgs; and
- C zone - screened intervals of 76 to 86 feet bgs.

A total of 36 monitoring wells were installed and sampled by ICON and ERM on the Hero property in the water-bearing zones at locations shown in Figure 10 (A zone) and Figure 11 (B and C zones). An additional 17 wells were completed by ICON on other properties in the general vicinity of the Hero property (Figures 10 and 11). In total, 72 groundwater samples (including splits) were collected on the four tracts of Hero property and submitted for laboratory analysis.

Groundwater data collected by all investigators were considered in the risk evaluation. The groundwater samples were analyzed for the following parameters useful for human health risk evaluation: total metals, dissolved metals, hydrocarbons, the volatile organic constituents BTEX¹, chlorides and other water quality indicators. The chemical analytical data are summarized in Attachment 3, and constituent concentration distribution in groundwater is identified in figures provided in Attachment 5 (arsenic, barium, benzene, and chlorides). EPA and LDEQ-recommended laboratory methods were used with supporting QA/QC. Because the unfiltered samples collected from the C zone wells did not meet data quality objectives (turbidity >40 NTU), ERM requested analysis of filtered samples as recommended by EPA and LDEQ guidance on obtaining representative samples (LDEQ, 2003; EPA, 2002; Saar, 1997).² The filtered sample results for metals are used in the RECAP evaluation for the C zone samples. Similar to the soil analyses, ICON provided groundwater analyses of hydrocarbon mixtures (TPH-GRO, TPH-DRO, and TPH-ORO), and ERM provided fraction analyses for all groundwater sample locations. In accordance with RECAP Appendix D, the fraction analyses are used in the quantitative risk assessment.

For the purposes of risk evaluation under RECAP, LDEQ recognizes three classifications of groundwater (GW 1, GW 2, and GW 3) based on the current and potential use of the groundwater as indicated by sustainable yield and indicators of natural quality (i.e., Total Dissolved Solids or TDS). The following groundwater classifications were identified for risk evaluation in accordance with RECAP:

- A zone: The results of slug tests in the A zone and well development and purging records document low yield and a Class 3 (GW 3) resource with maximum sustainable yield of less than 800 gallons per day (ERM, 2020).
- B zone: The B zone meets the yield requirements of a Class 2 (GW 2) resource based upon slug testing of seven wells completed on site in this zone (ERM, 2020). Maximum sustainable yield was estimated to be “greater than or equal to 800 and less than 4,800 gpd” (RECAP, 2003) on average, although some locations provided significantly lower yield. The natural TDS is over 1000 mg/L, and natural mineral levels result in non-potable groundwater without significant treatment.
- C zone: Yield testing was not performed in wells in the C zone, and the zone was assumed to also meet the yield requirements of Class 2 (GW 2) as a conservative approach.

¹ Benzene, toluene, ethylbenzene, xylenes

² Incomplete removal of solids from groundwater samples is a data quality concern because acidification of suspended solids during sample collection causes dissolution of the natural matrix metals, resulting in metals present in the samples due to the mineral aquifer matrix and not groundwater contaminants.

RECAP requires that a water well survey be conducted to determine current water usage within one mile of an area of investigation to support groundwater classification. There are no active water supply wells on the Hero property. Two rig supply wells were completed on the property historically at 260 and 345 feet bgs and have been plugged and abandoned. A survey of the LDNR water well database identified two active registered water supply wells within one mile, a rig supply well and an irrigation well, both with depths over 300 feet bgs (Figure 12).

There is no registered or known use of the shallow zones (A, B, C) within a mile, and the only wells completed in these zones in the vicinity of the site are environmental monitoring wells. This is consistent with site data that show natural conditions and quality in these zones beneath the property would result in limited sustainable yield for the A zone and objectionable aesthetic characteristics (e.g., taste, color) for drinking water in the deeper B and C zones. Regional hydrogeological references indicate the groundwater underlying the Hero property and the majority of Plaquemines Parish is naturally salty (chloride concentration > 250 mg/L) (USGS, 2013). Samples collected south of the Hero and Oronite properties (locations BC-17 through BC-20) confirm that the B zone contains natural TDS and chlorides concentrations above the secondary MCLs (SMCLs) for drinking water. Public water supply is provided to the property location and surrounding area by the Belle Chasse public water system.

7. Because there are no drinking water wells or wells used for any purpose completed in the A, B, or C zones, there is no exposure and no risk or potential health effects associated with direct exposure to constituents in these zones beneath the Hero property. Based on historical practices on site and in the vicinity of the site, and availability of fresh public supply, it is not reasonably expected that the zones would be used for water supply in the future. The A zone is not a viable water supply source due to low yield and susceptibility to contamination from surface infiltration, and it is not regulated by LDEQ RECAP as a water supply source. The deeper B and C zones are not fresh, and they exhibit variable salinity with distance from the Mississippi River, which provides fresher water recharge that fluctuates with river level. Regional references identify that there are no major sources of fresh groundwater (water with a chloride concentration of 250 mg/L or less) in Plaquemines Parish, and only a single active well in Plaquemines Parish (16 miles away from the Hero property) is registered as screened in the shallow deposits overlying the salty Gramercy Aquifer. Although the B zone provides yield greater than 800 gallons/day in some locations, it is not a potential drinking water supply due to naturally occurring salt and arsenic concentrations.
8. In accordance with RECAP requirements for Class 3 groundwater, the A zone was evaluated for the potential to discharge to a downgradient surface water body. Groundwater flows generally west across the Hero property away from the Mississippi River based on water level measurements and potentiometric maps (ERM, 2020). There are no natural surface water bodies located west on the property that intersect and receive discharge from the A zone. The default RECAP MO-1 standards were used to evaluate constituents reported in the A zone assuming discharge to surface water off site may occur. Bayou Barriere west of the Naval Air Station was identified as the nearest surface water body that may intersect and receive discharge from the A zone, although the A zone is variable and discontinuous (see Figure 13) (ERM, 2020). The potential discharge point is within Subsegment 020601 of the Barataria Basin (Subsegment 020601 – Intracoastal Waterway – From Bayou Villars to Mississippi River, Estuarine (see Figures 13 and 14). The LDEQ-designated uses of this subsegment are primary and secondary contact recreation and fish and wildlife propagation, as documented in the Louisiana Surface Water Quality Regulations (LAC 33:IX.1123). The designation as estuarine indicates “an area where freshwater systems and saltwater systems interact” and salt levels are naturally elevated and variable (LAC 33:IX.1105). Because this subsegment is not a drinking water resource, GW 3 non-drinking water (NDW) is the appropriate classification for development of RECAP standards.

Reported groundwater concentrations were evaluated in a stepwise approach, with comparison to screening standards (Table 7) and then default MO-1 standards for Class GW3NDW (Table 8). No promulgated standards are applicable for chlorides and TDS based on naturally estuarine surface water conditions in the subsegment. For the remaining constituents subject to site-specific risk assessment, attenuation factors were identified in accordance with RECAP to develop the final RECAP standards (Table 8). Based on comparison of maximum reported concentrations (the compliance concentration in accordance with RECAP) to final MO-1 standards, the reported concentrations of constituents in A zone groundwater beneath each tract of the Hero property and in the BC-8 area are protective of the potential receiving water body. The reported concentrations are less than GW3NDW standards developed to be protective of surface water and its users, including human recreational users. This evaluation conservatively assumes that discharge occurs continuously and fully supports the LDEQ-designated uses of primary and secondary contact recreation (including fish ingestion) and propagation of fish and wildlife.

The Intracoastal Waterway subsegment (#020601) is listed as impaired in the most recent (2018) Water Quality Integrated Report. This designation means that the segment is not currently capable of fully sustaining its designated uses due to impairment identified as sediment (clean sediment) suspension. However, the risk evaluation herein includes evaluation to fully support all designated uses of the surface water.

9. Reported concentrations in the B and C zones are compared in Table 7 to screening standards and in Table 9 to MO-1 standards for Class 2 groundwater (GW 2). The screening and default MO-1 standards include Maximum Contaminant Levels (MCLs) if available, and risk-based levels protective of a residential drinking scenario. MCLs are health-based standards established by EPA as the maximum allowable concentration of a contaminant in drinking water supply to be delivered to the consumer. RECAP identifies that secondary MCLs (SMCLs) may be considered for groundwater assessment on a site-specific basis. SMCLs are non-enforceable standards that are used as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. The SMCLs for chlorides, TDS, iron, and manganese are compared to the groundwater concentrations for reference in the Screening assessment.

For the constituents warranting site-specific assessment, Table 9 includes maximum concentrations reported beneath each tract of Hero property and BC-8 area and the range of concentrations reported in wells completed in the B zone south of the property, representative of natural groundwater quality (see Figure 11 for sample locations). The southern sample results demonstrate that natural levels of arsenic, iron, manganese, chlorides, and TDS exceed the MCLs and SMCLs, and the default GW 2 standards and SMCLs for these constituents are therefore not applicable RECAP standards for the groundwater zone. Performing corrective action in this zone, even to background levels, would not result in a drinking water resource and would not be required by the regulatory agencies. A regulatory decision regarding groundwater zone management and whether corrective action is warranted for any E&P related constituents in the B zone (and C zone) is a site-specific decision that balances factors such as actual and potential risk, confidence in site characterization and exposure scenarios, weight of scientific evidence for exposure and toxicity, background constituent levels, and the technical and economic feasibility of remediation.

The site-specific facts include no past or current use of the zone on or within a mile of the site and no current risk identified, naturally poor quality of the water which would require non-standard treatment before potable use, no threat to a drinking water resource or surface water receptors, and ready availability of alternate water supply. The LDEQ has reviewed data regarding the natural quality of the B zone and impacts to this zone at the adjacent Oronite Plant property and beneath the southwestern Hero property tract and determined that remediation of concentrations reported above background levels and default GW 2 standards is not required. The groundwater management

decision is consistent with LDEQ's management of naturally non-potable Class 2 groundwater at other sites in south Louisiana where LDEQ has implemented a Class 3 evaluation (in lieu of default Class 2 standards) to determine compliance with the RECAP requirements to protect human health and the environment. All constituent concentrations in the B and C zones are less than RECAP GW3NDW standards protective of surface water without incorporation of any applicable attenuation factors.

10. An evaluation of potential transfer of detected metals, hydrocarbons, and semivolatile organic constituents from soil to shallow groundwater was performed using all soil data collected for RECAP parameters and the LDEQ methods provided in RECAP (Tables 10 and 11). For metals, LDEQ recommends site-specific leachate testing to evaluate constituent partitioning, and Synthetic Precipitation Leaching Procedure (SPLP) was therefore used to evaluate metals (barium, lead) with concentrations above default screening levels in soil. Samples with maximum concentrations above the Soilssgw, or splits of those samples, were analyzed by SPLP to the extent possible. Where that was not possible, the locations were resampled at a later date for SPLP analysis. All SPLP results were less than RECAP screening standards for leachate, protective of all classes of groundwater.

Reported concentrations of all other constituents in soil were compared to the default RECAP screening (Table 11) and MO-1 (Table 12) standards for groundwater protection, and the maximum reported concentrations of constituents on each tract of the Hero property and in the BC-8 area are less than standards protective of groundwater. The results of this comparison and site-specific leachate testing in accordance with RECAP indicate that concentrations of constituents in soil do not represent a residual source of contamination to groundwater above health-based standards.

11. The reported chlorides concentrations in site soil are not a concern for adverse effects to human health. In general, chlorides (such as those contained in table salt), are considered non-toxic. A primary consideration for chloride-impacted soil is health of vegetation, which is addressed by other experts. LDEQ has also provided guidance for evaluation of the soil-to-groundwater pathway for chlorides. LDEQ recommends the comparison of SPLP leachate results from salt-affected soil to a standard developed for the appropriate classification of groundwater. The uppermost water-bearing zone is Class 3 (GW3NDW) and a promulgated chlorides standard is not applicable to groundwater or overlying soil due to the naturally salty (estuarine) conditions of the potential receiving surface water.

Response to Plaintiff's Allegations and Proposed Remedy

12. The ICON expert report provided on behalf of the plaintiff identifies plans for soil removal to "RECAP standards" developed by ICON. The proposed soil removal on Hero property is not required for protection of human health or for regulatory compliance with RECAP. The RECAP regulatory analysis provided by ICON consists of a limited point-by-point comparison of three constituents (barium, TPH-DRO, TPH-ORO) to MO-1 standards calculated by ICON. Further risk evaluation in accordance with RECAP is scientifically appropriate, fully compliant with RECAP, and protective of human health and the environment. Incorporation of EPA-specified current toxicity factors under MO-2 of RECAP and analysis of petroleum hydrocarbon impacts using LDEQ-recommended methods provide a more accurate evaluation of human health risk in accordance with RECAP. The analysis of hydrocarbons using the TPH mixture method, and point-by-point comparison to RECAP MO-1 standards as performed by ICON, is an incomplete analysis that provides an indication of the need for further site-specific assessment. The TPH fraction analyses provide the greater definition of hydrocarbon distribution and support the more accurate assignment of toxicity factors for development of applicable RECAP standards (LDEQ RECAP, 2003). Use of the more appropriate toxicity factors in accordance with RECAP in an MO-2 evaluation (provided herein) indicates that

maximum reported concentrations in soil on the Hero property are less than standards protective of human health for continued industrial use as well as non-industrial use (i.e., residential, recreational).

Concentrations reported in soil in the BC-8 area south of the northeastern Hero tract, in the footprint of a former pit, are less than risk-based standards protective for continued industrial use of the property. Concentrations of some hydrocarbon fractions exceed the residential standards and RECAP aesthetic guideline in the 2 to 6 foot bgs interval. The area is delineated laterally and vertically to below the aesthetic and residential standards, and a soil removal scope is identified by Angle, et al to achieve compliance with RECAP non-industrial standards in the unlikely event that land use of the area changes to residential in the future.

13. The majority of the many soil areas identified by ICON as warranting remediation due to exceedance of the ICON-defined RECAP MO-1 standards contained a single boring location. ICON did not delineate the alleged exceedances with soil borings, samples, or chemical analytical data. ERM returned to the areas identified by ICON's single sample points, where warranted, and collected and analyzed additional samples within the ICON remediation areas to support further evaluation. The larger body of data collected in the ICON-proposed remediation areas provided data to support further RECAP evaluation and indicates that the remedy identified by ICON for soil on the Hero property is not required for protection of human health based on the additional samples, more detailed hydrocarbon analyses in accordance with RECAP, and risk assessment completed beyond ICON's incomplete MO-1 evaluation.
14. ICON's evaluation of groundwater for the A zone consists of a comparison of reported concentrations to screening standards of RECAP. With no further site-specific evaluation, ICON proposes to remediate the zone to the screening standards (including MCLs) and the SMCL for chlorides for the purported purpose of "human consumption". The A zone is not a viable water supply source due to natural concentrations of minerals such as arsenic and potential for infiltration of contaminants from the ground surface (per Public Health Sanitary Code). Moreover, comparison to screening standards of RECAP is an incomplete evaluation of risk to potential receptors. A conclusion regarding the need for remediation based solely on comparison to screening standards is inconsistent with the scientific risk assessment process and with LDEQ RECAP implementation policy. EPA's development of risk evaluation methods and LDEQ's promulgation of the RECAP program specifically identify scientifically defensible methods for identifying protective concentrations. RECAP provides a framework for determining protective concentrations based upon the current and reasonable potential beneficial uses of a groundwater zone, defined by LDEQ through groundwater classification. Based on the GW3 classification of the A zone in accordance with the RECAP regulation, drinking water standards (MCLs and SMCLs) are not applicable to the shallow A zone. Appropriate classification and site-specific RECAP evaluation provided in this report for the A zone indicate that constituent concentrations do not exceed applicable standards and do not pose a risk to human health or receiving surface water bodies. Groundwater conditions are protective of human health, the environment, and the beneficial use of the property. The remedy identified by ICON for the A zone is not required for protection of human health or to comply with RECAP regulatory standards.
15. ICON's expert report identifies natural salinity in the B zone (and underlying zones) and recognizes that the zone is not a potable resource or drinking water supply, but recommends remediation to a background TDS level developed by ICON. ICON's background level relies upon a single east-west transect of salinity measurements projected to apply over a distance of two miles in a north-south "line" parallel to the Mississippi River. The value proposed as background by ICON fails to incorporate natural variability that occurs over that distance as a function of non-homogeneous lithology and resulting variable River water recharge. ICON's background value also fails to incorporate the temporal variability of fresh River water recharge. These factors affect both the area identified by ICON to be below the projected background "line" and the feasibility of remediation as

proposed by ICON (the feasibility is addressed in the expert report prepared by Angle, et al). ICON has not provided a sound scientific basis for the remediation proposal for the B zone.

16. The Risk Assessment and Toxicological Evaluation provided by Dr. William Rogers of Omega Envirosolutions (Omega) on behalf of the plaintiff provides the following conclusions: *“The contaminant concentrations in surface soils and sediments exceed levels that are considered safe for ecological populations and humans,”* and constituents *“...pose an unacceptable health risk to human and ecological populations.”* Relative to human health, the Omega report does not provide an independent risk evaluation, but cites the ICON comparison to residential screening and MO-1 standards discussed previously in Opinion 12. Further site-specific risk evaluation in accordance with RECAP is appropriate, including incorporation of EPA-specified current toxicity factors and analysis of petroleum hydrocarbon impacts using LDEQ-recommended methods and toxicity factors. The site-specific RECAP evaluation provided herein demonstrates that reported soil concentrations on the Hero property do not exceed levels protective of potential receptors for continued industrial land use or non-industrial use.

For groundwater, the Omega report calls a comparison of maximum reported concentrations to RECAP screening standards “the risk assessment for that substance” and incorrectly concludes that E&P-related constituents in ground water exceed “the regulatory level.” The optional screening step of RECAP does not define “the regulatory level.” As discussed in Opinion 14, a conclusion regarding risk and the need for remediation based solely on comparison to RECAP screening standards for groundwater is an incomplete assessment and is inconsistent with the scientific risk assessment process and with LDEQ RECAP implementation. RECAP provides a framework for determining protective concentrations and regulatory standards based on groundwater classification. The Omega report does not distinguish the groundwater zones and their classifications, including GW3 classification of the A zone, for which drinking water standards (the basis for RECAP screening standards) are not applicable. Additionally, the Omega report does not identify the natural salinity and mineral levels and non-potable nature of the B and C zones, which indicate that drinking water standards are not applicable regulatory standards. This condition is demonstrated (but not acknowledged) in the groundwater summary table provided in Section 1.7 of the Omega report, where the maximum arsenic concentration of 0.25 mg/L is identified as 25 times the RECAP SS and is reported in an ICON background location. Site-specific RECAP evaluation provided in this ERM report confirms there is no use of shallow groundwater for drinking water supply (or any other use) within a mile of the site, and the affected zones are not regulated as drinking water supply based on yield and/or natural water quality. Constituent concentrations do not pose a risk to human health.

The Omega report identifies that *“The contamination has the potential to affect human populations as well by exposure to contaminated site media ...through ingestion of wildlife, and other biota that have been exposed to contaminated site media,”* and *“Contaminants such as dioxins have the potential to bioconcentrate/biomagnify to levels much higher than found in the sampled media posing an unacceptable risk to both human and ecological consumers.”* No quantitative evaluation of human exposure, potential toxicity, or risk was provided for ingestion of biota and no analyses support this qualitative conclusion.

17. The most defensible and scientifically reliable method for evaluating the health risk of petroleum hydrocarbons is the aliphatic and aromatic hydrocarbon fractionation methodology, as provided by ERM for soil and groundwater samples at this site and recommended by EPA risk assessment guidance and Louisiana RECAP regulation (USEPA, 2009; USEPA, 2020a). The fractionation of petroleum hydrocarbons into aliphatic and aromatic hydrocarbon ranges moves beyond the screening-type assessment provided by TPH mixtures analyses, and is the scientifically accepted method for assessing toxicological health risks from exposure to petroleum hydrocarbons. The

importance of this method to appropriately assessing toxicological health risks is further addressed by experts with the Center for Toxicology and Environmental Health (CTEH, 2020).

18. Dr. Templet identifies that Nonhazardous Oilfield Wastes (NOW) can be harmful to humans since they contain “toxic” substances such as benzene, PAHs, and metals. These constituents are present ubiquitously in the environment from a large number of sources unrelated to E&P sites, and they are present in many materials that people encounter in their daily lives (e.g., prepared foods, grilled meats, shampoo). Their presence does not in and of itself constitute a significant risk of harm to humans. Whether a substance is a toxicant depends on the constituent-specific toxicity and the dose, or how much of the substance an individual actually takes into their body. In order for adverse health effects (toxicity) to occur, there must be an exposure to constituents for a duration and at concentrations that are sufficient to cause a toxicological response. Dr. Templet did not provide a site-specific pathway analysis or quantitation of exposure, dose, and toxicity for detected constituents, nor did any other plaintiff’s experts. There is no demonstration that “toxic” levels of constituents are present on the Hero property, and ICON’s limited comparison to select standards (referenced by Dr. Templet) does not provide a sound basis for concluding that site conditions are toxic. Dr. Templet references ICON’s comparison of soil and groundwater concentrations to “SS” and “MO1” RECAP standards, which does not incorporate all available site data including data that allow for more site-specific assessment under RECAP Management Options and demonstrate that concentrations on the Hero property do not exceed applicable final RECAP standards.

ATTACHMENT 1 LITERATURE REVIEW

September 8, 2020

LITERATURE REVIEW
ATTACHMENT 1

Hero Lands Company, L.L.C. vs. Chevron U.S.A. Inc. et al
Stella Oil & Gas Field
Plaquemines Parish, Louisiana

Deposition of Hero Lands Company, LLC through its representative George Alfred Hero, IV. Taken May 28, 2020.

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LITERATURE REVIEW
ATTACHMENT 1

Hero Lands Company, L.L.C. vs. Chevron U.S.A. Inc. et al
Stella Oil & Gas Field
Plaquemines Parish, Louisiana

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ATTACHMENT 2 RISK EVALUATION

September 8, 2020

SECTION 1 TABLES

September 8, 2020

TABLE 1
SCREENING EVALUATION FOR SURFACE SOIL
INDUSTRIAL DIRECT CONTACT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilssi (a)	Maximum Concentrations by Tract (b)				
			NE	NW (i)	SE	SW	BC-8 Area (j)
Metals							
Arsenic	mg/kg	12	7.66	9.7 (c)	11.4	8.5 (c)	9.18
Barium	mg/kg	14000	1572	654	3140	5573	4042
Cadmium	mg/kg	100	0.493	1.1	0.642	0.946	0.695
Chromium	mg/kg	310000	14	15.4	21.6	54.9	53.6
Lead	mg/kg	1400	24.7	16.7	54.7	276	100
Mercury	mg/kg	61	0.118	<0.107	0.116	0.081	0.123
Selenium	mg/kg	1000	<3.15	<3.22	<3.33	<3.18	<3.34
Silver	mg/kg	1000	<0.258	NA	<0.251	<0.277	<0.249
Strontium	mg/kg	41000 (d)	260	85	152	131	164
Zinc	mg/kg	61000	55.7	63.1	68.7	245	125
TPH Fractions (e)							
Aliphatic C6-C8	mg/kg	8000	<37.4	<31.7	93.3	<75	284
Aliphatic >C8-C10	mg/kg	880	<37.4	<31.7	124	<75	1110
Aliphatic >C10-C12	mg/kg	2000	<6	<5.73	142	154	3850
Aliphatic >C12-C16	mg/kg	3800	70.4	<5.73	1500	818	12200
Aliphatic >C16-C35	mg/kg	10000	756	<5.73	3290	3690	30800
Aromatic >C8-C10	mg/kg	510	<37.4	<31.7	38.6	<34.2	810
Aromatic >C10-C12	mg/kg	1100	<6	<5.73	52.3	20.8	257
Aromatic >C12-C16	mg/kg	2100	7.41	<5.73	185	113	1280
Aromatic >C16-C21	mg/kg	1700	12	<5.73	154	135	1060
Aromatic >C21-C35	mg/kg	2500	163	<5.73	821	667	3980
PAHs							
2-Methylnaphthalene	mg/kg	170	<0.0323	NA	<0.0328	0.55	0.181
Acenaphthene	mg/kg	6100	<0.0323	NA	<0.0328	<0.33	<0.164
Acenaphthylene	mg/kg	5100	<0.0323	NA	<0.0328	<0.33	<0.164
Anthracene	mg/kg	48000	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(a)anthracene	mg/kg	2.9	<0.0323	NA	0.0424	0.377	<0.164
Benzo(a)pyrene	mg/kg	0.33	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(b)fluoranthene	mg/kg	2.9	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(g,h,i)perylene	mg/kg	6100 (d)	NA	NA	NA	<0.33	NA
Benzo(k)fluoranthene	mg/kg	29	<0.0323	NA	<0.0328	<0.33	<0.164
Chrysene	mg/kg	290	<0.0323	NA	0.0804	<0.33	<0.164
Dibenz(a,h)anthracene	mg/kg	0.33	<0.0323	NA	<0.0328	<0.33	<0.164
Fluoranthene	mg/kg	2900	<0.0323	NA	0.0542	0.79	<0.164
Fluorene	mg/kg	5400	<0.0323	NA	<0.0328	0.594	<0.164
Indeno(1,2,3-cd)pyrene	mg/kg	2.9	<0.0323	NA	<0.0328	<0.33	<0.164
Naphthalene	mg/kg	43	<0.0323	NA	<0.0328	<0.33	<0.165
Phenanthrene	mg/kg	43000	<0.0323	NA	0.0985	1.89	<0.166
Pyrene	mg/kg	5600	<0.0323	NA	0.149	0.459	<0.167

TABLE 1
 SCREENING EVALUATION FOR SURFACE SOIL
 INDUSTRIAL DIRECT CONTACT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
 Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilssi (a)	Maximum Concentrations by Tract (b)				
			NE	NW (i)	SE	SW	BC-8 Area (j)
Dioxins/Furans (f)							
Total TCDD TEQ	pg/g	22 (g)	NA	NA	6.9	NA	44
SVOCs (h)							

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

NA - Analyte was not analyzed in the respective tract

< Constituent not detected at or above reporting limit shown in the respective tract

TPH - Total Petroleum Hydrocarbons

PAH - Polycyclic Aromatic Hydrocarbons

SVOCs - Semi-volatile Organic Compounds

Bold and shaded concentrations above the Soilssi are identified for further evaluation under Management Option 1 (MO-1) of RECAP (2003).

(a) Soilssi = RECAP Screening Option Standard from Table 1 of RECAP 2003 for soil protective of industrial land use.

(b) The maximum reported concentration in surface soil (0-15 ft bgs) samples collected by ERM, HET, and ICON for each tract.

(c) Arsenic concentration is an average concentration calculated in accordance with RECAP Section 2.13 guidance for comparison of constituent concentrations to a state-specific background level (see Table 6).

(d) Soilssi not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP 2003.

(e) Appendix D of RECAP identifies: "If TPH fractionation data and TPH mixture data have both been collected at an AOI and the two data sets yield different conclusions about management of the AOI, then management decisions shall be based on the fractionation data since the fractionation method yields more specific information regarding the TPH constituents present and thus more accurately characterizes site conditions." In accordance with RECAP requirements, TPH fraction data were collected at sample locations and intervals with maximum TPH mixture data on each tract (and for most samples/intervals) and are therefore used in the risk assessment in accordance with RECAP.

(f) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.

(g) Soilssi not provided in RECAP; the risk-based value was taken from the EPA Regional Screening Level table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

(h) SVOCs (additional to PAHs) were analyzed in the SW tract. All results were nondetect and are included in the data summary table in Attachment 3.

(i) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

(j) The BC-8 area is located south of the NE Hero tract outside of the Hero property.

TABLE 2
MO-1 RECAP EVALUATION FOR SURFACE SOIL
INDUSTRIAL DIRECT CONTACT - BC-8 AREA

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-1 Constituent (a)	Units	Initial MO-1 Soili (b)	Target Organs (c)	Additivity Divisor (d)	Adjusted MO-1 Soili (e)	Aesthetic Cap (f)	Final MO-1 Soili (g)	Max Conc. BC-8 Area (h)
TPH Fractions								
Aliphatic >C8-C10	mg/kg	8,800	Liver, Hematological	2	4,400	10,000	4,400	1,110
Aliphatic >C10-C12	mg/kg	20,000		2	10,000	10,000	10,000	3,850
Aliphatic >C12-C16	mg/kg	38,000		2	19,000	10,000	19000 / 10000	12,200
Aliphatic >C16-C35	mg/kg	690,000	Liver	2	345,000	10,000	345000 / 10000	30,800
Aromatic >C8-C10	mg/kg	5,100	Body Weight	1	5,100	10,000	5,100	810
Aromatic >C21-C35	mg/kg	25,000	Kidney	1	25,000	10,000	25000 / 10000	3,980
Dioxins/Furans (i)								
Total TCDD TEQ (j)	pg/g	22	NA	1	22	NA	22	43.7 / 14.6 (k) (Risk=2E-06)

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

MO-1 - Management Option 1 under RECAP (2003)

TPH - Total Petroleum Hydrocarbons

NA - Not Applicable

- (a) Constituents with maximum reported concentrations above the RECAP Soilssi in surface soil (0-15 ft bgs) samples were included for further evaluation of the direct contact pathway under MO-1.
- (b) RECAP standard for soil protective of industrial land use calculated in accordance with Appendix H of RECAP using default exposure parameters.
- (c) Target Organ for assessing additive effects for noncarcinogenic COCs, obtained from Appendix D and G of RECAP (2003). Note that for TPH fractions additivity is evaluated across broader ranges than the ranges for which standards are developed (e.g., for Aliphatics >C8-C16 and Aromatics >C8-C16).
- (d) Additivity divisor for noncarcinogenic effects on the same target/organ system
- (e) Adjusted MO-1 Soili = Initial Soili divided by additivity divisor
- (f) RECAP identifies 10,000 mg/kg as an aesthetic limit for TPH in soil. This value is not a health based limit (health based limits are shown in this table), but indicates potential for colored or oily and odorous soil.
- (g) The Final MO-1 Soili is the adjusted Soili. The aesthetic cap of 10,000 mg/kg for TPH is also provided when applicable.
- (h) The maximum reported concentration in surface soil (0-15 ft bgs) samples collected from the BC-8 area by ERM and ICON.
- (i) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.
- (j) Soili not provided in RECAP; the risk-based value was taken from the EPA Regional Screening Level (RSL) table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).
- (k) Total TCDD TEQ exceeds the RSL at BC-8 (4-6') (43.7 pg/g). The split sample result does not confirm the exceedance (14.6 pg/g). The risk estimate associated with the maximum concentration is 2×10^{-6} , which is on the low end of the target risk range identified in RECAP, protective for industrial land use.

TABLE 3
SCREENING EVALUATION FOR SURFACE SOIL
NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilssni (a)	Maximum Concentrations by Tract (b)				
			NE	NW (j)	SE	SW	BC-8 Area (k)
Metals							
Arsenic	mg/kg	12	7.66	9.7 (c)	11.4	8.5 (c)	9.18
Barium	mg/kg	550	1572	654	3140	5573	4042
Cadmium	mg/kg	3.9	0.493	1.1	0.642	0.946	0.695
Chromium	mg/kg	12000	14	15.4	21.6	54.9	53.6
Lead	mg/kg	400	24.7	16.7	54.7	276	100
Mercury	mg/kg	2.3	0.118	<0.107	0.116	0.081	0.123
Selenium	mg/kg	39	<3.15	<3.22	<3.33	<3.18	<3.34
Silver	mg/kg	39	<0.258	NA	<0.251	<0.277	<0.249
Strontium	mg/kg	4700 (d)	260	85	152	131	164
Zinc	mg/kg	2300	55.7	63.1	68.7	245	125
TPH Fractions (e)							
Aliphatic C6-C8	mg/kg	1200	<37.4	<31.7	93.3	<75	284
Aliphatic >C8-C10	mg/kg	120	<37.4	<31.7	124	<75	1110
Aliphatic >C10-C12	mg/kg	230	<6	<5.73	142	154	3850
Aliphatic >C12-C16	mg/kg	370	70.4	<5.73	1500	818	12200
Aliphatic >C16-C35	mg/kg	7100	756	<5.73	3290	3690	30800
Aromatic >C8-C10	mg/kg	65	<37.4	<31.7	38.6	<34.2	810
Aromatic >C10-C12	mg/kg	120	<6	<5.73	52.3	20.8	257
Aromatic >C12-C16	mg/kg	180	7.41	<5.73	185	113	1280
Aromatic >C16-C21	mg/kg	150	12	<5.73	154	135	1060
Aromatic >C21-C35	mg/kg	180	163	<5.73	821	667	3980
PAHs							
2-Methylnaphthalene	mg/kg	22	<0.0323	NA	<0.0328	0.55	0.181
Acenaphthene	mg/kg	370	<0.0323	NA	<0.0328	<0.33	<0.164
Acenaphthylene	mg/kg	350	<0.0323	NA	<0.0328	<0.33	<0.164
Anthracene	mg/kg	2200	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(a)anthracene	mg/kg	0.62	<0.0323	NA	0.0424	0.377	<0.164
Benzo(a)pyrene	mg/kg	0.33	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(b)fluoranthene	mg/kg	0.62	<0.0323	NA	<0.0328	<0.33	<0.164
Benzo(g,h,i)perylene	mg/kg	230 (d)	NA	NA	NA	<0.33	NA
Benzo(k)fluoranthene	mg/kg	6.2	<0.0323	NA	<0.0328	<0.33	<0.164
Chrysene	mg/kg	62	<0.0323	NA	0.0804	<0.33	<0.164
Dibenz(a,h)anthracene	mg/kg	0.33	<0.0323	NA	<0.0328	<0.33	<0.164
Fluoranthene	mg/kg	220	<0.0323	NA	0.0542	0.79	<0.164
Fluorene	mg/kg	280	<0.0323	NA	<0.0328	0.594	<0.164
Indeno(1,2,3-cd)pyrene	mg/kg	0.62	<0.0323	NA	<0.0328	<0.33	<0.164
Naphthalene	mg/kg	6.2	<0.0323	NA	<0.0328	<0.33	<0.165
Phenanthrene	mg/kg	2100	<0.0323	NA	0.0985	1.89	<0.166
Pyrene	mg/kg	230	<0.0323	NA	0.149	0.459	<0.167

TABLE 3
 SCREENING EVALUATION FOR SURFACE SOIL
 NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
 Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilssni (a)	Maximum Concentrations by Tract (b)				
			NE	NW (j)	SE	SW	BC-8 Area (k)
Dioxins/Furans (f)							
Total TCDD TEQ	pg/g	4.8 (g)	NA	NA	6.9 (h)	NA	44
SVOCs (i)							

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

NA - Analyte was not analyzed in the respective tract

< Constituent not detected at or above reporting limit shown in the respective tract

TPH - Total Petroleum Hydrocarbons

PAH - Polycyclic Aromatic Hydrocarbons

SVOCs - Semi-volatile Organic Compounds

Bold and shaded concentrations above the Soilssni are identified for further evaluation under Management Option 2 (MO-2) of RECAP (2003).

(a) Soilssni = RECAP Screening Option Standard from Table 1 of RECAP 2003 for soil protective of non-industrial (residential) land use.

(b) The maximum reported concentration in surface soil (0-15 ft bgs) samples collected by ERM, HET, and ICON for each tract.

(c) Arsenic concentration is an average concentration calculated in accordance with RECAP Section 2.13 guidance for comparison of constituent concentrations to a state-specific background level (see Table 6).

(d) Soilssni not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP 2003.

(e) Appendix D of RECAP identifies: "If TPH fractionation data and TPH mixture data have both been collected at an AOI and the two data sets yield different conclusions about management of the AOI, then management decisions shall be based on the fractionation data since the fractionation method yields more specific information regarding the TPH constituents present and thus more accurately characterizes site conditions." In accordance with RECAP requirements, TPH fraction data are available for sample locations and intervals with maximum TPH mixture data on each tract (and for most samples/intervals) and are therefore used in the risk assessment in accordance with RECAP.

(f) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.

(g) Soilssni not provided in RECAP; the risk-based value was taken from the EPA Regional Screening Level table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

(h) The Total TCDD TEQ exceeds the Soilssni in a single sample on the Hero property, BC-16R (2-4'), and the split sample result (4.4 pg/g) does not confirm the exceedance.

(i) SVOCs (additional to PAHs) were analyzed in the SW tract. All results were nondetect and are included in the data summary table in Attachment 3.

(j) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

(k) The BC-8 area is located south of the NE Hero tract outside of the Hero property.

TABLE 4
MO-2 RECAP EVALUATION FOR SURFACE SOIL
NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT - HERO PROPERTY

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-2 Constituents (a)	Units	MO-2 Soilni (b)	Target Organs (c)	Additivity Divisor (d)	Final MO-2 Soilni (e)	Maximum Concentrations by Tract (f)			
						NE	NW (k)	SE	SW
Metals									
Barium (g)	mg/kg	16,000	Kidney	2	8,000	1572	654	3140	5573
TPH Fractions									
Aliphatic >C8-C10	mg/kg	1,200	Liver, Hematological	1	1,200	<37.4	<31.7	124	<75
Aliphatic >C12-C16	mg/kg	3,700		1	3,700	70.4	<5.73	1500	818
Aromatic >C12-C16	mg/kg	1,800	Body Weight	1	1,800	7.41	<5.73	185	113
Aromatic >C16-C21	mg/kg	1,500	Kidney	2	750	12	<5.73	154	135
Aromatic >C21-C35	mg/kg	1,800		2	900	163	<5.73	821	667
Dioxins/Furans (h)									
Total TCDD TEQ (i)	pg/g	4.8	NA	1	4.8	-	-	6.9 / 4.4 (j) (Risk=1E-06)	-

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

MO-2 - Management Option 2 under RECAP (2003)

TPH - Total Petroleum Hydrocarbons

NA - Not Applicable

- Analyte was not analyzed in the respective tract

< Constituent not detected at or above reporting limit shown in the respective tract

- (a) Constituents with maximum reported concentrations above the RECAP Soilssni in surface soil (0-15 ft bgs) samples collected at the site were included for further evaluation of the direct contact pathway under MO-2.
- (b) RECAP standard for soil protective of non-industrial land use calculated in accordance with Appendix H of RECAP using default exposure parameters and, where applicable (i.e., for barium), an updated toxicity factor.
- (c) Target Organ for assessing additive effects for noncarcinogenic COCs, obtained from Appendix D and G of RECAP (2003). Note that for TPH fractions additivity is evaluated across broader ranges than the ranges for which standards are developed (e.g., for Aliphatics >C8-C16 and Aromatics >C8-C16).
- (d) Additivity divisor for noncarcinogenic effects on the same target/organ system
- (e) Final MO-2 Soilni = Limiting Soilni divided by additivity divisor

(Notes continued on next page)

TABLE 4
MO-2 RECAP EVALUATION FOR SURFACE SOIL
NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT - HERO PROPERTY

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Notes (continued):

- (f) The maximum reported concentration in surface soil (0-15 ft bgs) samples collected by ERM, HET, and ICON for each tract, unless otherwise noted.
- (g) Under MO-2 of RECAP, updated EPA toxicity values may be used in the development of RECAP Standards. For this assessment, the barium toxicity value was updated to reflect the current EPA RfDo of 0.2 mg/kg-day.
- (h) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.
- (i) Soilni not provided in RECAP; the risk-based value was taken from the EPA Regional Screening Level (RSL) table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).
- (j) Total TCDD TEQ exceeds the RSL at BC-8 (all intervals), with the maximum TEQ at 4-6' (43.7 pg/g, with a split sample result of 14.6 pg/g). The risk estimate associated with the maximum concentration is 9×10^{-6} , which is within the target risk range identified in RECAP, protective for unrestricted land use.
- (j) The Total TCDD TEQ exceeds the RSL in a single sample, BC-16R (2-4') (6.9 pg/g). The split sample result (4.4 pg/g) does not confirm the exceedance of the screening level, and the risk estimate associated with the maximum concentration is 1.4×10^{-6} , which is equal to the low end of the target risk range identified in RECAP, protective for unrestricted land use.
- (k) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

TABLE 5
MO-2 RECAP EVALUATION FOR SURFACE SOIL
NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT - BC-8 AREA

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-2 Constituents (a)	Units	Initial MO-2 Soilni (b)	Target Organs (c)	Additivity Divisor (d)	Adjusted MO-2 Soilni (e)	Aesthetic Cap (f)	Final MO-2 Soilni (g)	Max Conc. (h)
								BC-8 Area
Metals								
Barium (i)	mg/kg	16,000	Kidney	2	8,000	NA	8,000	4042
TPH Fractions								
Aliphatic >C8-C10	mg/kg	1,200	Liver, Hematological	2	600	10,000	600	1110
Aliphatic >C10-C12	mg/kg	2,300		2	1150	10,000	1150	3850
Aliphatic >C12-C16	mg/kg	3,700		2	1850	10,000	1850	12200
Aliphatic >C16-C35	mg/kg	71,000	Liver	2	35500	10,000	35,500 / 10,000	30800
Aromatic >C8-C10	mg/kg	650	Body Weight	1	650	10,000	650	810
Aromatic >C21-C35	mg/kg	1,800	Kidney	2	900	10,000	900	3980
Dioxins/Furans (j)								
Total TCDD TEQ (k)	pg/g	4.8	NA	1	4.8	NA	4.8	43.7 / 14.6 (l) (Risk=9E-06)

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

MO-2 - Management Option 2 under RECAP (2003)

TPH - Total Petroleum Hydrocarbons

Bold - maximum reported concentration exceeds the MO-2 standard.

NA - Not Applicable

- (a) Constituents with maximum reported concentrations above the RECAP Soilssni in surface soil (0-15 ft bgs) samples collected from the BC-8 area were included for further evaluation of the direct contact pathway under MO-2.
- (b) RECAP standard for soil protective of non-industrial land use calculated in accordance with Appendix H of RECAP using default exposure parameters and, where applicable (i.e., for barium), an updated toxicity factor.
- (c) Target Organ for assessing additive effects for noncarcinogenic COCs, obtained from Appendix D and G of RECAP (2003). Note that for TPH fractions additivity is evaluated across broader ranges than the ranges for which standards are developed (e.g., for Aliphatics >C8-C16 and Aromatics >C8-C16).
- (d) Additivity divisor for noncarcinogenic effects on the same target/organ system.
- (e) Adjusted MO-2 Soilni = Limiting Soilni divided by additivity divisor.

(Notes continued on next page)

TABLE 5
MO-2 RECAP EVALUATION FOR SURFACE SOIL
NON-INDUSTRIAL (RESIDENTIAL) DIRECT CONTACT - BC-8 AREA

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Notes (continued):

- (f) RECAP identifies 10,000 mg/kg as an aesthetic limit for TPH in soil. This value is not a health based limit (health based limits are shown in this table), but indicates potential for colored or oily and odorous soil.
- (g) The Final MO-2 Soilni is the adjusted Soilni. The aesthetic cap of 10,000 mg/kg for TPH is also provided when applicable.
- (h) The maximum reported concentration in surface soil (0-15 ft bgs) samples collected from the BC-8 area by ERM and ICON.
- (i) Under MO-2 of RECAP, updated EPA toxicity values may be used in the development of RECAP Standards. For this assessment, the barium toxicity value was updated to reflect the current EPA RfDo of 0.2 mg/kg-day.
- (j) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.
- (j) Soilni not provided in RECAP; the risk-based value was taken from the EPA Regional Screening Level (RSL) table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).
- (k) Total TCDD TEQ exceeds the RSL at BC-8, with the maximum TEQ at 4-6' (43.7 pg/g, with a split sample result of 14.6 pg/g). The risk estimate associated with the maximum concentration is 9×10^{-6} , which is within the target risk range identified in RECAP, protective for unrestricted land use.

TABLE 6
CALCULATION OF ARSENIC AVERAGES FOR SURFACE SOIL

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Sample (a)	Depth	Date	Sampler	Arsenic (mg/kg) (b)
NW Tract: AOI 1 (c)				Average = 9.7
BC-1	2-4'	8/13/2018	ICON	5.69
BC-1	4-6'	8/13/2018	ERM	22.9
BC-1	4-6'	8/13/2018	ICON	14.8
BC-1R	4-6'	12/19/2019	ERM	20
BC-1R	4-6'	12/19/2019	ICON	5.6
SB-101	4-6'	12/19/2019	ERM	2.7
SB-101	4-6'	12/19/2019	ICON	4.8
SB-102	4-6'	12/19/2019	ERM	2.6
SB-102	4-6'	12/19/2019	ICON	6.7
SB-103	4-6'	12/19/2019	ERM	4.97
SB-103	4-6'	12/19/2019	ICON	16
SW Tract: AOI 1				Average = 8.3
BC-9	0-2'	10/24/2018	ERM	14.6
BC-9	0-2'	10/24/2018	ICON	9
BC-9R	0-2'	1/14/2020	ERM	7.35
BC-10	0-4'	10/24/2018	ERM	3.99
BC-10	0-4'	10/24/2018	ICON	6.58
SW Tract: AOI 2				Average = 8.5
SB-13	0-2'	6/24/2019	ERM	14.7
SB-13	0-2'	6/24/2019	ICON	16.3
SB-13R	0-2'	1/15/2020	ERM	5.2
SB-13R	0-2'	1/15/2020	ICON	7.2
SB-116	0-2'	1/9/2020	ERM	5.45
SB-116	0-2'	1/9/2020	ICON	6.18
SB-117	0-2'	1/9/2020	ERM	8.97
SB-117	0-2'	1/9/2020	ICON	8
SB-119	0-2'	1/15/2020	ERM	5.84
SB-119	0-2'	1/15/2020	ICON	6.9

Notes:

Results are reported as wet weight (e.g., mg/kg-wet, pg/g-wet), reflecting samples as received.

Bold font indicates the arsenic concentration is above the soil screening level (12 mg/kg) and further AOI evaluation is performed.

(a) Potential Areas of Investigation (AOIs) identified are those areas with individual arsenic concentrations in surface soil (0-15 ft bgs) above 12 mg/kg, the state-specific background concentration identified by LDEQ for arsenic.

(b) Per RECAP (2003), the arithmetic mean concentration within the potential AOI is used for comparison to a RECAP standard based on state-specific background concentration.

(c) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

TABLE 7
SCREENING EVALUATION FOR GROUNDWATER

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituents	Units	RECAP GWss (a)	SMCL (b)	Maximum Concentrations (c)				
				A Zone		B Zone		C Zone (k)
				Hero Prop.	BC-8 Area	Hero Prop.	BC-8 Area	Hero Prop.
Total Metals (d)								
Arsenic	mg/L	0.01	-	0.11	0.0369	0.023	0.0196	turbid
Barium	mg/L	2	-	74.9	72.4	16.8	0.53	turbid
Cadmium	mg/L	0.005	-	0.0052	<0.05	<0.025	<0.005	turbid
Calcium (e)	mg/L	NS	-	3220	3290	1100	68.6	turbid
Chromium	mg/L	0.1	-	0.0243	<0.2	<0.1	<0.01	turbid
Iron (f)	mg/L	NS	0.3	170	204	85	6.94	turbid
Lead	mg/L	0.015	-	<0.1	<0.1	<0.025	<0.01	turbid
Magnesium (e)	mg/L	NS	-	1480	1360	730	103	turbid
Manganese (f)	mg/L	NS	0.05	25	25.5	8.77	0.57	turbid
Mercury	mg/L	0.002	-	<0.0002	<0.0002	<0.0002	<0.0002	turbid
Potassium (e)	mg/L	NS	-	2630	188	135	39.1	turbid
Selenium	mg/L	0.05	-	<0.05	<0.05	<0.05	<0.01	turbid
Silver	mg/L	0.018	-	<0.05	<0.05	<0.025	<0.01	turbid
Sodium (e)	mg/L	NS	-	43200	31400	16600	1300	turbid
Strontium (g)	mg/L	2.2	-	74.9	70.4	24.4	1.1	turbid
Zinc	mg/L	1.1	-	0.267	0.0342	0.0189	0.0135	turbid
Dissolved Metals (d)								
Arsenic	mg/L	0.01	-	0.1	<0.1	0.022	0.012	<0.01
Barium	mg/L	2	-	63.3	64.5	12.5	0.48	1.38
Cadmium	mg/L	0.005	-	<0.05	<0.05	<0.025	<0.005	<0.005
Calcium	mg/L	NS	-	2390	3020	127	64.2	220
Chromium	mg/L	0.1	-	<0.2	<0.2	<0.1	<0.01	<0.02
Iron (f)	mg/L	NS	0.3	144	192	73	6.1	7.61
Lead	mg/L	0.015	-	<0.05	<0.05	<0.025	<0.01	<0.015
Manganese (f)	mg/L	NS	0.05	22.5	23.5	7.97	0.51	0.39
Mercury	mg/L	0.002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Selenium	mg/L	0.05	-	<0.05	<0.05	<0.05	<0.01	<0.02
Silver	mg/L	0.018	-	<0.05	<0.05	<0.025	<0.01	<0.018
Strontium (g)	mg/L	2.2	-	63.3	64.7	17.9	1.01	2.42
Zinc	mg/L	1.1	-	2.56	<1.1	<1.1	<0.2	<0.4
BTEX								
Benzene	mg/L	0.005	-	0.15	<0.005	0.0091	<0.005	<0.005
Ethylbenzene	mg/L	0.7	-	<0.025	<0.025	<0.025	<0.005	<0.005
Toluene	mg/L	1	-	0.024	<0.05	0.0157	<0.010	<0.010
m,p-Xylene (h)	mg/L	10	-	0.0166	NA	<0.01	NA	NA
o-Xylene (h)	mg/L	10	-	0.0069	NA	<0.005	NA	NA
Xylene (Total)	mg/L	10	-	<0.25	<0.25	<0.25	<0.05	<0.050
Water Quality (i)								
Chloride	mg/L	NS	250	74200	66000	35900	2130	7730
Total Dissolved Solids	mg/L	NS	500	119000	102000	51700	3780	11000

TABLE 7
SCREENING EVALUATION FOR GROUNDWATER

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

		RECAP	SMCL	Maximum Concentrations (c)				
				A Zone		B Zone		C Zone (k)
TPH Fractions (j)								
Aliphatic >C6-C8	mg/L	3.2	-	0.106	0.084	<0.03	<0.03	<0.03
Aliphatic >C8-C10	mg/L	0.15	-	0.117	0.073	<0.02	<0.02	<0.02
Aliphatic >C10-C12	mg/L	0.15	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic >C12-C16	mg/L	0.15	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aliphatic >C16-C35	mg/L	7.3	-	<0.15	<0.15	<0.15	<0.15	<0.15
Aromatic >C8-C10	mg/L	0.15	-	0.041	<0.03	<0.03	<0.03	<0.03
Aromatic >C10-C12	mg/L	0.15	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aromatic >C12-C16	mg/L	0.15	-	<0.1	<0.1	<0.1	<0.1	<0.1
Aromatic >C16-C21	mg/L	0.15	-	<0.3	<0.3	<0.3	<0.3	<0.3
Aromatic >C21-C35	mg/L	0.15	-	<0.3	<0.3	<0.3	<0.3	<0.3

Notes:

Bold and shading - Reported concentration exceeds the RECAP screening standard.

Bold and no shading - Reported concentration exceeds the SMCL.

turbid - Due to elevated turbidity, dissolved metals are used in the risk assessment for C zone.

< Constituent not detected at or above reporting limit shown.

- Not applicable

NA - Not analyzed

NS - GWss not available or not applicable

(a) RECAP GWss - RECAP Screening Standard from Table 1 of RECAP 2003, unless otherwise noted.

(b) SMCL - EPA Secondary Maximum Contaminant Level (SMCL), a non-enforceable guideline for public water systems addressing aesthetic effects such as taste, color, and odor.

(c) Maximum reported concentrations for constituents in each zone, including samples collected by ICON and ERM.

(d) Metals results from both unfiltered (total metals) and filtered samples (i.e., dissolved metals) were included in the risk evaluation and are provided in this table, unless otherwise noted.

(e) Essential elements (calcium, magnesium, potassium, sodium) have no toxicity factors or RECAP standards for quantitative risk evaluation.

(f) Iron and manganese are naturally elevated above the SMCL in groundwater as documented in monitoring wells unaffected by E&P indicator constituents. Iron and manganese are not site-related constituents of concern and do not warrant further risk evaluation.

(g) GWss not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP 2003.

(h) GWss not provided in RECAP; the risk-based value for total xylenes was used as a surrogate.

(i) Regional hydrogeological references indicate groundwater underlying the Hero property and the majority of Plaquemines Parish is naturally salty (chloride concentration > 250 mg/L) (USGS, 2013).

(j) Total Petroleum Hydrocarbon (TPH) fraction data are available for all samples with TPH mixture data and are therefore used in the risk assessment in accordance with RECAP 2003, Appendix D.

(k) Turbidity in the unfiltered samples collected from the C zone did not meet data quality objectives (i.e., turbidity > 40 NTU), therefore the filtered sample results for metals (dissolved) were used in the RECAP evaluation for this zone.

(l) The BC-8 area is located south of the NE Hero tract outside of the Hero property.

TABLE 8
MO-1 RECAP EVALUATION FOR CLASS 3 GROUNDWATER
A ZONE

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-1 Constituents (a)	Units	Default GW3NDW (b)	DF3 (c)	GW3NDW w/DF3 (d)	GWesni (e)	Water Sol (f)	Final GW3NDW (g)	A Zone Compliance Concentrations by Tract (h)				
								NW (k)	NE	SW	SE	BC-8 Area
Total Metals (i)												
Arsenic	mg/L	0.05	220	11	NA	NA	11	0.0631	0.036	0.11	0.029	0.0369
Barium	mg/L	45	220	9900	NA	NA	9900	62.7	4.84	20.1	74.9	72.4
Strontium (j)	mg/L	33	220	7260	NA	NA	7260	72.1	5.31	30	74.9	70.4
Dissolved Metals (i)												
Arsenic	mg/L	0.05	220	11	NA	NA	11	0.046	0.03	0.1	0.026	<0.1
Barium	mg/L	45	220	9900	NA	NA	9900	48.1	4.26	17.8	63.3	64.5
Strontium (j)	mg/L	33	220	7260	NA	NA	7260	63	4.85	26.4	63.3	64.7
Zinc	mg/L	8	220	1760	NA	NA	1760	2.56	<0.4	<2	<1.1	0.0342
BTEX												
Benzene	mg/L	0.013	220	2.86	2.9	1800	2.86	0.15	<0.005	0.0092	0.00501	<0.005

Notes:

< Constituent not detected at or above reporting limit shown.

NA - Not applicable

- (a) Potential E&P constituents with groundwater concentrations above the GWss in the A zone were further evaluated under MO-1 of RECAP. Chloride and TDS were not evaluated under MO-1 for the A zone because the surface water subsegment for receiving water is estuarine and standards are not applicable for these constituents.
- (b) Default Management Option 1 RECAP Standards (MO-1 RS) for groundwater meeting the definition of Class 3 (GW3NDW) were obtained from Table 3 of RECAP, unless otherwise noted. The potential discharge point is within Subsegment 020601 - Intracoastal Waterway - From Bayou Villars to Mississippi River, Estuarine.
- (c) DF3 - Dilution Factor for Class 3 groundwater, determined based on a distance of >2000 feet (x) from the western property boundary to the nearest downgradient surface water body (Bayou Barriere) and an average thickness of 6-10 feet (Sd) for the A zone.
- (d) GW3NDW w/DF3 is the default GW3NDW multiplied by the DF3.
- (e) GWesni is the default groundwater standard protective of vapor intrusion to non-industrial indoor air for volatile constituents in groundwater.
- (f) Water solubility, as applicable.
- (g) The Final GW3NDW is the lowest of the GW3NDW w/DF3, GWesi, and Water Solubility.
- (h) Maximum groundwater concentrations reported beneath each tract in the A zone represent compliance concentrations for evaluation under MO-1.
- (i) Metals results from both unfiltered (total metals) and filtered samples (i.e., dissolved metals) were included in the risk evaluation.
- (j) GW standard not provided in RECAP; the risk-based values were calculated in accordance with Appendix H of RECAP 2003.
- (k) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

TABLE 9
MO-1 RECAP EVALUATION FOR GROUNDWATER B AND C ZONES

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-1 COCs (a)	Units	Default MO-1 RS (b)		B Zone Compliance Concentrations (CC) by Tract (c)					C Zone CC (d)	ICON Background (e)
		GW2	GW3NDW	NW (k)	NE	SW	SE	BC-8 Area		
Total Metals (f)										
Arsenic	mg/L	0.01 / NS (h)	0.05	0.0156	0.023	0.012	<0.01	0.0196	turbid	0.0237 - 0.27
Barium	mg/L	2	45	16.8	0.19	12.3	0.217	0.53	turbid	0.45 - 1.34
Strontium (g)	mg/L	22	33	24.4 / 13.2 (j)	0.44	18	0.426	1.1	turbid	0.66 - 1.6
Dissolved Metals (f)										
Arsenic	mg/L	0.01 / NS (h)	0.05	0.011	0.022	<0.025	<0.01	0.012	<0.01	0.023 - 0.23
Barium	mg/L	2	45	12.5	0.18	10.7	0.19	0.48	1.38	0.39 - 1.21
Strontium (g)	mg/L	22	33	17.9	0.42	16.1	0.4	1.01	2.42	0.61 - 1.48
BTEX										
Benzene	mg/L	0.005	0.013	0.0091	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Water Quality										
Chloride	mg/L	NS (h)	NS (i)	35900	1170	19400	1430	2130	7730	15.3 - 3480
TDS	mg/L	NS (h)	NS (i)	51700	2420	32200	2910	3780	11000	915 - 5550

Notes:

Bold - result exceeds the default MO-1 GW2 RS.

turbid - Due to elevated turbidity, dissolved metals are used in the risk assessment for C zone.

< Constituent not detected at or above reporting limit shown.

NS - Standard not available or not applicable

- (a) Constituents with groundwater concentrations above the GWss in the B and C zones were further evaluated under MO-1 of RECAP. Iron and manganese are not considered site-related and were therefore not further evaluated beyond the screening evaluation.
- (b) Default Management Option 1 RECAP Standards (MO-1 RS) for groundwater meeting the definition of Class 2 (GW2) and Class 3 (GW3NDW) were obtained from Table 3 of RECAP, unless otherwise noted.
- (c) Maximum groundwater concentrations reported beneath each tract in the B zone represent compliance concentrations for evaluation under MO-1, unless otherwise noted.
- (d) Maximum groundwater concentrations reported in the C zone represent compliance concentrations for evaluation under MO-1.
- (e) ICON background is the range of concentrations reported in groundwater samples collected from BC-17B, BC-18, BC-19, and BC-20 completed in the B zone south of the property and representative of natural water quality.
- (f) Metals results from both unfiltered (total metals) and filtered samples (i.e., dissolved metals) were included in the risk evaluation and are provided in this table, unless otherwise noted.
- (g) GW standard not provided in RECAP; the risk-based values were calculated in accordance with Appendix H of RECAP 2003.
- (h) Site-specific background samples (ICON background) demonstrate that natural levels of arsenic, chlorides, and TDS exceed the MCL and SMCLs, and the default GW2 standards and SMCLs are not applicable RECAP standards for the groundwater zone.
- (i) No promulgated standards are applicable for chlorides and TDS based on naturally estuarine surface water conditions in the subsegment (the potential discharge point, Subsegment 020601 - Intracoastal Waterway - From Bayou Villars to Mississippi River, Estuarine).
- (j) The single exceedance for strontium in the NW tract B zone (MW-1B) is not confirmed by the split sample result (13.2 mg/L).
- (k) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

TABLE 10
SPLP RESULTS

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

SE Area				Barium (mg/kg)	SPLP Barium (mg/L)
Sample	Depth	Date	Sampler	Soilssgw = 2000	SPLP SS = 40 (a)
BC-16	0-4'	11/5/2018	ICON	3760	
BC-16R2	2-4'	1/9/2020	ERM		0.192
BC-16	4-8'	11/5/2018	ICON	3830	
BC-16R2	6-8'	1/9/2020	ERM		0.131
SB-5	0-2'	11/6/2017	ICON	2460	
SB-5R	0-2'	1/9/2020	ICON	2970	
SB-5R	0-2'	1/9/2020	ERM		1.62
SW Area				Barium (mg/kg)	SPLP Barium (mg/L)
Sample	Depth	Date	Sampler	Soilssgw = 2000	SPLP SS = 40 (a)
BC-10	4-6'	10/24/2018	ICON	2910	
BC-10	4-6'	7/17/2020	ERM		0.33
BC-21	0-2'	1/30/2019	ICON	2220	
BC-21R	0-2'	1/9/2020	ICON	2680	
BC-21R	0-2'	1/9/2020	ERM		0.28
SB-13	0-2'	6/24/2019	ERM	7330	
SB-13	0-2'	6/24/2019	ICON	9320	
SB-13R	0-2'	1/15/2020	ERM	545	
SB-13R	0-2'	1/15/2020	ICON	1170	
SB-13R	0-2'	7/8/2020	ICON	5450	
SB-13R	0-2'	7/8/2020	ERM		0.7
SB-14	0-2'	6/24/2019	ERM	2037	
SB-14	0-2'	6/24/2019	ICON	2690	
SB-14R	0-2'	1/22/2020	ERM	3760	0.72
SB-14R	0-2'	1/22/2020	ICON	3280	
SB-14	2-4'	6/24/2019	ERM	3301	
SB-14	2-4'	6/24/2019	ICON	1720	
SB-14R	2-4'	1/22/2020	ICON	6280	
SB-14R	2-4'	1/22/2020	ERM		0.64
SB-116	0-2'	1/9/2020	ERM	6856	
SB-116	0-2'	1/9/2020	ICON	4980	
SB-116	0-2'	7/8/2020	ICON	4110	
SB-116	0-2'	7/8/2020	ERM		10.9
SB-117	0-2'	1/9/2020	ERM	7689	
SB-117	0-2'	1/9/2020	ICON	4000	
SB-117	0-2'	7/8/2020	ERM		1.86
SB-117	0-2'	7/8/2020	ICON	6180	

TABLE 10
SPLP RESULTS

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

SW Area				Lead (mg/kg)	SPLP Lead (mg/L)
Sample	Depth	Date	Sampler	Soilssgw = 100	SPLP SS = 0.3 (a)
BC-11	2-4'	10/26/2018	ERM	16	
BC-11	2-4'	10/26/2018	ICON	123	
BC-11R	2-4'	7/8/2020	ERM		0.006
SB-13	0-2'	6/24/2019	ERM	508	
SB-13	0-2'	6/24/2019	ICON	461	
SB-13R	0-2'	1/15/2020	ERM	36.9	
SB-13R	0-2'	1/15/2020	ICON	25.5	
SB-13R	0-2'	7/8/2020	ICON	62.4	
SB-13R	0-2'	7/8/2020	ERM		0.027
SB-14	2-4'	6/24/2019	ERM	121.4	
SB-14	2-4'	6/24/2019	ICON	24	
SB-14R	2-4'	1/22/2020	ERM		0.02
SB-15	0-2'	6/24/2019	ERM	35.7	
SB-15	0-2'	6/24/2019	ICON	109	
SB-117	0-2'	1/9/2020	ERM	201	
SB-117	0-2'	1/9/2020	ICON	33.2	
SB-117	0-2'	7/8/2020	ICON	52.8	
SB-117	0-2'	7/8/2020	ERM		0.043
BC-8 Area (b)				Barium (mg/kg)	SPLP Barium (mg/L)
Sample	Depth	Date	Sampler	Soilssgw = 2000	SPLP SS = 40 (a)
BC-8R2	0-2'	12/17/2019	ERM		0.315
BC-8	4-6'	8/22/2018	ICON	5040	
BC-8R2	4-6'	7/9/2020	ERM		0.048
BC-8 Area (b)				Lead (mg/kg)	SPLP Lead (mg/L)
Sample	Depth	Date	Sampler	Soilssgw = 100	SPLP SS = 0.3 (a)
BC-8	4-6'	8/22/2018	ICON	125	
BC-8R2	4-6'	7/9/2020	ERM		0.0028

Notes:

Results for solid samples are reported as dry weight (e.g., mg/kg-dry, pg/g-dry).

Sample locations with highest reported metal concentrations in exceedance of the initial RECAP Screening Standard for the protection of groundwater (SoilSSGW) were revisited, and samples were collected for leachate (SPLP) analysis.

SPLP - Synthetic Precipitation Leaching Procedure (SPLP) SW-846 Method 1312

(a) SPLP results are compared to the appropriate groundwater standard multiplied by a default Summer's DF of 20, to account for dilution of the constituent as it moves from the soil column into the groundwater, in accordance with Appendix H of RECAP (2003).

(b) The BC-8 area is located south of the NE Hero tract outside of the Hero property.

TABLE 11
SCREENING EVALUATION FOR SOIL
PROTECTION OF GROUNDWATER

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilsgw (a)	Maximum Concentrations by Tract (b)				
			NE	NW (i)	SE	SW	BC-8 Area (c)
Metals							
Arsenic	mg/kg	100	11.1	29.8	17.2	27.8	14.2
Barium (c)	mg/kg	2000	1980	812	3830 / SPLP	9320 / SPLP	5040 / SPLP
Cadmium	mg/kg	20	0.734	1.4	0.916	1.792	0.916
Chromium	mg/kg	100	19.5	21.2	29.3	77.1	66.8
Lead (c)	mg/kg	100	31.7	21.4	65.5	508 / SPLP	125 / SPLP
Mercury	mg/kg	4	0.148	<0.2	0.157	0.109	0.162
Selenium	mg/kg	20	<3.99	<3.99	<3.99	<4.37	<3.99
Silver	mg/kg	100	<0.477	NA	<0.402	<0.547	<0.314
Strontium (d)	mg/kg	44000	313	106	182	196	205
Zinc	mg/kg	2800	83	105.5	85.1	464	144
TPH Fractions (e)							
Aliphatic C6-C8	mg/kg	10000	<75.7	<41.9	115	<122	319
Aliphatic >C8-C10	mg/kg	5300	<75.7	<41.9	153	<122	1247
Aliphatic >C10-C12	mg/kg	10000	<12.62	<7.57	175	227	4326
Aliphatic >C12-C16	mg/kg	10000	95.4	<7.57	2035	1226	13708
Aliphatic >C16-C35	mg/kg	10000	1024	<7.57	4057	6010	34607
Aromatic >C8-C10	mg/kg	65	<75.7	<41.9	47.6	<66.9	910
Aromatic >C10-C12	mg/kg	100	<12.62	<7.57	64.5	29.9	289
Aromatic >C12-C16	mg/kg	200	10.04	<7.57	228	169	1473
Aromatic >C16-C21	mg/kg	2100	16	<7.57	190	220	1220
Aromatic >C21-C35	mg/kg	10000	221	<7.57	1012	1072	4963
PAHs							
2-Methylnaphthalene	mg/kg	1.7	<0.0438	NA	<0.0445	0.79	0.202
Acenaphthene	mg/kg	220	<0.0438	NA	<0.0445	<0.54	<0.183
Acenaphthylene	mg/kg	88	<0.0438	NA	<0.0445	<0.54	<0.183
Anthracene	mg/kg	120	<0.0438	NA	<0.0445	<0.54	<0.183
Benzo(a)anthracene	mg/kg	330	<0.0438	NA	0.0575	0.542	<0.183
Benzo(a)pyrene	mg/kg	23	<0.0438	NA	<0.0445	<0.54	<0.183
Benzo(b)fluoranthene	mg/kg	220	<0.0438	NA	<0.0445	<0.54	<0.183
Benzo(g,h,i)perylene	mg/kg	61	NA	NA	NA	<0.54	NA
Benzo(k)fluoranthene	mg/kg	120	<0.0438	NA	<0.0445	<0.54	<0.183
Chrysene	mg/kg	76	<0.0438	NA	0.109	<0.54	<0.183
Dibenz(a,h)anthracene	mg/kg	540	<0.0438	NA	<0.0445	<0.54	<0.183
Fluoranthene	mg/kg	1200	<0.0438	NA	0.0735	1.14	<0.183
Fluorene	mg/kg	230	<0.0438	NA	<0.0445	0.855	<0.183
Indeno(1,2,3-cd)pyrene	mg/kg	9.2	<0.0438	NA	<0.0445	<0.54	<0.183
Naphthalene	mg/kg	1.5	<0.0438	NA	<0.0445	<0.54	<0.183
Phenanthrene	mg/kg	660	<0.0438	NA	0.134	2.720	<0.183
Pyrene	mg/kg	1100	<0.0438	NA	0.202	0.66	<0.183

TABLE 11
SCREENING EVALUATION FOR SOIL
PROTECTION OF GROUNDWATER

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituent	Units	Soilssgw (a)	Maximum Concentrations by Tract (b)				
			NE	NW (i)	SE	SW	BC-8 Area (c)
Dioxins/Furans (f)							
Total TCDD TEQ	pg/g	15 (g)	NA	NA	9.4	NA	54
SVOCs (h)							

Notes:

Results are reported as dry weight (e.g., mg/kg-dry, pg/g-dry).

NA - Analyte was not analyzed in the respective tract

< Constituent not detected at or above reporting limit shown in the respective tract

TPH - Total Petroleum Hydrocarbons

PAH - Polycyclic Aromatic Hydrocarbons

SVOCs - Semi-volatile Organic Compounds

SPLP - Synthetic Precipitation Leaching Procedure (SPLP) SW-846 Method 1312

(a) Soilssgw= RECAP Screening Option Standard from Table 1 of RECAP 2003 for soil protective of groundwater.

(b) The maximum reported concentration in soil samples (all depths) collected by ERM, HET, and ICON for each tract.

(c) Sample locations and intervals with concentrations of metals (barium, lead) above the Soilssgw were analyzed by SPLP to the extent possible. In many instances, locations were resampled at a later date for SPLP analysis. All SPLP results are less than RECAP screening standards for leachate, protective of all classes of groundwater.

(d) Soilssgw not provided in RECAP; the risk-based value was calculated in accordance with Appendix H of RECAP 2003.

(e) Appendix D of RECAP identifies: "If TPH fractionation data and TPH mixture data have both been collected at an AOI and the two data sets yield different conclusions about management of the AOI, then management decisions shall be based on the fractionation data since the fractionation method yields more specific information regarding the TPH constituents present and thus more accurately characterizes site conditions." In accordance with RECAP requirements, TPH fraction data are available for sample locations and intervals with maximum TPH mixture data on each tract (and for most samples/intervals) and are therefore used in the risk assessment in accordance with RECAP.

(f) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.

(g) Soilssgw not provided in RECAP; the MCL-based value was taken from the EPA Regional Screening Level table with target risk of 1E-06 (updated May 2020; <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>).

(h) SVOCs (additional to PAHs) were analyzed in the SW tract. All results were nondetect and are included in the data summary table in Attachment 3.

(i) Information is provided for the Northwest (NW) tract, however, it is my understanding that the tract was not part of the California Company operations.

(j) The BC-8 area is located south of the NE Hero tract outside of the Hero property.

TABLE 12
MO-1 RECAP EVALUATION FOR SOIL
PROTECTION OF GROUNDWATER

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

MO-1 Constituents (a)	Units	MO-1 (b) SoilGW3NDW	Maximum Concentration (c)	
			SE Tract	BC-8 Area
TPH Fractions				
Aliphatic >C12-C16	mg/kg	4.7E+07 / 10,000	2035	13,708
Aliphatic >C16-C35	mg/kg	1.2E+11 / 10,000	4057	34,607
Aromatic >C8-C10	mg/kg	6,100	48	910
Aromatic >C10-C12	mg/kg	9,600	65	289
Aromatic >C12-C16	mg/kg	19,000 / 10,000	228	1,473
Dioxins/Furans (d)				
Total TCDD TEQ	pg/g	NS	9.4	54 / 19.3

Notes:

Results are reported as dry weight (e.g., mg/kg-dry, pg/g-dry).

NS - Standard not available

TPH - Total Petroleum Hydrocarbons

(a) Constituents with concentrations in soil above the Soilssgw were further evaluated under MO-1 of RECAP.

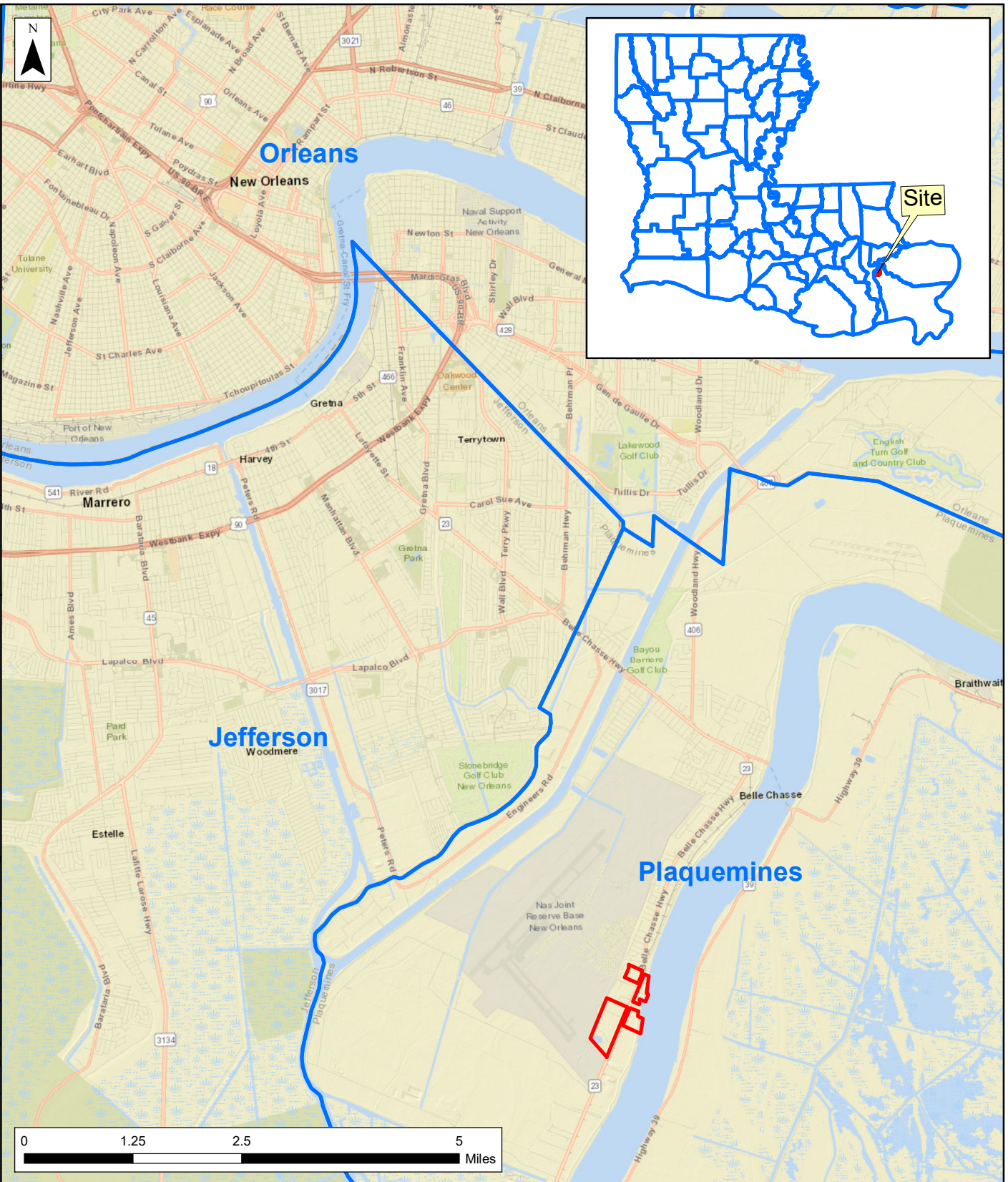
(b) MO-1 SoilGW3NDW = RECAP Management Option 1 Standard for soil protective of Class 3NDW groundwater, calculated in accordance with Appendix H of RECAP (2003). RECAP identifies 10,000 mg/kg as an aesthetic limit for TPH in soil. This value is not a health based limit (health based limits are included in this table), but indicates potential for colored or oily and odorous soil.

(c) The maximum reported concentration in soil samples collected in each area.

(d) Individual dioxin/furan results and TEQ calculations are provided in Attachment 3. Total TCDD TEQ is the sum of the individual dioxin-like compound TEQs.

SECTION 2 FIGURES

September 8, 2020



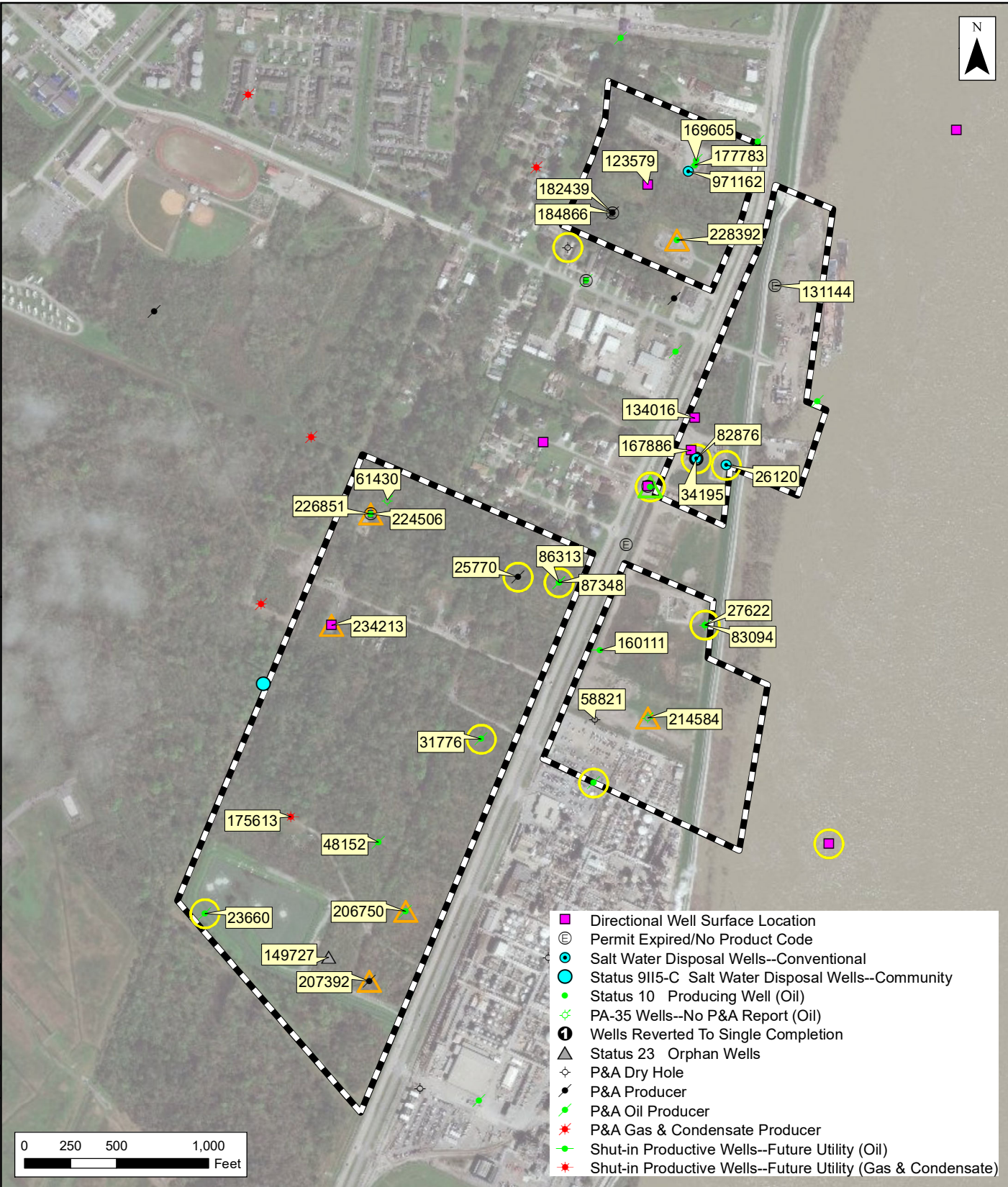
- Property
- Parish Boundaries

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 1
Site Location
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Environmental Resources Management
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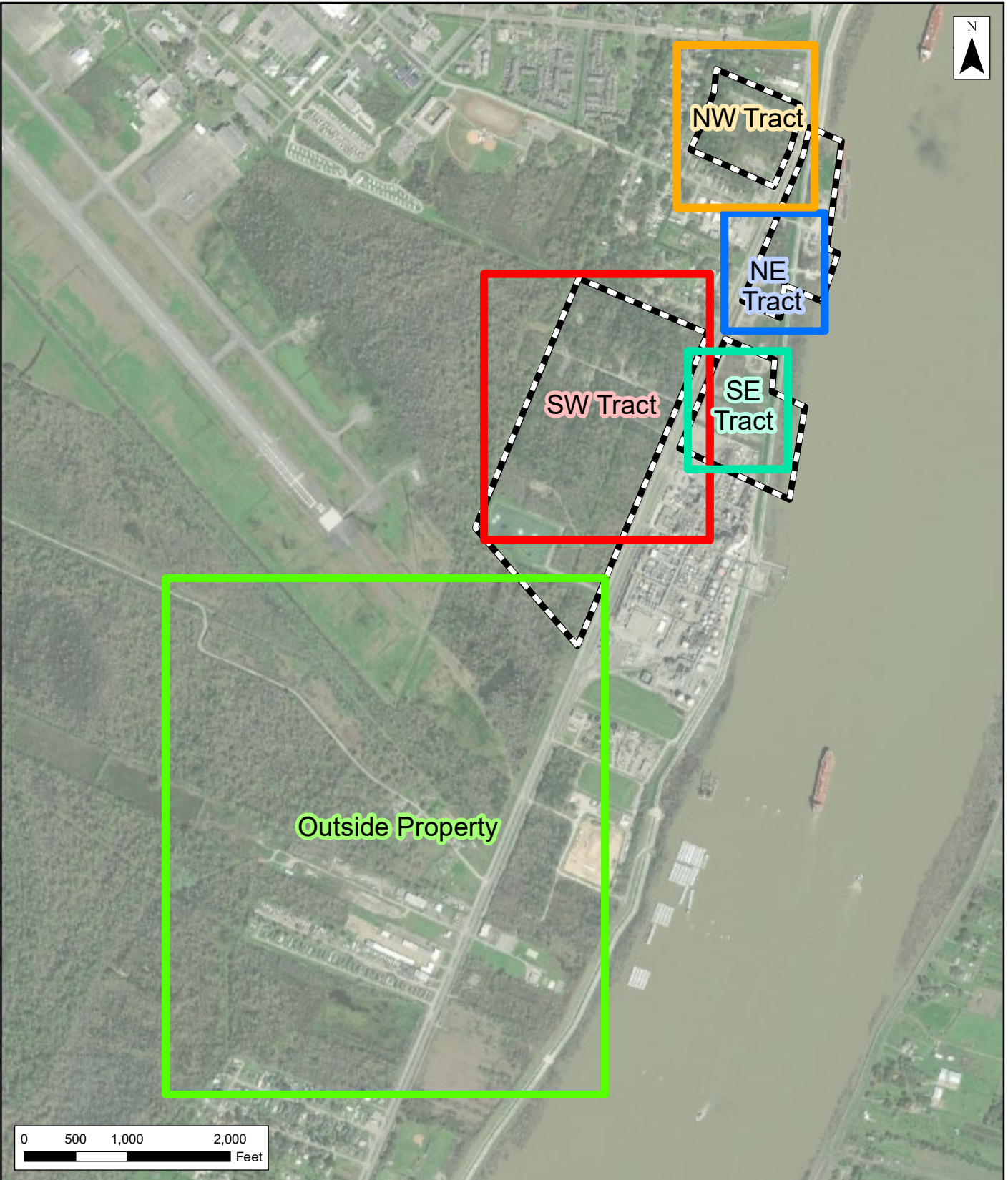


- Directional Well Surface Location
- ⊖ Permit Expired/No Product Code
- Salt Water Disposal Wells--Conventional
- Status 9II5-C Salt Water Disposal Wells--Community
- Status 10 Producing Well (Oil)
- ⚡ PA-35 Wells--No P&A Report (Oil)
- ⓪ Wells Reverted To Single Completion
- ▲ Status 23 Orphan Wells
- ⊕ P&A Dry Hole
- P&A Producer
- P&A Oil Producer
- P&A Gas & Condensate Producer
- Shut-in Productive Wells--Future Utility (Oil)
- Shut-in Productive Wells--Future Utility (Gas & Condensate)

- ▭ Property
- △ Reserve Pit
- △ Test Pit
- Wells Operated by Unocal and/or Chevron

Notes:
 Well data from sonris (<http://sonris.com>).
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

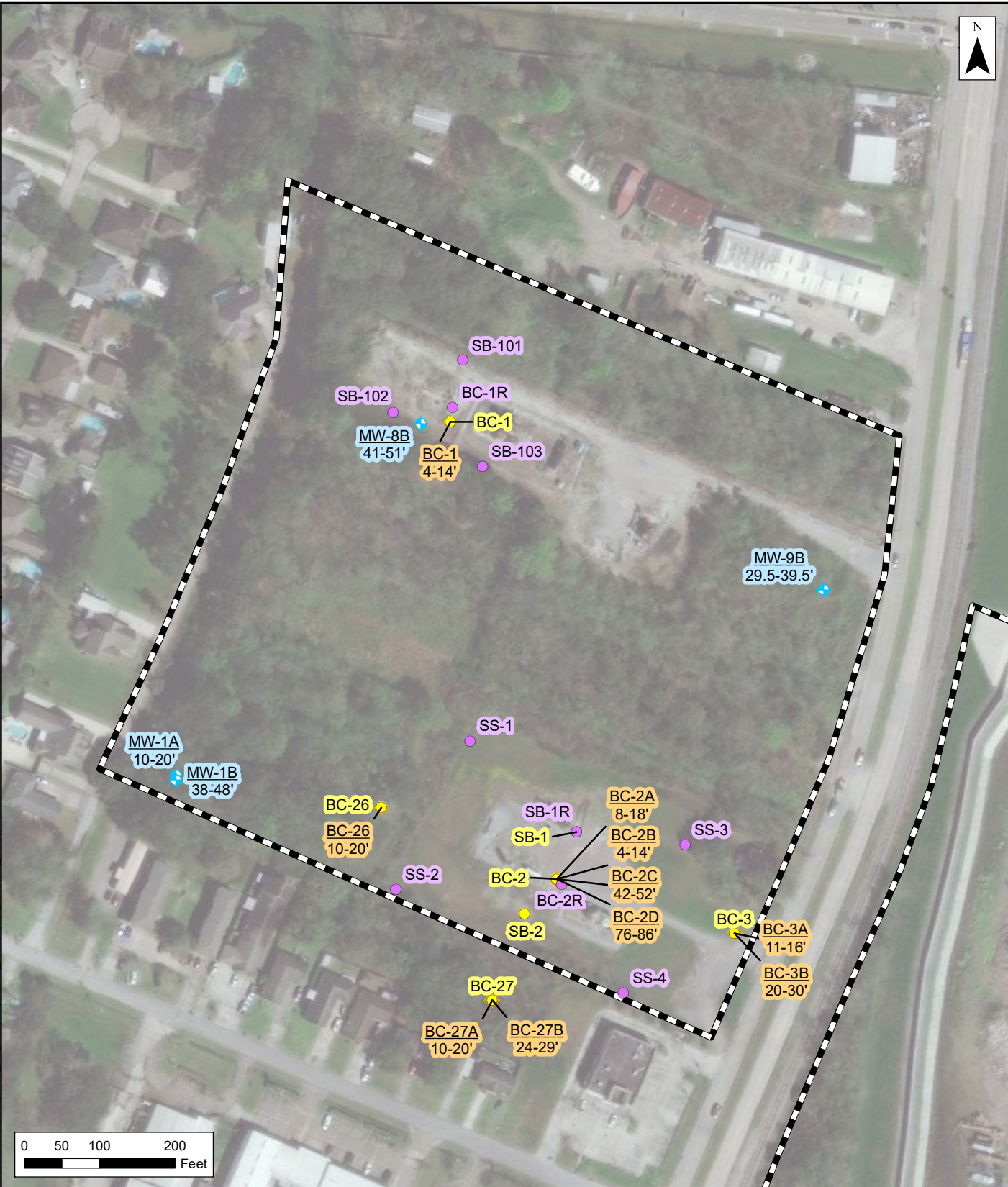
Figure 2
LDNR Registered Oil & Gas Wells & Pit Locations
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc. et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana



 Property

Notes:
Imagery Basemap via ArcGIS Online.
Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

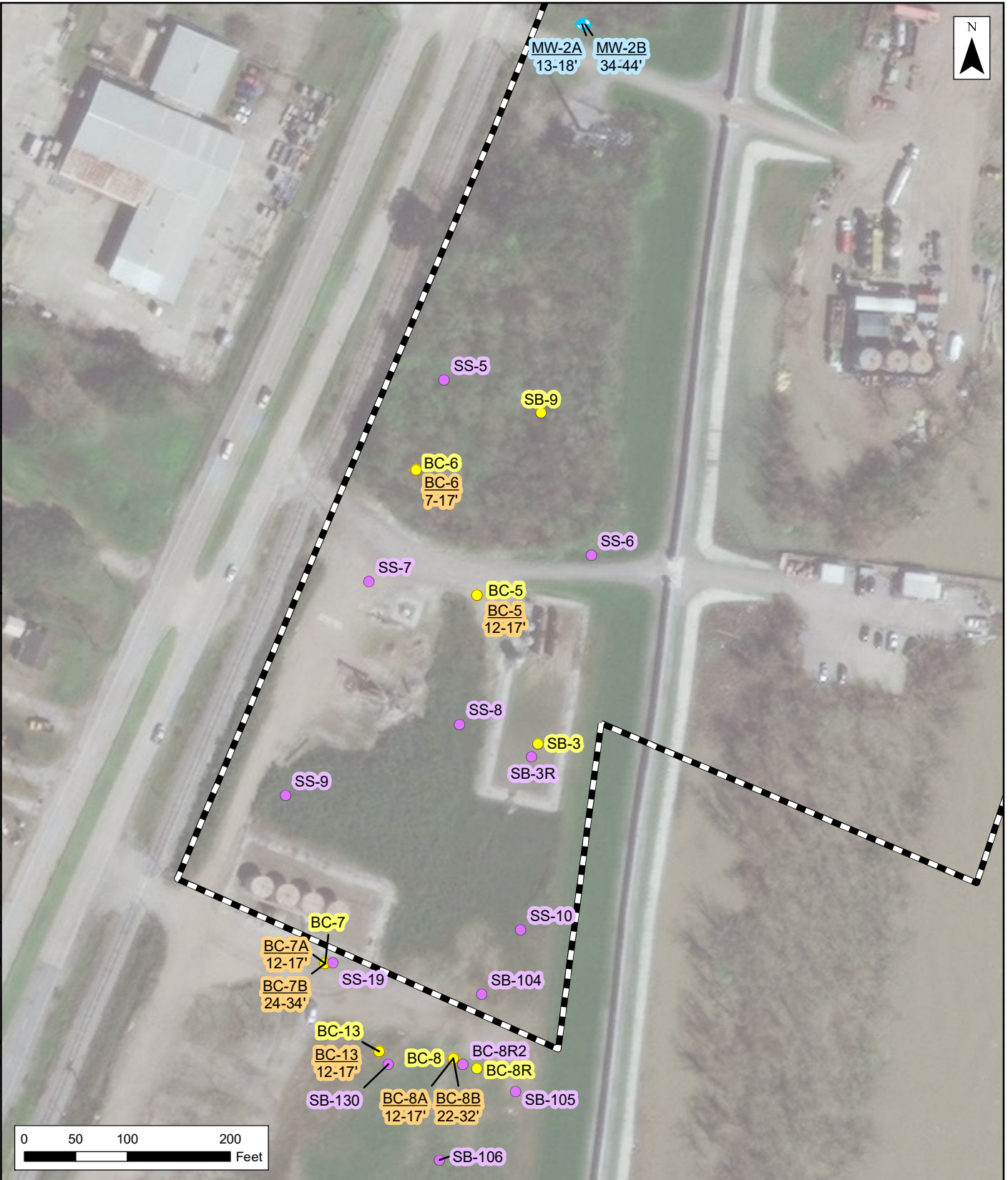
Figure 3
Sample Zoom Extents
Hero Lands Company, L.L.C. vs.
Chevron U.S.A. Inc., et al.
Stella Oil and Gas Field
Plaquemines Parish, Louisiana
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- ERM Soil Sample Locations
- ⊕ ERM Monitor Wells
- ICON Soil Boring Location
- ⊕ ICON Monitoring Well Location
- Property

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

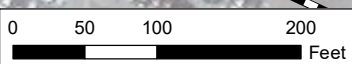
Figure 4
Sample Locations - NW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



- ERM Soil Sample Locations
- ⊕ ERM Monitor Wells
- ICON Soil Boring Location
- ⊕ ICON Monitoring Well Location
- Property

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 5
Sample Locations - NE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

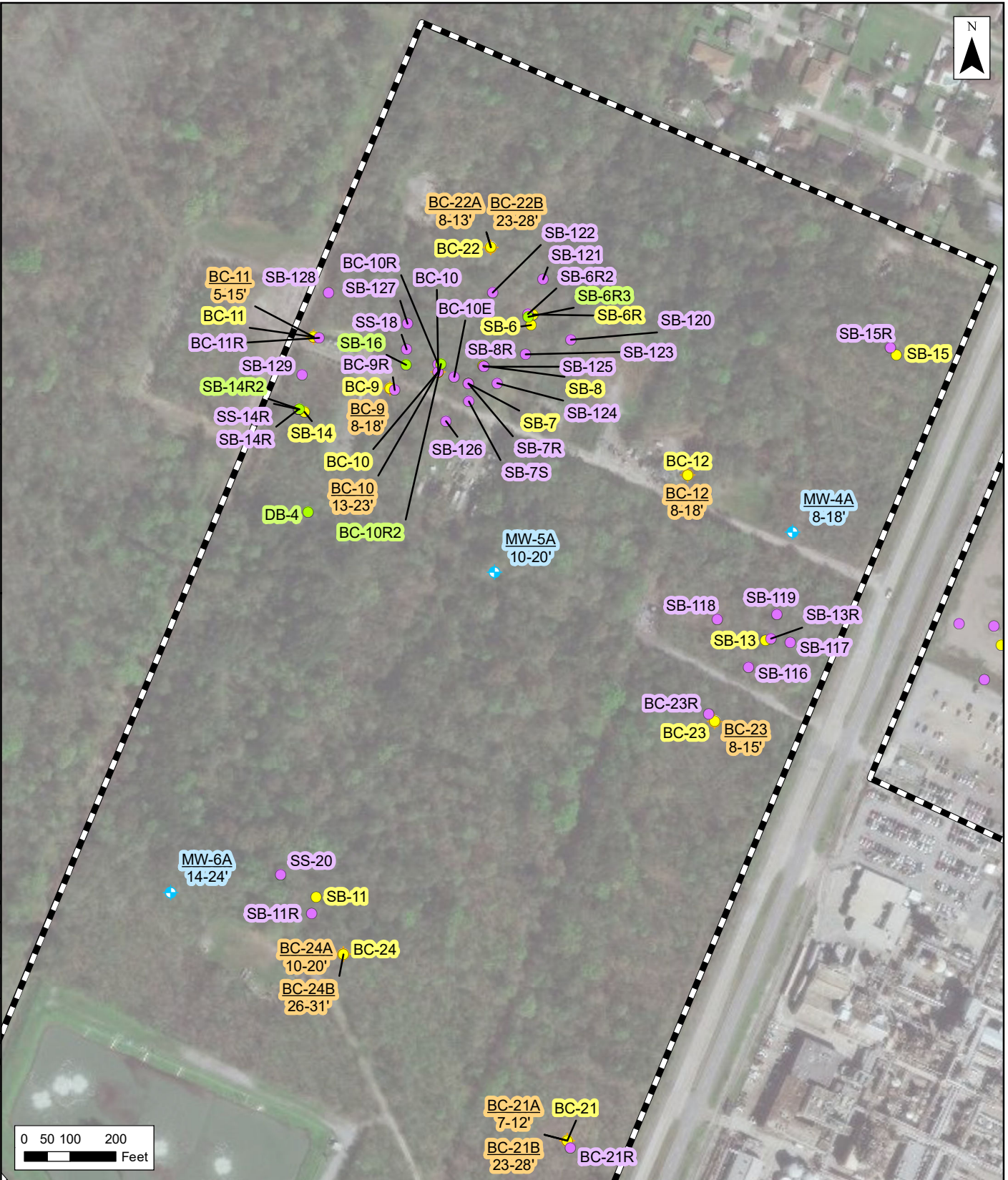


- ERM Soil Sample Locations
- ◆ ERM Monitor Wells
- ICON Soil Boring Location
- ◆ ICON Monitoring Well Location
- Property

Notes:
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 6
Sample Locations - SE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana



- HET Soil Boring Location
- ERM Soil Sample Locations
- + ERM Monitor Wells
- ICON Soil Boring Location
- + ICON Monitoring Well Location
- Property

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 7
Sample Locations - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

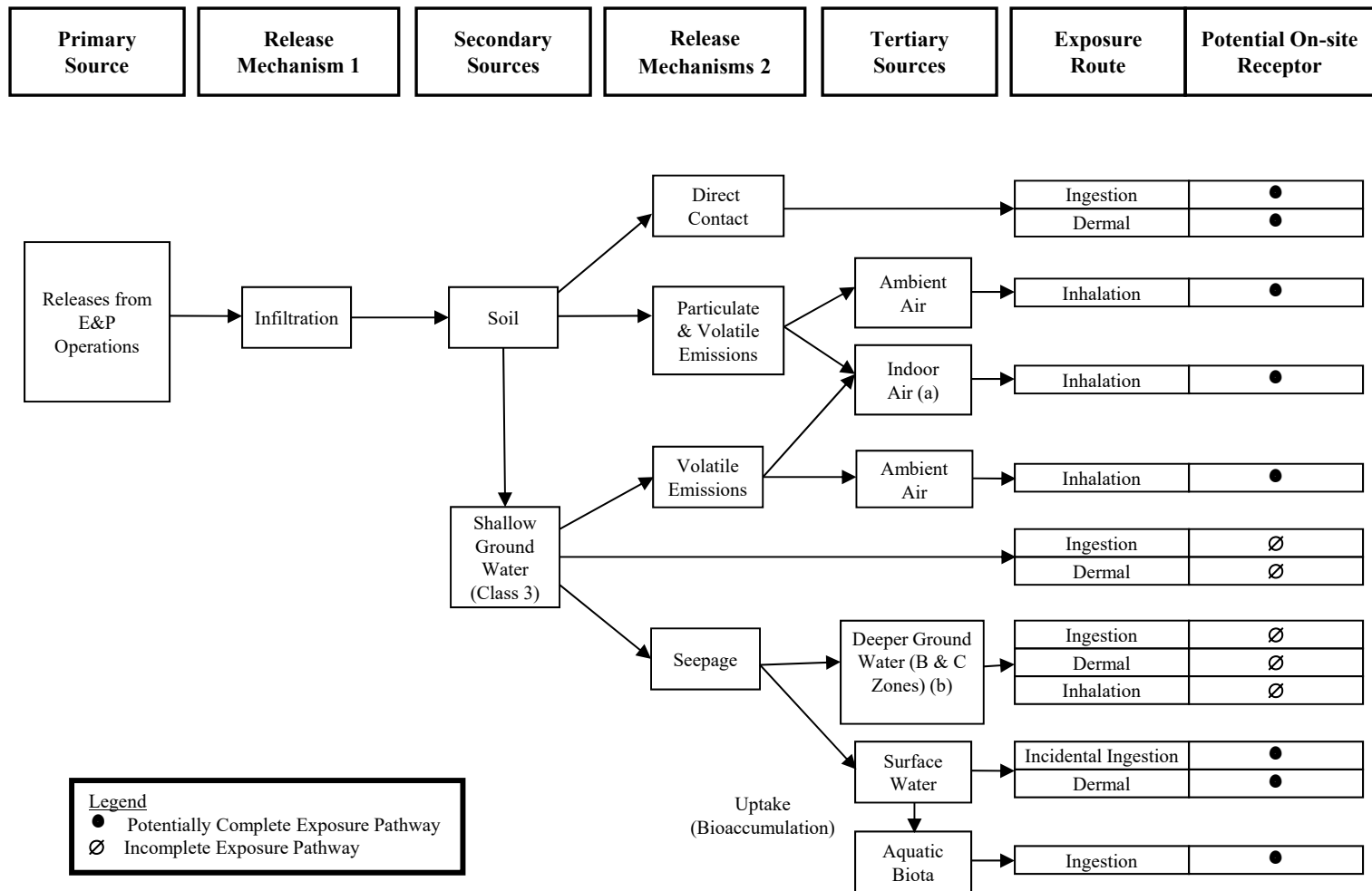
DRAWN BY: MMG
P:\Projects\0494255 Hero Lands v Chevron.DU\GIS\Maps\20_Angelas Report\01_Primary Figures\08_Sample Locations - Outside Property.mxd, REVISED: 09/04/2020, SCALE: 1:7,000 when printed at 8.5x11



- HET Soil Boring Location
- ICON Soil Boring Location
- ⊕ ICON Monitoring Well Location
- ▭ Property

Notes:
Imagery Basemap via ArcGIS Online.
Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 8
Sample Locations - Outside Property
Hero Lands Company, L.L.C. vs.
Chevron U.S.A. Inc., et al.
Stella Oil and Gas Field
Plaquemines Parish, Louisiana



Notes:

- (a) There are no slab on grade (enclosed) structures within Areas of Investigation, however, potential for vapor intrusion was evaluated for benzene detected in groundwater.
- (b) Deeper ground water zones were evaluated directly through sample collection. The B and C zones are naturally non-potable due to salt and mineral content.

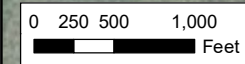
FIGURE 9
 CONCEPTUAL SITE MODEL
 HERO LANDS LLC V CHEVRON USA INC ET AL
 STELLA FIELD, PLAQUEMINES PARISH, LOUISIANA



- Property
- ERM A-Zone Well
- ICON A-Zone Well

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 10
Monitoring Well Locations A Zone
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

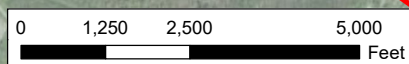
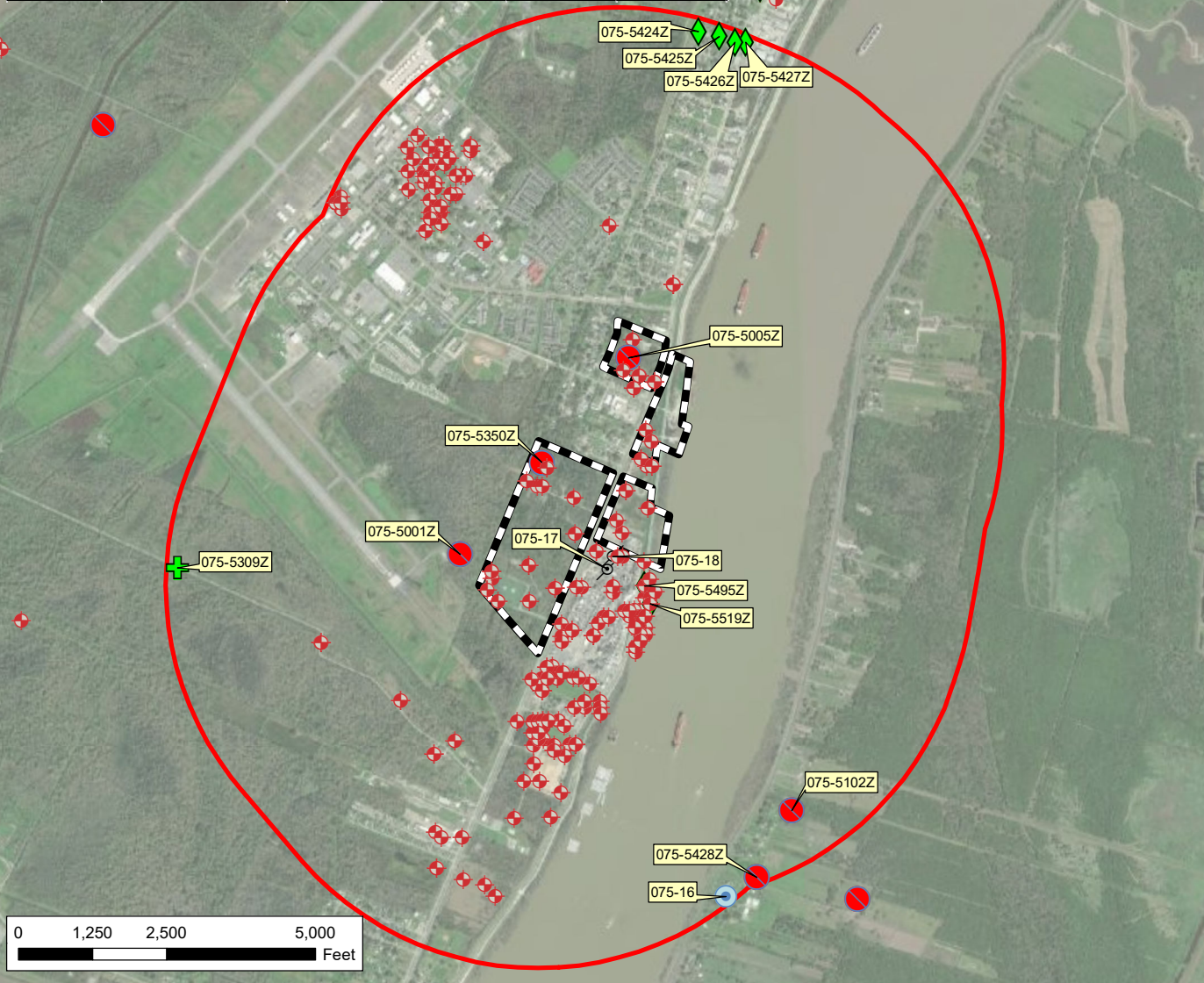


- Property
- ERM B-Zone Well
- ICON B-Zone Well
- ICON C-Zone MW

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 11
Monitoring Well Locations B and C Zones
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

Well No.	Owner	Depth (ft)	Geologic Unit	Well Type	Status
075-16	PEREZ, LEANDER	250	112GRMC	Domestic	Abandoned
075-17	CALIFORNIA CHEM	798	11200NWM	Test Hole	P&A
075-18	CALIFORNIA CHEM	300	112GRMC	Test Hole	P&A
075-5001Z	GRAHAM EXPLOR	320	112GRMC	Rig Supply	P&A
075-5005Z	GRAHAM EXPLOR	345	112GRMC	Rig Supply	P&A
075-5102Z	NOEX	370	112GRMC	Rig Supply	Active
075-5309Z	TOUPS, IRBY	320	0	Irrigation	Active
075-5350Z	STELLA O & G	260	11111111	Rig Supply	P&A
075-5424Z	PL PUBLIC WORKS	15	111NORLC	Piezometer	Active
075-5425Z	PL PUBLIC WORKS	15	111NORLC	Piezometer	Active
075-5426Z	PL PUBLIC WORKS	15	111NORLC	Piezometer	Active
075-5427Z	PL PUBLIC WORKS	15	111NORLC	Piezometer	Active
075-5428Z	SANDALWOOD EXPL	300	112GRMC	Rig Supply	P&A
075-5495Z	CHEVRON ORONITE	18	0	Piezometer	P&A
075-5519Z	CHEVRON ORONITE	15	0	Piezometer	Active

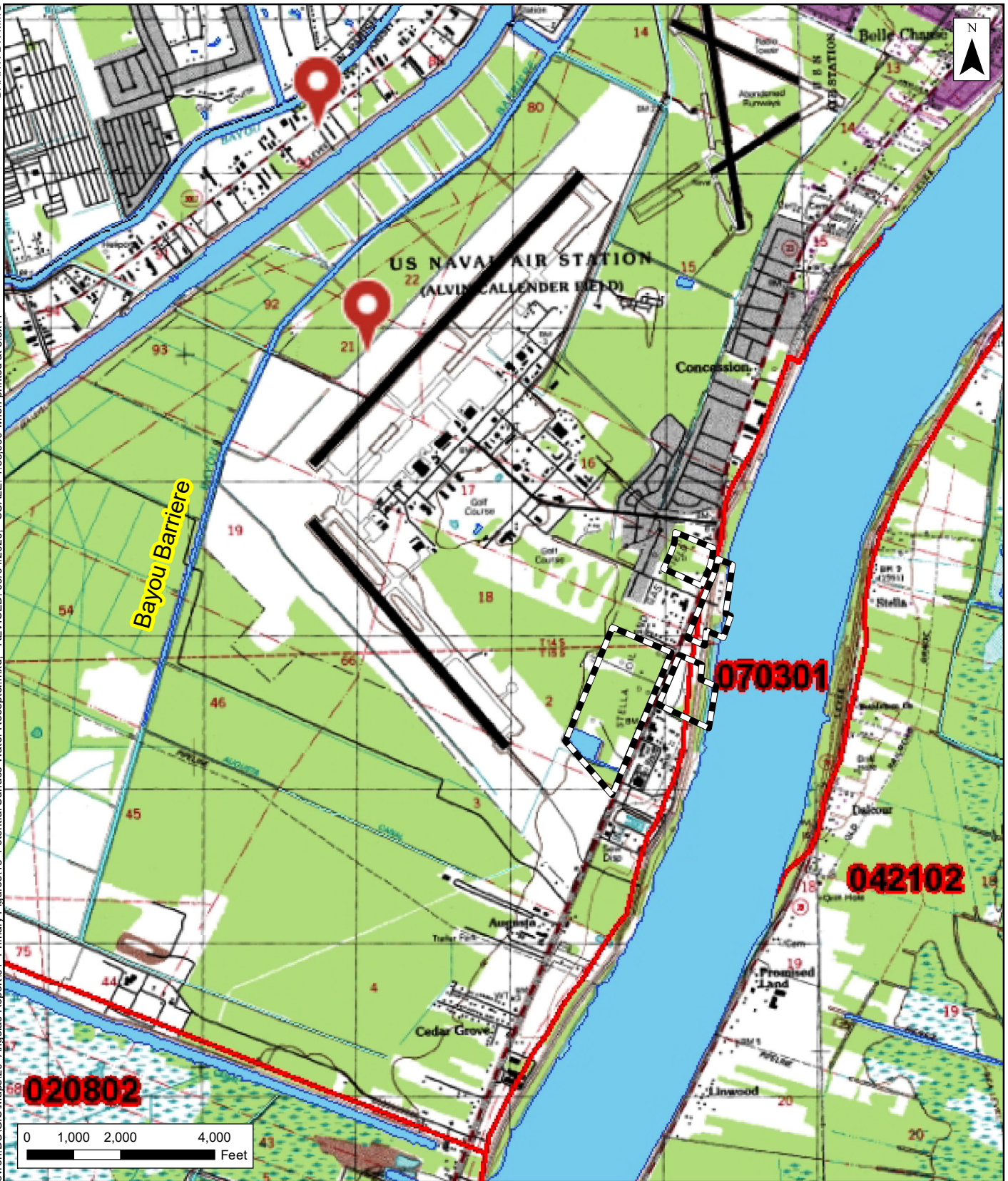


- Property
- 1 Mile Radius
- Bore hole/Test Hole
- Domestic
- Industrial
- Irrigation/Aquaculture/Livestock
- Monitor/Observation
- Piezometer
- Rig Supply
- Heat Pump

Notes:
 Water well data from sonris (<http://sonris.com>).
 Monitoring wells displayed on map, but not listed on the table.
 Imagery Basemap via ArcGIS Online.

Figure 12
LDNR Registered Water Wells
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc. et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana





Property

Notes:
 Map generated from LDEQ Interactive Mapping Application
 (<https://www.deq.louisiana.gov/resources/category/make-a-map>).
 Red lines and numbers are LDEQ Drainage Basins.
 Blue features are water bodies.
 Basemap is USGS Topo Map.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 13
Potential Surface Water Receptor
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana



LDEQ Drainage Basin Subsegment #020601
 Intracoastal Waterway - From Bayou Villars to Mississippi River (Estuarine)

Designated Uses
 A - Primary Contact Recreation
 B - Secondary Contact Recreation
 C - Fish and Wildlife Propagation

Selected Numerical Criteria
 Chloride - N/A
 TDS - N/A

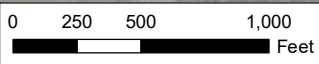
020601



070301

LDEQ Drainage Basin Subsegment #070301
 Mississippi River - From Monte Sano Bayou to Head of Passes

Designated Uses
 A - Primary Contact Recreation
 B - Secondary Contact Recreation
 C - Fish and Wildlife Propagation
 D - Drinking Water Supply

Selected Numerical Criteria
 Chloride - 75 mg/L
 TDS - 400 mg/L



-  Property
-  LDEQ Drainage Basin Subsegment

Notes:
 Subsegment data from LDEQ
 (<http://www.deq.louisiana.gov/portal>).
 Imagery Basemap via ArcGIS Online.

Figure 14
LDEQ Drainage Basin Subsegments
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

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ATTACHMENT 3 DATA SUMMARY AND SUPPORTING TABLES

September 8, 2020

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	BC-5	BC-5	BC-5	BC-5	BC-5	BC-5	BC-6	BC-6	BC-6	BC-6	SB-3	SB-3	SB-3R	SB-3R	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9
	0-4'	0-4'	4-8'	4-8'	10-12'	10-12'	0-4'	0-4'	4-6'	4-6'	0-2'	2-4'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'
	8/20/18	8/20/18	8/20/18	8/20/18	8/20/18	8/20/18	8/21/18	8/21/18	8/21/18	8/21/18	11/6/17	11/6/17	12/17/19	12/17/19	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																						
Arsenic	2.92	5.26	2.85	5.7	4.43	3.9	3.52	4.4	7.66	6.15	4.57	3.01	-	-	1.66	5.45	3.19	4.85	2.82	3.65	4.08	4.96
Barium	234	410	145	181	105	111	928	1008	185	184	1572	139	-	-	157	138	145	154	152	159	96.5	153
Cadmium	<0.263	<0.415	<0.252	<0.4	<0.274	0.305	<0.265	0.493	<0.258	0.387	<0.395	<0.358	-	-	0.337	0.443	0.403	0.383	0.374	0.345	0.397	0.335
Chromium	10.4	10.3	10.1	14	7.66	7.6	8.1	9.5	12.2	12.5	13.4	10.4	-	-	10.8	9.2	12.4	10.9	11.8	11.3	4.01	7.6
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	13.5	24.7	7.57	10.4	6.87	7	18	24.2	10.8	11.2	18.3	8.5	-	-	8.76	7.8	11.1	10.3	11.8	11	4.03	7.9
Mercury	<0.0933	<0.08	<0.108	<0.0688	<0.0956	<0.045	<0.0989	<0.077	<0.102	<0.069	0.118	<0.0697	-	-	<0.101	<0.0683	<0.105	<0.0643	<0.0925	<0.0619	<0.0944	<0.0502
Selenium	-	-	-	-	-	-	-	-	-	-	<3.15	<2.86	-	-	<2.04	<2.91	<2.04	<2.6	<2.05	<2.47	<2.06	<2.03
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.255	-	<0.255	-	<0.256	-	<0.258	-
Strontium	65.2	260	26.3	39.7	27.5	27.9	42.6	43	28.1	28.6	127	40.8	-	-	-	26.9	-	29.7	-	30.4	-	30.2
Zinc	44.8	43.1	42.1	55.7	33.8	32.8	36.8	44.6	53.7	53.4	53.1	43.3	-	-	42.5	46	51.7	49.1	49.3	51	15	35.3
TPH Fractions (mg/kg)																						
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	<24.8	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	<24.8	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	<6	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	9.41	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	-	-	-	25.9	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	<24.8	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	<6	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	<6	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	<6	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	-	-	-	7.27	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																						
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	230	<20	-	163	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	356	25.5	-	75	-	-	-	-	-	-	-	-
PAHs (mg/kg)																						
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	NE	NE	NE	NE	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
	SB-104	SB-104	SB-104	SB-104	BC-1	BC-1	BC-1	BC-1	BC-1	BC-1R	BC-1R	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-3	BC-3	BC-3	BC-3	BC-3
	4-6'	4-6'	8-10'	8-10'	2-4'	4-6'	4-6'	8-10'	8-10'	4-6'	4-6'	2-4'	2-4'	4-8'	4-8'	10-12'	16-18'	16-18'	2-4'	2-4'	6-8'	6-8'	8-10'	
	12/17/19	12/17/19	12/17/19	12/17/19	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	12/19/19	12/19/19	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/15/18	8/15/18	8/15/18	8/15/18	8/15/18	
Parameter	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																								
Arsenic	-	-	-	-	5.69	22.9	14.8	1.5	2.03	20	5.6	3.13	9.2	3.97	3.39	4.57	1.93	4.24	7.83	5.14	6.18	8.5	5.42	
Barium	-	-	-	-	201	198	159	84.1	94	-	-	125	139	94.5	101	75.6	89	90	155	198	128	151	102	
Cadmium	-	-	-	-	<0.391	1.1	0.422	0.348	<0.378	-	-	0.495	<0.355	0.371	<0.378	<0.388	0.382	<0.378	0.536	<0.363	0.678	<0.318	0.624	
Chromium	-	-	-	-	10.8	7.41	8.8	6.97	7.41	-	-	13.6	14	10.2	10.3	6.9	6.86	7.01	14.2	15.4	9.36	13.1	8.93	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	-	-	-	-	6.79	5.8	5.78	4.15	3.74	-	-	9.92	10.9	7.45	8.1	3.96	4.04	3.7	12.2	11.8	11.6	10.4	7.67	
Mercury	-	-	-	-	<0.079	<0.0949	<0.0755	<0.101	<0.08	-	-	<0.107	<0.078	<0.101	<0.081	<0.082	<0.0959	<0.1	<0.105	<0.0708	<0.0973	<0.0624	<0.1	
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	23	24	23.1	20.8	21.1	-	-	37	39.2	32.4	32.4	31.4	36.8	34.6	33.6	34.8	36.5	33.1	24.8	
Zinc	-	-	-	-	38.9	37.3	33.5	29.4	28	-	-	53.8	57.5	43.9	41.9	26.8	27.6	26.9	63.1	61.4	51.1	54.7	49.6	
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	<37.4	-	<35.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	<37.4	-	<35.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	<5.97	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	70.4	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	756	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	<37.4	-	<35.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<5.97	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	7.41	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	12	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	163	-	<5.98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	1040	-	13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	1290	-	19.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	<0.0323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	SE	SE	SE	SE	SE	SE	SE	SE	SE	
	BC-3	BC-26	BC-26	BC-26	SB-1	SB-1	SB-1R	SB-1R	SB-101	SB-101	SB-102	SB-102	SB-103	SB-103	BC-14	BC-14	BC-14	BC-14	BC-14	BC-14	BC-14	BC-15	BC-15	BC-15
	8-10'	0-2'	4-6'	8-10'	0-2'	2-4'	2-4'	2-4'	4-6'	4-6'	4-6'	4-6'	4-6'	4-6'	2-4'	2-4'	4-8'	4-8'	8-10'	10-12'	2-4'	2-4'	2-4'	
	8/15/18	2/6/19	2/6/19	2/6/19	11/6/17	11/6/17	1/8/20	1/8/20	12/19/19	12/19/19	12/19/19	12/19/19	12/19/19	12/19/19	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	7/16/20	7/16/20
Parameter	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	
Metals (mg/kg)																								
Arsenic	5.19	5.49	4.37	4.35	4.96	5.06	-	-	2.7	4.8	2.6	6.7	4.97	16	4.05	3.82	3.49	11.4	1.45	2.23	-	-	-	
Barium	122	515	221	112	654	326	-	-	-	-	-	-	-	-	296	215	120	138	126	76	-	-	-	
Cadmium	<0.263	0.415	0.455	0.371	<0.402	<0.378	-	-	-	-	-	-	-	-	0.4	0.464	0.484	0.46	<0.25	<0.371	-	-	-	
Chromium	10.4	14.6	12	9.9	11	13.2	-	-	-	-	-	-	-	-	10.1	11.2	10.9	11.6	9.24	6.53	-	-	-	
Iron	-	17579	14740	12410	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	8	-	-	-	16.7	16.2	-	-	-	-	-	-	-	-	9.91	10.1	10.6	10.6	8.68	5.64	-	-	-	
Mercury	<0.0514	<0.084	<0.072	<0.079	<0.083	<0.0729	-	-	-	-	-	-	-	-	<0.0926	<0.0737	<0.0995	<0.068	<0.0941	<0.08	-	-	-	
Selenium	-	-	-	-	<3.22	<3.02	-	-	-	-	-	-	-	-	<2	<3.14	<2	<3	<2	<2.97	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.25	-	<0.25	-	<0.25	-	-	-	-	
Strontium	25.5	35.2	35.8	29.4	85	48.4	-	-	-	-	-	-	-	-	-	44	-	35.5	-	21.5	-	-	-	
Zinc	44.2	54.3	45.3	36.9	60.5	53.7	-	-	-	-	-	-	-	-	43.1	45	50.8	50.1	37.5	28	-	-	-	
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	<31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29.2	-	
Aliphatic >C8-C10	-	-	-	-	-	-	<31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52.9	-	
Aliphatic >C10-C12	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	<149	-	<120	-	-	-	-	114	-	
Aliphatic >C12-C16	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	261	-	267	-	-	-	-	597	-	
Aliphatic >C16-C35	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	891	-	471	-	-	-	-	1440	-	
Aromatic >C8-C10	-	-	-	-	-	-	<31.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<24	-	
Aromatic >C10-C12	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	<23.8	-	<24	-	-	-	-	33.3	-	
Aromatic >C12-C16	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	<23.8	-	25.3	-	-	-	-	136	-	
Aromatic >C16-C21	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	<23.8	-	<24	-	-	-	-	120	-	
Aromatic >C21-C35	-	-	-	-	-	-	<5.73	-	-	-	-	-	-	-	82.6	-	59.3	-	-	-	-	674	-	
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	-	-	-	585	-	<10	-	-	-	-	-	-	-	3390	-	511	-	-	2020	-	1620	
TPH-ORO (>C28-C35)	-	-	-	-	-	884	-	<10	-	-	-	-	-	-	-	3640	-	272	-	-	844	-	716	
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
	BC-15	BC-15	BC-15	BC-15	BC-15	BC-16	BC-16	BC-16	BC-16	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-28	BC-28	BC-28	SB-4	SB-4R	SB-4R	SB-4R	SB-4R
	4-6'	4-6'	6-8'	6-8'	10-12'	0-4'	4-8'	8-10'	10-12'	0-2'	0-2'	4-6'	4-6'	6-8'	6-8'	0-2'	4-6'	8-10'	0-2'	0-2'	0-2'	2-4'	2-4'
	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/5/18	11/5/18	11/5/18	11/5/18	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	2/7/19	2/7/19	2/7/19	11/6/17	7/16/20	7/16/20	7/16/20	7/16/20
Parameter	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																							
Arsenic	7.21	5.6	2.98	3.39	3.24	4.83	5.53	3.16	3.97	-	-	-	-	-	-	7	6.23	3.57	3.56	-	-	-	-
Barium	158	172	191	159	131	3140	2819	198	137	-	209	-	444	-	-	741	182	113	455	-	-	-	-
Cadmium	0.408	0.392	0.28	0.404	0.365	0.483	0.388	<0.4	<0.376	-	-	-	-	-	-	0.376	0.398	0.323	<0.406	-	-	-	-
Chromium	13.7	11.8	10.2	8.8	7	9.9	21.6	8.6	7.29	-	-	-	-	-	-	12	11.3	8.2	10.3	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17150	17090	11040	-	-	-	-	-
Lead	12.5	10.8	10.8	9.3	6.04	54.7	42.8	6.64	5.63	-	-	-	-	-	-	-	-	-	13.7	-	-	-	-
Mercury	<0.104	<0.069	<0.103	<0.0589	<0.073	0.089	0.116	<0.074	<0.0704	-	-	-	-	-	-	<0.0676	<0.064	<0.062	<0.086	-	-	-	-
Selenium	<1.99	<2.7	<2	<2.53	<2.86	<3.33	<2.92	<3	<3.01	-	-	-	-	-	-	-	-	-	<3.25	-	-	-	-
Silver	<0.249	-	<0.25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	41.4	-	43.9	32.8	152	73.3	43.9	38.3	-	-	-	-	-	-	57.5	46.5	32.1	44.5	-	-	-	-
Zinc	56.2	52.2	43.6	40.1	30.4	49.4	52.3	33.2	28.9	-	-	-	-	-	-	54.3	47.7	37	47.7	-	-	-	-
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	<27.3	-	<31.8	-	<30.2	-	-	-	-	-	<25.2	-	<25.7	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	<27.3	-	<31.8	-	<30.2	-	-	-	-	-	32.9	-	36.4	-
Aliphatic >C10-C12	<120	-	<6	-	-	-	-	-	-	114	-	<5.87	-	<6	-	-	-	-	-	15.8	-	105	-
Aliphatic >C12-C16	227	-	13.9	-	-	-	-	-	-	1500	-	<5.87	-	<6	-	-	-	-	-	79.6	-	<1160	-
Aliphatic >C16-C35	396	-	34.1	-	-	-	-	-	-	2170	-	<5.87	-	<6	-	-	-	-	-	256	-	1750	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	<27.3	-	<31.8	-	<30.2	-	-	-	-	-	<25.2	-	<25.7	-
Aromatic >C10-C12	<6	-	<6	-	-	-	-	-	-	<29.9	-	<5.87	-	<6	-	-	-	-	-	<5.95	-	40.6	-
Aromatic >C12-C16	17.1	-	<6	-	-	-	-	-	-	<29.9	-	<5.87	-	<6	-	-	-	-	-	10.5	-	185	-
Aromatic >C16-C21	12	-	<6	-	-	-	-	-	-	43.8	-	<5.87	-	<6	-	-	-	-	-	10.7	-	148	-
Aromatic >C21-C35	45.9	-	9.2	-	-	-	-	-	-	425	-	<5.87	-	<6	-	-	-	-	-	63.4	-	778	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	1030	-	139	-	8870	6870	1600	573	-	8820	-	<50	-	<50	-	-	-	11000	-	251	-	6750
TPH-ORO (>C28-C35)	-	480	-	93.1	-	4580	3550	830	296	-	4290	-	<50	-	<50	-	-	-	8050	-	261	-	3610
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	0.0424	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	0.0804	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	0.0542	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	<0.0328	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	0.0985	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	0.149	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
	SB-4NW	SB-4NW	SB-4NW	SB-4NW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-5	SB-5	SB-5R	SB-5R	SB-5R	SB-5R	SB-10	SB-10	SB-10	SB-10	SB-10	SB-10
	0-2'	0-2'	2-4'	2-4'	0-2'	0-2'	2-4'	2-4'	6-8'	6-8'	10-12'	10-12'	0-2'	2-4'	0-2'	0-2'	2-4'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'
	7/16/20	7/16/20	7/16/20	7/16/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	11/6/17	11/6/17	1/9/20	1/9/20	1/9/20	1/9/20	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ICON	ERM	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																								
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	5.85	4.06	-	-	-	-	3.67	3.85	6.63	8	3.24	4.08
Barium	-	-	-	-	-	-	-	-	-	-	-	-	1985	284	-	2388	-	-	153	226	177	161	209	193
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	<0.4	<0.338	-	-	-	-	0.304	0.467	0.642	0.487	0.404	0.418
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	10.8	11.8	-	-	-	-	12.4	9.4	12.3	11.6	8.73	8.9
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	24.7	11.3	-	-	-	-	12.2	12.8	11.6	10.5	8.36	9.1
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	<0.086	<0.071	-	-	-	-	<0.108	<0.077	<0.0987	<0.075	<0.095	<0.068
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	<3.2	<2.7	-	-	-	-	<1.99	<2.92	<1.99	<2.74	<2	<2.57
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.249	-	<0.249	-	<0.249	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	81	52.6	-	-	-	-	-	48.4	-	42.8	-	49.4
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	68.7	53.1	-	-	-	-	52.8	51	57.1	47.9	35.5	40.1
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	<26.9	-	<25.8	-	-	-	93.3	-	58.9	-	26.2	-	-	-	<27.9	-	-	<28.8	-	-	-	-	-	-
Aliphatic >C8-C10	<26.9	-	<25.8	-	-	-	124	-	91.3	-	48.1	-	-	-	<27.9	-	-	<28.8	-	-	-	-	-	-
Aliphatic >C10-C12	<5.84	-	<5.87	-	<5.9	-	8.81	-	<1200	-	142	-	-	-	<5.99	-	-	<5.95	-	-	-	-	-	-
Aliphatic >C12-C16	12	-	11.5	-	<5.9	-	62.6	-	<1200	-	<1160	-	-	-	19.6	-	-	15.7	-	-	-	-	-	-
Aliphatic >C16-C35	73.5	-	228	-	52.8	-	206	-	3290	-	2310	-	-	-	343	-	-	117	-	-	-	-	-	-
Aromatic >C8-C10	<26.9	-	<25.8	-	38.6	-	37.9	-	<24.6	-	<23.6	-	-	-	<27.9	-	-	<28.8	-	-	-	-	-	-
Aromatic >C10-C12	<5.84	-	<5.87	-	<5.9	-	<5.83	-	29.9	-	52.3	-	-	-	<5.99	-	-	<5.95	-	-	-	-	-	-
Aromatic >C12-C16	<5.84	-	<5.87	-	<5.9	-	13.4	-	112	-	182	-	-	-	<5.99	-	-	<5.95	-	-	-	-	-	-
Aromatic >C16-C21	<5.84	-	<5.87	-	<5.9	-	11.5	-	108	-	154	-	-	-	<5.99	-	-	<5.95	-	-	-	-	-	-
Aromatic >C21-C35	28.1	-	64.3	-	13.1	-	51.4	-	519	-	821	-	-	-	204	-	-	13.9	-	-	-	-	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	251	-	2470	-	5120	-	1020	-	4550	-	1860	-	137	-	217	64.4	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	193	-	2820	-	3030	-	528	-	2650	-	1110	-	86.5	-	346	69.9	-	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0323	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SW	SW	SW	SW	
	SB-12	SB-12	SB-12	SB-12	SB-12	SB-12	SB-113	SB-113	SB-113	SB-113	SB-114	SB-114	SB-114	SB-114	SB-114	SB-114	SB-115	SB-115	SB-115	SB-115	BC-9	BC-9	BC-9	BC-9	
	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	
	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	12/18/19	12/18/19	12/18/19	12/18/19	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	10/24/18	10/24/18	10/24/18	10/24/18
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	
Metals (mg/kg)																									
Arsenic	8.94	8.8	3.62	3.45	4.29	2.87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.6	9	4.29	3.55
Barium	1110	1494	542	624	279	221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	785	940	174	111
Cadmium	0.481	<0.365	0.445	<0.35	0.542	0.298	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.915	0.521	0.503	<0.375
Chromium	11.6	12.3	11.2	11.1	11.8	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.8	10.8	8.57	8.2
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	20.7	20	11.6	15.6	11	9.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.5	11	8.83	7.8
Mercury	<0.104	<0.077	<0.0979	<0.075	<0.0983	<0.064	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0975	<0.0768	<0.0979	<0.072
Selenium	<2	<2.92	<2	<2.79	<2.01	<2.41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.08	<3.11	<2.16	<3
Silver	<0.25	-	<0.25	-	<0.251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.26	-	<0.271	-
Strontium	-	65.2	-	48.2	-	51.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68.8	-	38.6
Zinc	56.3	56	47.5	50.1	51.6	45.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	72.2	143	38.9	35.7
TPH Fractions (mg/kg)																									
Aliphatic C6-C8	-	-	-	-	-	-	<36.1	-	<36.9	-	<25.1	-	<28.3	-	<31.8	-	<35.8	-	<28.1	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	<36.1	-	<36.9	-	<25.1	-	<28.3	-	<31.8	-	<35.8	-	<28.1	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	<5.91	-	<5.96	-	<11.9	-	<6	-	<5.96	-	<6	-	<5.96	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	<5.91	-	<5.96	-	58.2	-	12.4	-	<5.96	-	9.66	-	<5.96	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	<5.91	-	<5.96	-	597	-	45	-	<5.96	-	195	-	<5.96	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	<36.1	-	<36.9	-	<25.1	-	<28.3	-	<31.8	-	<35.8	-	<28.1	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	<5.91	-	<5.96	-	<5.96	-	<6	-	<5.96	-	<6	-	<5.96	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	<5.91	-	<5.96	-	<5.96	-	<6	-	<5.96	-	<6	-	<5.96	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	<5.91	-	<5.96	-	7.34	-	<6	-	<5.96	-	<6	-	<5.96	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	<5.91	-	<5.96	-	179	-	18.1	-	<5.96	-	75.1	-	<5.96	-	-	-	-	-	-
TPH Mixtures (mg/kg)																									
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	35.3	-	<10	-	5150	-	1210	-	<50	-	249	-	<50	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	27.9	-	<10	-	4770	-	621	-	<50	-	249	-	<50	-	-	-	-	-
PAHs (mg/kg)																									
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	BC-9	BC-9R	BC-9R	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10R	BC-10R	BC-10R	BC-10R2	BC-10R2	BC-10E	BC-10E	BC-10E	BC-10E	BC-10E	BC-10E	BC-11	BC-11
	10-12'	0-2'	2-4'	0-4'	0-4'	4-6'	10-12'	10-12'	10-12'	12-14'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	0-2'	0-2'	
	10/24/18	1/14/20	1/14/20	10/24/18	10/24/18	10/24/18	10/24/18	10/24/18	7/17/20	7/17/20	1/13/20	1/13/20	1/13/20	3/19/20	3/19/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	10/26/18	10/26/18
Parameter	ICON	ERM	ERM	ERM	ICON	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ICON	HET	ICON	ERM	ICON	ERM	ICON	ERM	ERM	ERM	ICON
Metals (mg/kg)																							
Arsenic	2.82	7.35	-	3.99	6.58	5.22	-	3.8	-	-	-	-	-	-	-	-	-	-	-	-	-	4.93	3.63
Barium	68.5	-	-	301	318	1935	-	855	-	-	-	-	-	-	-	-	-	-	-	-	-	560	840
Cadmium	<0.397	-	-	0.739	<0.383	0.543	-	0.477	-	-	-	-	-	-	-	-	-	-	-	-	-	0.573	0.603
Chromium	5.91	-	-	12.1	12	11.5	-	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	11.6	10
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	4	-	-	15.9	12.9	13.8	-	12.6	-	-	-	-	-	-	-	-	-	-	-	-	-	16.6	21
Mercury	<0.076	-	-	<0.106	<0.0756	<0.0615	-	<0.07	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.101	0.072
Selenium	<3.18	-	-	<2.21	<3.07	<2.65	-	<2.76	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.08	<2.77
Silver	-	-	-	<0.276	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.26	-
Strontium	24.1	-	-	-	44.4	63.6	-	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71
Zinc	22	-	-	183	104	155	-	227	-	-	-	-	-	-	-	-	-	-	-	-	-	53.7	68.5
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	<29.5	<26.9	-	-	-	-	-	<27.8	<26.8	<31.4	<28.8	-	<30	-	<31.8	-	<26.2	-	<30.2	-	-	-
Aliphatic >C8-C10	-	<29.5	<26.9	-	-	-	-	-	<27.8	<26.8	<31.4	<28.8	-	<30	-	<31.8	-	<26.2	-	<30.2	-	-	-
Aliphatic >C10-C12	-	<5.97	<5.98	<6	-	-	<600	-	56.7	<5.93	<6	<6	-	<30	-	<8.37	-	<5.98	-	<5.89	<594	-	-
Aliphatic >C12-C16	-	<5.97	<5.98	<6	-	-	800	-	<468	<59.3	<6	<6	-	172	-	<8.37	-	<5.98	-	<5.89	818	-	-
Aliphatic >C16-C35	-	<5.97	<5.98	33.3	-	-	2040	-	1380	205	<6	<6	-	1370	-	130	-	11.1	-	20.8	1970	-	-
Aromatic >C8-C10	-	<29.5	<26.9	-	-	-	-	-	<27.8	<26.8	<30	<28.8	-	<10	-	<31.8	-	<26.2	-	<30.2	-	-	-
Aromatic >C10-C12	-	<5.97	<5.98	<6	-	-	<60	-	20.8	<5.93	<6	<6	-	<10	-	<5.96	-	<5.98	-	<5.89	<59.4	-	-
Aromatic >C12-C16	-	<5.97	<5.98	<6	-	-	94.6	-	99.3	15.1	<6	<6	-	30.1	-	<5.96	-	<5.98	-	<5.89	113	-	-
Aromatic >C16-C21	-	<5.97	<5.98	<6	-	-	<60	-	87.9	12.9	<6	<6	-	63.5	-	<5.96	-	<5.98	-	<5.89	<59.4	-	-
Aromatic >C21-C35	-	<5.97	<5.98	9.96	-	-	253	-	463	59.7	<6	<6	-	176	-	13.7	-	<5.98	-	19.6	434	-	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	-	-	-	157	2480	-	1750	-	-	-	-	89.9	-	4130	-	394	-	53.7	-	-	-	2690
TPH-ORO (>C28-C35)	-	-	-	-	272	1570	-	1340	-	-	-	-	116	-	2590	-	335	-	109	-	-	-	2210
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	0.55	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Anthracene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	0.377	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Chrysene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	0.79	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Fluorene	-	-	-	-	-	-	-	-	0.594	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	<0.325	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	1.89	0.066	-	-	-	-	-	0.086	-	<0.033	-	<0.032	-	-	-
Pyrene	-	-	-	-	-	-	-	-	0.459	<0.033	-	-	-	-	-	<0.033	-	<0.033	-	<0.032	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW BC-11 2-4' 10/26/18	SW BC-11 2-4' 10/26/18	SW BC-11 4-6' 10/26/18	SW BC-11 4-6' 10/26/18	SW BC-11 6-8' 10/26/18	SW BC-11 6-8' 10/26/18	SW BC-11 10-12' 10/26/18	SW BC-11 10-12' 10/26/18	SW BC-11R 0-2' 1/14/20	SW BC-11R 0-2' 1/14/20	SW BC-12 0-4' 11/1/18	SW BC-12 0-4' 11/1/18	SW BC-12 4-8' 11/1/18	SW BC-12 4-8' 11/1/18	SW BC-12 8-12' 11/1/18	SW BC-12 8-12' 11/1/18	SW BC-12 18-20' 11/1/18	SW BC-21 0-2' 1/30/19	SW BC-21 4-8' 1/30/19	SW BC-21R 0-2' 1/9/20	SW BC-22 0-2' 1/31/19	SW BC-22 4-8' 1/31/19	SW BC-23 0-2' 2/1/19
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ICON	ICON
Metals (mg/kg)																							
Arsenic	2.76	4.8	2.38	3.08	1.86	4.1	2.05	2.6	-	-	4.29	7.25	3.84	4.86	3.8	3.12	2.72	5.49	5.31	-	6.1	2.68	6.13
Barium	231	216	99.1	145	95	105	85.6	91	-	-	78.2	207	80.1	117	117	94	97	1594	159	1905	166	156	877
Cadmium	0.557	<0.365	0.35	<0.294	0.348	<0.37	0.363	<0.4	-	-	0.33	0.51	0.254	0.427	0.36	0.401	<0.367	0.378	<0.338	-	<0.363	<0.387	0.441
Chromium	10.6	12	6.98	13.4	6.86	6.72	6.31	6.41	-	-	11.9	11.9	6.79	8.3	8.9	8.1	7.7	17.8	11.5	-	16.1	10.5	15.6
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17950	15209	-	18637	12865	19838
Lead	11	90	5.71	7	5.14	5.48	4.57	5.26	-	-	11	9.7	5.09	5.92	7.2	5.89	6.01	-	-	-	-	-	-
Mercury	<0.0924	<0.0699	<0.0959	<0.0574	<0.0979	<0.0718	<0.103	<0.0724	-	-	<0.0971	<0.0742	<0.0935	<0.077	<0.0958	<0.07	<0.075	<0.0673	<0.072	-	<0.074	<0.0723	<0.082
Selenium	<2.12	<2.92	<2.06	<2.35	<2.05	<2.96	<2.17	<3	-	-	<2	<3	<2	<3.05	<2	<2.97	<2.94	-	-	-	-	-	-
Silver	<0.265	-	<0.257	-	<0.256	-	<0.271	-	-	-	<0.25	-	<0.25	-	<0.25	-	-	-	-	-	-	-	-
Strontium	-	34.8	-	30.1	-	23.9	-	21.9	-	-	-	28	-	20	-	20.1	24.9	52.8	28.6	-	29.6	29.2	38.8
Zinc	48.2	53.4	29.1	28	29.1	29.2	26	27.5	-	-	47.8	48.2	27.3	33.6	36.6	32.8	32.5	61.9	44	-	57	38.1	68.9
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	-	-	-	-	-	-	-	<29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	<29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	154	-	46.1	-	<24	-	-	-	<299	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	320	-	85.2	-	36.7	-	-	-	319	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	637	-	189	-	74.9	-	-	-	793	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	<29.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<12	-	<6	-	<6	-	-	-	7.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	28.8	-	7.94	-	<6	-	-	-	37.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	13.9	-	<6	-	<6	-	-	-	35.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	87	-	35.6	-	17	-	-	-	232	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	816	-	1290	-	<50	-	-	-	4670	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	629	-	930	-	<50	-	-	-	4380	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	<0.0326	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
	BC-23	BC-23	BC-24	BC-24	SB-6	SB-6	SB-6R	SB-6R	SB-6R	SB-6R	SB-6R2	SB-6R2	SB-6R3	SB-6R3	SB-7	SB-7R	SB-7R	SB-7R	SB-7R	SB-7R	SB-7S	SB-7S	SB-7S
	4-6'	8-10'	0-2'	6-8'	0-2'	2-4'	4-6'	4-6'	6-8'	6-8'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	0-2'	2-4'	2-4'	0-2'	0-2'	2-4'	2-4'
	2/1/19	2/1/19	2/5/19	2/5/19	11/6/17	11/6/17	10/25/18	10/25/18	10/25/18	10/25/18	1/22/20	1/22/20	3/19/20	3/19/20	11/6/17	7/28/20	7/28/20	7/28/20	7/28/20	7/28/20	7/17/20	7/17/20	7/17/20
Parameter	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	HET	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																							
Arsenic	4.48	2.05	7.8	5.3	5.23	4.54	3.45	4.29	4.92	4.15	-	-	-	-	3.74	-	-	-	-	-	-	-	-
Barium	165	95	217	116	271	237	169	210	173	203	-	-	-	-	181	-	-	-	-	-	-	-	-
Cadmium	<0.349	<0.379	0.459	<0.387	<0.383	<0.355	0.439	0.384	0.379	0.452	-	-	-	-	<0.309	-	-	-	-	-	-	-	-
Chromium	13.6	10.2	14.6	8	11.4	10.6	11.1	9.4	9.72	8.9	-	-	-	-	11.3	-	-	-	-	-	-	-	-
Iron	18445	11506	18268	10036	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	14.2	13.3	12.8	10.4	9.14	9.3	-	-	-	-	11.4	-	-	-	-	-	-	-	-
Mercury	<0.073	<0.0717	<0.077	<0.083	<0.0765	<0.0705	<0.0973	<0.0587	<0.0973	<0.0544	-	-	-	-	<0.0583	-	-	-	-	-	-	-	-
Selenium	-	-	-	-	<3.06	<2.84	<2.19	<2.36	<2.14	<2.26	-	-	-	-	<2.47	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	<0.274	-	<0.267	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	35.4	27.5	28.2	19.1	35.6	33.3	-	49.2	-	48	-	-	-	-	45.2	-	-	-	-	-	-	-	-
Zinc	50.4	29.6	62.4	32.1	52.7	49	47.6	46.8	41.4	49.1	-	-	-	-	60.3	-	-	-	-	-	-	-	-
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	<27.2	-	<75	-	-	-	-	-	-	<26.5	-	<28.8	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	<27.2	-	<75	-	-	-	-	-	-	<26.5	-	<28.8	-
Aliphatic >C10-C12	-	-	-	-	-	-	<600	-	<120	-	<6	-	<75	-	<3	-	<30	-	<5.89	-	<5.94	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	646	-	136	-	<60	-	318	-	<3	-	<300	-	9.72	-	<5.94	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	3690	-	599	-	237	-	2280	-	-	67.9	-	1680	-	60	-	38.3	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	<32.4	-	<10	-	-	-	-	-	<26.5	-	<28.8	-	-
Aromatic >C10-C12	-	-	-	-	-	-	<60	-	<12	-	<6	-	<10	-	<3	-	<3	-	<5.89	-	<5.94	-	-
Aromatic >C12-C16	-	-	-	-	-	-	89.9	-	<12	-	<6	-	27.1	-	-	<3	-	14.3	-	<5.89	-	<5.94	-
Aromatic >C16-C21	-	-	-	-	-	-	77.7	-	<12	-	6.37	-	135	-	-	<3	-	56.4	-	<5.89	-	<5.94	-
Aromatic >C21-C35	-	-	-	-	-	-	442	-	62.8	-	33.7	-	200	-	-	22.6	-	667	-	17.9	-	42.5	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	-	-	-	-	9760	-	2350	-	1010	-	3540	-	2660	12300	-	128	-	3070	-	965	-	456
TPH-ORO (>C28-C35)	-	-	-	-	-	4620	-	1160	-	598	-	2450	-	1410	10700	-	391	-	3120	-	690	-	561
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	0.425	-	-	<0.033	-	<0.032	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	-	<0.033	-	<0.032	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
	SB-8	SB-8	SB-8	SB-8	SB-8	SB-8R	SB-8R	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11R	SB-13	SB-13	SB-13R	SB-13R	SB-13R	SB-13R	SB-14	SB-14
	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'	2-4'	0-2'	0-2'	0-2'	0-2'	0-2'	2-4'	0-2'	0-2'
	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	7/28/20	7/28/20	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	7/8/20	6/24/19	6/24/19	1/15/20	1/15/20	7/8/20	1/22/20	6/24/19	6/24/19
Parameter	ERM	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ERM	ICON
Metals (mg/kg)																								
Arsenic	4.23	2.78	5.5	3.31	4.15	-	-	3.41	4.9	4.8	3.79	4.42	3.8	1.67	<1.48	-	14.7	16.3	5.2	7.2	-	9.67	5.51	9.1
Barium	174	165	176	166	193	-	-	201	272	104	162	131	126	63.7	67.8	-	3870	5573	288	961	3951	194	1750	2096
Cadmium	0.327	0.4	0.333	0.732	0.34	-	-	<0.277	0.367	<0.261	0.4	0.29	<0.331	<0.275	<0.37	-	0.946	0.8	-	-	-	-	0.416	<0.362
Chromium	11.4	11.3	10.9	9.9	9.2	-	-	11.8	21.2	11.9	10.4	8.57	8.3	5.36	5.54	-	7.49	8.7	-	-	-	-	11.6	12.1
Iron	-	-	-	-	-	-	-	-	16255	-	13908	-	10748	-	6797	-	-	-	-	-	-	-	-	-
Lead	11.7	10.7	10.9	10.5	9.8	-	-	10.4	-	11.5	-	8.48	-	4.32	-	12.5	268	276	19.5	20.9	45.2	12.4	21.8	21.4
Mercury	<0.0955	<0.0949	<0.063	<0.0938	<0.0561	-	-	<0.101	<0.066	<0.0963	<0.075	<0.101	<0.07	<0.0924	<0.076	-	<0.0986	<0.0594	-	-	-	-	<0.0947	<0.0755
Selenium	<2.04	<2.1	<2.47	<2.18	<2.34	-	-	<2.22	-	<2.09	-	<2.11	-	<2.2	-	-	<1.99	<2.3	-	-	-	-	<2.01	<2.9
Silver	<0.255	<0.263	-	<0.273	-	-	-	<0.277	-	<0.261	-	<0.264	-	<0.275	-	-	<0.249	-	-	-	-	-	<0.251	-
Strontium	-	-	35.9	-	42	-	-	-	46.6	-	37	-	32.8	-	22.3	-	-	114	-	-	-	-	-	55.9
Zinc	52.1	53	52	51.4	44.6	-	-	150	165	50.2	46.7	46.6	36.6	22.8	22.4	-	245	237	-	-	-	-	47.2	67.2
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	<300	<118	-	<24	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	547	302	-	69.7	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	1310	769	-	156	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<60	<23.5	-	<12	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	<60	34.4	-	26.5	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	<60	<23.5	-	13.6	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	289	103	-	57.6	-	-	-	-	-	-	-	<6	-	<6	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	1260	-	240	-	1970	-	-	-	-	-	<50	-	<50	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	663	-	177	-	1790	-	-	-	-	-	<50	-	<50	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	<0.33	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	<0.033	-	-	-	-	-	<0.328	<0.33	<0.33	<0.33	-	-	-	-	-	-	-	-	-

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	SB-14	SB-14	SB-14	SB-14	SB-14R	SB-14R	SB-14R	SB-14R2	SB-14R2	SB-15	SB-15	SB-15	SB-15	SB-15	SB-15	SB-16	SB-16	SB-16	SB-16	SB-16	SB-16	SB-16	SB-16	SB-116	
	2-4'	2-4'	4-5'	4-6'	0-2'	0-2'	2-4'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	13-15'	13-15'	0-2'	0-2'	0-2'	
	6/24/19	6/24/19	6/24/19	6/24/19	1/22/20	1/22/20	1/22/20	3/19/20	3/19/20	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	3/19/20	3/19/20	3/19/20	3/19/20	3/19/20	3/19/20	3/19/20	1/9/20	1/9/20	7/8/20
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ICON	HET	ICON	ERM	ICON	ERM	ICON	ERM	ICON	HET	ICON	HET	ICON	HET	ICON	ERM	ICON	ICON	
Metals (mg/kg)																									
Arsenic	5.21	4.44	2.53	2.98	10.4	-	-	-	-	4.95	5.36	2.82	3.95	4.47	3.73	-	-	-	-	-	-	5.45	6.18	-	
Barium	2360	1276	156	353	3230	2670	5143	-	-	1130	882	193	302	124	213	201	162	141	114	56.6	42.1	3620	3835	3173	
Cadmium	0.542	<0.364	0.438	<0.332	-	-	-	-	-	0.409	<0.341	0.369	<0.317	0.475	<0.27	-	-	-	-	-	-	-	-	-	
Chromium	26.6	10.2	9.59	9.8	-	-	-	-	-	54.9	15.7	11.9	12.6	9.72	10.4	-	-	-	-	-	-	-	-	-	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	86.8	18	8.79	10.5	36	-	-	-	-	25.4	76	10.6	10.8	8.99	10.2	-	-	-	-	-	-	44.9	52.4	25.1	
Mercury	<0.103	0.081	<0.097	<0.067	-	-	-	-	-	<0.0984	<0.1	<0.1	<0.066	<0.0998	<0.053	-	-	-	-	-	-	-	-	-	
Selenium	<2.01	<2.92	<1.99	<2.66	-	-	-	-	-	<1.99	<2.7	<1.99	<2.53	<2	<2.2	-	-	-	-	-	-	-	-	-	
Silver	<0.251	-	<0.249	-	-	-	-	-	-	<0.249	-	<0.249	-	<0.25	-	-	-	-	-	-	-	-	-	-	
Strontium	-	43.6	-	131	-	-	-	-	-	-	43.3	-	37.8	-	33.6	-	-	-	-	-	-	-	-	-	
Zinc	164	84	38.8	40.1	-	-	-	-	-	42.2	54	50.6	52.1	43.8	43.5	-	-	-	-	-	-	-	-	-	
TPH Fractions (mg/kg)																									
Aliphatic C6-C8	-	-	-	-	-	-	-	<15	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
Aliphatic >C8-C10	-	-	-	-	-	-	-	<15	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
Aliphatic >C10-C12	-	-	-	-	-	-	-	<15	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
Aliphatic >C12-C16	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	-	-	-	
Aliphatic >C16-C35	-	-	-	-	-	-	-	12.9	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	-	-	-	
Aromatic >C8-C10	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	-	-	-	
Aromatic >C10-C12	-	-	-	-	-	-	-	<10	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	-	-	-	
Aromatic >C12-C16	-	-	-	-	-	-	-	<15	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
Aromatic >C16-C21	-	-	-	-	-	-	-	<15	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
Aromatic >C21-C35	-	-	-	-	-	-	-	20.7	-	-	-	-	-	-	-	<15	-	<15	-	<15	-	-	-	-	
TPH Mixtures (mg/kg)																									
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	27.6	-	-	-	-	-	-	-	<10	-	<10	-	<10	-	-	-	
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	30.2	-	-	-	-	-	-	-	<10	-	<10	-	10.3	-	-	-	
PAHs (mg/kg)																									
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 3-1 SOIL DATA - WET WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	SB-117	SB-117	SB-117	SB-118	SB-118	SB-119	SB-119	SB-120	SB-121	SB-122	SB-123	SB-124	SB-124	SB-125	SB-125	SB-125	SB-125	SB-125	SB-126	SB-126	SB-127	SB-127	SB-128	SB-129
	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	2-4'	2-4'	0-2'	2-4'	0-2'	5-7'	5-7'	8-10'	8-10'	0-2'	2-4'	0-2'	2-4'	0-2'	0-2'
	1/9/20	1/9/20	7/8/20	1/9/20	1/9/20	1/15/20	1/15/20	1/15/20	1/15/20	1/22/20	1/14/20	1/13/20	1/13/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/15/20	1/15/20
Parameter	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ERM	ERM
Metals (mg/kg)																								
Arsenic	8.97	8	-	3.59	5.37	5.84	6.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	4060	2964	4616	79	228	591	677	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	106	24.6	39.4	11.8	13.3	20	39.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	-	<25.6	<31.5	<23.8	<32.3	<25.5	<32.3	<26.5	<32.4	-	<31.4	-	<32.4	<34.2	<29.4	<26.8	<29.1	<27.9
Aliphatic >C8-C10	-	-	-	-	-	-	-	<25.6	<31.5	<23.8	<32.3	<25.5	<32.3	<26.5	<32.4	-	<31.4	-	<32.4	<34.2	<29.4	<26.8	<29.1	<27.9
Aliphatic >C10-C12	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	7.76	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aliphatic >C12-C16	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	37.4	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aliphatic >C16-C35	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	84.6	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aromatic >C8-C10	-	-	-	-	-	-	-	<25.6	<31.5	<27.5	<32.3	<25.5	<32.3	<26.5	<32.4	-	<31.4	-	<32.4	<34.2	<29.4	<26.8	<29.1	<27.9
Aromatic >C10-C12	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	<5.98	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aromatic >C12-C16	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	<5.98	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aromatic >C16-C21	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	<5.98	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
Aromatic >C21-C35	-	-	-	-	-	-	-	<5.96	<5.97	<5.99	<5.98	<5.98	<6	<5.98	16.8	-	<6	-	<6	<5.98	<5.96	<5.96	<5.95	<5.98
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	640	-	46.4	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	401	-	53.9	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-2 SOIL DATA - WET WEIGHT Outside Hero Property	BC-27 Area	BC-27 Area	BC-27 Area	BC-27 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area
	BC-27	BC-27	BC-27	BC-27	BC-7	BC-7	BC-7	BC-7	BC-7	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8R2	BC-8R2
	0-4'	4-6'	4-6'	8-12'	0-4'	6-8'	6-8'	10-12'	10-12'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'	10-12'	10-12'	2-4'	2-4'
	2/6/19	2/6/19	2/6/19	2/6/19	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	12/17/19	12/17/19
Parameter	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																			
Arsenic	4.75	3.41	6.7	1.87	5.13	9.18	4.95	5.29	5.6	-	6.77	-	3.88	-	4.16	4.2	4.86	-	-
Barium	152	125	164	124	350	147	148	120	122	-	455	-	4042	-	208	90.6	112	-	-
Cadmium	<0.348	<0.271	0.447	<0.368	0.695	<0.269	0.394	<0.256	0.4	-	0.448	-	<0.4	-	<0.337	<0.258	0.413	-	-
Chromium	11.5	11.2	13	11.6	11	13.4	13.7	7.89	7	-	22.8	-	53.6	-	13.7	8.22	7.7	-	-
Iron	17010	-	20526	11645	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	13.8	-	-	17.2	11.4	11.9	7.69	7.3	-	60.7	-	100	-	12.5	6.03	6.8	-	-
Mercury	<0.074	<0.0983	<0.068	<0.0733	0.123	<0.0955	<0.0642	<0.102	<0.051	-	<0.091	-	<0.078	-	<0.072	<0.1	<0.059	-	-
Selenium	-	<2.17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	<0.271	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	26.7	-	31.2	23.4	65.9	40.8	45.6	48.9	53	-	90	-	164	-	53.1	34.1	47.4	-	-
Zinc	49.4	45.5	58	34	68	53.5	57.2	52.3	36.6	-	125	-	93	-	55	33.8	35	-	-
TPH Fractions (mg/kg)																			
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	214	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	375	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	<5940	-	<6000	-	<600	-	-	-	297	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	<5940	-	7330	-	889	-	-	-	1330	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	8380	-	12400	-	2320	-	-	-	8880	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	185	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	<594	-	<600	-	<60	-	-	-	37.7	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	1280	-	1130	-	91	-	-	-	205	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	1060	-	955	-	96	-	-	-	210	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	3750	-	3980	-	451	-	-	-	2790	-
TPH Mixtures (mg/kg)																			
TPH-DRO (>C10-C28)	-	-	-	-	10.5	-	-	-	-	-	5850	-	13500	-	1300	-	-	-	24700
TPH-ORO (>C28-C35)	-	-	-	-	5.14	-	-	-	-	-	995	-	1710	-	204	-	-	-	17200
PAHs (mg/kg)																			
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-2 SOIL DATA - WET WEIGHT Outside Hero Property	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	Drainage	Drainage
	BC-8R2	BC-8R2	BC-8R2	BC-13	BC-13	BC-13	SB-105	SB-105	SB-105	SB-105	SB-106	SB-106	SB-106	SB-106	SB-130	SB-130	SB-130	BC-4	BC-4
	4-6'	8-10'	8-10'	0-2'	2-4'	2-4'	2-4'	2-4'	4-6'	4-6'	2-4'	2-4'	4-6'	4-6'	2-4'	4-6'	4-6'	2-4'	2-4'
	12/17/19	12/17/19	12/17/19	11/1/18	11/1/18	11/1/18	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	8/16/18	8/16/18
Parameter	ERM	ERM	ICON	ERM	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ERM	ICON	ERM	ICON
Metals (mg/kg)																			
Arsenic	-	-	-	2	1.54	2.03	-	-	-	-	-	-	-	-	-	-	-	6.35	4.74
Barium	-	-	-	29.7	21.3	56.7	-	-	-	-	-	-	-	-	-	-	-	608	252
Cadmium	-	-	-	0.249	<0.249	<0.417	-	-	-	-	-	-	-	-	-	-	-	0.403	<0.355
Chromium	-	-	-	2.63	1.95	2.11	-	-	-	-	-	-	-	-	-	-	-	12.9	14.9
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	4.31	2.87	2.79	-	-	-	-	-	-	-	-	-	-	-	12.5	11.1
Mercury	-	-	-	<0.0975	<0.108	<0.088	-	-	-	-	-	-	-	-	-	-	-	<0.101	<0.075
Selenium	-	-	-	<1.99	<1.99	<3.34	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	<0.249	<0.249	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	13.6	-	-	-	-	-	-	-	-	-	-	-	43.8	36.7
Zinc	-	-	-	10.8	7.91	9.5	-	-	-	-	-	-	-	-	-	-	-	60.1	56.7
TPH Fractions (mg/kg)																			
Aliphatic C6-C8	284	<24	-	-	-	-	<30	-	<28.7	-	<27.6	-	<31.3	-	<42.4	<36.6	-	-	-
Aliphatic >C8-C10	1110	<24	-	-	-	-	<30	-	<28.7	-	47.9	-	<31.3	-	75.5	<36.6	-	-	-
Aliphatic >C10-C12	3850	<5.96	-	-	-	-	<6	-	<6	-	<296	-	<5.98	-	188	<5.98	-	-	-
Aliphatic >C12-C16	12200	<5.96	-	-	-	-	34.2	-	<6	-	798	-	<5.98	-	829	<5.98	-	-	-
Aliphatic >C16-C35	30800	<5.96	-	-	-	-	156	-	<6	-	2280	-	11.2	-	3530	<5.98	-	-	-
Aromatic >C8-C10	810	<24	-	-	-	-	<25	-	<28.7	-	34.2	-	<31.3	-	58.6	<36.6	-	-	-
Aromatic >C10-C12	257	<5.96	-	-	-	-	<6	-	<6	-	18.8	-	<5.98	-	<29.9	<5.98	-	-	-
Aromatic >C12-C16	821	<5.96	-	-	-	-	<6	-	<6	-	72.1	-	<5.98	-	82.9	<5.98	-	-	-
Aromatic >C16-C21	626	<5.96	-	-	-	-	<6	-	<6	-	57.8	-	<5.98	-	97	<5.98	-	-	-
Aromatic >C21-C35	3470	<5.96	-	-	-	-	44	-	<6	-	454	-	<5.98	-	978	<5.98	-	-	-
TPH Mixtures (mg/kg)																			
TPH-DRO (>C10-C28)	-	-	4390	-	-	-	-	450	-	397	-	2360	-	29.5	-	-	197	-	-
TPH-ORO (>C28-C35)	-	-	2250	-	-	-	-	473	-	428	-	1090	-	24.6	-	-	141	-	-
PAHs (mg/kg)																			
2-Methylnaphthalene	<0.033	-	-	-	-	-	-	-	-	-	0.0342	-	-	-	0.181	-	-	-	-
Acenaphthene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Acenaphthylene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Anthracene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Benzo(a)anthracene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Benzo(a)pyrene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Benzo(b)fluoranthene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Chrysene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Dibenz(a,h)anthracene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Fluoranthene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Fluorene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Indeno(1,2,3-cd)pyrene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Naphthalene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Phenanthrene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-
Pyrene	<0.033	-	-	-	-	-	-	-	-	-	<0.0327	-	-	-	<0.164	-	-	-	-

TABLE 3-2 SOIL DATA - WET WEIGHT Outside Hero Property	Drainage	Drainage	Drainage	Drainage	Drainage	Drainage	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG
	BC-4	BC-4	BC-4	BC-4	BC-29	BC-29	BC-17	BC-17	BC-17	BC-17	BC-17	BC-18	BC-18	BC-18	BC-18	BC-19	BC-19	BC-20	BC-20
	6-8'	6-8'	10-12'	10-12'	0-2'	4-8'	0-2'	0-2'	2-4'	2-4'	8-10'	0-2'	0-2'	4-6'	8-10'	4-6'	8-10'	0-2'	4-8'
	8/16/18	8/16/18	8/16/18	8/16/18	2/13/19	2/13/19	1/22/19	1/22/19	1/22/19	1/22/19	1/22/19	1/24/19	1/24/19	1/24/19	1/24/19	1/25/19	1/25/19	1/28/19	1/28/19
Parameter	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ICON
Metals (mg/kg)																			
Arsenic	4.93	5	3.09	4.54	2.01	3.66	5.37	5.31	3.02	6.17	2.85	4.75	6.19	10.6	1.65	4.98	1.96	5.16	9
Barium	133	152	131	125	29.5	134	107	115	171	164	16.9	101	138	324	137	147	91	146	157
Cadmium	0.608	<0.384	0.438	<0.358	<0.401	0.518	0.416	0.533	0.303	0.45	<0.41	0.331	0.51	0.72	0.37	0.526	<0.373	0.448	0.489
Chromium	12.3	10.9	9.88	9.5	4.98	8.3	8.53	10.6	9.75	12.5	2.6	8.47	8.9	11.6	11.7	11.6	7.23	14.4	13
Iron	-	-	-	-	4253	9486	-	-	-	-	-	-	-	-	-	-	-	16786	17592
Lead	8.87	7.58	6.81	6.4	-	-	12	11	11	13.4	3.84	6.16	9.4	10.2	10	9.2	5.97	-	-
Mercury	<0.0995	<0.078	<0.105	<0.075	<0.084	<0.069	<0.108	<0.0783	<0.107	<0.0775	<0.087	<0.1	<0.0745	<0.072	<0.1	<0.1	<0.0736	<0.0708	<0.0713
Selenium	-	-	-	-	-	-	<2.13	-	<2.16	-	-	<2.1	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	<0.267	-	<0.27	-	-	<0.262	-	-	-	-	-	-	-
Strontium	30.2	26	29.7	26.1	6.19	22.4	-	42.7	-	51.2	4.32	-	22.8	28	22.4	25.2	16.2	27.9	30.8
Zinc	50.8	42.4	41.6	38.5	23.7	40.7	44.7	47.1	43	43.8	10.1	31.1	36	49.7	46.7	45.6	30.3	56.6	46.4
TPH Fractions (mg/kg)																			
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																			
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																			
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes (applicable to Tables 3-1 and 3-2):

- Constituent not analyzed for this sample.
- < Constituent not detected at or above reporting limit shown.

TPH - Total Petroleum Hydrocarbons

PAH - Polycyclic Aromatic Hydrocarbons

TABLE 3-3
SVOC SOIL DATA - WET WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Semivolatile Organic Compounds (mg/kg)	SW	SW	SW	SW
	SB-11	SB-11	SB-11	SB-11
	4-6'	4-6'	6-8'	6-8'
	2/5/2019	2/5/2019	2/5/2019	2/5/2019
	ERM	ICON	ERM	ICON
1,2,4,5-Tetrachlorobenzene	<0.328	<0.33	<0.33	<0.33
1,2,4-Trichlorobenzene	-	<0.33	-	<0.33
1,2-Dichlorobenzene	<0.328	<0.33	<0.33	<0.33
1,2-Diphenylhydrazine as azobenzene	-	<0.33	-	<0.33
1,3-Dichlorobenzene	<0.328	<0.33	<0.33	<0.33
1,3-Dinitrobenzene	<0.066	<0.25	<0.066	<0.25
1,4-Dichlorobenzene	<0.328	<0.33	<0.33	<0.33
1-Methylnaphthalene	-	<0.33	-	<0.33
2,2'-oxybis(1-Chloropropane)	-	<0.33	-	<0.33
2,3,4,6-Tetrachlorophenol	<0.328	<0.33	<0.33	<0.33
2,4,5-Trichlorophenol	<0.328	<0.33	<0.33	<0.33
2,4,6-Trichlorophenol	<0.328	<0.33	<0.33	<0.33
2,4-Dichlorophenol	<0.328	<0.33	<0.33	<0.33
2,4-Dimethylphenol	<0.328	<0.33	<0.33	<0.33
2,4-Dinitrophenol	<0.328	<0.67	<0.33	<0.67
2,4-Dinitrotoluene	<0.328	<0.33	<0.33	<0.33
2,6-Dichlorophenol	-	<0.33	-	<0.33
2,6-Dinitrotoluene	<0.328	<0.33	<0.33	<0.33
2-Butoxyethanol	-	<0.33	-	<0.33
2-Chloronaphthalene	<0.328	<0.33	<0.33	<0.33
2-Chlorophenol	<0.328	<0.33	<0.33	<0.33
2-Methylphenol	-	<0.33	-	<0.33
2-Nitroaniline	<1.64	<0.33	<1.65	<0.33
2-Nitrophenol	-	<0.33	-	<0.33
2-Picoline	-	<0.33	-	<0.33
3 & 4-Methylphenol	-	<0.33	-	<0.33
3,3'-Dichlorobenzidine	<0.656	<0.33	<0.66	<0.33
3-Nitroaniline	<1.64	<0.67	<1.65	<0.67
4,6-Dinitro-2-methylphenol	-	<0.67	-	<0.67
4-Bromophenyl phenyl ether	-	<0.33	-	<0.33
4-Chloro-3-methylphenol	-	<0.33	-	<0.33
4-Chloroaniline	<0.328	<0.33	<0.33	<0.33
4-Chlorophenyl phenyl ether	-	<0.33	-	<0.33
4-Nitroaniline	<1.64	<0.33	<1.65	<0.33
4-Nitrophenol	<1.64	<0.33	<1.65	<0.33
Acetophenone	-	<0.33	-	<0.33
Aniline	<0.033	<0.065	<0.033	<0.065
Azobenzene	-	<0.33	-	<0.33
Benzidine	-	<0.67	-	<0.67

TABLE 3-3
SVOC SOIL DATA - WET WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Semivolatile Organic Compounds (mg/kg)	SW	SW	SW	SW
	SB-11	SB-11	SB-11	SB-11
	4-6'	4-6'	6-8'	6-8'
	2/5/2019	2/5/2019	2/5/2019	2/5/2019
	ERM	ICON	ERM	ICON
Benzoic acid	-	<0.67	-	<0.67
Benzyl alcohol	-	<0.33	-	<0.33
Biphenyl	<0.328	<0.33	<0.33	<0.33
Bis(2-chloroethoxy)methane	-	<0.33	-	<0.33
Bis(2-Chloroethyl)ether	<0.328	<0.33	<0.33	<0.33
Bis(2-Chloroisopropyl)ether	<0.328	<0.33	<0.33	<0.33
Bis(2-Ethylhexyl)phthalate	<0.328	<0.33	<0.33	<0.33
Butyl benzyl phthalate	<0.328	<0.33	<0.33	<0.33
Carbazole	-	<0.33	-	<0.33
Dibenzofuran	<0.328	<0.33	<0.33	<0.33
Diethyl phthalate	<0.328	<0.33	<0.33	<0.33
Dimethyl phthalate	<0.328	<0.33	<0.33	<0.33
Di-n-butyl phthalate	-	<0.33	-	<0.33
Di-n-octyl phthalate	<0.328	<0.33	<0.33	<0.33
Dinoseb	<0.066	<0.33	<0.066	<0.33
Hexachlorobenzene	<0.328	<0.33	<0.33	<0.33
Hexachlorobutadiene	<0.328	<0.33	<0.33	<0.33
Hexachlorocyclopentadiene	<0.328	<0.33	<0.33	<0.33
Hexachloroethane	<0.328	<0.33	<0.33	<0.33
Isophorone	<0.328	<0.33	<0.33	<0.33
Nitrobenzene	<0.328	<0.33	<0.33	<0.33
N-Nitrosodimethylamine	-	<0.33	-	<0.33
n-Nitrosodi-n-propylamine	<0.328	<0.33	<0.33	<0.33
n-Nitrosodiphenylamine	<0.328	<0.33	<0.33	<0.33
o-Toluidine	-	<1	-	<1
Pentachlorobenzene	-	<0.33	-	<0.33
Pentachlorophenol	<1.64	<0.667	<1.65	<0.667
Phenol	<0.328	<0.33	<0.33	<0.33
Pyridine	-	<0.33	-	<0.33

Notes:

- Constituent not analyzed for this sample.
- < Constituent not detected at or above reporting limit shown.

TABLE 3-4
DIOXIN / FURAN SOIL DATA - WET WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

		BC-16R 0-2' 6/24/2019						BC-16R 2-4' 6/24/2019						SB-4R 0-2' 6/24/2019					
		ERM			ICON			ERM			ICON			ERM			ICON		
Dioxins/Furans	TEF	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ
2,3,7,8-TCDD	1	0.601	U	--	0.31	J	0.31	0.515	U	--	0.402	J	0.402	0.617	U	--	0.393	J	0.393
1,2,3,7,8-PeCDD	1	0.79	U	--	0.81	J	0.81	0.98	J	0.98	0.9	J	0.9	1.48	J	1.48	0.704	JK	--
1,2,3,4,7,8-HxCDD	0.1	1.3	J	0.13	0.217	U	--	1.01	J	0.101	0.315	U	--	0.671	U	--	0.115	U	--
1,2,3,6,7,8-HxCDD	0.1	3.94		0.394	2.59		0.259	2.77	J	0.277	4.49		0.449	1.39	J	0.139	0.94	J	0.094
1,2,3,7,8,9-HxCDD	0.1	2.76	J	0.276	2.5		0.25	2.21	J	0.221	2.99		0.299	1.35	J	0.135	1.11	J	0.111
1,2,3,4,6,7,8-HpCDD	0.01	196		1.96	104		1.04	117		1.17	251		2.51	18		0.18	13.1		0.131
1,2,3,4,6,7,8,9-OCDD	0.0003	3050	E	0.915	1521		0.456	2095		0.629	4290	E	1.29	414		0.124	391		0.117
2,3,7,8-TCDF (a)	0.1	2.79		0.279	1.5		0.15	1.52		0.152	1.55		0.155	4.66		0.466	3.63		0.363
1,2,3,7,8-PeCDF	0.03	2.1	JK	--	1.44	J	0.0432	1.15	JK	--	1.14	JK	--	4.01		0.12	2.4	J	0.072
2,3,4,7,8-PeCDF	0.3	1.56	J	0.468	1.47	J	0.441	1.4	J	0.42	1.58	J	0.474	3.1	J	0.93	2.33	J	0.699
1,2,3,4,7,8-HxCDF	0.1	2.34	J	0.234	1.6	J	0.16	1.48	J	0.148	1.96	J	0.196	4.21	K	--	2.54		0.254
1,2,3,6,7,8-HxCDF	0.1	1.4	JK	--	1.34	J	0.134	1.04	J	0.104	1.18	J	0.118	3.25	J	0.325	1.86	J	0.186
2,3,4,6,7,8-HxCDF	0.1	1.45	JK	--	0.9	JK	--	0.99	J	0.099	1.16	J	0.116	1.9	J	0.19	1.1	J	0.11
1,2,3,7,8,9-HxCDF	0.1	0.736	U	--	0.375	J	0.0375	0.544	U	--	0.558	U	--	0.75	U	--	0.381	U	--
1,2,3,4,6,7,8-HpCDF	0.01	13.5		0.135	7.9		0.079	7.6		0.076	9	K	--	9		0.09	4.41	K	--
1,2,3,4,7,8,9-HpCDF	0.01	1.11	J	0.0111	0.561	BJK	--	0.74	JK	--	3.34	U	--	1.01	JK	--	1.53	U	--
1,2,3,4,6,7,8,9-OCDF	0.0003	23.9		0.00717	12.6		0.00378	14		0.0042	28.5		0.00855	6	J	0.0018	2.73	JK	--
Total TCDD TEQ (b)		-	-	4.8	-	-	4.2	-	-	4.4	-	-	6.9	-	-	4.2	-	-	2.5

Notes

TEF - Toxic Equivalence Factor is an estimate of compound-specific toxicity/potency relative to the toxicity/potency of an index chemical (2,3,7,8-TCDF).

Result - concentration in units of pg/g-wet weight

TEQ - Toxic Equivalence is the product of the concentration of an individual dioxin-like compound (DLC) in an environmental mixture and its corresponding TCDD TEF for that compound.

Qual - Laboratory qualifiers:

U - Analyte was analyzed for, but not detected above the specified detection limit.

J - Estimated value.

E - Estimated value, the reported concentration is above the calibration range of the instrument.

K - Estimated Maximum Possible Concentration (EMPC). The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.

B - Indicates the associated analyte was found in the method blank at >1/10th the reported value.

(a) ERM samples were analyzed for 2,3,7,8-TCDF twice, initially with the other dioxins/furans, and then again on another instrument. The original result was used with the exception of SB-4R (0-2'), which used the confirmation result because the original result was qualified with a "k".

(b) Total TCDD TEQ is the sum of the individual DLC TEQs. Values that were nondetect (U-qualified) or considered EMPCs (K-qualified) were not included in the Total TEQ calculation.

The following document was referenced for guidance on calculating TEQs: 1999. USEPA Region III. Dioxin/Furan Data Validation Guidance, Draft.

TABLE 3-4
DIOXIN / FURAN SOIL DATA - WET WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

		BC-8R 0-2' 6/24/2019			BC-8R 2-4' 6/24/2019			BC-8R 4-6' 6/24/2019					
		ERM			ERM			ERM			ICON		
Dioxins/Furans	TEF	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ
2,3,7,8-TCDD	1	0.742	J	0.742	0.94		0.94	3.46	J	3.46	1.56	K	--
1,2,3,7,8-PeCDD	1	3.4	J	3.4	3.39	JK	--	14.9	J	14.9	5.2		5.2
1,2,3,4,7,8-HxCDD	0.1	2.11	J	0.211	1.43	JK	--	8.4	JK	--	1.78	JK	--
1,2,3,6,7,8-HxCDD	0.1	4.66		0.466	2.3	J	0.23	14.3	J	1.43	6.56		0.656
1,2,3,7,8,9-HxCDD	0.1	4.14	J	0.414	2.28	JK	--	13.6	J	1.36	6.18		0.618
1,2,3,4,6,7,8-HpCDD	0.01	44.4		0.444	21.3		0.213	49		0.49	48		0.48
1,2,3,4,6,7,8,9-OCDD	0.0003	727		0.218	316		0.0948	260		0.078	331		0.0993
2,3,7,8-TCDF (a)	0.1	8.9		0.89	10.5		1.05	27.7		2.77	17.2		1.72
1,2,3,7,8-PeCDF	0.03	8.6		0.258	8.4		0.252	39.2	J	1.18	17		0.51
2,3,4,7,8-PeCDF	0.3	7.18		2.15	8.5		2.55	23.9	J	7.17	13.9	K	--
1,2,3,4,7,8-HxCDF	0.1	12		1.2	7.62		0.762	50.7		5.07	22		2.2
1,2,3,6,7,8-HxCDF	0.1	6.75		0.675	6.91		0.691	28.6	J	2.86	14.5		1.45
2,3,4,6,7,8-HxCDF	0.1	4.1	J	0.41	4.81		0.481	14.2	J	1.42	8.7		0.87
1,2,3,7,8,9-HxCDF	0.1	0.824	JK	--	1.87	U	--	6.17	J	0.617	2.39	J	0.239
1,2,3,4,6,7,8-HpCDF	0.01	23.8		0.238	17.3		0.173	83		0.83	50.3		0.503
1,2,3,4,7,8,9-HpCDF	0.01	1.69	J	0.0169	1.73	U	--	9	J	0.09	5.06	K	--
1,2,3,4,6,7,8,9-OCDF	0.0003	17.1		0.00513	8.4		0.00252	29.5	JK	--	105		0.0315
Total TCDD TEQ (b)		-	-	11.7	-	-	7.4	-	-	43.7	-	-	14.6

Notes

TEF - Toxic Equivalence Factor is an estimate of compound-specific toxicity/potency relative to the toxicity/potency of an index chemical (2,3,7,8-TCDF).

Result - concentration in units of pg/g-wet weight

TEQ - Toxic Equivalence is the product of the concentration of an individual dioxin-like compound (DLC) in an environmental mixture and its corresponding TCDD TEF for that compound.

Qual - Laboratory qualifiers:

U - Analyte was analyzed for, but not detected above the specified detection limit.

J - Estimated value.

E - Estimated value, the reported concentration is above the calibration range of the instrument.

K - Estimated Maximum Possible Concentration (EMPC). The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.

B - Indicates the associated analyte was found in the method blank at >1/10th the reported value.

(a) ERM samples were analyzed for 2,3,7,8-TCDF twice, initially with the other dioxins/furans, and then again on another instrument. The original result was used.

(b) Total TCDD TEQ is the sum of the individual DLC TEQs. Values that were nondetect (U-qualified) or considered EMPCs (K-qualified) were not included in the Total TEQ calculation.

The following document was referenced for guidance on calculating TEQs: 1999. USEPA Region III. Dioxin/Furan Data Validation Guidance, Draft.

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
	BC-5	BC-5	BC-5	BC-5	BC-5	BC-5	BC-6	BC-6	BC-6	BC-6	SB-3	SB-3	SB-3R	SB-3R	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9	SB-9
	0-4'	0-4'	4-8'	4-8'	10-12'	10-12'	0-4'	0-4'	4-6'	4-6'	0-2'	2-4'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'
	8/20/18	8/20/18	8/20/18	8/20/18	8/20/18	8/20/18	8/21/18	8/21/18	8/21/18	8/21/18	11/6/17	11/6/17	12/17/19	12/17/19	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																						
Arsenic	3.49	6.33	3.92	7.93	9.65	8.5	4.43	5.76	11.1	9.01	5.76	4.17	-	-	2.37	7.45	4.71	7.41	4.56	5.88	7.54	9.74
Barium	280	493	199	252	229	242	1169	1320	268	270	1980	192	-	-	224	189	214	236	246	256	178.4	300
Cadmium	<0.315	<0.499	<0.347	<0.5	<0.597	0.667	<0.334	0.645	<0.374	0.567	<0.497	<0.495	-	-	0.481	0.605	0.594	0.586	0.605	0.557	0.734	0.658
Chromium	12.4	12.4	13.9	19.5	16.69	16.5	10.2	12.4	17.7	18.3	16.9	14.4	-	-	15.4	12.5	18.3	16.7	19.1	18.2	7.41	14.9
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	16.1	29.7	10.41	14.5	14.97	16	23	31.7	15.7	16.4	23.1	11.7	-	-	12.5	10.7	16.4	15.7	19.1	18	7.45	15.6
Mercury	<0.1116	<0.0963	<0.149	<0.0957	<0.2083	<0.098	<0.1246	<0.101	<0.148	<0.101	0.148	<0.0964	-	-	<0.144	<0.0933	<0.155	<0.0983	<0.1497	<0.0998	<0.1745	<0.0986
Selenium	-	-	-	-	-	-	-	-	-	-	<3.97	<3.96	-	-	<2.91	<3.97	<3.01	<3.97	<3.32	<3.98	<3.81	<3.99
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.364	-	<0.376	-	<0.414	-	<0.477	-
Strontium	78	313	36.2	55.2	59.9	60.9	53.7	56.3	40.7	41.9	160	56.5	-	-	-	36.8	-	45.4	-	49.1	-	59.4
Zinc	53.6	51.9	57.9	77.5	73.6	71.7	46.3	58.4	77.8	78.2	66.9	59.9	-	-	60.6	63	76.3	75.1	79.8	83	28	69.3
TPH Fractions (mg/kg)																						
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	<31.2	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	<31.2	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	11.85	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	-	-	-	32.6	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	<31.2	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	<8	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	-	-	-	9.16	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																						
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	290	<28	-	205	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	448	35.3	-	94	-	-	-	-	-	-	-	-
PAHs (mg/kg)																						
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	NE	NE	NE	NE	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW
	SB-104	SB-104	SB-104	SB-104	BC-1	BC-1	BC-1	BC-1	BC-1	BC-1R	BC-1R	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-2	BC-3	BC-3	BC-3	BC-3
	4-6'	4-6'	8-10'	8-10'	2-4'	4-6'	4-6'	8-10'	8-10'	4-6'	4-6'	2-4'	2-4'	4-8'	4-8'	10-12'	16-18'	16-18'	2-4'	2-4'	6-8'	6-8'	8-10'
	12/17/19	12/17/19	12/17/19	12/17/19	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	12/19/19	12/19/19	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/13/18	8/15/18	8/15/18	8/15/18	8/15/18	8/15/18
Parameter	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM
Metals (mg/kg)																							
Arsenic	-	-	-	-	7.25	29.8	19.5	2	2.68	26	7.2	4.37	12.8	5.29	4.46	5.84	2.65	5.59	10.54	7.07	11.36	13.3	11.53
Barium	-	-	-	-	256	258	210	113.3	124	-	-	174	195	126	133	96.6	122	118	209	273	235	235	217
Cadmium	-	-	-	-	<0.498	1.4	0.556	0.469	<0.499	-	-	0.69	<0.497	0.495	<0.497	<0.496	0.525	<0.498	0.721	<0.499	1.246	<0.496	1.328
Chromium	-	-	-	-	13.7	9.65	11.6	9.39	9.78	-	-	19	19.6	13.6	13.5	8.81	9.44	9.24	19.1	21.2	17.21	20.4	19
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	8.65	7.6	7.61	5.59	4.94	-	-	13.84	15.3	9.93	10.6	5.06	5.56	4.9	16.4	16.2	21.3	16.3	16.32
Mercury	-	-	-	-	<0.101	<0.1236	<0.0995	<0.136	<0.105	-	-	<0.149	<0.109	<0.135	<0.106	<0.105	<0.1319	<0.1	<0.141	<0.0974	<0.1789	<0.0973	<0.2
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	29	31	30.4	28	27.9	-	-	52	54.8	43.2	42.6	40.1	50.6	45.6	45.2	47.8	67.1	51.7	52.8
Zinc	-	-	-	-	49.6	48.6	44.1	39.6	36.9	-	-	75	80.4	58.5	55.1	34.2	38	35.5	84.9	84.4	93.9	85.4	105.5
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	<50.7	-	<75.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	<50.7	-	<75.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	<8.09	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	95.4	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	1024	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	<50.7	-	<75.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<8.09	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	10.04	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	16	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	221	-	<12.62	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	1409	-	29.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	1748	-	42	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																							
2-Methylnaphthalene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	<0.0438	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	NW	SE	SE	SE	SE	SE	SE	SE	SE	SE	
	BC-3	BC-26	BC-26	BC-26	SB-1	SB-1	SB-1R	SB-1R	SB-101	SB-101	SB-102	SB-102	SB-103	SB-103	BC-14	BC-14	BC-14	BC-14	BC-14	BC-14	BC-14	BC-15	BC-15	BC-15
	8-10'	0-2'	4-6'	8-10'	0-2'	2-4'	2-4'	2-4'	4-6'	4-6'	4-6'	4-6'	4-6'	4-6'	2-4'	2-4'	4-8'	4-8'	8-10'	10-12'	2-4'	2-4'	2-4'	
	8/15/18	2/6/19	2/6/19	2/6/19	11/6/17	11/6/17	1/8/20	1/8/20	12/19/19	12/19/19	12/19/19	12/19/19	12/19/19	12/19/19	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	7/16/20	7/16/20
Parameter	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	
Metals (mg/kg)																								
Arsenic	9.82	7.12	6.31	5.96	6.15	6.68	-	-	3.5	6.2	3.4	10.1	6.47	21	5.23	4.82	5.07	17.2	2.11	2.99	-	-	-	
Barium	231	668	319	154	812	430	-	-	-	-	-	-	-	-	382	271	174	207	183	102	-	-	-	
Cadmium	<0.498	0.538	0.658	0.508	<0.499	<0.499	-	-	-	-	-	-	-	-	0.5	0.586	0.703	0.69	<0.36	<0.498	-	-	-	
Chromium	19.6	18.9	17	13.5	13.6	17.4	-	-	-	-	-	-	-	-	13	14.2	15.8	17.4	13.43	8.77	-	-	-	
Iron	-	22800	21300	17000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	15	-	-	-	20.7	21.4	-	-	-	-	-	-	-	-	12.79	12.7	15.4	15.9	12.62	7.57	-	-	-	
Mercury	<0.0972	<0.109	<0.104	<0.108	<0.103	<0.0963	-	-	-	-	-	-	-	-	<0.1195	<0.0931	<0.1446	<0.103	<0.1368	<0.107	-	-	-	
Selenium	-	-	-	-	<3.99	<3.99	-	-	-	-	-	-	-	-	<3	<3.97	<3	<4	<3	<3.99	-	-	-	
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.32	-	<0.36	-	<0.36	-	-	-	-	
Strontium	48.2	45.7	51.8	40.3	106	63.9	-	-	-	-	-	-	-	-	56	-	53.4	-	28.9	-	-	-	-	
Zinc	83.6	70.4	65.4	50.5	75.1	70.9	-	-	-	-	-	-	-	-	55.6	57	73.8	75.4	54.5	37.6	-	-	-	
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	<41.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	35.9	-	
Aliphatic >C8-C10	-	-	-	-	-	-	<41.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65.1	-	
Aliphatic >C10-C12	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	<192	-	<174	-	-	-	-	140	-	
Aliphatic >C12-C16	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	337	-	388	-	-	-	-	734	-	
Aliphatic >C16-C35	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	1150	-	685	-	-	-	-	1771	-	
Aromatic >C8-C10	-	-	-	-	-	-	<41.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<30	-	
Aromatic >C10-C12	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	<30.7	-	<35	-	-	-	-	41	-	
Aromatic >C12-C16	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	<30.7	-	36.8	-	-	-	-	167	-	
Aromatic >C16-C21	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	<30.7	-	<35	-	-	-	-	148	-	
Aromatic >C21-C35	-	-	-	-	-	-	<7.57	-	-	-	-	-	-	-	106.6	-	86.2	-	-	-	-	829	-	
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	-	-	-	773	-	<13	-	-	-	-	-	-	-	4280	-	768	-	-	2485	-	1993	
TPH-ORO (>C28-C35)	-	-	-	-	-	1168	-	<13	-	-	-	-	-	-	-	4596	-	409	-	-	1038	-	881	
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
	BC-15	BC-15	BC-15	BC-15	BC-15	BC-16	BC-16	BC-16	BC-16	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-16R2	BC-28	BC-28	BC-28	SB-4	SB-4R	SB-4R	SB-4R	SB-4R
	4-6'	4-6'	6-8'	6-8'	10-12'	0-4'	4-8'	8-10'	10-12'	0-2'	0-2'	4-6'	4-6'	6-8'	6-8'	0-2'	4-6'	8-10'	0-2'	0-2'	0-2'	2-4'	2-4'
	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/5/18	11/5/18	11/5/18	11/5/18	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	2/7/19	2/7/19	2/7/19	11/6/17	7/16/20	7/16/20	7/16/20	7/16/20
Parameter	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																							
Arsenic	10.67	8.23	4.59	5.34	4.51	5.79	7.51	4.21	5.23	-	-	-	-	-	-	10.2	9.95	5.95	4.35	-	-	-	-
Barium	234	253	294	251	183	3760	3830	264	181	-	291	-	685	-	-	1080	290	189	555	-	-	-	-
Cadmium	0.604	0.576	0.43	0.638	0.508	0.579	0.527	<0.5	<0.496	-	-	-	-	-	-	0.548	0.636	0.539	<0.496	-	-	-	-
Chromium	20.3	17.4	15.7	13.9	9.7	11.8	29.3	11.4	9.61	-	-	-	-	-	-	18	18.1	13.7	12.6	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25000	27300	18400	-	-	-	-	-
Lead	18.5	15.9	16.6	14.7	8.41	65.5	58.2	8.85	7.42	-	-	-	-	-	-	-	-	-	16.7	-	-	-	-
Mercury	<0.154	<0.102	<0.159	<0.0929	<0.102	0.106	0.157	<0.099	<0.0927	-	-	-	-	-	-	<0.0985	<0.103	<0.104	<0.105	-	-	-	-
Selenium	<2.94	<3.97	<3	<3.99	<3.99	<3.99	<3.97	<4	<3.97	-	-	-	-	-	-	-	-	-	<3.97	-	-	-	-
Silver	<0.368	-	<0.39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	60.8	-	69.3	45.7	182	99.6	58.5	50.4	-	-	-	-	-	-	83.8	74.3	53.5	54.3	-	-	-	-
Zinc	83.1	76.6	67.2	63.3	42.4	59.2	71.1	44.2	38.1	-	-	-	-	-	-	79.2	76.2	61	58.3	-	-	-	-
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	<37	-	<48.3	-	<50.2	-	-	-	-	-	<31.1	-	<31.7	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	<37	-	<48.3	-	<50.2	-	-	-	-	-	40.6	-	44.9	-
Aliphatic >C10-C12	<178	-	<9	-	-	-	-	-	-	155	-	<8.92	-	<10	-	-	-	-	-	19.5	-	129	-
Aliphatic >C12-C16	336	-	21.4	-	-	-	-	-	-	2035	-	<8.92	-	<10	-	-	-	-	-	98.2	-	<1430	-
Aliphatic >C16-C35	586	-	52.5	-	-	-	-	-	-	2944	-	<8.92	-	<10	-	-	-	-	-	316	-	2158	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	<37	-	<48.3	-	<50.2	-	-	-	-	-	<31.1	-	<31.7	-
Aromatic >C10-C12	<9	-	<9	-	-	-	-	-	-	<40.6	-	<8.92	-	<10	-	-	-	-	-	<7.34	-	50.1	-
Aromatic >C12-C16	25.3	-	<9	-	-	-	-	-	-	<40.6	-	<8.92	-	<10	-	-	-	-	-	12.9	-	228	-
Aromatic >C16-C21	18	-	<9	-	-	-	-	-	-	59.4	-	<8.92	-	<10	-	-	-	-	-	13.2	-	182	-
Aromatic >C21-C35	67.9	-	14.2	-	-	-	-	-	-	577	-	<8.92	-	<10	-	-	-	-	-	78.2	-	959	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	1512	-	219	-	10623	9334	2133	755	-	12284	-	<77	-	<83	-	-	-	13431	-	309	-	8323
TPH-ORO (>C28-C35)	-	705	-	146.8	-	5485	4823	1107	390	-	5975	-	<77	-	<83	-	-	-	9829	-	321	-	4451
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	0.0575	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	0.1091	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	0.0735	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	<0.0445	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	0.1336	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	0.202	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	
	SB-4NW	SB-4NW	SB-4NW	SB-4NW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-4SW	SB-5	SB-5	SB-5R	SB-5R	SB-5R	SB-5R	SB-10	SB-10	SB-10	SB-10	SB-10	SB-10
	0-2'	0-2'	2-4'	2-4'	0-2'	0-2'	2-4'	2-4'	6-8'	6-8'	10-12'	10-12'	0-2'	2-4'	0-2'	0-2'	2-4'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'
	7/16/20	7/16/20	7/16/20	7/16/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	11/6/17	11/6/17	1/9/20	1/9/20	1/9/20	1/9/20	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18	11/2/18
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ICON	ERM	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																								
Arsenic	-	-	-	-	-	-	-	-	-	-	-	-	7.25	5.96	-	-	-	-	5.1	5.27	9.46	11.6	5.13	6.32
Barium	-	-	-	-	-	-	-	-	-	-	-	-	2460	416	-	2970	-	-	213	309	252	233	331	299
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	<0.496	<0.496	-	-	-	-	0.423	0.639	0.916	0.703	0.639	0.648
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	13.4	17.3	-	-	-	-	17.2	12.9	17.5	16.8	13.81	13.8
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	30.6	16.6	-	-	-	-	17	17.5	16.5	15.2	13.23	14.1
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	<0.106	<0.104	-	-	-	-	<0.15	<0.105	<0.1408	<0.108	<0.15	<0.106
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	<3.97	<3.96	-	-	-	-	<2.77	<3.99	<2.84	<3.96	<3	<3.99
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.346	-	<0.355	-	<0.394	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	100	77.1	-	-	-	-	-	66.2	-	61.7	-	76.6
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	85.1	77.9	-	-	-	-	73.4	69.8	81.5	69.1	56.2	62.2
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	<33.2	-	<31.8	-	-	-	115	-	72.6	-	32.3	-	-	-	<34.4	-	-	<50	-	-	-	-	-	-
Aliphatic >C8-C10	<33.2	-	<31.8	-	-	-	153	-	112.6	-	59.3	-	-	-	<34.4	-	-	<50	-	-	-	-	-	-
Aliphatic >C10-C12	<7.2	-	<7.24	-	<7.3	-	10.86	-	<1480	-	175	-	-	-	<7.4	-	-	<10.33	-	-	-	-	-	-
Aliphatic >C12-C16	15	-	14.2	-	<7.3	-	77.2	-	<1480	-	<1430	-	-	-	24.2	-	-	27.3	-	-	-	-	-	-
Aliphatic >C16-C35	90.6	-	281	-	65.1	-	254	-	4057	-	2848	-	-	-	423	-	-	203	-	-	-	-	-	-
Aromatic >C8-C10	<33.2	-	<31.8	-	47.6	-	46.7	-	<30.3	-	<29.1	-	-	-	<34.4	-	-	<50	-	-	-	-	-	-
Aromatic >C10-C12	<7.2	-	<7.24	-	<7.3	-	<7.19	-	36.9	-	64.5	-	-	-	<7.4	-	-	<10.33	-	-	-	-	-	-
Aromatic >C12-C16	<7.2	-	<7.24	-	<7.3	-	16.5	-	138	-	224	-	-	-	<7.4	-	-	<10.33	-	-	-	-	-	-
Aromatic >C16-C21	<7.2	-	<7.24	-	<7.3	-	14.2	-	133	-	190	-	-	-	<7.4	-	-	<10.33	-	-	-	-	-	-
Aromatic >C21-C35	34.6	-	79.3	-	16.2	-	63.4	-	640	-	1012	-	-	-	252	-	-	24.1	-	-	-	-	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	309	-	3046	-	6313	-	1258	-	5610	-	2293	-	201	-	270	94.4	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	238	-	3477	-	3736	-	651	-	3268	-	1369	-	126.8	-	430	102.5	-	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0399	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SW	SW	SW	SW	
	SB-12	SB-12	SB-12	SB-12	SB-12	SB-12	SB-113	SB-113	SB-113	SB-113	SB-114	SB-114	SB-114	SB-114	SB-114	SB-114	SB-115	SB-115	SB-115	SB-115	BC-9	BC-9	BC-9	BC-9	
	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	
Parameter	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	12/18/19	12/18/19	12/18/19	12/18/19	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	1/9/20	10/24/18	10/24/18	10/24/18	10/24/18	
	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	
Metals (mg/kg)																									
Arsenic	11.67	11.5	5.11	4.85	6.88	4.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.6	11.5	5.74	4.71
Barium	1449	1960	766	877	447	366	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	997	1200	233	147
Cadmium	0.628	<0.479	0.629	<0.492	0.869	0.493	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.163	0.666	0.672	<0.498
Chromium	15.1	16.1	15.8	15.6	18.9	16.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.3	13.8	11.46	10.9
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	27	26	16.4	21.9	18	16.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	29.9	14	11.8	10.4
Mercury	<0.136	<0.101	<0.1383	<0.105	<0.1575	<0.105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1239	<0.0981	<0.1309	<0.0956
Selenium	<3	<3.83	<3	<3.93	<3.22	<3.99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2.64	<3.97	<2.89	<3.98
Silver	<0.33	-	<0.35	-	<0.402	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.33	-	<0.362	-
Strontium	-	85.6	-	67.8	-	84.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87.9	-	51.2
Zinc	73.5	73.5	67.1	70.4	82.7	75.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91.7	182	52	47.4
TPH Fractions (mg/kg)																									
Aliphatic C6-C8	-	-	-	-	-	-	<46.9	-	<54.7	-	<31.5	-	<36	-	<46.6	-	<56.8	-	<47.2	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	<46.9	-	<54.7	-	<31.5	-	<36	-	<46.6	-	<56.8	-	<47.2	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	<7.68	-	<8.84	-	<14.9	-	<8	-	<8.74	-	<10	-	<10.02	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	<7.68	-	<8.84	-	73	-	15.8	-	<8.74	-	15.33	-	<10.02	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	<7.68	-	<8.84	-	749	-	57	-	<8.74	-	310	-	<10.02	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	<46.9	-	<54.7	-	<31.5	-	<36	-	<46.6	-	<56.8	-	<47.2	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	<7.68	-	<8.84	-	<7.48	-	<8	-	<8.74	-	<10	-	<10.02	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	<7.68	-	<8.84	-	<7.48	-	<8	-	<8.74	-	<10	-	<10.02	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	<7.68	-	<8.84	-	9.21	-	<8	-	<8.74	-	<10	-	<10.02	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	<7.68	-	<8.84	-	225	-	23	-	<8.74	-	119.2	-	<10.02	-	-	-	-	-	-
TPH Mixtures (mg/kg)																									
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	45.8	-	<15	-	6462	-	1537	-	<73	-	395	-	<84	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	36.2	-	<15	-	5985	-	789	-	<73	-	395	-	<84	-	-	-	-	-
PAHs (mg/kg)																									
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	BC-9	BC-9R	BC-9R	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10	BC-10R	BC-10R	BC-10R	BC-10R2	BC-10R2	BC-10E	BC-10E	BC-10E	BC-10E	BC-10E	BC-10E	BC-11	BC-11
	10-12'	0-2'	2-4'	0-4'	0-4'	4-6'	10-12'	10-12'	10-12'	12-14'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	0-2'	0-2'	
Parameter	10/24/18	1/14/20	1/14/20	10/24/18	10/24/18	10/24/18	10/24/18	10/24/18	7/17/20	7/17/20	1/13/20	1/13/20	1/13/20	3/19/20	3/19/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	7/17/20	10/26/18	10/26/18
Parameter	ICON	ERM	ERM	ERM	ICON	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ICON	HET	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																							
Arsenic	3.54	10.07	-	5.46	8.51	7.85	-	5.47	-	-	-	-	-	-	-	-	-	-	-	-	-	7.39	5.23
Barium	85.9	-	-	412	412	2910	-	1230	-	-	-	-	-	-	-	-	-	-	-	-	-	840	1210
Cadmium	<0.498	-	-	1.011	<0.496	0.816	-	0.686	-	-	-	-	-	-	-	-	-	-	-	-	-	0.859	0.869
Chromium	7.41	-	-	16.6	15.5	17.3	-	14.1	-	-	-	-	-	-	-	-	-	-	-	-	-	17.4	15
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	5	-	-	21.8	16.7	20.7	-	18.1	-	-	-	-	-	-	-	-	-	-	-	-	-	24.9	30.3
Mercury	<0.0952	-	-	<0.145	<0.0978	<0.0925	-	<0.101	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.151	0.104
Selenium	<3.99	-	-	<3.02	<3.97	<3.98	-	<3.97	-	-	-	-	-	-	-	-	-	-	-	-	-	<3.12	<3.99
Silver	-	-	-	<0.378	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.39	-
Strontium	30.2	-	-	-	57.4	95.6	-	101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	102
Zinc	27.6	-	-	250	135	233	-	327	-	-	-	-	-	-	-	-	-	-	-	-	-	80.5	98.7
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	<40.4	<36.5	-	-	-	-	-	<40	<33.9	<48.5	<42.3	-	<43	-	<44.7	-	<39.6	-	<57.7	-	-	
Aliphatic >C8-C10	-	<40.4	<36.5	-	-	-	-	-	<40	<33.9	<48.5	<42.3	-	<43	-	<44.7	-	<39.6	-	<57.7	-	-	
Aliphatic >C10-C12	-	<8.18	<8.13	<8	-	-	<863	-	81.6	<7.51	<9	<9	-	<43	-	<11.76	-	<9.03	-	<11.26	<891	-	
Aliphatic >C12-C16	-	<8.18	<8.13	<8	-	-	1151	-	<673	<75.1	<9	<9	-	246	-	<11.76	-	<9.03	-	<11.26	1226	-	
Aliphatic >C16-C35	-	<8.18	<8.13	45.6	-	-	2935	-	1986	259	<9	<9	-	1960	-	183	-	16.8	-	39.8	2954	-	
Aromatic >C8-C10	-	<40.4	<36.5	-	-	-	-	-	<40	<33.9	<46	<42.3	-	<14	-	<44.7	-	<39.6	-	<57.7	-	-	
Aromatic >C10-C12	-	<8.18	<8.13	<8	-	-	<86	-	29.9	<7.51	<9	<9	-	<14	-	<8.37	-	<9.03	-	<11.26	<89.1	-	
Aromatic >C12-C16	-	<8.18	<8.13	<8	-	-	136.1	-	142.9	19.1	<9	<9	-	43.1	-	<8.37	-	<9.03	-	<11.26	169	-	
Aromatic >C16-C21	-	<8.18	<8.13	<8	-	-	<86	-	126.5	16.3	<9	<9	-	90.8	-	<8.37	-	<9.03	-	<11.26	<89.1	-	
Aromatic >C21-C35	-	<8.18	<8.13	13.63	-	-	364	-	666	75.6	<9	<9	-	252	-	19.2	-	<9.03	-	37.5	651	-	
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	-	-	-	203	3729	-	2518	-	-	-	-	132	-	5908	-	553	-	81.1	-	-	-	3876
TPH-ORO (>C28-C35)	-	-	-	-	352	2361	-	1928	-	-	-	-	170	-	3705	-	471	-	165	-	-	-	3184
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	0.79	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Acenaphthene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Acenaphthylene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Anthracene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Benzo(a)anthracene	-	-	-	-	-	-	-	-	0.542	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Benzo(a)pyrene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Chrysene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Fluoranthene	-	-	-	-	-	-	-	-	1.14	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Fluorene	-	-	-	-	-	-	-	-	0.855	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Naphthalene	-	-	-	-	-	-	-	-	<0.468	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	
Phenanthrene	-	-	-	-	-	-	-	-	2.72	0.084	-	-	-	-	-	0.121	-	<0.05	-	<0.061	-	-	
Pyrene	-	-	-	-	-	-	-	-	0.66	<0.042	-	-	-	-	-	<0.046	-	<0.05	-	<0.061	-	-	

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW BC-11 2-4' 10/26/18	SW BC-11 2-4' 10/26/18	SW BC-11 4-6' 10/26/18	SW BC-11 4-6' 10/26/18	SW BC-11 6-8' 10/26/18	SW BC-11 6-8' 10/26/18	SW BC-11 10-12' 10/26/18	SW BC-11 10-12' 10/26/18	SW BC-11R 0-2' 1/14/20	SW BC-11R 0-2' 1/14/20	SW BC-12 0-4' 11/1/18	SW BC-12 0-4' 11/1/18	SW BC-12 4-8' 11/1/18	SW BC-12 4-8' 11/1/18	SW BC-12 8-12' 11/1/18	SW BC-12 8-12' 11/1/18	SW BC-12 18-20' 11/1/18	SW BC-21 0-2' 1/30/19	SW BC-21 4-8' 1/30/19	SW BC-21R 0-2' 1/9/20	SW BC-22 0-2' 1/31/19	SW BC-22 4-8' 1/31/19	SW BC-23 0-2' 2/1/19
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ICON	ICON
Metals (mg/kg)																							
Arsenic	4.07	6.55	3.19	5.21	2.38	5.52	2.72	3.5	-	-	5.54	9.47	4.94	6.35	5.1	4.17	3.68	7.64	7.79	-	8.38	3.46	8.03
Barium	341	294	132.7	245	122	141	113.7	122	-	-	101	270	103.1	153	156	125	132	2220	233	2680	228	201	1150
Cadmium	0.822	<0.498	0.47	<0.496	0.446	<0.499	0.482	<0.5	-	-	0.43	0.66	0.327	0.557	0.48	0.536	<0.497	0.527	<0.496	-	<0.498	<0.499	0.578
Chromium	15.6	16.4	9.34	22.7	8.79	9.06	8.38	8.56	-	-	15.4	15.6	8.74	10.9	11.9	10.8	10.4	24.8	16.8	-	22.1	13.5	20.5
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25000	22300	-	25600	16600	26000
Lead	16	123	7.64	11.8	6.59	7.39	6.07	7.02	-	-	14	12.7	6.55	7.73	9.6	7.87	8.14	-	-	-	-	-	-
Mercury	<0.1363	<0.0954	<0.1284	<0.0969	<0.1255	<0.0968	<0.137	<0.0967	-	-	<0.1255	<0.0969	<0.1203	<0.101	<0.1276	<0.0936	<0.102	<0.0937	<0.106	-	<0.101	<0.0933	<0.107
Selenium	<3.13	<3.98	<2.76	<3.97	<2.63	<3.99	<2.88	<4	-	-	<3	<4	<3	<3.98	<3	<3.97	<3.98	-	-	-	-	-	-
Silver	<0.391	-	<0.344	-	<0.328	-	<0.36	-	-	-	<0.32	-	<0.32	-	<0.33	-	-	-	-	-	-	-	-
Strontium	-	47.5	-	50.8	-	32.2	-	29.2	-	-	-	36.6	-	26	-	26.9	33.7	73.5	41.9	-	40.7	37.7	50.9
Zinc	71.1	72.9	39	47.3	37.3	39.4	35	36.7	-	-	61.8	62.9	35.1	43.8	48.7	43.9	44.1	86.2	64	-	78.3	49.2	90.3
TPH Fractions (mg/kg)																							
Aliphatic C6-C8	-	-	-	-	-	-	-	-	<42.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	<42.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	227	-	61.7	-	<31	-	-	-	<430	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	472	-	114.1	-	47.1	-	-	-	459	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	940	-	253	-	96	-	-	-	1141	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	<42.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<18	-	<8	-	<8	-	-	-	10.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	42.5	-	10.63	-	<8	-	-	-	54.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	20.5	-	<8	-	<8	-	-	-	51.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	128	-	47.7	-	22	-	-	-	334	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																							
TPH-DRO (>C10-C28)	-	1113	-	2179	-	<67	-	-	-	6719	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	858	-	1571	-	<67	-	-	-	6302	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																							
2-Methylnaphthalene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	<0.0469	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	BC-23	BC-23	BC-24	BC-24	SB-6	SB-6	SB-6R	SB-6R	SB-6R	SB-6R	SB-6R2	SB-6R2	SB-6R3	SB-6R3	SB-7	SB-7R	SB-7R	SB-7R	SB-7R	SB-7R	SB-7S	SB-7S	SB-7S	SB-7S
	4-6'	8-10'	0-2'	6-8'	0-2'	2-4'	4-6'	4-6'	6-8'	6-8'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	0-2'	2-4'	2-4'	0-2'	0-2'	2-4'	2-4'	
	2/1/19	2/1/19	2/5/19	2/5/19	11/6/17	11/6/17	10/25/18	10/25/18	10/25/18	10/25/18	1/22/20	1/22/20	3/19/20	3/19/20	11/6/17	7/28/20	7/28/20	7/28/20	7/28/20	7/28/20	7/17/20	7/17/20	7/17/20	7/17/20
Parameter	ICON	ICON	ICON	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	HET	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	
Metals (mg/kg)																								
Arsenic	6.36	2.69	10.3	6.8	6.82	6.37	5.62	7.23	8.16	7.34	-	-	-	-	6.01	-	-	-	-	-	-	-	-	-
Barium	234	125	286	149	353	333	275	354	287	358	-	-	-	-	291	-	-	-	-	-	-	-	-	-
Cadmium	<0.496	<0.498	0.605	<0.497	<0.499	<0.498	0.715	0.647	0.629	0.798	-	-	-	-	<0.497	-	-	-	-	-	-	-	-	-
Chromium	19.3	13.4	19.2	10	14.8	14.8	18.1	15.8	16.12	15.8	-	-	-	-	18.1	-	-	-	-	-	-	-	-	-
Iron	26200	15100	24100	12900	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	18.5	18.6	20.8	17.5	15.16	16.5	-	-	-	-	18.3	-	-	-	-	-	-	-	-	-
Mercury	<0.104	<0.0941	<0.102	<0.107	<0.0998	<0.0989	<0.1585	<0.0988	<0.1614	<0.0961	-	-	-	-	<0.0938	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	-	<3.99	<3.99	<3.57	<3.98	<3.55	<3.99	-	-	-	-	<3.97	-	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	<0.446	-	<0.443	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	50.3	36.1	37.2	24.6	46.4	46.7	-	82.9	-	84.8	-	-	-	-	72.7	-	-	-	-	-	-	-	-	-
Zinc	71.6	38.9	82.3	41.3	68.7	69	77.5	78.8	68.7	86.7	-	-	-	-	96.9	-	-	-	-	-	-	-	-	-
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	<38.1	-	<122	-	-	-	-	-	-	<40	-	<43.4	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	<38.1	-	<122	-	-	-	-	-	-	<40	-	<43.4	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	<977	-	<199	-	<8	-	<122	-	<5	-	<48	-	<8.88	-	<8.96	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	1052	-	226	-	<84	-	518	-	<5	-	<482	-	14.66	-	<8.96	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	6010	-	993	-	332	-	3713	-	-	109.2	-	2701	-	90	-	57.8	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	<45.4	-	<16	-	-	-	-	-	<40	-	<43.4	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	<98	-	<20	-	<8	-	<16	-	<5	-	<5	-	<8.88	-	<8.96	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	146.4	-	<20	-	<8	-	44.1	-	<5	-	23	-	<8.88	-	<8.96	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	126.5	-	<20	-	8.93	-	220	-	<5	-	90.7	-	<8.88	-	<8.96	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	720	-	104.1	-	47.3	-	326	-	-	36.3	-	1072	-	27	-	64.1	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	-	-	-	13689	-	3956	-	1784	-	4965	-	4332	19775	-	255	-	5562	-	1456	-	688	-
TPH-ORO (>C28-C35)	-	-	-	-	-	6480	-	1953	-	1057	-	3436	-	2296	17203	-	779	-	5652	-	1041	-	846	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	0.692	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	<0.54	-	-	<0.053	-	<0.051	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW
	SB-8	SB-8	SB-8	SB-8	SB-8	SB-8R	SB-8R	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11	SB-11R	SB-13	SB-13	SB-13R	SB-13R	SB-13R	SB-13R	SB-14	SB-14
	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'	2-4'	0-2'	0-2'	0-2'	0-2'	0-2'	2-4'	0-2'	0-2'
	10/25/18	10/25/18	10/25/18	10/25/18	10/25/18	7/28/20	7/28/20	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	2/5/19	7/8/20	6/24/19	6/24/19	1/15/20	1/15/20	7/8/20	1/22/20	6/24/19	6/24/19
Parameter	ERM	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ERM	ICON
Metals (mg/kg)																								
Arsenic	6.46	4.27	8.9	6.63	7.07	-	-	4.82	7.18	7.1	5.37	6.54	5.62	2.29	<1.99	-	27.8	27.3	9.8	8.77	-	18.31	6.41	11.7
Barium	266	253	284	333	328	-	-	284	398	153	230	194	186	87.4	91.4	-	7330	9320	545	1170	5450	367	2037	2690
Cadmium	0.499	0.6	0.536	1.467	0.579	-	-	<0.392	0.538	<0.384	0.566	0.43	<0.489	<0.377	<0.498	-	1.792	1.34	-	-	-	-	0.484	<0.465
Chromium	17.4	17.4	17.6	19.8	15.7	-	-	16.7	31.1	17.5	14.8	12.68	12.3	7.35	7.47	-	14.19	14.5	-	-	-	-	13.5	15.5
Iron	-	-	-	-	-	-	-	-	23800	-	19700	-	15900	-	9160	-	-	-	-	-	-	-	-	-
Lead	17.9	16.4	17.6	21	16.7	-	-	14.7	-	16.9	-	12.54	-	5.93	-	18.2	508	461	36.9	25.5	62.4	23.5	25.4	27.5
Mercury	<0.1458	<0.1458	<0.101	<0.188	<0.0956	-	-	<0.143	<0.097	<0.1416	<0.106	<0.149	<0.104	<0.1267	<0.102	-	<0.1867	<0.0994	-	-	-	-	<0.1102	<0.0969
Selenium	<3.11	<3.2	<3.97	<4.37	<3.99	-	-	<3.14	-	<3.07	-	<3.12	-	<3	-	-	<3.77	<3.9	-	-	-	-	<2.34	<3.72
Silver	<0.389	<0.404	-	<0.547	-	-	-	<0.392	-	<0.384	-	<0.391	-	<0.377	-	-	<0.472	-	-	-	-	-	<0.292	-
Strontium	-	-	57.8	-	71	-	-	-	68.3	-	53	-	48.5	-	30.1	-	-	191	-	-	-	-	-	71.8
Zinc	79.5	81	84	103	75.9	-	-	212	241	73.8	66.1	68.9	54.1	31.3	30.2	-	464	397	-	-	-	-	54.9	86.3
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	<458	<181	-	<48	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	835	464	-	139.7	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	2000	1181	-	313	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	<92	<36.1	-	<24	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	<92	52.8	-	53.1	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	<92	<36.1	-	27.3	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	441	158	-	115.4	-	-	-	-	-	-	-	<9	-	<8	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	2029	-	409	-	3493	-	-	-	-	-	<74	-	<67	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	1068	-	302	-	3174	-	-	-	-	-	<74	-	<67	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	<0.49	-	<0.44	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	<0.05	-	-	-	-	-	<0.485	<0.49	<0.45	<0.44	-	-	-	-	-	-	-	-	-

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	SB-14	SB-14	SB-14	SB-14	SB-14R	SB-14R	SB-14R	SB-14R2	SB-14R2	SB-15	SB-15	SB-15	SB-15	SB-15	SB-15	SB-16	SB-16	SB-16	SB-16	SB-16	SB-16	SB-16	SB-116	SB-116	SB-116
	2-4'	2-4'	4-5'	4-6'	0-2'	0-2'	2-4'	4-6'	4-6'	0-2'	0-2'	2-4'	2-4'	4-6'	4-6'	0-2'	0-2'	4-6'	4-6'	13-15'	13-15'	0-2'	0-2'	0-2'	
	6/24/19	6/24/19	6/24/19	6/24/19	1/22/20	1/22/20	1/22/20	3/19/20	3/19/20	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	6/24/19	3/19/20	3/19/20	3/19/20	3/19/20	3/19/20	3/19/20	1/9/20	1/9/20	7/8/20	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ICON	HET	ICON	ERM	ICON	ERM	ICON	ERM	ICON	HET	ICON	HET	ICON	HET	ICON	ERM	ICON	ICON	
Metals (mg/kg)																									
Arsenic	7.29	5.98	3.66	4.47	12.1	-	-	-	-	6.95	7.66	4.39	6.02	8.22	6.65	-	-	-	-	-	-	10.32	8.02	-	
Barium	3301	1720	225	530	3760	3280	6280	-	-	1587	1260	301	461	228	380	201	226	141	153	56.6	53.2	6856	4980	4110	
Cadmium	0.758	<0.491	0.633	<0.498	-	-	-	-	-	0.574	<0.487	0.575	<0.483	0.873	<0.49	-	-	-	-	-	-	-	-	-	
Chromium	37.2	13.7	13.86	14.7	-	-	-	-	-	77.1	22.4	18.5	19.2	17.87	18.5	-	-	-	-	-	-	-	-	-	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	121.4	24	12.7	15.7	42	-	-	-	-	35.7	109	16.5	16.4	16.53	18.2	-	-	-	-	-	-	85	68.1	32.5	
Mercury	<0.144	0.109	<0.14	<0.101	-	-	-	-	-	<0.1382	<0.1	<0.2	<0.101	<0.1835	<0.094	-	-	-	-	-	-	-	-	-	
Selenium	<2.81	<3.93	<2.88	<3.99	-	-	-	-	-	<2.79	<3.9	<3.1	<3.86	<4	<3.92	-	-	-	-	-	-	-	-	-	
Silver	<0.351	-	<0.36	-	-	-	-	-	-	<0.35	-	<0.388	-	<0.46	-	-	-	-	-	-	-	-	-	-	
Strontium	-	58.7	-	196	-	-	-	-	-	-	61.8	-	57.6	-	59.9	-	-	-	-	-	-	-	-	-	
Zinc	229	113	56.1	60.2	-	-	-	-	-	59.3	77.1	78.8	79.4	80.5	77.6	-	-	-	-	-	-	-	-	-	
TPH Fractions (mg/kg)																									
Aliphatic C6-C8	-	-	-	-	-	-	-	<27	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
Aliphatic >C8-C10	-	-	-	-	-	-	-	<27	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
Aliphatic >C10-C12	-	-	-	-	-	-	-	<27	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
Aliphatic >C12-C16	-	-	-	-	-	-	-	<18	-	-	-	-	-	-	-	<14	-	<13	-	<13	-	-	-	-	
Aliphatic >C16-C35	-	-	-	-	-	-	-	23.5	-	-	-	-	-	-	-	<14	-	<13	-	<13	-	-	-	-	
Aromatic >C8-C10	-	-	-	-	-	-	-	<18	-	-	-	-	-	-	-	<14	-	<13	-	<13	-	-	-	-	
Aromatic >C10-C12	-	-	-	-	-	-	-	<18	-	-	-	-	-	-	-	<14	-	<13	-	<13	-	-	-	-	
Aromatic >C12-C16	-	-	-	-	-	-	-	<27	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
Aromatic >C16-C21	-	-	-	-	-	-	-	<27	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
Aromatic >C21-C35	-	-	-	-	-	-	-	37.7	-	-	-	-	-	-	-	<21	-	<20	-	<19	-	-	-	-	
TPH Mixtures (mg/kg)																									
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	50.3	-	-	-	-	-	-	-	<14	-	<13	-	<13	-	-	-	
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	55	-	-	-	-	-	-	-	<14	-	<13	-	13	-	-	-	
PAHs (mg/kg)																									
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE 3-5 SOIL DATA - DRY WEIGHT Hero Property	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	SW	
	SB-117	SB-117	SB-117	SB-118	SB-118	SB-119	SB-119	SB-120	SB-121	SB-122	SB-123	SB-124	SB-124	SB-125	SB-125	SB-125	SB-125	SB-125	SB-126	SB-126	SB-127	SB-127	SB-128	SB-129
	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	0-2'	2-4'	2-4'	2-4'	2-4'	0-2'	2-4'	0-2'	5-7'	5-7'	8-10'	8-10'	0-2'	2-4'	0-2'	2-4'	0-2'	0-2'
Parameter	1/9/20	1/9/20	7/8/20	1/9/20	1/9/20	1/15/20	1/15/20	1/15/20	1/15/20	1/22/20	1/14/20	1/13/20	1/13/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/14/20	1/15/20	1/15/20
	ERM	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ERM	ICON	ERM	ICON	ERM	ERM	ERM	ERM	ERM	ERM
Metals (mg/kg)																								
Arsenic	16.99	11	-	6.8	8.06	11.06	10.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	7689	4000	6180	150	342	1119	990	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	201	33.2	52.8	22.3	19.9	38	58.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Fractions (mg/kg)																								
Aliphatic C6-C8	-	-	-	-	-	-	-	<33.7	<51.6	<33.4	<48.2	<39.9	<49.7	<38.6	<66.9	-	<59	-	<49	<54.7	<42.3	<40.9	<43.4	<40.7
Aliphatic >C8-C10	-	-	-	-	-	-	-	<33.7	<51.6	<33.4	<48.2	<39.9	<49.7	<38.6	<66.9	-	<59	-	<49	<54.7	<42.3	<40.9	<43.4	<40.7
Aliphatic >C10-C12	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	16.03	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aliphatic >C12-C16	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	77.3	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aliphatic >C16-C35	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	174.8	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aromatic >C8-C10	-	-	-	-	-	-	-	<33.7	<51.6	<38.6	<48.2	<39.9	<49.7	<38.6	<66.9	-	<59	-	<49	<54.7	<42.3	<40.9	<43.4	<40.7
Aromatic >C10-C12	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	<12.36	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aromatic >C12-C16	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	<12.36	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aromatic >C16-C21	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	<12.36	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
Aromatic >C21-C35	-	-	-	-	-	-	-	<7.85	<9.79	<8.4	<8.93	<9.36	<9	<8.72	34.7	-	<11	-	<9	<9.57	<8.58	<9.09	<8.87	<8.73
TPH Mixtures (mg/kg)																								
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1322	-	87.2	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	829	-	101.3	-	-	-	-	-	-
PAHs (mg/kg)																								
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-6 SOIL DATA - DRY WEIGHT Outside Hero Property	BC-27 Area	BC-27 Area	BC-27 Area	BC-27 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area
	BC-27	BC-27	BC-27	BC-27	BC-7	BC-7	BC-7	BC-7	BC-7	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8	BC-8R2	BC-8R2
	0-4'	4-6'	4-6'	8-12'	0-4'	6-8'	6-8'	10-12'	10-12'	2-4'	2-4'	4-6'	4-6'	6-8'	6-8'	10-12'	10-12'	2-4'	2-4'
	2/6/19	2/6/19	2/6/19	2/6/19	8/21/18	8/21/18	8/21/18	8/21/18	8/21/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	8/22/18	12/17/19	12/17/19
Parameter	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals (mg/kg)																			
Arsenic	6.79	5.17	10.1	2.54	6.76	14.21	7.64	10.84	11.6	-	7.79	-	4.84	-	6.16	6.9	8.31	-	-
Barium	217	189	248	168	461	228	229	246	253	-	524	-	5040	-	307	149.3	192	-	-
Cadmium	<0.497	<0.411	0.678	<0.499	0.916	<0.416	0.608	<0.525	0.829	-	0.515	-	<0.499	-	<0.498	<0.425	0.706	-	-
Chromium	16.4	17	19.7	15.7	15	20.7	21.2	16.17	15	-	26.2	-	66.8	-	20.3	13.54	13.2	-	-
Iron	24300	-	31100	15800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	20.9	-	-	22.6	17.6	18.4	15.76	15.2	-	69.9	-	125	-	18.5	9.93	11.7	-	-
Mercury	<0.105	<0.1489	<0.103	<0.0995	0.162	<0.1478	<0.0991	<0.209	<0.105	-	<0.105	-	<0.0973	-	<0.107	<0.2	<0.101	-	-
Selenium	-	<3.29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	-	<0.411	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strontium	38.2	-	47.2	31.8	86.8	63.2	70.4	100.2	110	-	104	-	205	-	78.5	56.2	81.1	-	-
Zinc	70.6	68.9	88	46	90	82.8	88.3	107.2	75.9	-	144	-	116	-	81	55.7	59.9	-	-
TPH Fractions (mg/kg)																			
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	464	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	<6835	-	<7481	-	<888	-	-	-	367	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	<6835	-	9140	-	1315	-	-	-	1644	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	9643	-	15461	-	3432	-	-	-	10977	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	229	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	<684	-	<748	-	<89	-	-	-	46.6	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	1473	-	1409	-	135	-	-	-	253	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	1220	-	1191	-	142	-	-	-	260	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	4315	-	4963	-	667	-	-	-	3449	-
TPH Mixtures (mg/kg)																			
TPH-DRO (>C10-C28)	-	-	-	-	13.8	-	-	-	-	-	6732	-	16833	-	1923	-	-	-	30532
TPH-ORO (>C28-C35)	-	-	-	-	6.77	-	-	-	-	-	1145	-	2132	-	302	-	-	-	21261
PAHs (mg/kg)																			
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 3-6 SOIL DATA - DRY WEIGHT Outside Hero Property	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	BC-8 Area	Drainage	Drainage	
	BC-8R2	BC-8R2	BC-8R2	BC-13	BC-13	BC-13	SB-105	SB-105	SB-105	SB-105	SB-106	SB-106	SB-106	SB-106	SB-130	SB-130	SB-130	BC-4	BC-4	
	4-6'	8-10'	8-10'	0-2'	2-4'	2-4'	2-4'	2-4'	4-6'	4-6'	2-4'	2-4'	4-6'	4-6'	2-4'	4-6'	4-6'	2-4'	2-4'	
	12/17/19	12/17/19	12/17/19	11/1/18	11/1/18	11/1/18	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	12/17/19	8/16/18	8/16/18
Parameter	ERM	ERM	ICON	ERM	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ERM	ICON	ERM	ICON	
Metals (mg/kg)																				
Arsenic	-	-	-	2	1.94	2.42	-	-	-	-	-	-	-	-	-	-	-	8.81	6.66	
Barium	-	-	-	35.8	26.9	67.7	-	-	-	-	-	-	-	-	-	-	-	843	354	
Cadmium	-	-	-	0.3	<0.314	<0.498	-	-	-	-	-	-	-	-	-	-	-	0.559	<0.499	
Chromium	-	-	-	3.17	2.46	2.52	-	-	-	-	-	-	-	-	-	-	-	17.9	20.9	
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lead	-	-	-	5.19	3.62	3.33	-	-	-	-	-	-	-	-	-	-	-	17.3	15.6	
Mercury	-	-	-	<0.1175	<0.136	<0.105	-	-	-	-	-	-	-	-	-	-	-	<0.14	<0.105	
Selenium	-	-	-	<2.4	<2.51	<3.99	-	-	-	-	-	-	-	-	-	-	-	-	-	
Silver	-	-	-	<0.3	<0.314	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Strontium	-	-	-	-	-	16.2	-	-	-	-	-	-	-	-	-	-	-	60.7	51.5	
Zinc	-	-	-	13	9.97	11.4	-	-	-	-	-	-	-	-	-	-	-	83.4	79.7	
TPH Fractions (mg/kg)																				
Aliphatic C6-C8	319	<52	-	-	-	-	<36	-	<43.8	-	<34.8	-	<42.8	-	<47.3	<58	-	-	-	
Aliphatic >C8-C10	1247	<52	-	-	-	-	<36	-	<43.8	-	60.3	-	<42.8	-	84.3	<58	-	-	-	
Aliphatic >C10-C12	4326	<12.79	-	-	-	-	<7	-	<9	-	<373	-	<8.17	-	210	<9.48	-	-	-	
Aliphatic >C12-C16	13708	<12.79	-	-	-	-	40.7	-	<9	-	1005	-	<8.17	-	925	<9.48	-	-	-	
Aliphatic >C16-C35	34607	<12.79	-	-	-	-	185	-	<9	-	2872	-	15.3	-	3940	<9.48	-	-	-	
Aromatic >C8-C10	910	<52	-	-	-	-	<30	-	<43.8	-	43.1	-	<42.8	-	65.4	<58	-	-	-	
Aromatic >C10-C12	289	<12.79	-	-	-	-	<7	-	<9	-	23.7	-	<8.17	-	<33.4	<9.48	-	-	-	
Aromatic >C12-C16	922	<12.79	-	-	-	-	<7	-	<9	-	90.8	-	<8.17	-	92.5	<9.48	-	-	-	
Aromatic >C16-C21	703	<12.79	-	-	-	-	<7	-	<9	-	72.8	-	<8.17	-	108	<9.48	-	-	-	
Aromatic >C21-C35	3899	<12.79	-	-	-	-	52	-	<9	-	572	-	<8.17	-	1092	<9.48	-	-	-	
TPH Mixtures (mg/kg)																				
TPH-DRO (>C10-C28)	-	-	9421	-	-	-	-	535	-	605	-	2972	-	40.3	-	-	312	-	-	
TPH-ORO (>C28-C35)	-	-	4828	-	-	-	-	562	-	652	-	1373	-	33.6	-	-	223	-	-	
PAHs (mg/kg)																				
2-Methylnaphthalene	<0.037	-	-	-	-	-	-	-	-	-	0.0431	-	-	-	0.202	-	-	-	-	
Acenaphthene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Acenaphthylene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Anthracene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Benzo(a)anthracene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Benzo(a)pyrene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Benzo(b)fluoranthene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzo(k)fluoranthene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Chrysene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Dibenz(a,h)anthracene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Fluoranthene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Fluorene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Indeno(1,2,3-cd)pyrene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Naphthalene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Phenanthrene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	
Pyrene	<0.037	-	-	-	-	-	-	-	-	-	<0.0412	-	-	-	<0.183	-	-	-	-	

TABLE 3-6 SOIL DATA - DRY WEIGHT Outside Hero Property	Drainage	Drainage	Drainage	Drainage	Drainage	Drainage	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG	ICON BKG
	BC-4	BC-4	BC-4	BC-4	BC-29	BC-29	BC-17	BC-17	BC-17	BC-17	BC-17	BC-18	BC-18	BC-18	BC-18	BC-19	BC-19	BC-20	BC-20
	6-8'	6-8'	10-12'	10-12'	0-2'	4-8'	0-2'	0-2'	2-4'	2-4'	8-10'	0-2'	0-2'	4-6'	8-10'	4-6'	8-10'	0-2'	4-8'
	8/16/18	8/16/18	8/16/18	8/16/18	2/13/19	2/13/19	1/22/19	1/22/19	1/22/19	1/22/19	1/22/19	1/24/19	1/24/19	1/24/19	1/24/19	1/25/19	1/25/19	1/28/19	1/28/19
Parameter	ERM	ICON	ERM	ICON	ICON	ICON	ERM	ICON	ERM	ICON	ICON	ERM	ICON	ICON	ICON	ICON	ICON	ICON	ICON
Metals (mg/kg)																			
Arsenic	6.54	6.5	4.21	6.33	2.49	5.48	6.22	6.33	3.67	7.63	3.47	5.93	8.19	15.3	2.49	6.79	2.62	6.76	11.9
Barium	176	198	178	175	36.6	201	124	137	208	203	20.6	126	183	466	207	200	122	191	208
Cadmium	0.806	<0.499	0.597	<0.499	<0.497	0.775	0.482	0.635	0.369	0.556	<0.499	0.413	0.68	1.03	0.55	0.717	<0.498	0.587	0.648
Chromium	16.3	14.1	13.46	13.3	6.17	12.4	9.88	12.6	11.86	15.4	3.2	10.57	11.8	16.7	17.6	15.8	9.65	18.9	17
Iron	-	-	-	-	5270	14200	-	-	-	-	-	-	-	-	-	-	-	22000	23300
Lead	11.76	9.85	9.28	8.9	-	-	14	13	13	16.6	4.67	7.69	12.4	14.7	15.1	12.5	7.97	-	-
Mercury	<0.132	<0.101	<0.143	<0.105	<0.104	<0.104	<0.125	<0.0933	<0.13	<0.0958	<0.106	<0.1	<0.0985	<0.104	<0.1	<0.1	<0.0983	<0.0928	<0.0945
Selenium	-	-	-	-	-	-	<2.47	-	<2.63	-	-	<2.6	-	-	-	-	-	-	-
Silver	-	-	-	-	-	-	<0.309	-	<0.33	-	-	<0.327	-	-	-	-	-	-	-
Strontium	40.1	33.8	40.5	36.4	7.67	33.5	-	50.9	-	63.3	5.26	-	30.2	40.3	33.7	34.4	21.6	36.6	40.8
Zinc	67.4	55.1	56.7	53.7	29.4	60.9	51.8	56.1	52	54.1	12.3	38.8	47	71.5	70.3	62.2	40.5	74.2	61.4
TPH Fractions (mg/kg)																			
Aliphatic C6-C8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aliphatic >C16-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C8-C10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C10-C12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C12-C16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C16-C21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aromatic >C21-C35	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH Mixtures (mg/kg)																			
TPH-DRO (>C10-C28)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH-ORO (>C28-C35)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
PAHs (mg/kg)																			
2-Methylnaphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(a)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(b)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(g,h,i)perylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(k)fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(a,h)anthracene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Phenanthrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes (applicable to Tables 3-5 and 3-6):

- Constituent not analyzed for this sample.
- < Constituent not detected at or above reporting limit shown.

TPH - Total Petroleum Hydrocarbons

PAH - Polycyclic Aromatic Hydrocarbons

TABLE 3-7
SVOC SOIL DATA - DRY WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Semivolatile Organic Compounds (mg/kg)	SW	SW	SW	SW
	SB-11	SB-11	SB-11	SB-11
	4-6'	4-6'	6-8'	6-8'
	2/5/2019	2/5/2019	2/5/2019	2/5/2019
	ERM	ICON	ERM	ICON
1,2,4,5-Tetrachlorobenzene	<0.485	<0.49	<0.45	<0.44
1,2,4-Trichlorobenzene	-	<0.49	-	<0.44
1,2-Dichlorobenzene	<0.485	<0.49	<0.45	<0.44
1,2-Diphenylhydrazine as azobenzene	-	<0.49	-	<0.44
1,3-Dichlorobenzene	<0.485	<0.49	<0.45	<0.44
1,3-Dinitrobenzene	<0.098	<0.37	<0.091	<0.34
1,4-Dichlorobenzene	<0.485	<0.49	<0.45	<0.44
1-Methylnaphthalene	-	<0.49	-	<0.44
2,2'-oxybis(1-Chloropropane)	-	<0.49	-	<0.44
2,3,4,6-Tetrachlorophenol	<0.485	<0.49	<0.45	<0.44
2,4,5-Trichlorophenol	<0.485	<0.49	<0.45	<0.44
2,4,6-Trichlorophenol	<0.485	<0.49	<0.45	<0.44
2,4-Dichlorophenol	<0.485	<0.49	<0.45	<0.44
2,4-Dimethylphenol	<0.485	<0.49	<0.45	<0.44
2,4-Dinitrophenol	<0.485	<0.99	<0.45	<0.9
2,4-Dinitrotoluene	<0.485	<0.49	<0.45	<0.44
2,6-Dichlorophenol	-	<0.49	-	<0.44
2,6-Dinitrotoluene	<0.485	<0.49	<0.45	<0.44
2-Butoxyethanol	-	<0.49	-	<0.44
2-Chloronaphthalene	<0.485	<0.49	<0.45	<0.44
2-Chlorophenol	<0.485	<0.49	<0.45	<0.44
2-Methylphenol	-	<0.49	-	<0.44
2-Nitroaniline	<2.43	<0.49	<2.26	<0.44
2-Nitrophenol	-	<0.49	-	<0.44
2-Picoline	-	<0.49	-	<0.44
3 & 4-Methylphenol	-	<0.49	-	<0.44
3,3'-Dichlorobenzidine	<0.97	<0.49	<0.91	<0.44
3-Nitroaniline	<2.43	<0.99	<2.26	<0.9
4,6-Dinitro-2-methylphenol	-	<0.99	-	<0.9
4-Bromophenyl phenyl ether	-	<0.49	-	<0.44
4-Chloro-3-methylphenol	-	<0.49	-	<0.44
4-Chloroaniline	<0.485	<0.49	<0.45	<0.44
4-Chlorophenyl phenyl ether	-	<0.49	-	<0.44
4-Nitroaniline	<2.43	<0.49	<2.26	<0.44
4-Nitrophenol	<2.43	<0.49	<2.26	<0.44
Acetophenone	-	<0.49	-	<0.44
Aniline	<0.049	<0.096	<0.045	<0.088
Azobenzene	-	<0.49	-	<0.44
Benzidine	-	<0.99	-	<0.9

TABLE 3-7
SVOC SOIL DATA - DRY WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Semivolatile Organic Compounds (mg/kg)	SW	SW	SW	SW
	SB-11	SB-11	SB-11	SB-11
	4-6'	4-6'	6-8'	6-8'
	2/5/2019	2/5/2019	2/5/2019	2/5/2019
	ERM	ICON	ERM	ICON
Benzoic acid	-	<0.99	-	<0.9
Benzyl alcohol	-	<0.49	-	<0.44
Biphenyl	<0.485	<0.49	<0.45	<0.44
Bis(2-chloroethoxy)methane	-	<0.49	-	<0.44
Bis(2-Chloroethyl)ether	<0.485	<0.49	<0.45	<0.44
Bis(2-Chloroisopropyl)ether	<0.485	<0.49	<0.45	<0.44
Bis(2-Ethylhexyl)phthalate	<0.485	<0.49	<0.45	<0.44
Butyl benzyl phthalate	<0.485	<0.49	<0.45	<0.44
Carbazole	-	<0.49	-	<0.44
Dibenzofuran	<0.485	<0.49	<0.45	<0.44
Diethyl phthalate	<0.485	<0.49	<0.45	<0.44
Dimethyl phthalate	<0.485	<0.49	<0.45	<0.44
Di-n-butyl phthalate	-	<0.49	-	<0.44
Di-n-octyl phthalate	<0.485	<0.49	<0.45	<0.44
Dinoseb	<0.098	<0.49	<0.091	<0.44
Hexachlorobenzene	<0.485	<0.49	<0.45	<0.44
Hexachlorobutadiene	<0.485	<0.49	<0.45	<0.44
Hexachlorocyclopentadiene	<0.485	<0.49	<0.45	<0.44
Hexachloroethane	<0.485	<0.49	<0.45	<0.44
Isophorone	<0.485	<0.49	<0.45	<0.44
Nitrobenzene	<0.485	<0.49	<0.45	<0.44
N-Nitrosodimethylamine	-	<0.49	-	<0.44
n-Nitrosodi-n-propylamine	<0.485	<0.49	<0.45	<0.44
n-Nitrosodiphenylamine	<0.485	<0.49	<0.45	<0.44
o-Toluidine	-	<1	-	<1
Pentachlorobenzene	-	<0.49	-	<0.44
Pentachlorophenol	<2.43	<0.987	<2.26	<0.899
Phenol	<0.485	<0.49	<0.45	<0.44
Pyridine	-	<0.49	-	<0.44

Notes:

- Constituent not analyzed for this sample.
- < Constituent not detected at or above reporting limit shown.

TABLE 3-8
DIOXIN / FURAN SOIL DATA - DRY WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

		BC-16R 0-2' 6/24/2019						BC-16R 2-4' 6/24/2019						SB-4R 0-2' 6/24/2019					
		ERM			ICON			ERM			ICON			ERM			ICON		
Dioxins/Furans	TEF	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ
2,3,7,8-TCDD	1	0.775	U	--	0.404	J	0.404	0.705	U	--	0.549	J	0.549	0.761	U	--	0.484	J	0.484
1,2,3,7,8-PeCDD	1	1.02	U	--	1.05	J	1.05	1.34	J	1.34	1.2	J	1.2	1.82	J	1.82	0.866	JK	--
1,2,3,4,7,8-HxCDD	0.1	1.7	J	0.17	0.283	U	--	1.38	J	0.138	0.431	U	--	0.827	U	--	0.141	U	--
1,2,3,6,7,8-HxCDD	0.1	5.08		0.508	3.37		0.337	3.79	J	0.379	6.14		0.614	1.72	J	0.172	1.16	J	0.116
1,2,3,7,8,9-HxCDD	0.1	3.56	J	0.356	3.2		0.32	3.03	J	0.303	4.09		0.409	1.66	J	0.166	1.37	J	0.137
1,2,3,4,6,7,8-HpCDD	0.01	253		2.53	136		1.36	160		1.6	343		3.43	22		0.22	16.1		0.161
1,2,3,4,6,7,8,9-OCDD	0.0003	3930	E	1.18	1980		0.594	2870		0.861	5860	E	1.76	511		0.153	481		0.144
2,3,7,8-TCDF (a)	0.1	3.59		0.359	1.95		0.195	2.08		0.208	2.12		0.212	5.74		0.574	4.47		0.447
1,2,3,7,8-PeCDF	0.03	2.7	JK	--	1.87	J	0.0561	1.58	JK	--	1.56	JK	--	4.95		0.149	2.9	J	0.087
2,3,4,7,8-PeCDF	0.3	2.01	J	0.603	1.92	J	0.576	1.9	J	0.57	2.16	J	0.648	3.82	J	1.15	2.86	J	0.858
1,2,3,4,7,8-HxCDF	0.1	3.01	J	0.301	2.1	J	0.21	2.03	J	0.203	2.68	J	0.268	5.19	K	--	3.13		0.313
1,2,3,6,7,8-HxCDF	0.1	1.8	JK	--	1.75	J	0.175	1.43	J	0.143	1.61	J	0.161	4.01	J	0.401	2.29	J	0.229
2,3,4,6,7,8-HxCDF	0.1	1.87	JK	--	1.2	JK	--	1.36	J	0.136	1.59	J	0.159	2.3	J	0.23	1.4	J	0.14
1,2,3,7,8,9-HxCDF	0.1	0.948	U	--	0.488	J	0.0488	0.745	U	--	0.762	U	--	0.925	U	--	0.469	U	--
1,2,3,4,6,7,8-HpCDF	0.01	17.4		0.174	10.3		0.103	10.4		0.104	12	K	--	11.1		0.111	5.43	K	--
1,2,3,4,7,8,9-HpCDF	0.01	1.43	J	0.0143	0.731	BJK	--	1.02	JK	--	4.56	U	--	1.25	JK	--	1.88	U	--
1,2,3,4,6,7,8,9-OCDF	0.0003	30.8		0.00924	16.4		0.00492	19.2		0.00576	38.9		0.0117	7.4	J	0.00222	3.36	JK	--
Total TCDD TEQ (b)		-	-	6.2	-	-	5.4	-	-	6.0	-	-	9.4	-	-	5.1	-	-	3.1

Notes

TEF - Toxic Equivalence Factor is an estimate of compound-specific toxicity/potency relative to the toxicity/potency of an index chemical (2,3,7,8-TCDF).

Result - concentration in units of pg/g-dry weight

TEQ - Toxic Equivalence is the product of the concentration of an individual dioxin-like compound (DLC) in an environmental mixture and its corresponding TCDD TEF for that compound.

Qual - Laboratory qualifiers:

U - Analyte was analyzed for, but not detected above the specified detection limit.

J - Estimated value.

E - Estimated value, the reported concentration is above the calibration range of the instrument.

K - Estimated Maximum Possible Concentration (EMPC). The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.

B - Indicates the associated analyte was found in the method blank at >1/10th the reported value.

(a) ERM samples were analyzed for 2,3,7,8-TCDF twice, initially with the other dioxins/furans, and then again on another instrument. The original result was used with the exception of SB-4R (0-2'), which used the confirmation result because the original result was qualified with a "K".

(b) Total TCDD TEQ is the sum of the individual DLC TEQs. Values that were nondetect (U-qualified) or considered EMPCs (K-qualified) were not included in the Total TEQ calculation.

The following document was referenced for guidance on calculating TEQs: 1999. USEPA Region III. Dioxin/Furan Data Validation Guidance, Draft.

TABLE 3-8
DIOXIN / FURAN SOIL DATA - DRY WEIGHT

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

		BC-8R 0-2' 6/24/2019			BC-8R 2-4' 6/24/2019			BC-8R 4-6' 6/24/2019					
		ERM			ERM			ERM			ICON		
Dioxins/Furans	TEF	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ	Result	Qual	TEQ
2,3,7,8-TCDD	1	0.884	J	0.884	1.17		1.17	4.28	J	4.28	2.07	K	--
1,2,3,7,8-PeCDD	1	4.1	J	4.1	4.22	JK	--	18.4	J	18.4	6.9		6.9
1,2,3,4,7,8-HxCDD	0.1	2.51	J	0.251	1.78	JK	--	10.4	JK	--	2.37	JK	--
1,2,3,6,7,8-HxCDD	0.1	5.55		0.555	2.9	J	0.29	17.7	J	1.77	8.71		0.871
1,2,3,7,8,9-HxCDD	0.1	4.93	J	0.493	2.84	JK	--	16.8	J	1.68	8.21		0.821
1,2,3,4,6,7,8-HpCDD	0.01	52.9		0.529	26.5		0.265	60.6		0.606	64		0.64
1,2,3,4,6,7,8,9-OCDD	0.0003	867		0.26	393		0.118	321		0.0963	440		0.132
2,3,7,8-TCDF (a)	0.1	12.2		1.22	13.1		1.31	34.2		3.42	22.9		2.29
1,2,3,7,8-PeCDF	0.03	10.3		0.309	10.5		0.315	48.4	J	1.45	22		0.66
2,3,4,7,8-PeCDF	0.3	8.56		2.57	10.6		3.18	29.5	J	8.85	18.4	K	--
1,2,3,4,7,8-HxCDF	0.1	14		1.4	9.48		0.948	62.7		6.27	29.2		2.92
1,2,3,6,7,8-HxCDF	0.1	8.05		0.805	8.59		0.859	35.4	J	3.54	19.3		1.93
2,3,4,6,7,8-HxCDF	0.1	4.9	J	0.49	5.98		0.598	17.6	J	1.76	11.5		1.15
1,2,3,7,8,9-HxCDF	0.1	0.982	JK	--	2.32	U	--	7.63	J	0.763	3.17	J	0.317
1,2,3,4,6,7,8-HpCDF	0.01	28.4		0.284	21.5		0.215	103		1.03	66.8		0.668
1,2,3,4,7,8,9-HpCDF	0.01	2.01	J	0.0201	2.15	U	--	11.1	J	0.111	6.72	K	--
1,2,3,4,6,7,8,9-OCDF	0.0003	20.4		0.00612	10.4		0.00312	36.5	JK	--	140		0.042
Total TCDD TEQ (b)		-	-	14.2	-	-	9.3	-	-	54.0	-	-	19.3

Notes

TEF - Toxic Equivalence Factor is an estimate of compound-specific toxicity/potency relative to the toxicity/potency of an index chemical (2,3,7,8-TCDF).

Result - concentration in units of pg/g-dry weight

TEQ - Toxic Equivalence is the product of the concentration of an individual dioxin-like compound (DLC) in an environmental mixture and its corresponding TCDD TEF for that compound.

Qual - Laboratory qualifiers:

U - Analyte was analyzed for, but not detected above the specified detection limit.

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E - Estimated value, the reported concentration is above the calibration range of the instrument.

K - Estimated Maximum Possible Concentration (EMPC). The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.

B - Indicates the associated analyte was found in the method blank at >1/10th the reported value.

(a) ERM samples were analyzed for 2,3,7,8-TCDF twice, initially with the other dioxins/furans, and then again on another instrument. The original result was used.

(b) Total TCDD TEQ is the sum of the individual DLC TEQs. Values that were nondetect (U-qualified) or considered EMPCs (K-qualified) were not included in the Total TEQ calculation.

The following document was referenced for guidance on calculating TEQs: 1999. USEPA Region III. Dioxin/Furan Data Validation Guidance, Draft.

TABLE 3-9 GROUNDWATER DATA A Zone - Hero Property	NW		NW		NW		NW		NW		NE		NE		NE	
	BC-1		BC-2A		BC-3A		BC-26		MW-1A		BC-5A		BC-6A		MW-2A	
	8/28/2018		8/27/2018		8/27/2018		4/2/2019		1/21/2020		8/27/2018		8/28/2018		7/16/2020	
	4-14'		8-18'		11-16'		10-20'		10-20'		12-17'		7-17'		13-18'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals																
Arsenic	0.055	0.0631	<0.05	<0.010	<0.05	0.0295	<0.10	0.0278	0.015	0.0130	0.032	0.036	0.028	0.0342	0.021	0.02
Barium	0.42	0.386	55	62.7	15	14.3	13.8	12	1.42	1.44	4.84	4.75	2.15	2.09	2.89	2.54
Cadmium	<0.005	<0.005	<0.05	<0.005	<0.013	<0.005	<0.025	<0.005	<0.0050	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.0050
Calcium	35.3	26.9	2630	2610	1460	1240	859	657	123	114	590	503	328	282	357	315
Chromium	<0.005	<0.010	<0.2	<0.010	<0.05	<0.010	<0.10	<0.010	<0.020	<0.0100	<0.02	<0.010	<0.01	0.0104	<0.010	<0.010
Iron	3.3	3.18	69	77.4	133	127	39.7	32.8	5.05	4.85	33.8	32.5	22.5	21.9	23.6	21.5
Lead	<0.005	<0.010	<0.05	<0.010	<0.015	<0.010	<0.025	<0.010	<0.015	<0.0100	<0.015	<0.010	<0.01	<0.010	<0.010	<0.010
Magnesium	34.8	31.9	863	793	585	543	308	248	48.3	47.7	286	261	133	122	201	179
Manganese	0.84	0.77	9.66	8.9	15.4	14.9	7.35	6.7	2.02	1.95	4.5	4.45	6.27	5.97	2.18	2.01
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.0002	<0.00020	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.00020
Potassium	14.7	14.8	144	252	58.6	71.1	45	73.8	17	20.3	35.9	40.8	17.7	19.8	28.8	34.6
Selenium	<0.005	-	<0.05	-	<0.05	-	<0.050	-	<0.020	-	<0.02	-	<0.01	-	<0.010	-
Silver	<0.005	-	<0.05	-	<0.018	-	<0.025	-	<0.018	-	<0.018	-	<0.01	-	<0.010	-
Sodium	1060	894	37000	43200	7400	6330	13800	12100	4310	3280	3710	3150	1530	1330	2330	2030
Strontium	0.48	0.398	70.1	72.1	16.9	14.4	16.9	14.7	2.09	2.07	5.31	4.63	2.26	1.91	3.11	2.69
Zinc	<0.1	<0.010	<1.1	0.267	<1	0.0343	<1.10	<0.010	<0.40	<0.0100	<0.4	0.0196	<0.2	0.0255	<0.20	<0.010
Dissolved Metals																
Arsenic	0.046	-	<0.05	-	<0.05	-	<0.025	-	0.012	-	0.03	-	0.024	-	0.021	-
Barium	0.36	-	48.1	-	12.6	-	12.8	-	1.21	-	4.26	-	1.71	-	2.73	-
Cadmium	<0.005	-	<0.05	-	<0.013	-	<0.025	-	<0.0050	-	<0.005	-	<0.005	-	<0.0050	-
Calcium	31.3	-	2390	-	1270	-	-	-	-	-	518	-	292	-	-	-
Chromium	<0.005	-	<0.2	-	<0.05	-	<0.10	-	<0.020	-	<0.02	-	<0.01	-	<0.010	-
Iron	2.46	-	65	-	118	-	34.4	-	3.9	-	30.5	-	18	-	22.2	-
Lead	<0.005	-	<0.05	-	<0.015	-	<0.025	-	<0.015	-	<0.015	-	<0.01	-	<0.010	-
Manganese	0.76	-	8.92	-	13.5	-	6.71	-	1.66	-	4.07	-	5.53	-	2.15	-
Mercury	<0.0002	-	<0.0002	-	<0.0002	-	<0.00020	-	<0.00020	-	<0.0002	-	<0.0002	-	<0.00020	-
Selenium	<0.005	-	<0.05	-	<0.05	-	<0.050	-	<0.020	-	<0.02	-	<0.01	-	<0.010	-
Silver	<0.005	-	<0.05	-	<0.018	-	<0.025	-	<0.018	-	<0.018	-	<0.01	-	<0.010	-
Strontium	0.42	-	63	-	14.8	-	15.5	-	1.75	-	4.85	-	2.03	-	2.93	-
Zinc	<0.1	-	1.1	-	<1	-	2.56	-	<0.40	-	<0.4	-	<0.2	-	<0.20	-
BTEX																
Benzene	<0.005	<0.005	0.00844	<0.005	<0.005	<0.005	0.15	0.121	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.00500	<0.00500
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00500	<0.005	<0.00500	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.00500	<0.00500
Toluene	<0.005	<0.010	0.00872	<0.010	<0.005	<0.010	<0.00500	<0.01	<0.00500	<0.0100	0.012	<0.001	<0.005	<0.010	<0.00500	<0.0100
m,p-Xylene	-	-	-	-	-	-	-	-	-	<0.0100	-	-	-	-	-	<0.0100
o-Xylene	-	-	-	-	-	-	-	-	-	<0.00500	-	-	-	-	-	<0.00500
Xylene (Total)	<0.015	<0.050	<0.015	<0.050	<0.015	<0.050	<0.015	<0.05	<0.015	<0.0500	<0.015	<0.050	<0.015	<0.050	<0.015	<0.0500
TPH Fractions																
Aliphatic >C6-C8	<0.03	-	0.05	-	<0.03	-	0.058	-	<0.030	-	<0.03	-	<0.03	-	<0.030	-
Aliphatic >C8-C10	<0.02	-	0.076	-	<0.02	-	0.021	-	<0.020	-	0.023	-	<0.02	-	<0.020	-
Aliphatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.100	-	<0.1	-	<0.1	-	<0.100	-
Aliphatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.100	-	<0.1	-	<0.1	-	<0.100	-
Aliphatic >C16-C35	<0.15	-	<0.15	-	<0.15	-	<0.150	-	<0.150	-	<0.15	-	<0.15	-	<0.150	-
Aromatic >C8-C10	<0.03	-	<0.03	-	<0.03	-	<0.030	-	<0.030	-	<0.03	-	<0.03	-	<0.030	-
Aromatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.100	-	<0.1	-	<0.1	-	<0.100	-
Aromatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.100	-	<0.1	-	<0.1	-	<0.100	-
Aromatic >C16-C21	<0.3	-	<0.3	-	<0.3	-	<0.300	-	<0.100	-	<0.3	-	<0.3	-	<0.100	-
Aromatic >C21-C35	<0.3	-	<0.3	-	<0.3	-	<0.300	-	<0.100	-	<0.3	-	<0.3	-	<0.100	-
TPH Mixtures																
TPH (GRO)	-	<0.150	-	<0.150	-	0.288	-	0.453	-	<0.150	-	<0.150	-	<0.150	-	<0.15
TPH (DRO)	-	<0.131	-	1.94	-	0.63	-	0.619	-	<0.109	-	0.615	-	0.517	-	<0.134
TPH (ORO)	-	<0.121	-	0.255	-	0.152	-	0.133	-	<0.101	-	0.23	-	0.205	-	<0.124
Water Quality																
Chloride	1060	1090	65200	74200	13600	15300	24300	22900	7890	4990	5890	7330	2300	2750	5950	4060
Total Dissolved Solids	2590	2,540	7020	119,000	20100	29,000	39500	36,800	9,090	8,350	9,380	12,300	4,180	5,340	7,990	6,020

TABLE 3-9 GROUNDWATER DATA A Zone - Hero Property	SW		SW		SW		SW		SW		SW		SW		SW	
	BC-9		BC-11		BC-12		BC-21A		BC-22A		BC-23		BC-24A		MW-4A	
	4/9/2019		4/2/2019		4/2/2019		4/3/2019		4/9/2019		4/9/2019		4/3/2019		7/15/2020	
	8-18'		5-15'		8-18'		7-12'		8-13'		10-15'		10-20'		8-18'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals																
Arsenic	<0.020	0.0145	0.11	0.1	0.011	0.0245	<0.020	<0.01	<0.025	0.0116	<0.025	<0.010	0.055	0.039	0.011	0.00936
Barium	4.04	3.73	5.55	5.33	0.62	0.54	4.04	3.57	14.4	14.8	20.1	17.9	8.13	7.11	3.65	2.94
Cadmium	<0.0050	<0.005	<0.0050	0.0052	<0.0050	<0.005	<0.0050	<0.005	<0.025	<0.005	<0.025	<0.005	<0.013	<0.005	<0.0050	<0.0050
Calcium	408	333	606	537	175	152	745	599	1040	932	1670	1280	622	478	593	447
Chromium	<0.020	<0.01	<0.020	<0.010	<0.0050	<0.010	<0.020	<0.010	<0.10	<0.010	<0.10	<0.010	<0.050	<0.010	<0.010	<0.010
Iron	35.3	33.2	87.2	80.5	11.8	9.97	59	51.4	48.1	49	108	97.2	54	45.4	48.4	40.6
Lead	<0.015	<0.010	<0.015	<0.010	<0.0050	<0.010	<0.015	<0.010	<0.025	<0.010	<0.025	<0.010	<0.015	<0.010	<0.010	<0.010
Magnesium	195	178	386	342	68.7	57.3	440	374	560	572	854	733	464	401	378	282
Manganese	3.14	3	6.17	6.21	1.75	1.63	5.19	4.76	4.22	4.58	14.7	13.8	2.91	2.58	6.94	5.93
Mercury	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.00020
Potassium	26.5	35.7	23.7	34.9	8.34	9.14	35.4	44.8	65.8	107	82.3	132	73.5	97.2	35.2	37.6
Selenium	<0.020	-	<0.020	-	<0.0050	-	<0.020	-	<0.050	-	<0.050	-	<0.050	-	<0.010	-
Silver	<0.018	-	<0.018	-	<0.0050	-	<0.018	-	<0.025	-	<0.025	-	<0.018	-	<0.010	-
Sodium	1090	3090	2790	2780	354	312	2960	2580	16900	15600	600	14300	6900	6270	2430	2100
Strontium	6.66	6.22	5.61	5.64	0.91	0.838	5.19	5	22.1	23.4	30	27.4	10.6	9.94	5.05	3.94
Zinc	<0.40	<0.010	<0.40	0.0103	<0.10	<0.010	<0.40	0.0125	<1.10	0.0131	<1.10	0.0167	<1.00	<0.010	<0.20	<0.010
Dissolved Metals																
Arsenic	<0.020	-	0.1	-	0.0091	-	<0.020	-	<0.025	-	<0.025	-	<0.050	-	<0.010	-
Barium	3.59	-	5.08	-	0.53	-	3.57	-	13.8	-	17.8	-	3.71	-	3.39	-
Cadmium	<0.0050	-	<0.0050	-	<0.0050	-	<0.0050	-	<0.025	-	<0.025	-	<0.013	-	<0.0050	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	<0.020	-	<0.020	-	<0.0050	-	<0.020	-	<0.10	-	<0.10	-	<0.050	-	<0.010	-
Iron	31.1	-	78.5	-	9.98	-	54	-	48.5	-	97.7	-	26.8	-	44.2	-
Lead	<0.015	-	<0.015	-	<0.0050	-	<0.015	-	<0.025	-	<0.025	-	<0.015	-	<0.010	-
Manganese	2.89	-	5.64	-	1.52	-	4.63	-	4.37	-	13.2	-	1.37	-	6.60	-
Mercury	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-
Selenium	<0.020	-	<0.020	-	<0.0050	-	<0.020	-	<0.050	-	<0.050	-	<0.050	-	<0.010	-
Silver	<0.018	-	<0.018	-	<0.0050	-	<0.018	-	<0.025	-	<0.025	-	<0.018	-	<0.010	-
Strontium	5.99	-	5.19	-	0.77	-	4.76	-	21.5	-	26.4	-	5.34	-	4.66	-
Zinc	<0.40	-	<0.40	-	<0.10	-	<0.40	-	<2.00	-	<2.00	-	<1.00	-	<0.20	-
BTEX																
Benzene	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	0.0092
Ethylbenzene	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.005	<0.00500	<0.025	<0.00500	<0.025	<0.00500	<0.025	<0.00500	<0.025	<0.00500	<0.00500
Toluene	<0.00500	<0.010	<0.00500	<0.010	<0.00500	<0.010	0.0077	<0.05	<0.00500	<0.050	<0.00500	<0.050	<0.00500	<0.05	<0.00500	0.024
m,p-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0166
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0069
Xylene (Total)	<0.015	<0.050	<0.015	<0.050	<0.015	<0.050	<0.015	<0.25	<0.015	<0.250	<0.015	<0.250	<0.015	<0.25	<0.015	<0.0500
TPH Fractions																
Aliphatic >C6-C8	<0.030	-	0.072	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-
Aliphatic >C8-C10	<0.020	-	0.058	-	<0.020	-	<0.020	-	0.063	-	<0.020	-	<0.020	-	<0.020	-
Aliphatic >C10-C12	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aliphatic >C12-C16	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aliphatic >C16-C35	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-
Aromatic >C8-C10	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-
Aromatic >C10-C12	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aromatic >C12-C16	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aromatic >C16-C21	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.100	-
Aromatic >C21-C35	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.100	-
TPH Mixtures																
TPH (GRO)	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	0.235
TPH (DRO)	-	0.179	-	0.866	-	<0.135	-	<0.137	-	0.529	-	<0.143	-	<0.133	-	<0.135
TPH (ORO)	-	<0.124	-	0.135	-	<0.125	-	<0.127	-	0.148	-	<0.132	-	<0.123	-	<0.124
Water Quality																
Chloride	6190	5750	7100	6560	635	568	7160	6430	32100	31400	30600	30600	13900	12300	6210	5510
Total Dissolved Solids	9670	10,100	11700	12,000	1580	1,520	13200	11,800	50300	52,700	47300	50,700	25100	21,200	9,880	9,620

Notes for Tables 3-9 to 3-14 are provided after Table 3-14.

TABLE 3-9 GROUNDWATER DATA A Zone - Hero Property	SW		SW		SW		SE		SE		SE		SE		SE	
	MW-5A		MW-6A		MW-7A		BC-14		BC-15		BC-16		BC-28A		MW-3A	
	1/22/2020		1/21/2020		7/16/2020		4/3/2019		4/8/2019		4/8/2019		4/8/2019		7/15/2020	
	10-20'		14-24'		6-16'		9-19'		8-18'		8-18'		10-15'		10-20'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals																
Arsenic	0.036	0.0293	0.046	0.0345	<0.010	0.00908	<0.020	0.0259	<0.025	<0.010	<0.050	<0.100	<0.050	<0.010	0.029	0.022
Barium	7.34	6.52	1.74	1.58	0.99	0.852	1.63	1.45	30.9	29	74.9	65.8	12	10.9	22.0	17.80
Cadmium	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.0050	<0.0050	<0.005	<0.025	<0.005	<0.050	<0.050	<0.013	<0.005	<0.0050	<0.005
Calcium	508	443	244	214	165	136	158	123	2270	1850	3220	2400	1250	1060	1990	1490
Chromium	<0.020	<0.0100	<0.020	<0.0100	<0.010	<0.010	<0.020	<0.010	<0.10	0.0243	<0.20	<0.100	<0.050	<0.010	<0.010	<0.01
Iron	38.4	34.2	15.1	12.1	9.47	9.4	13.3	11.5	145	137	170	152	73.6	70.6	126	107
Lead	<0.015	<0.0100	<0.015	<0.0100	<0.010	<0.010	<0.015	<0.010	<0.025	<0.010	<0.050	<0.100	<0.015	<0.010	<0.010	<0.01
Magnesium	509	483	184	163	122	100	81.4	1.6	1000	954	1280	1110	818	758	1480	1040
Manganese	4	3.64	1.39	1.38	2.76	2.56	1.75	24.7	25	24.2	23	20.5	12.5	12	17.9	15.5
Mercury	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.00020
Potassium	66.7	81.4	15.7	17.1	16.0	16.2	19.1	2630	97.9	134	160	196	73.4	102	87.5	105
Selenium	<0.020	-	<0.020	-	<0.010	-	<0.020	-	<0.050	-	<0.050	-	<0.050	-	<0.010	-
Silver	<0.018	-	<0.018	-	<0.010	-	<0.018	-	<0.025	-	<0.050	-	<0.018	-	<0.010	-
Sodium	8980	7450	1620	1430	702	573	2880	2630	20600	19300	36600	24300	7530	6720	9240	6340
Strontium	11.5	10.3	2.23	2.12	1.36	1.1	2.87	2.73	37.3	37.1	74.9	67.6	12.8	11.4	26.8	22
Zinc	<0.40	0.01	<0.40	<0.0100	<0.20	<0.010	<0.40	<0.010	<2.00	0.0245	<1.10	<0.100	<1.00	0.0138	<0.20	0.0206
Dissolved Metals																
Arsenic	0.032	-	0.043	-	<0.010	-	<0.020	-	<0.025	-	<0.050	-	<0.050	-	0.026	-
Barium	6.56	-	1.58	-	0.99	-	1.33	-	28.3	-	63.3	-	9.82	-	23.9	-
Cadmium	<0.0050	-	<0.0050	-	<0.0050	-	<0.0050	-	<0.025	-	<0.050	-	<0.013	-	<0.0050	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	<0.020	-	<0.020	-	<0.010	-	<0.020	-	<0.10	-	<0.20	-	<0.050	-	<0.010	-
Iron	34.9	-	12.9	-	9.97	-	11	-	130	-	144	-	61.6	-	115	-
Lead	<0.015	-	<0.015	-	<0.010	-	<0.015	-	<0.025	-	<0.050	-	<0.015	-	<0.010	-
Manganese	3.75	-	1.33	-	2.86	-	1.43	-	22.5	-	20.3	-	10.8	-	16.6	-
Mercury	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-
Selenium	<0.020	-	<0.020	-	<0.010	-	<0.020	-	<0.050	-	<0.050	-	<0.050	-	<0.010	-
Silver	<0.018	-	<0.018	-	<0.010	-	<0.018	-	<0.025	-	<0.050	-	<0.018	-	<0.010	-
Strontium	10.3	-	2.11	-	1.34	-	2.44	-	34.9	-	63.3	-	10.7	-	29.6	-
Zinc	<0.40	-	<0.40	-	<0.20	-	<0.40	-	<1.10	-	<1.10	-	<1.00	-	<0.20	-
BTEX																
Benzene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.005	<0.00500	<0.005	0.00501	<0.005	<0.00500	<0.005	<0.00500	<0.00500
Ethylbenzene	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.005	<0.00500	<0.025	<0.00500	<0.025	<0.00500	<0.025	<0.00500	<0.00500
Toluene	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.0100	<0.00500	<0.010	<0.00500	<0.050	0.00934	<0.050	<0.00500	<0.050	<0.00500	<0.00500
m,p-Xylene	-	<0.0100	-	<0.0100	-	<0.0100	-	-	-	-	-	-	-	-	-	<0.0100
o-Xylene	-	<0.00500	-	<0.00500	-	<0.00500	-	-	-	-	-	-	-	-	-	<0.025
Xylene (Total)	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.0500	<0.015	<0.050	<0.015	<0.250	<0.015	<0.250	<0.015	<0.250	<0.015	<0.0500
TPH Fractions																
Aliphatic >C6-C8	<0.030	-	<0.030	-	<0.030	-	<0.030	-	0.044	-	0.106	-	<0.030	-	<0.030	NA
Aliphatic >C8-C10	<0.020	-	<0.020	-	<0.020	-	0.037	-	<0.020	-	0.117	-	<0.020	-	<0.020	NA
Aliphatic >C10-C12	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aliphatic >C12-C16	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aliphatic >C16-C35	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-
Aromatic >C8-C10	<0.030	-	<0.030	-	<0.030	-	<0.030	-	<0.030	-	0.041	-	<0.030	-	<0.030	-
Aromatic >C10-C12	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aromatic >C12-C16	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-	<0.100	-
Aromatic >C16-C21	<0.100	-	<0.100	-	<0.100	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.100	-
Aromatic >C21-C35	<0.100	-	<0.100	-	<0.100	-	<0.300	-	<0.300	-	<0.300	-	<0.300	-	<0.100	-
TPH Mixtures																
TPH (GRO)	-	<0.150	-	<0.150	-	<0.15	-	<0.150	-	<0.150	-	<0.750	-	<0.150	-	0.478
TPH (DRO)	-	<0.107	-	<0.108	-	<0.135	-	<0.132	-	1.04	-	0.689	-	<0.139	-	<0.132
TPH (ORO)	-	<0.0989	-	<0.0998	-	<0.125	-	0.198	-	<0.125	-	0.153	-	<0.128	-	<0.122
Water Quality																
Chloride	17800	14800	3660	2750	1400	4990	4560	4250	40900	39100	67900	60600	16200	17200	20400	18600
Total Dissolved Solids	22,700	24,500	5,680	4,950	2,130	8350	7580	7,200	62100	65,100	116000	110,000	27300	27,800	30,400	35,500

TABLE 3-10 GROUNDWATER DATA B Zone - Hero Property	NW		NW		NW		NW		NW		NE		SW		SW		SW		SW		SE	
	BC-2C		BC-3B		MW-1B		MW-8B		MW-9B		MW-2B		BC-10		BC-21B		BC-22B		BC-24B		BC-28B	
	8/27/2018		8/27/2018		1/21/2020		1/21/2020		7/15/2020		7/16/2020		4/9/2019		4/3/2019		4/9/2019		4/3/2019		4/8/2019	
	42-52'		20-30'		38-48'		41-51'		29.5-39.5'		34-44'		13-23'		23-28'		23-28'		26-31		23-33'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals																						
Arsenic	<0.013	<0.010	0.013	0.0156	<0.010	0.00715	<0.010	0.00396	<0.010	0.00564	0.023	0.0216	<0.10	<0.010	<0.010	0.012	<0.013	<0.010	<0.013	<0.010	<0.010	<0.010
Barium	1.79	1.68	0.79	0.796	16.8	16.6	1.22	1.40	0.16	0.139	0.19	0.17	12.3	10.4	1.63	1.44	2.79	2.54	2.82	2.59	0.21	0.217
Cadmium	<0.013	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.013	<0.005	<0.013	<0.005	<0.005	<0.005
Calcium	136	103	92	85	1100	964	90.2	92.5	17.1	13.4	21.2	19.6	950	726	159	119	252	180	282	217	24.6	22.5
Chromium	<0.05	<0.010	<0.01	<0.010	<0.02	<0.01	<0.02	<0.01	<0.010	<0.010	<0.010	<0.010	<0.10	<0.010	<0.02	<0.010	<0.05	<0.010	<0.05	<0.010	<0.010	<0.010
Iron	19.1	17.4	9.53	9.11	55.2	50.5	12.1	13.7	1.95	2	3.27	2.06	85	76.8	13.2	11.7	22.7	20.7	20.1	18	3.35	3.62
Lead	<0.015	<0.010	<0.01	<0.010	<0.015	<0.01	<0.015	<0.01	<0.010	<0.010	<0.010	<0.010	<0.025	<0.010	<0.015	<0.010	<0.015	<0.010	<0.015	<0.010	<0.010	<0.010
Magnesium	374	345	140	142	628	630	252	283	35.8	28.8	36.8	35.8	730	630	350	306	551	471	612	546	40.2	41.8
Manganese	<0.25	0.17	0.99	1.04	3.65	3.45	0.14	0.148	0.081	0.0624	0.098	0.0735	8.77	7.92	0.47	0.377	0.75	0.684	0.98	0.893	0.16	0.165
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	81.4	88.2	41.9	44.2	121	135	60.1	81.4	21.7	20.4	21.5	23.9	78.1	108	71.5	86.8	88.5	114	86.5	119	23	28.2
Selenium	<0.05	-	<0.01	-	<0.02	-	<0.02	-	<0.010	-	<0.010	-	<0.05	-	<0.02	-	<0.05	-	<0.05	-	<0.010	-
Silver	<0.018	-	<0.01	-	<0.018	-	<0.018	-	<0.010	-	<0.010	-	<0.025	-	<0.018	-	<0.018	-	<0.018	-	<0.010	-
Sodium	4810	4070	1880	1680	9620	15400	3870	3780	940	733	916	846	16600	8820	3670	3210	4930	4270	4720	4350	1030	1050
Strontium	4.12	3.81	1.63	1.54	13.2	24.4	2.62	3.01	0.39	0.316	0.44	0.409	18	15.3	3.38	3.26	6.05	5.42	6.03	5.73	0.42	0.426
Zinc	<1	0.0106	<0.2	0.0121	<0.40	0.0173	<0.40	0.0189	<0.20	<0.010	<0.20	<0.010	<1.10	0.0135	<0.40	<0.010	<1.00	<0.010	<1.00	<0.010	<0.20	<0.01
Dissolved Metals																						
Arsenic	<0.013	-	0.011	-	<0.010	-	<0.010	-	<0.010	-	0.022	-	<0.025	-	<0.010	-	<0.013	-	<0.013	-	<0.010	-
Barium	1.59	-	0.67	-	12.5	-	1.18	-	0.13	-	0.18	-	10.7	-	1.42	-	2.38	-	1.21	-	0.19	-
Cadmium	<0.013	-	<0.005	-	<0.0050	-	<0.0050	-	<0.0050	-	<0.0050	-	<0.025	-	<0.0050	-	<0.013	-	<0.013	-	<0.0050	-
Calcium	127	-	80.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	<0.05	-	<0.01	-	<0.02	-	<0.02	-	<0.010	-	<0.010	-	<0.10	-	<0.02	-	<0.05	-	<0.05	-	<0.010	-
Iron	16.2	-	7.51	-	42.5	-	11.6	-	1.28	-	2.07	-	73	-	11.6	-	18.3	-	8.7	-	2.63	-
Lead	<0.015	-	<0.01	-	<0.015	-	<0.015	-	<0.010	-	<0.010	-	<0.025	-	<0.015	-	<0.015	-	<0.015	-	<0.010	-
Manganese	<0.25	-	0.78	-	2.82	-	0.14	-	0.063	-	0.076	-	7.97	-	0.34	-	0.7	-	0.58	-	0.15	-
Mercury	<0.0002	-	<0.0002	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-	<0.00020	-
Selenium	<0.05	-	<0.01	-	<0.02	-	<0.02	-	<0.010	-	<0.010	-	<0.05	-	<0.02	-	<0.05	-	<0.05	-	<0.010	-
Silver	<0.018	-	<0.01	-	<0.018	-	<0.018	-	<0.010	-	<0.010	-	<0.025	-	<0.018	-	<0.018	-	<0.018	-	<0.010	-
Strontium	3.8	-	1.4	-	17.9	-	2.55	-	0.33	-	0.42	-	16.1	-	3.1	-	5.05	-	2.69	-	0.4	-
Zinc	<1	-	<0.2	-	<0.40	-	<0.40	-	<0.20	-	<0.20	-	<1.10	-	<0.40	-	<1.00	-	<1.00	-	<0.20	-
BTEX																						
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	0.0091	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.025	<0.005	<0.025	<0.005	<0.025	<0.005	<0.005
Toluene	<0.005	<0.010	<0.005	<0.010	<0.005	<0.01	<0.005	<0.01	<0.005	0.0157	<0.005	<0.01	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.05	<0.005	<0.010
m,p-Xylene	-	-	-	-	-	<0.01	-	<0.01	-	<0.01	-	<0.01	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	<0.005	-	<0.005	-	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-
Xylene (Total)	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.015	<0.05	<0.015	<0.250	<0.015	<0.25	<0.015	<0.250	<0.015	<0.25	<0.015	<0.05
TPH Fractions																						
Aliphatic >C6-C8	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-
Aliphatic >C8-C10	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-	<0.02	-
Aliphatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aliphatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aliphatic >C16-C35	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-
Aromatic >C8-C10	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-
Aromatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aromatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aromatic >C16-C21	<0.3	-	<0.3	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-
Aromatic >C21-C35	<0.3	-	<0.3	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-
TPH Mixtures																						
TPH (GRO)	-	<0.15	-	<0.15	-	0.170	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15
TPH (DRO)	-	0.33	-	<0.136	-	<0.105	-	<0.107	-	<0.131	-	<0.137	-	0.859	-	<0.111	-	<0.137	-	<0.133	-	<0.142
TPH (ORO)	-	<0.127	-	<0.125	-	<0.0967	-	<0.0985	-	<0.121	-	<0.126	-	0.179	-	<0.103	-	<0.126	-	<0.122	-	<0.131
Water Quality																						
Chloride	6920	9340	2580	3210	35900	30200	8460	6940	1050	954	1170	1110	19400	18800	7130	6280	9260	8490	10300	9230	1430	1310
Total Dissolved Solids	12000	13,500	5450	5,450	51,700	47,900	12,100	11,900	2,430	2,020	2,350	2,420	29800	32,200	12000	10,200	15900	13,600	16500	15,200	2910	2,800

TABLE 3-11 GROUNDWATER DATA C Zone - Hero Property	NW	
	BC-2D	
	8/27/2018	
	76-86'	
Parameter	ERM	ICON
Metals		
Arsenic	<0.01	0.0234
Barium	1.49	1.44
Cadmium	<0.005	<0.005
Calcium	235	195
Chromium	<0.02	0.0149
Iron	11	11.4
Lead	<0.015	<0.010
Magnesium	280	262
Manganese	0.44	0.449
Mercury	<0.0002	<0.0002
Potassium	83.5	94.2
Selenium	<0.02	-
Silver	<0.018	-
Sodium	3330	2760
Strontium	2.55	2.4
Zinc	<0.4	0.0169
Dissolved Metals		
Arsenic	<0.01	-
Barium	1.38	-
Cadmium	<0.005	-
Calcium	220	-
Chromium	<0.02	-
Iron	7.61	-
Lead	<0.015	-
Manganese	0.39	-
Mercury	<0.0002	-
Selenium	<0.02	-
Silver	<0.018	-
Strontium	2.42	-
Zinc	<0.4	-
BTEX		
Benzene	<0.005	<0.005
Ethylbenzene	<0.005	<0.005
Toluene	<0.005	<0.010
m,p-Xylene	-	-
o-Xylene	-	-
Xylene (Total)	<0.015	<0.05
TPH Fractions		
Aliphatic >C6-C8	<0.03	-
Aliphatic >C8-C10	<0.02	-
Aliphatic >C10-C12	<0.1	-
Aliphatic >C12-C16	<0.1	-
Aliphatic >C16-C35	<0.15	-
Aromatic >C8-C10	<0.03	-
Aromatic >C10-C12	<0.1	-
Aromatic >C12-C16	<0.1	-
Aromatic >C16-C21	<0.3	-
Aromatic >C21-C35	<0.3	-
TPH Mixtures		
TPH (GRO)	-	<0.15
TPH (DRO)	-	0.25
TPH (ORO)	-	0.13
Water Quality		
Chloride	5360	7730
Total Dissolved Solids	8380	11000

TABLE 3-12 GROUNDWATER DATA A Zone - Outside Hero Property	ICON BKG		Drainage		Drainage		Drainage		BC-8 Area		BC-8 Area		BC-8 Area	
	BC-17A		BC-4A		BC-29A		BC-27A		BC-7A		BC-8A		BC-13	
	2/15/2019		8/28/2018		2/14/2019		4/2/2019		8/29/2018		8/29/2018		4/3/2019	
	5-10'		8-18'		8-13'		10-20'		12-17'		12-17'		12-17'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals														
Arsenic	0.023	0.021	0.011	<0.010	<0.005	<0.010	<0.10	<0.010	<0.05	0.0317	<0.05	0.0369	<0.10	<0.1
Barium	0.49	0.565	0.33	0.323	0.51	0.544	12.7	10.9	72.4	66.5	59.9	55	46.5	38.3
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.05	<0.005	<0.05	<0.005	<0.025	<0.05
Calcium	427	390	55.7	48.1	111	105	1030	815	3290	2540	3210	2390	2530	1740
Chromium	<0.005	<0.010	0.048	<0.010	<0.005	<0.010	<0.10	<0.010	<0.2	<0.010	<0.2	<0.010	<0.10	<0.10
Iron	36.1	33.3	5.8	5.31	14.9	14.2	82.7	67.8	204	180	163	146	171	112
Lead	<0.005	<0.010	0.034	<0.010	<0.005	<0.010	<0.025	<0.010	<0.05	<0.010	<0.05	<0.010	<0.025	<0.1
Magnesium	73.4	66.6	50.7	48	85.7	80.4	430	342	1360	1200	1360	1180	948	765
Manganese	7.08	6.66	0.72	0.665	1.73	1.67	13.3	11.4	25.5	23.1	24	21.9	14.5	12.1
Mercury	<0.0002	<0.0002	<0.00020	<0.0002	<0.0002	<0.0002	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.0002
Potassium	10	11.5	19.8	19.4	19	22	49.2	74.6	155	188	151	179	109	133
Selenium	<0.005	-	<0.005	-	<0.005	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-
Silver	<0.005	-	<0.005	-	<0.005	-	<0.025	-	<0.05	-	<0.05	-	<0.025	-
Sodium	141	138	724	646	442	423	10300	8670	27800	25700	31400	26900	28400	20900
Strontium	1.74	1.79	0.55	0.511	0.79	0.816	14.6	12.3	66.1	54.4	70.4	56.3	44.4	39.7
Zinc	<0.1	<0.010	<0.1	0.0233	<0.1	<0.010	<1.10	0.0115	<1.1	0.0342	<1.1	0.0282	<1.10	<0.10
Dissolved Metals														
Arsenic	0.021	-	0.0092	-	<0.005	-	<0.10	-	<0.05	-	<0.05	-	<0.10	-
Barium	0.52	-	0.28	-	0.49	-	11.9	-	64.5	-	53.3	-	39.3	-
Cadmium	<0.005	-	<0.005	-	<0.005	-	<0.025	-	<0.05	-	<0.05	-	<0.025	-
Calcium	-	-	50.5	-	-	-	-	-	3020	-	2850	-	-	-
Chromium	<0.005	-	<0.005	-	<0.005	-	<0.10	-	<0.2	-	<0.2	-	<0.10	-
Iron	33	-	4.71	-	13.5	-	71.5	-	192	-	148	-	142	-
Lead	<0.005	-	<0.005	-	<0.005	-	<0.025	-	<0.05	-	<0.05	-	<0.025	-
Manganese	6.5	-	0.61	-	1.62	-	11.5	-	23.5	-	21.9	-	11.8	-
Mercury	<0.0002	-	<0.0002	-	<0.0002	-	<0.00020	-	<0.0002	-	<0.0002	-	<0.00020	-
Selenium	<0.005	-	<0.005	-	<0.005	-	<0.050	-	<0.05	-	<0.05	-	<0.050	-
Silver	<0.005	-	<0.005	-	<0.005	-	<0.025	-	<0.05	-	<0.05	-	<0.025	-
Strontium	1.66	-	0.51	-	0.73	-	13.2	-	61.7	-	64.7	-	38.4	-
Zinc	<0.1	-	<0.1	-	<0.1	-	<1.10	-	<1.1	-	<1.1	-	<1.10	-
BTEX														
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025
Toluene	<0.005	<0.010	<0.005	<0.010	<0.005	<0.010	<0.005	<0.05	<0.005	<0.010	<0.005	<0.010	<0.005	<0.05
m,p-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (Total)	<0.015	<0.050	<0.015	<0.050	<0.015	<0.050	<0.015	<0.25	<0.015	<0.050	<0.015	<0.050	<0.015	<0.25
TPH Fractions														
Aliphatic >C6-C8	<0.03	-	<0.03	-	<0.03	-	<0.030	-	<0.03	-	0.036	-	0.084	-
Aliphatic >C8-C10	<0.02	-	<0.02	-	<0.02	-	<0.020	-	<0.02	-	0.033	-	0.073	-
Aliphatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aliphatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aliphatic >C16-C35	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-	<0.15	-
Aromatic >C8-C10	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.03	-
Aromatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aromatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.1	-
Aromatic >C16-C21	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-
Aromatic >C21-C35	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.3	-
TPH Mixtures														
TPH (GRO)	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150
TPH (DRO)	-	0.205	-	<0.134	-	<0.134	-	<0.132	-	0.318	-	0.737	-	5.07
TPH (ORO)	-	0.143	-	<0.123	-	0.263	-	<0.122	-	<0.117	-	0.169	-	0.692
Water Quality														
Chloride	64.3	57.8	821	875	997	619	18800	16100	53700	60500	56600	66000	49900	38100
Total Dissolved Solids	1420	1860	1870	2040	1670	1590	32400	26400	57400	101000	59400	102000	78000	73200

Notes for Tables 3-9 to 3-14 are provided after Table 3-14.

TABLE 3-13 GROUNDWATER DATA B Zone - Outside Hero Property	ICON BKG		ICON BKG		ICON BKG		ICON BKG		BC-27 Area		Drainage		Drainage	
	BC-17B		BC-18		BC-19		BC-20		BC-27B		BC-29B		BC-4B	
	2/15/2019		2/14/2019		2/14/2019		2/14/2019		4/2/2019		2/14/2019		8/28/2018	
	20-25'		17-22'		20-25'		18-28'		24-29'		23-28'		28-38'	
Parameter	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON	ERM	ICON
Metals														
Arsenic	0.027	0.024	0.029	0.0237	0.086	0.094	0.27	0.25	0.021	0.0218	<0.013L	<0.010	<0.01	<0.010
Barium	1.33	1.34	0.98	0.954	0.45	0.473	0.69	0.718	1.44	1.35	1.67	1.77	1.69	1.64
Cadmium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0088	<0.0050	<0.005	<0.013L	<0.005	<0.0063	<0.005
Calcium	161	146	143	124	103	94.5	210	187	194	166	215	190	183	147
Chromium	<0.01	<0.010	<0.01	<0.010	<0.005	<0.010	<0.005	<0.010	<0.020	<0.010	<0.05	<0.010	<0.025	<0.010
Iron	19.4	17.6	19.9	17.2	15.6	14.7	29.3	26.7	13.6	12.4	18.9	17.8	15.7	14.6
Lead	<0.01	<0.010	<0.01	<0.010	<0.005	<0.010	<0.005	<0.010	<0.015	<0.010	<0.015	<0.010	<0.025	<0.010
Magnesium	183	164	136	117	43	40.4	66.8	59.5	305	264	550	504	457	437
Manganese	1.85	1.72	2.01	1.78	0.75	0.72	0.98	0.911	3.19	3.12	0.4	0.342	0.27	0.251
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	34	44.5	28.3	33	8.8	10.5	11.6	12.2	54	66	96.2	113	96.6	109
Selenium	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.020	-	<0.05	-	<0.025	-
Silver	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.018	-	<0.018	-	<0.018	-
Sodium	1760	1630	1170	1040	321	304	59.2	57.3	2390	2250	4260	4190	5050	4310
Strontium	1.6	1.56	1.23	1.16	0.66	0.673	1.36	1.4	2.92	2.8	4.25	4.44	4.53	3.98
Zinc	<0.2	<0.010	<0.2	<0.010	<0.1	<0.010	<0.1	<0.010	<0.40	<0.010	<1	<0.010	<0.5	0.0111
Dissolved Metals														
Arsenic	0.023	-	0.024	-	0.081	-	0.23	-	<0.020	-	<0.013	-	<0.01	-
Barium	1.21	-	0.86	-	0.39	-	0.62	-	1.24	-	1.59	-	1.5	-
Cadmium	<0.005	-	<0.005	-	<0.005	-	<0.005	-	<0.0050	-	<0.013	-	<0.0063	-
Calcium	-	-	-	-	-	-	-	-	-	-	-	-	165	-
Chromium	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.020	-	<0.05	-	<0.025	-
Iron	17.5	-	17.6	-	13.4	-	25.1	-	12	-	16.8	-	13.6	-
Lead	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.015	-	<0.015	-	<0.015	-
Manganese	1.73	-	1.79	-	0.7	-	0.85	-	2.8	-	0.34	-	0.25	-
Mercury	<0.0002	-	<0.0002	-	<0.0002	-	<0.0002	-	<0.00020	-	<0.0002	-	<0.0002	-
Selenium	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.020	-	<0.05	-	<0.025	-
Silver	<0.01	-	<0.01	-	<0.005	-	<0.005	-	<0.018	-	<0.018	-	<0.018	-
Strontium	1.48	-	1.09	-	0.61	-	1.25	-	2.55	-	4.1	-	3.77	-
Zinc	<0.2	-	<0.2	-	<0.1	-	<0.1	-	<0.40	-	<1	-	<0.5	-
BTEX														
Benzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005
Ethylbenzene	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.00500	<0.005	<0.005	<0.005	<0.005	<0.005
Toluene	0.00515	<0.010	0.023	0.0128	<0.005	<0.010	<0.005	<0.010	<0.00500	<0.01	<0.005	<0.010	<0.005	<0.010
m,p-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (Total)	<0.015	<0.050	<0.015	<0.050	<0.015	<0.050	<0.015	<0.050	<0.015	<0.05	<0.015	<0.050	<0.015	<0.050
TPH Fractions														
Aliphatic >C6-C8	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.030	-	<0.03	-	<0.03	-
Aliphatic >C8-C10	<0.02	-	0.043	-	<0.02	-	<0.02	-	<0.020	-	<0.02	-	<0.02	-
Aliphatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.1	-	<0.1	-
Aliphatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.1	-	<0.1	-
Aliphatic >C16-C35	<0.15	-	<0.15	-	<0.15	-	0.326	-	<0.150	-	<0.15	-	<0.15	-
Aromatic >C8-C10	<0.03	-	<0.03	-	<0.03	-	<0.03	-	<0.030	-	<0.03	-	<0.03	-
Aromatic >C10-C12	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.1	-	<0.1	-
Aromatic >C12-C16	<0.1	-	<0.1	-	<0.1	-	<0.1	-	<0.100	-	<0.1	-	<0.1	-
Aromatic >C16-C21	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.300	-	<0.3	-	<0.3	-
Aromatic >C21-C35	<0.3	-	<0.3	-	<0.3	-	<0.3	-	<0.300	-	<0.3	-	<0.3	-
TPH Mixtures														
TPH (GRO)	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150	-	<0.150
TPH (DRO)	-	<0.132	-	<0.132	-	<0.136	-	0.287	-	<0.137	-	<0.135	-	0.232
TPH (ORO)	-	0.131	-	<0.122	-	0.158	-	0.227	-	<0.127	-	<0.124	-	<0.124
Water Quality														
Chloride	3480	2900	2110	1750	446	536	18.9	15.3	4790	4390	10500	8990	7600	9590
Total Dissolved Solids	5,360	5,550	3,870	3,570	1,440	1,460	1,020	915	8920	7,150	16,300	16,000	12,200	15,200

TABLE 3-14 GROUNDWATER DATA C Zone - Outside Hero Property	Drainage	
	BC-4C	
	8/28/2018	
	76-86'	
Parameter	ERM	ICON
Metals		
Arsenic	<0.05	0.02
Barium	3.04	2.8
Cadmium	<0.013	<0.005
Calcium	413	329
Chromium	<0.05	0.011
Iron	22.1	20.5
Lead	<0.015	<0.010
Magnesium	676	603
Manganese	0.41	0.379
Mercury	<0.0002	<0.0002
Potassium	160	180
Selenium	<0.05	-
Silver	<0.018	-
Sodium	6640	5240
Strontium	5.59	4.92
Zinc	<1	0.0166
Dissolved Metals		
Arsenic	<0.05	-
Barium	2.73	-
Cadmium	<0.013	-
Calcium	384	-
Chromium	<0.05	-
Iron	16.8	-
Lead	<0.015	-
Manganese	0.37	-
Mercury	<0.0002	-
Selenium	<0.05	-
Silver	<0.018	-
Strontium	5.12	-
Zinc	<1	-
BTEX		
Benzene	<0.005	<0.005
Ethylbenzene	<0.005	<0.005
Toluene	<0.005	<0.010
m,p-Xylene	-	-
o-Xylene	-	-
Xylene (Total)	<0.015	<0.050
TPH Fractions		
Aliphatic >C6-C8	<0.03	-
Aliphatic >C8-C10	<0.02	-
Aliphatic >C10-C12	<0.1	-
Aliphatic >C12-C16	<0.1	-
Aliphatic >C16-C35	<0.15	-
Aromatic >C8-C10	<0.03	-
Aromatic >C10-C12	<0.1	-
Aromatic >C12-C16	<0.1	-
Aromatic >C16-C21	<0.3	-
Aromatic >C21-C35	<0.3	-
TPH Mixtures		
TPH (GRO)	-	<0.150
TPH (DRO)	-	<0.142
TPH (ORO)	-	<0.124
Water Quality		
Chloride	10300	12900
Total Dissolved Solids	16,200	21,900

Notes (applicable to Tables 3-9 through 3-14):

- Not analyzed for this sample

< Constituent not detected at or above reporting limit shown.

TPH - Total Petroleum Hydrocarbons

BTEX - Benzene, toluene, ethylbenzene, xylenes

TABLE 3-15
Toxicity Values and Bioconcentration Factors for Constituents Not in RECAP

Hero Lands L.L.C. v. Chevron U.S.A. Inc. et al.
Stella Field, Plaquemines Parish, Louisiana

Constituent	CAS#	RfDo mg/kg-d	REF	BCF L/kg	REF	RECAP Standards (a)						
						GWSS mg/L	GW1 / GW2 mg/L	GW3NDW mg/L	Soil _{ssi} mg/kg	Soil _{ssni} mg/kg	Soil _{ni} mg/kg	Soil _{ssgw} (b) mg/kg
Barium	7440-39-3	0.2	IRIS	-	-	-	-	-	-	-	1.6E+04	-
Benzo(g,h,i)perylene	191-24-2	0.03	S	-	-	-	-	6.1E+03	2.3E+02	-	-	6.10E+01
Strontium	7440-24-6	0.6	IRIS	60	RAIS	2.2E+00	2.2E+01	3.3E+01	4.1E+04	4.7E+03	-	4.4E+04

Notes:

- Not applicable for this site

mg/kg-d = milligrams per kilogram per day

L/kg = Liters per Kilogram

mg/L = milligrams per liter

mg/kg = milligrams per kilogram

CAS# = Chemical Abstract Number

RfDo = Oral Reference Dose

IRIS = Integrated Risk Information System (USEPA)

S = Surrogate (pyrene)

BCF - bioconcentration factor

RAIS = Risk Assessment Information System

GWss = RECAP Groundwater Screening Standard

GW1 = RECAP Standard for Class 1 groundwater

GW2 = RECAP Standard for Class 2 groundwater

GW3NDW = Groundwater Class 3 non-drinking water RECAP Standard

Soil_{ssi} = Screening Standard for soil protective of human health for industrial land use.

Soil_{ssni} = Screening Standard for soil protective of human health for non-industrial land use.

Soil_{ni} = RECAP Standard for soil protective of human health for non-industrial land use.

Soil_{ssgw} = Screening Standard for soil protective of groundwater.

(a) RECAP Standards calculated in accordance with Appendix H of RECAP (2003).

(b) For inorganic constituents for which a TCLP regulatory level is not available, the Soil_{ssgw} is estimated by multiplying the GW1 by a dilution factor of 100 and then by a factor of 20. This calculation approach is provided in RECAP Appendix H to duplicate the assumptions and methods used for those inorganic constituents with TCLP criteria. For a COC that is not listed in Table 3 such as strontium, the GW1 is calculated in accordance with Section H2.2.2.

ATTACHMENT 4 PROFESSIONAL PROFILE AND LISTING OF LITIGATION CASES

September 8, 2020

Angela M. Levert



Ms. Levert is a principal scientist with over 29 years of professional experience in the fields of risk assessment/risk communication, multi-media cleanup level development, and investigation design and implementation in support of risk evaluation. Directs risk assessment practice for Louisiana offices of Environmental Resources Management (ERM).

Ms. Levert has performed, and directed performance of, complex baseline risk assessments for sites having affected soil, sludge, sediment, surface water, biota, and ground water. Project experience has included modeling of constituent transport through various media to estimate exposure point concentrations, estimation of risk using site-specific exposure considerations with current toxicity factors and available toxicological literature, and communication of resulting risk estimates to stakeholders including regulatory agencies and the public. Projects have regularly involved establishing cleanup levels and exposure control measures for environmental media (soil, ground water, sediment) at US CERCLA, RCRA, state Superfund, voluntary program, and other sites, and presentation of risk-based corrective action plans to state and federal agencies in multiple USEPA regions. Projects have included analysis of risk reduction vs. remediation cost to support cost-benefit analysis in feasibility studies and corrective action decision-making.

Ms. Levert has provided litigation support and expert testimony in matters relating to environmental impact and related risk/health impact claims. She is a recognized expert in the areas of environmental data evaluation and environmental risk assessment. Example project sites have included wood treatment facilities, fuel terminals, operating and former refineries, petrochemical manufacturing facilities, pipeline release sites, exploration and production sites, and waste management and disposal facilities. International work has included risk evaluation work for sites in Mexico, Colombia, Barbados, Spain, and China.

Fields of Competence

- Human health risk assessment/communication
- Risk-based closures
- Environmental chemistry
- Fate and transport of chemicals
- Technical data validation
- Statistical methods for data analysis

Education

- M.S. Environmental Chemistry, The University of North Carolina (1990)
- B.S. Chemistry, Spring Hill College (1988)

Professional Affiliations

- American Chemical Society
- Society for Risk Analysis
- Society for Environmental Toxicology and Chemistry
- Air & Waste Management Association

Honors and Awards

- Summa Cum Laude graduate; Spring Hill College
Presidential Award for Outstanding Chemistry Student
- University of North Carolina Department of
Environmental Sciences and Engineering, Achievement
Award for Outstanding Academic and Professional
Potential

Publications

Miller, Pedit, Levert and Rabideau. "Investigation of Multicomponent Sorption and Desorption Rates in Saturated Ground Water Systems." Report No. 263 of the Water Resources Research Institute. March 1992.

Key Projects

- Managed the development and implementation of investigation plans in support of risk assessment and risk-based closures in Texas, Louisiana, Alabama, Mississippi, Florida, Georgia, Oklahoma, and Tennessee.
- Prepared risk-based closure demonstrations for over 150 sites under Texas Risk Reduction Program, Louisiana RECAP program, Alabama RBCA, and other state-specific RBCA-type programs.
- Developed risk-based assessment programs for RCRA Facility Investigations (RFIs) at refineries in Louisiana, Texas, Kansas, and Montana. Developed approach for the human health and ecological risk assessment and risk prioritization of numerous Solid Waste Management Units and Areas of Concern. The projects included management and evaluation of data for hundreds of samples of soil, water, and soil vapor. Presented and resolved technical issues related to investigation and risk evaluation with regulators during the RFI programs.
- Developed TPH cleanup levels utilizing fraction and surrogate methods at numerous release sites such as refineries, bulk terminals, exploration and production sites, and railyards. Applied both EPA PPRTV and TPH Criteria Working Group methods.
- Utilized forensic analysis of PAHs to distinguish petrogenic and pyrogenic sources of PAHs and to distinguish impacts resulting from known release sources from anthropogenic background levels.
- Planned and supported the execution of analytical programs that involved use of field laboratories to support dynamic investigations, i.e., to support real time decisions that allow maximum cost effective use of advanced technology investigative tools. Advanced planning with the laboratories allowed for implementation of QA/QC processes required to support use of the field lab data quantitatively in risk evaluation and remedy planning.
- Evaluated appropriateness of National Ambient Water Quality Criteria for nickel and silver in the State of Mississippi for the purpose of developing an alternate wastewater discharge limit for a photo processing site. Developed a Mississippi-specific database of toxicity data and recalculated the acute water quality criterion according to EPA-approved methodology. Assisted in design of a bioassay study for site-specific criterion modification.
- Served as principal scientist on the multi-media RECAP evaluation and Corrective Measures Study (CMS) for a large chemical facility in southern Louisiana, and the subsequent permitting of the final corrective measures identified in the CMS for soil, ground water, and sediment. The project included multi-media quantitative human health risk assessment in the context of the RCRA regulations and development of a detailed CMS to address estimated risks above agency-specified target risk range. Site-specific numeric modeling of constituent transport in ground water, soil vapor, and indoor and outdoor air were performed. Deep subsurface impacts to soil and ground water by chlorinated solvents resulted in significant risk estimates for certain potential exposure pathways, and a combination of active remediation, engineering controls, and exposure controls were identified as the most feasible final remedial measures demonstrated to achieve long term health protection.
- Prepared a quantitative human health risk evaluation for a large pipeline release of aviation fuel in Barbados. Releases to shallow ground water affected residential areas and farmland where shallow ground water was used for irrigating commercial scale cropland. Risk modeling included irrigation scenarios and potential vapor migration to residences. Stakeholders included the environmental agency, residents, and farmers. Ms. Levert and other project team leaders represented the responsible party at public meetings in engaging stakeholders and communicating risks associated with the release, and obtaining stakeholder concurrence with proposed remedial actions.
- Presented to and collaborated with regulators on technical and strategic risk-based issues in EPA Regions 4, 5, 6, 7, 8 and 9 as well as many states.
- Selected to serve as technical expert on risk assessment issues for the U.S. Army Corps of Engineers, Nashville District.
- Prepared expert opinions and provided trial testimony (as needed) on human health risk issues for oil and gas exploration and production sites. Ms. Levert has provided risk evaluation of impacts to soil, ground water, sediment and surface water by petroleum hydrocarbon constituents, produced water (brine), and drilling fluids in environments that include upland and wetland settings. The evaluation and opinions provide a technical and regulatory basis for determining whether remediation is warranted for protection of health and the environment.
- Served as principle scientist for a complex multi-media risk evaluation at an exploration and production site located within a frequently inundated marsh in coastal Louisiana. The property is used as a commercial

fishery and by the general public for high quality recreational activities such as fishing and hunting. Investigations included the collection and analysis of sediment, ground water, surface water, and biota (crabs and fish), including thousands of sample results. Ms. Levert led the data quality review and conducted a comprehensive, site-specific Management Option 3 risk assessment for constituents reported in all media in accordance RECAP and the LDHH guidance for setting seafood advisories. Site-specific exposure and risk were quantified using non-standard exposure scenarios.

- Served as principal scientist for the risk assessment approach and implementation during the RI/FS for the Marine Shale Processors Site in Amelia, Louisiana, on behalf of the PRP Group. Responsible for regulatory interactions. Helped to develop the RI plan by detailed review of all available historic data and use of existing data that met quality objectives for quantitative risk evaluation. Provided a comprehensive Management Option 2 and 3 risk (RECAP) assessment for soil, sediment, ash, and ground water. The human health risk evaluation will provide the basis for evaluation of remedial alternatives (ongoing) to achieve protection of human health and the environment consistent with RECAP requirements.
- Prepared Soil Reuse plans in accordance with RECAP and Louisiana Solid Waste regulation requirements for chemical manufacturing facility and large refinery. Plans included decision flow charts for selecting disposal versus reuse on site, development of standards for various uses on site, and staging and sampling requirements.
- Led the preparation of Beneficial Use Plans for solid waste material to allow for off-site use of process by-product as construction material, in accordance with requirements of Solid Waste regulations. In support of proposed beneficial uses, prepared human health risk evaluations for chemical constituents and radionuclides, and ecological risk evaluations.
- Prepared conveyance notices, deed restrictions, and similar documents as part of applying institutional controls for risk-based site closures. Worked with Health and Safety personnel at active facilities to develop exposure control procedures required as institutional controls to address potential risks identified through site-specific risk evaluation. In the context of RCRA/HSWA permits, provided follow-up reporting (e.g., annual corrective action reports) to document compliance with risk-based corrective action objectives and institutional controls.
- Led the demonstration of protection of human health and the environment for Land Treatment Units (LTU) in long term post-closure care at two refineries in south Louisiana, to address requirements for termination of post-closure care obligations. The LTUs received and treated oily wastes at the refineries under RCRA regulations. The site-specific risk assessments completed for the treatment residuals and underlying ground water provide the basis for final post-closure care period.

**Listing of Cases in Which
A. Levert Has Prepared Expert Opinions, Testified or Been Deposed**

Case	Jurisdiction	Year	Description	Expertise	Depo/Testimony
Vermilion Parish School Board vs. Louisiana Land, et al	15th Judicial District Court for the Parish of Vermilion, Docket No. 82162, Div "D"	2010-2016	Alleged soil, ground water, sediment, and biota contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Trial Testimony; LDNR Hearing Testimony
Monique Gutierrez, Inc., et al vs. ExxonMobil Corp et al	15th Judicial District Court for the Parish of Acadia, Docket No. 201610135	2017	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
Matthew Willis, et al. vs. Tennessee Gas Pipeline Company, LLC, et al.	16th Judicial District Court for the Parish of Saint Martin, Docket No. 82888, Div "G"	2017	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
Two O'Clock Bayou Land Co., et al. vs. Chevron U.S.A., Inc., et al.	27th Judicial District Court for the Parish of Saint Landry, Docket No. 12C5528	2018	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
Louisiana Farm and Livestock Company, Inc. vs. Adventures in Mining, Inc., et al.	14th Judicial District Court for the Parish of Calcasieu, Docket No. 2015-3487, Div "H"	2018	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
BCR Holdings Inc. vs. Baby Oil Inc., et al.	17th Judicial District Court for the Parish of Lafourche, Docket No. 127030, Div "B"	2018	Alleged soil, sediment, and surface water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
David V. Currie, et al. vs. BP America Production Company, et al.	38th Judicial District Court for the Parish of Cameron, Docket No. 10-18837	2018	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
New 90, LLC et al. vs. Grigsby Petroleum, Inc. and Chevron U.S.A. Inc.	16th Judicial District Court for the Parish of St. Mary Docket No. 130528	2018	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Deposition
Catahoula Lake Investments, LLC, et al. vs. Hunt Oil Company, et al.	28th Judicial District Court for the Parish of LaSalle Docket No. 40076	2019	Alleged soil and ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation
Kenneth Paul Lyons, et al. vs. Axiall Corporation, et al.	14th Judicial District Court, Parish of Calcasieu Docket No. 2015-1008 & 2015-3082	2019	Alleged soil and ground water contamination as a result of brine release	Human health risk, RECAP	Deposition
Nepveux, Inc. vs. Mobil Exploration and Producing North America Inc., et al.	15th Judicial District Court, Parish of Acadia Docket No. 201810182, Div "B"	2020	Alleged ground water contamination as a result of oil & gas E&P activities	Human health risk, RECAP	Report Preparation

ATTACHMENT 5 DATA PROVIDED BY OTHERS

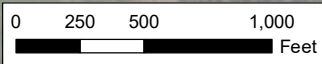
September 8, 2020





**Laboratory Reports Issued to ERM
Incorporated by Reference
(See ERM Expert Report of D. Angle et al., September 8, 2020)**

September 8, 2020

Supporting Figures

September 8, 2020



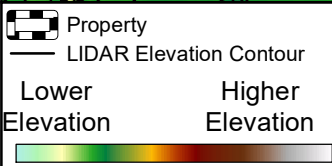
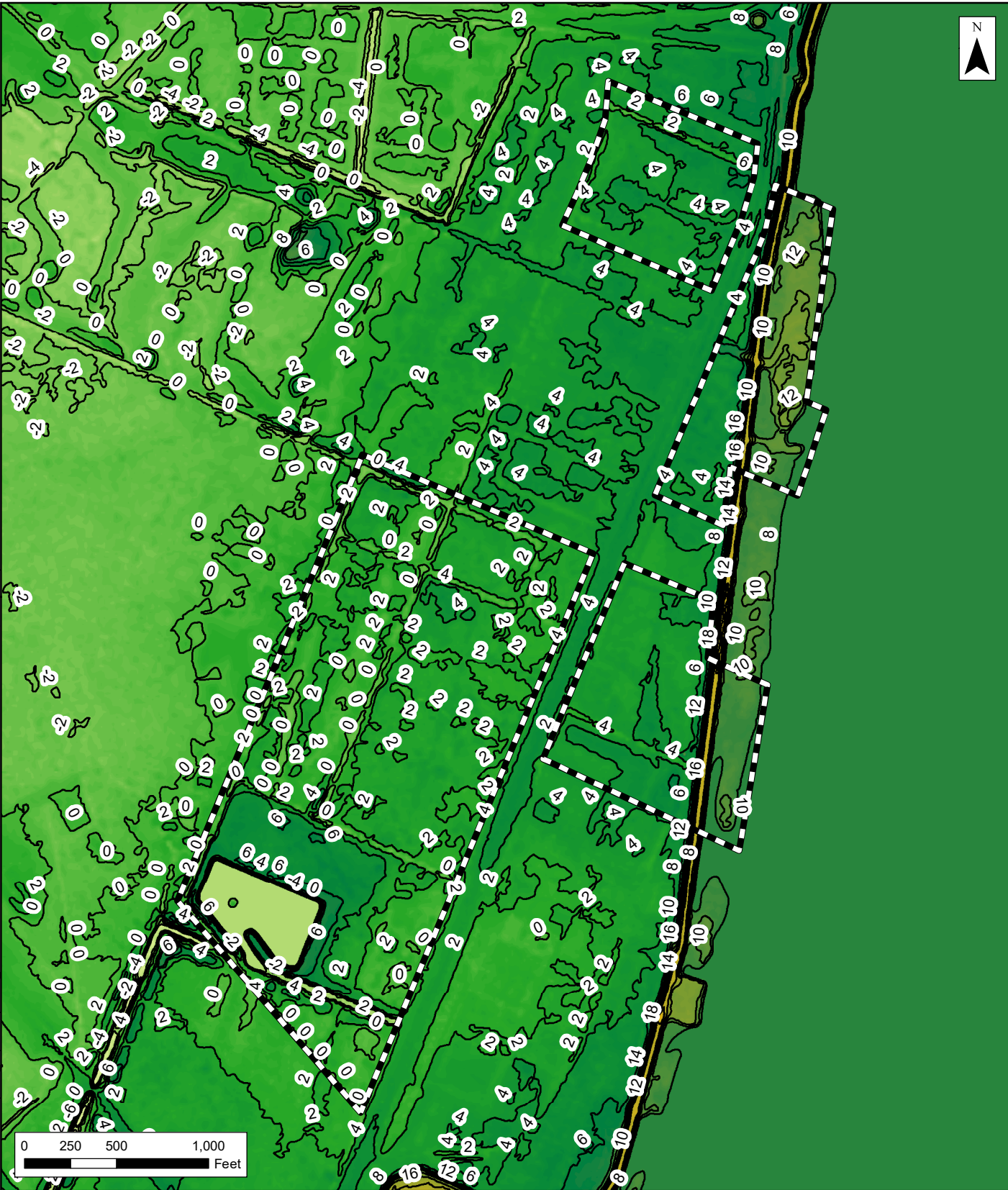
-  Property
-  C-2: General Commercial
-  I-2: Light Industrial
-  I-3: Heavy Industrial

Notes:
 Zoning determination confirmed with Plaquemines Parish Planning and Zoning Superintendent.
 ERM correspondence provided in Appendix E.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

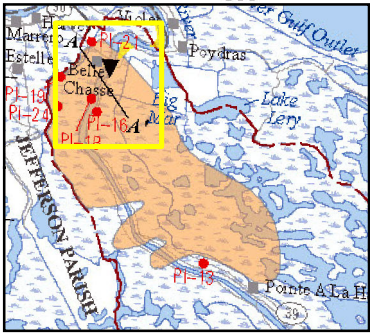
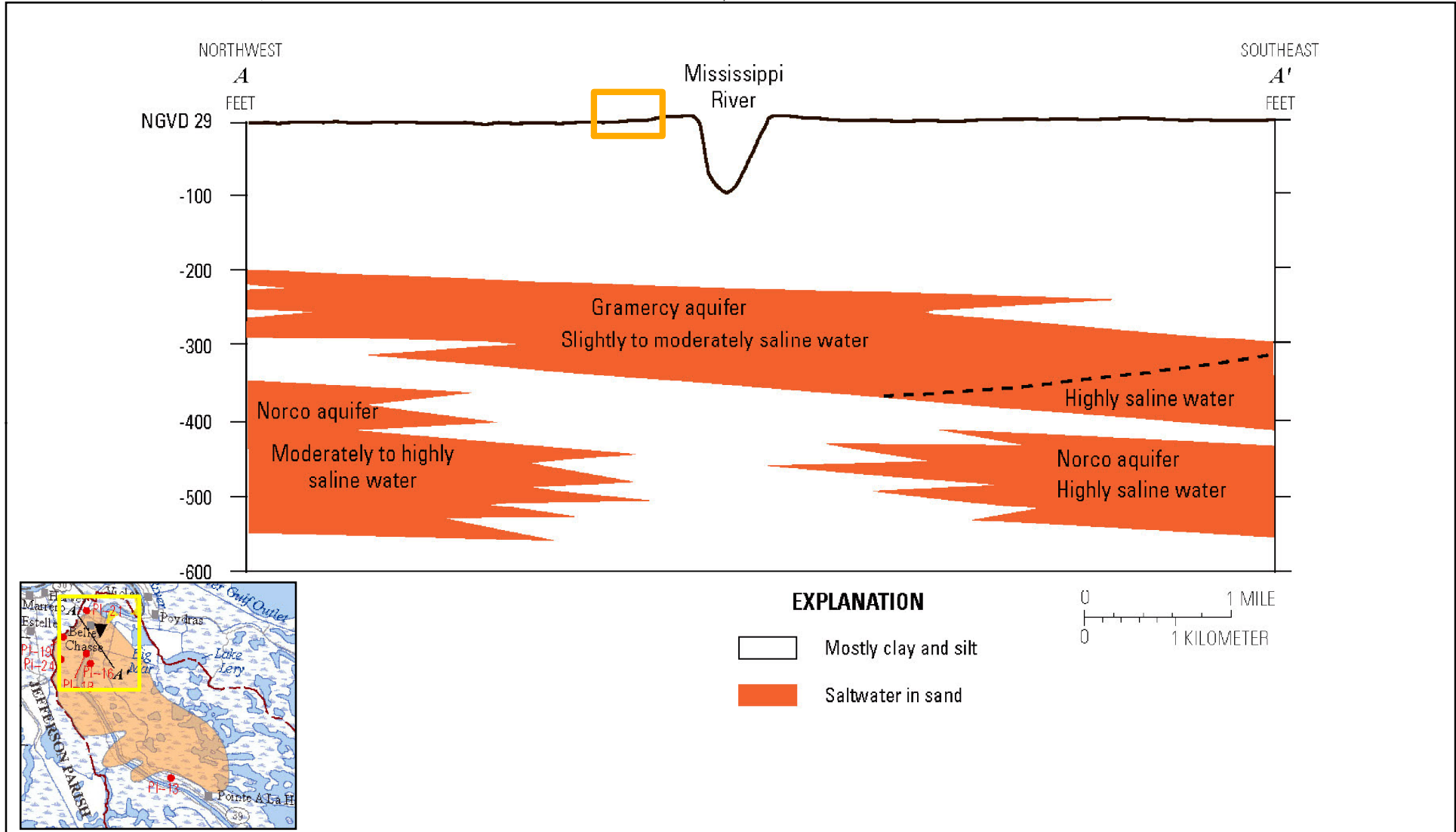
Figure 3
Zoning Map
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana





Notes:
 Elevation model based on LiDAR data from LSU Atlas.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

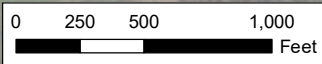
Figure 4
LiDAR Elevation Model
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana





Approximate Surface Extent of Hero Lands Property

Note:
 Generalized northwest-to-southeast aquifer cross section in northern Plaquemines Parish, Louisiana. Vertical datum is National Geodetic Vertical datum of 1929 (NGVD 29). Vertical scale greatly exaggerated. (modified from Rollo, 1962).
 Inset: A-A' Marks location of Generalized Geologic Cross Section.
 Base modified from U.S. Geological Survey digital data.

Figure 13
Generalized Aquifer Cross Section
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc. et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



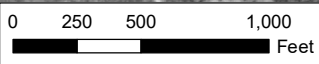
-  Property
-  Natural Gas Pipeline


Notes:
 Pipeline data provided by REXTAG.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 16
Underground Pipelines
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



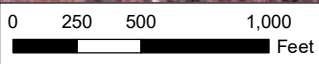


 Property

Notes:
 April 1, 1978 aerial from USGS Earth Explorer
 (<https://earthexplorer.usgs.gov/>)

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 25
1978 Aerial
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

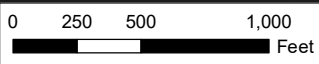


 Property

Figure 26
1982 Aerial

Hero Lands Company, L.L.C. vs.
Chevron U.S.A. Inc., et al.
Stella Oil & Gas Field
Plaquemines Parish, Louisiana

Notes:
November 13, 1982 aerial from USGS Earth Explorer
(<https://earthexplorer.usgs.gov/>)
Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



 Property

Notes:
 April 21, 1989 aerial from USGS Earth Explorer
 (<https://earthexplorer.usgs.gov/>)

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 28
1989 Aerial
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



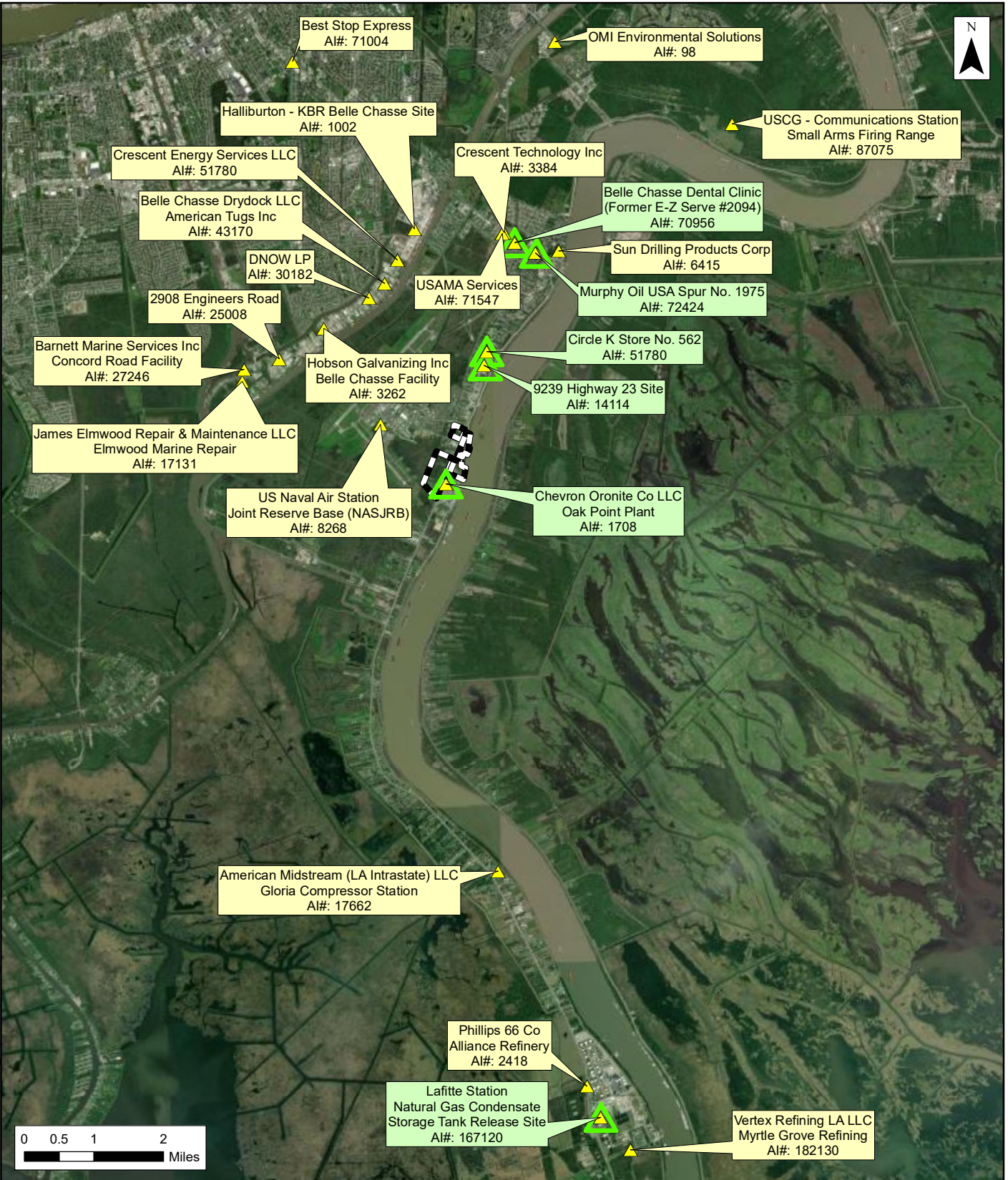
 Property

Notes:
 July 7, 2019 aerial from USGS Earth Explorer
 (<https://earthexplorer.usgs.gov/>)

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 42
2019 Aerial
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

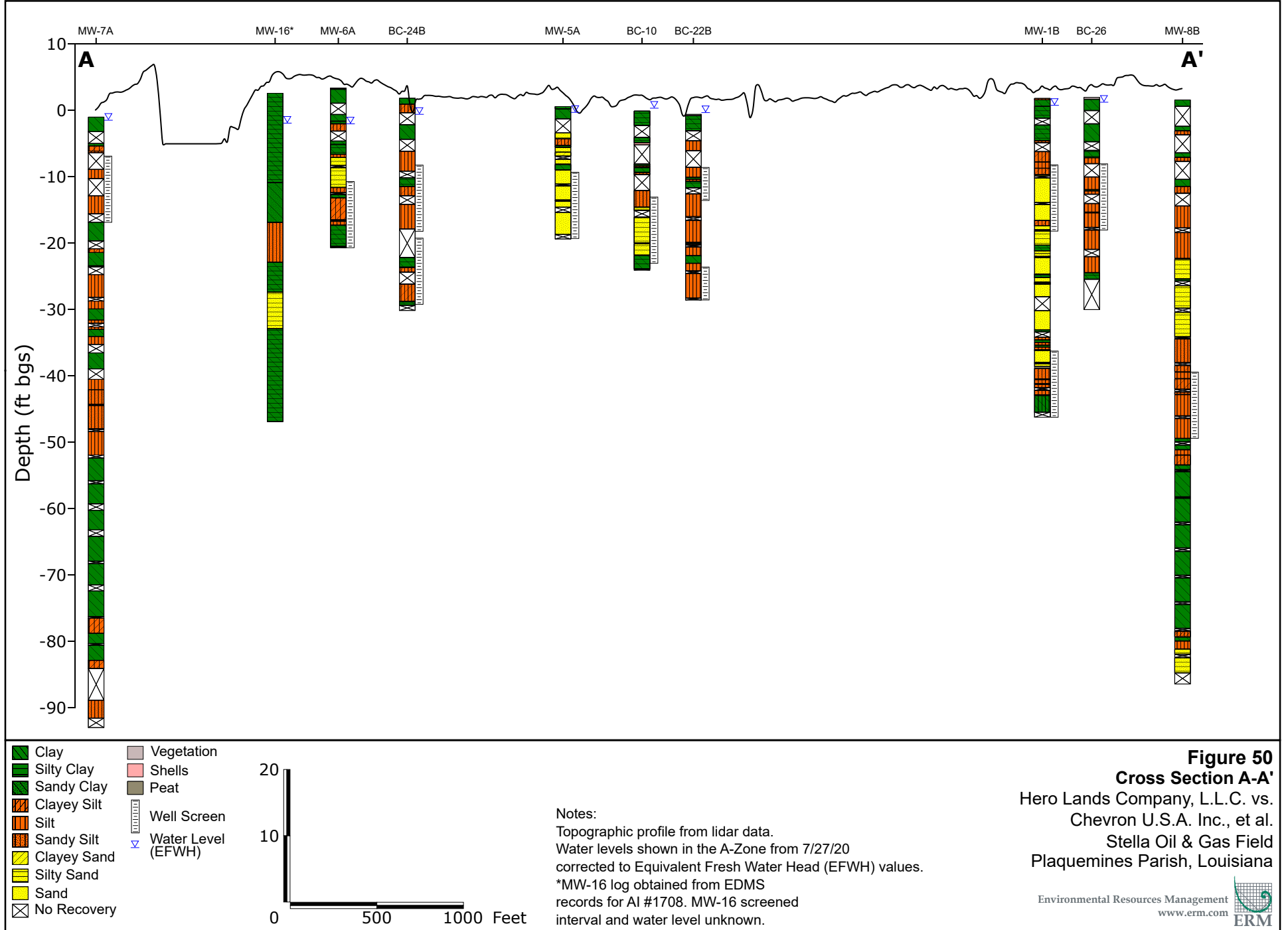


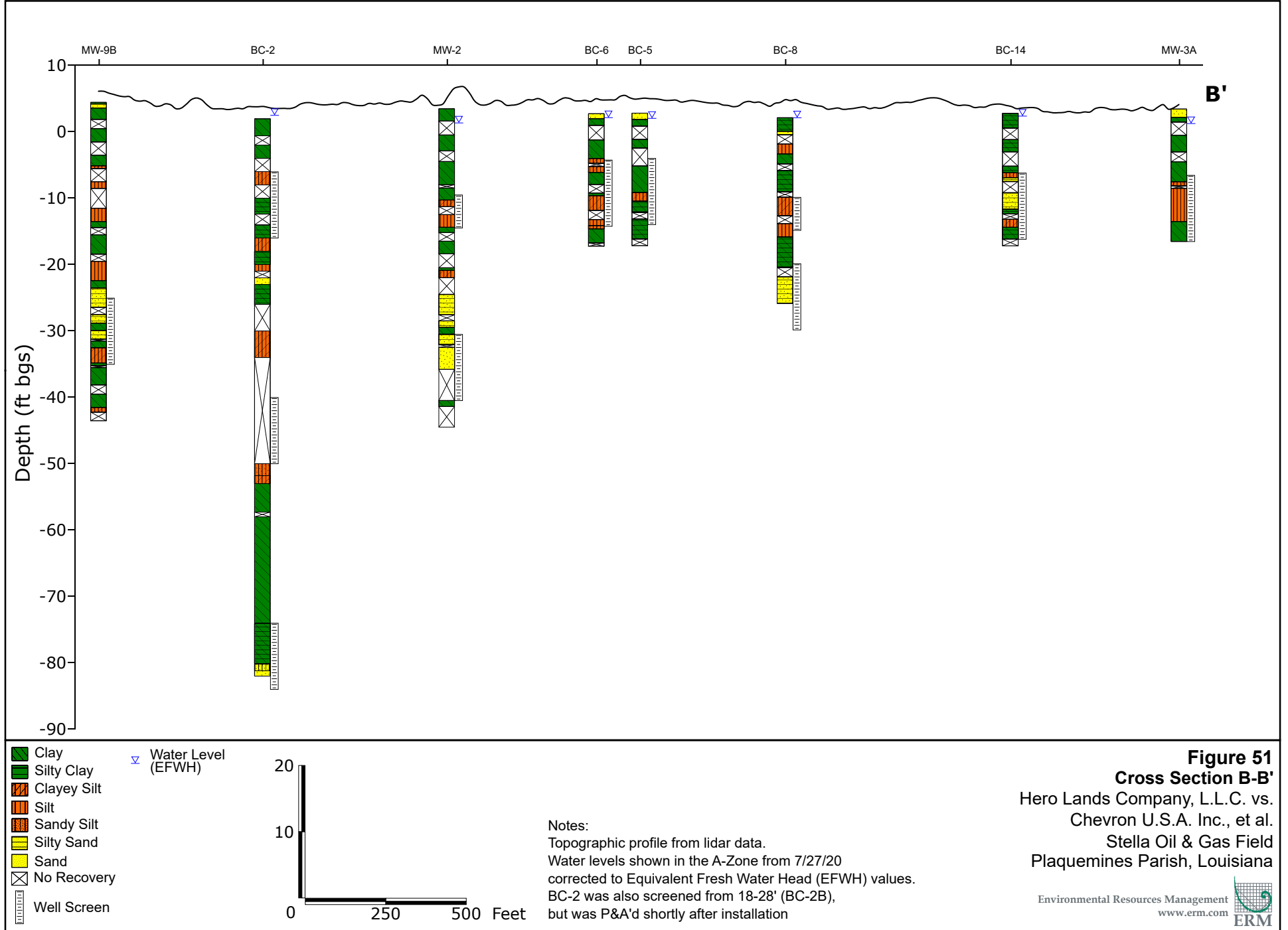


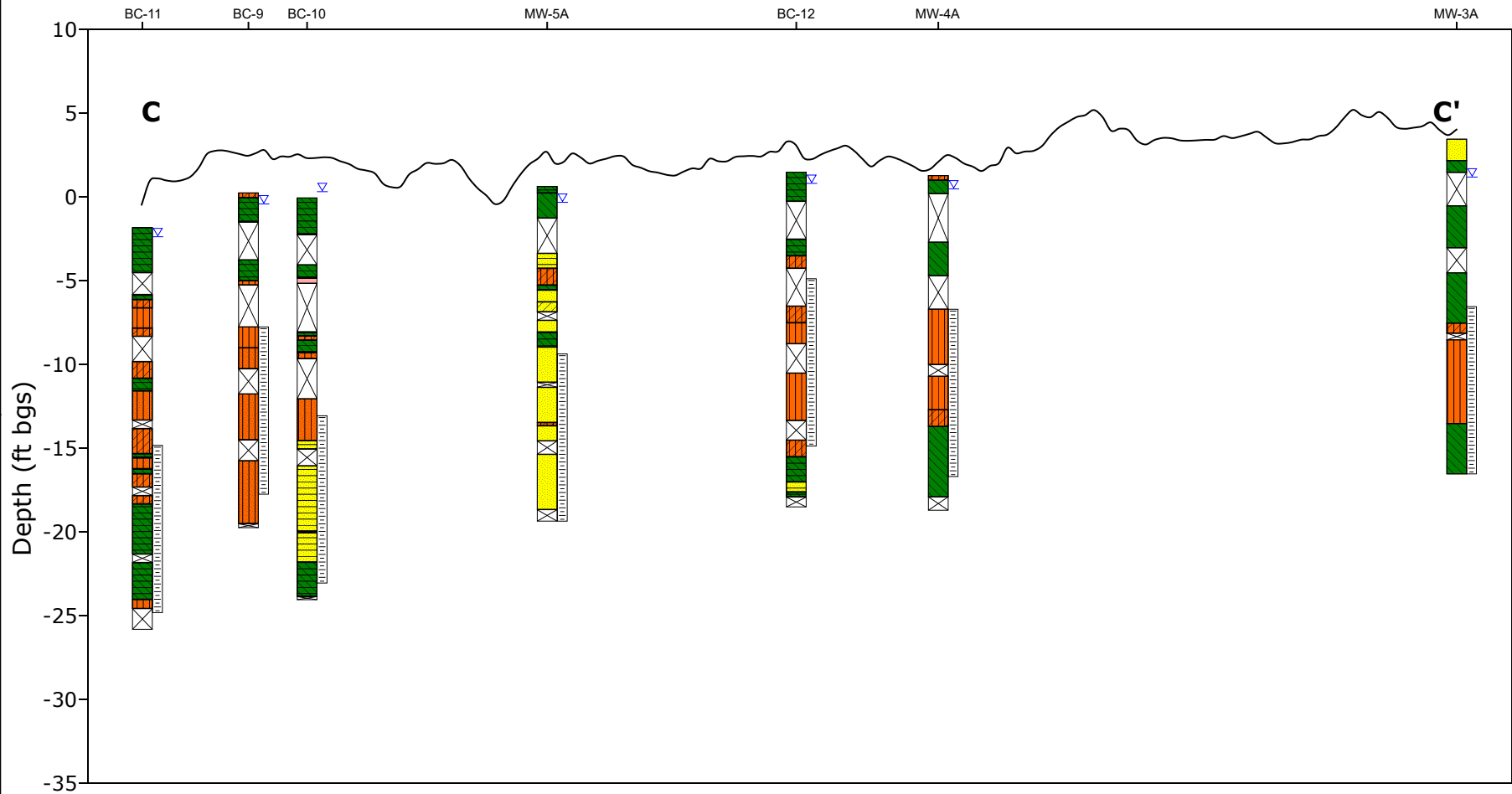
- Property
- LDEQ Agency Interest (AI) Location
- GW Class 3 Determination

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

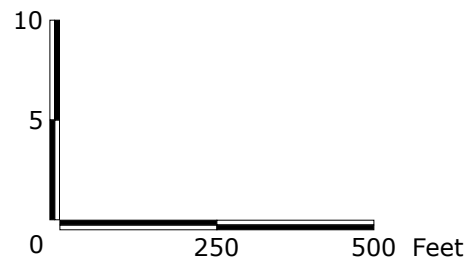
Figure 44
Groundwater Class 3 Determinations
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana







- Clay
- Silty Clay
- Clayey Silt
- Silt
- Sandy Silt
- Clayey Sand
- Silty Sand
- Sand
- No Recovery
- Vegetation
- Shells
- Well Screen
- Water Level (EFWH)



Notes:
 Topographic profile from lidar data.
 Water levels shown in the A-Zone from 7/27/20
 corrected to Equivalent Fresh Water Head (EFWH) values.

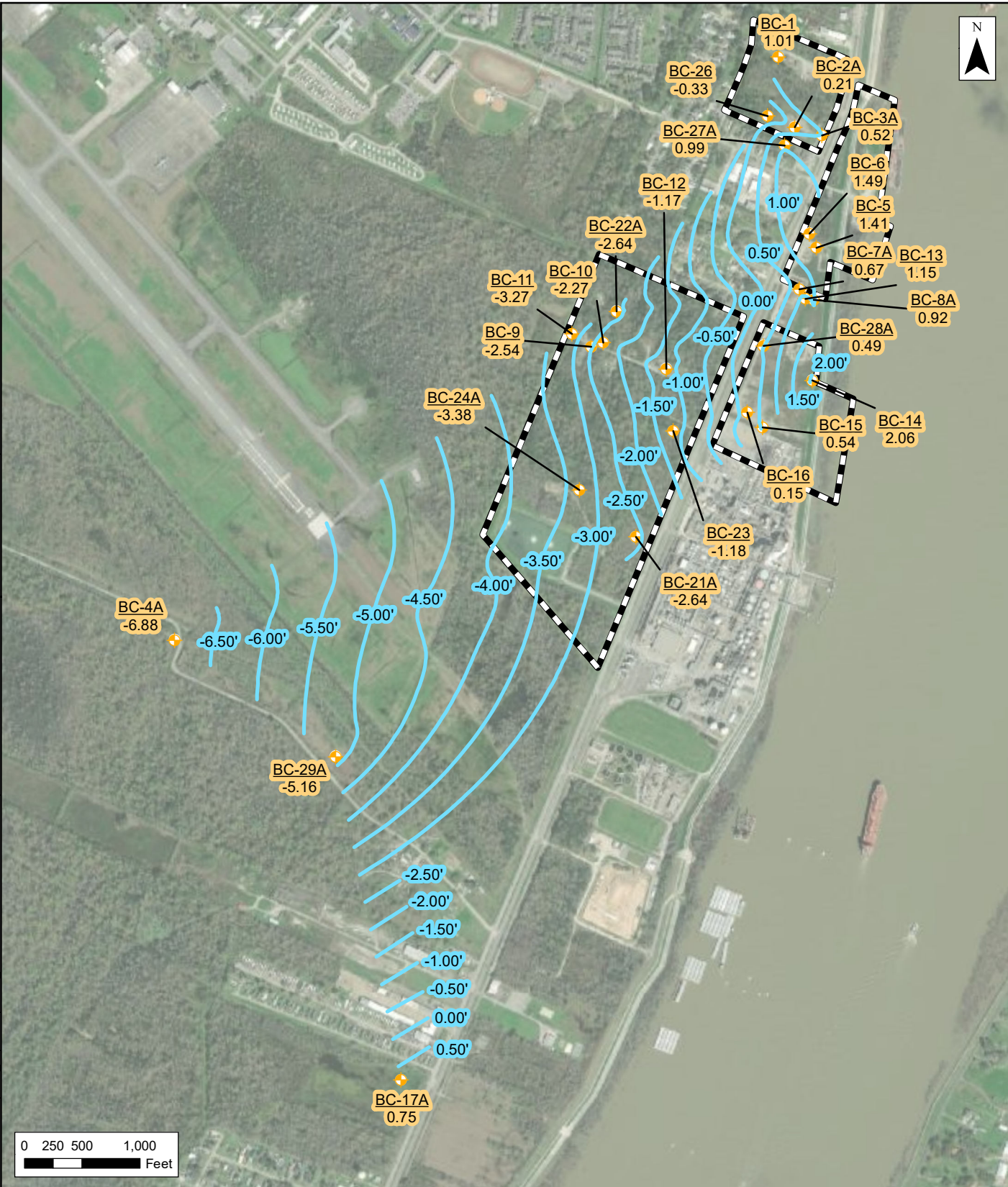
Figure 52
Cross Section C-C'
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



- Property
- ERM Monitoring Well Location
- ICON Monitoring Well Location
- AI # 1708 Well
- A-A'
- B-B'
- C-C'

Notes:
 MW-16 well location based on EDMS records for AI #1708
 Imagery Basemap via ArcGIS Online.

Figure 53
Cross Section Transect Map
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

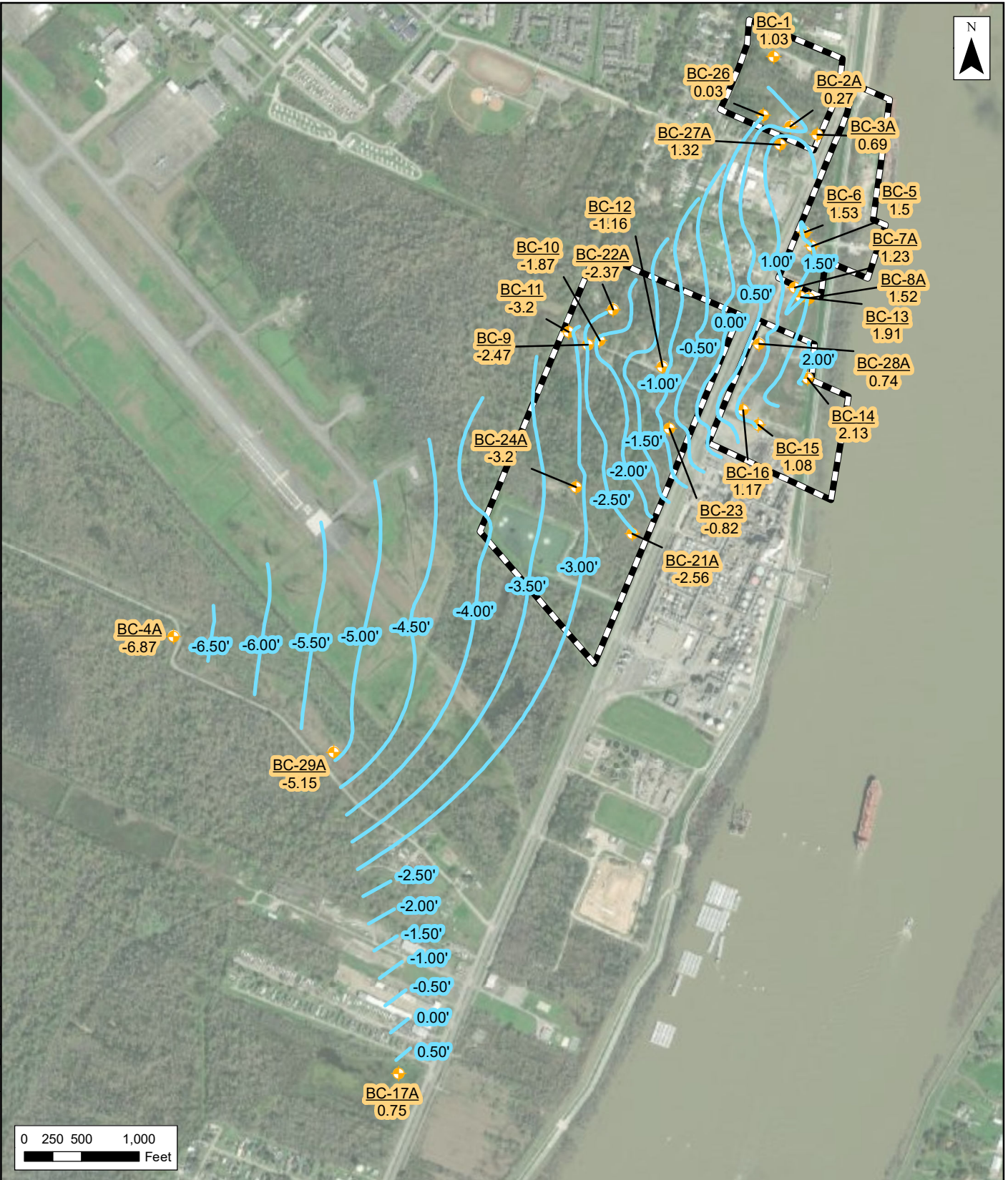


- Property
- ICON A-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements were taken 5/7/2019.
 Elevation Information based on Survey Data.
 BC-3A measurement obtained from ICON.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 54
A Zone Potentiometric Surface Map - 05-2019
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

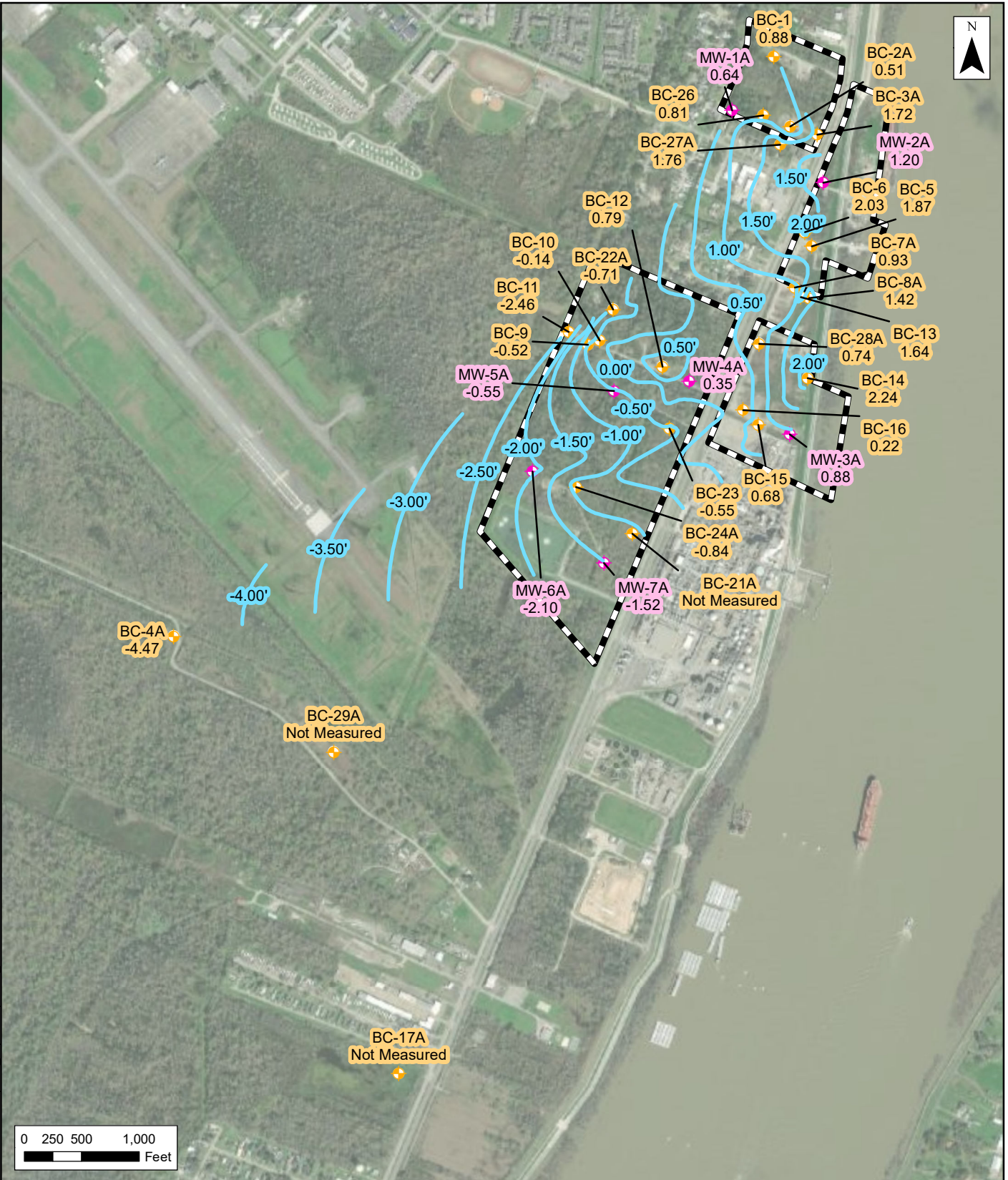


- Property
- ICON A-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements were taken 5/7/2019.
 Elevation Information based on Survey Data.
 Water levels corrected to equivalent fresh water head.
 BC-3B measurement obtained from ICON.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 55
A Zone EFWH Potentiometric Surface Map 05-2019
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

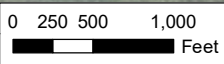
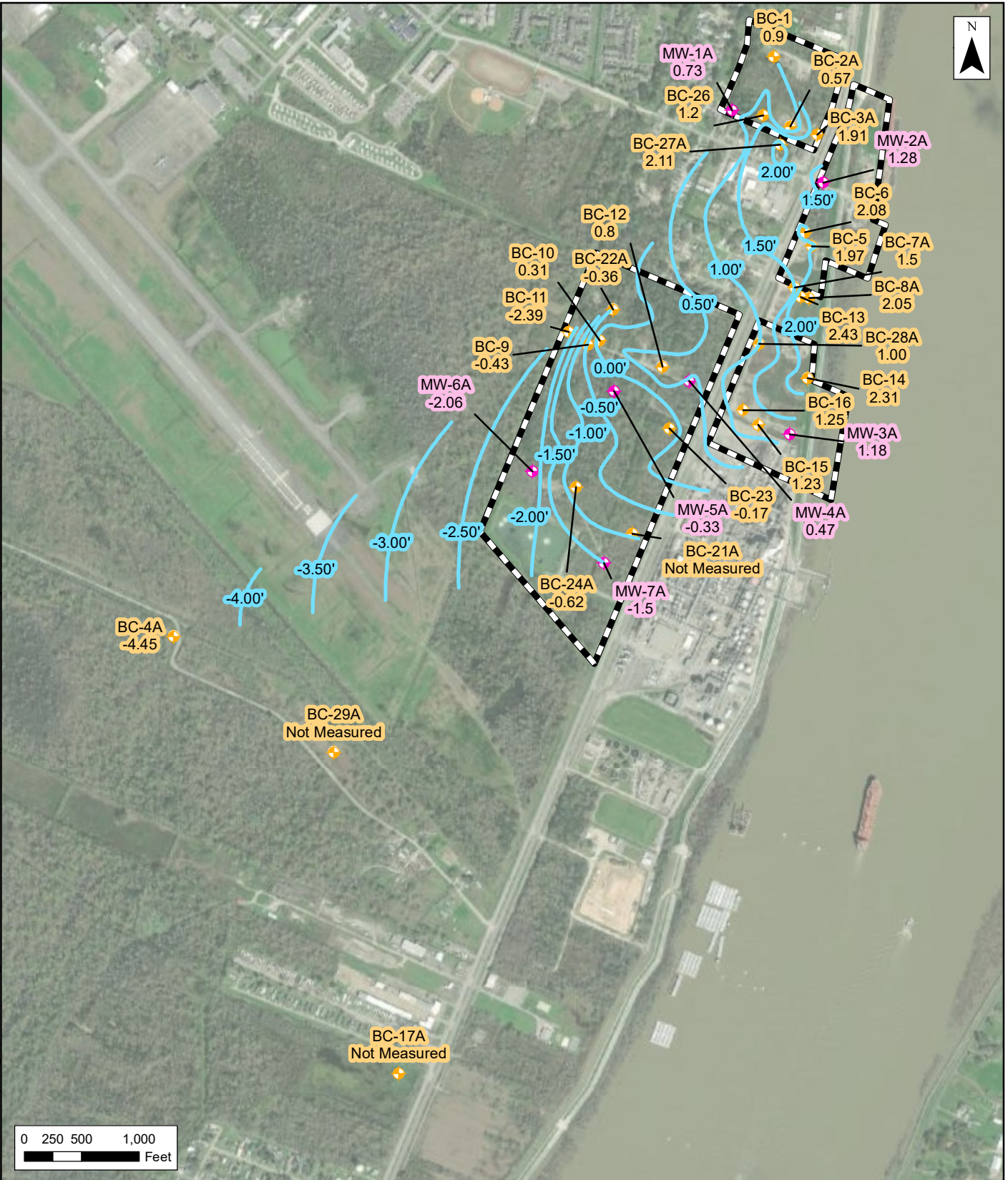


- Property
- ERM A-Zone MW
- ICON A-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements taken 7/29/2020.
 Elevation Information based on survey data.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 56
A Zone Potentiometric Surface Map 07-2020
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

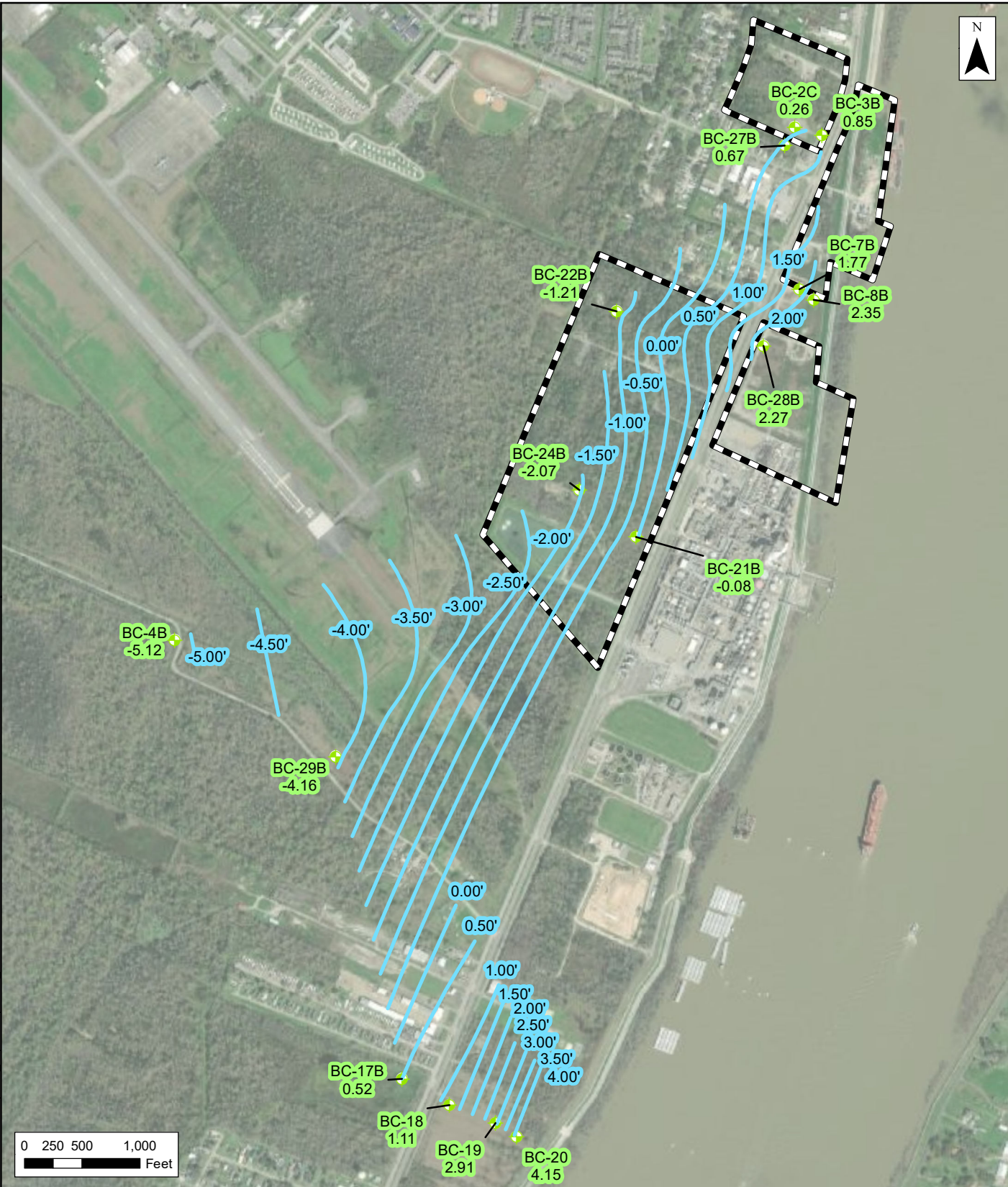


- Property
- ERM A-Zone MW
- ICON A-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements taken 7/29/2020.
 Elevation Information based on survey data.
 Water levels corrected to equivalent fresh water head.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 57
A Zone EFWH Potentiometric Surface Map 07-2020
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

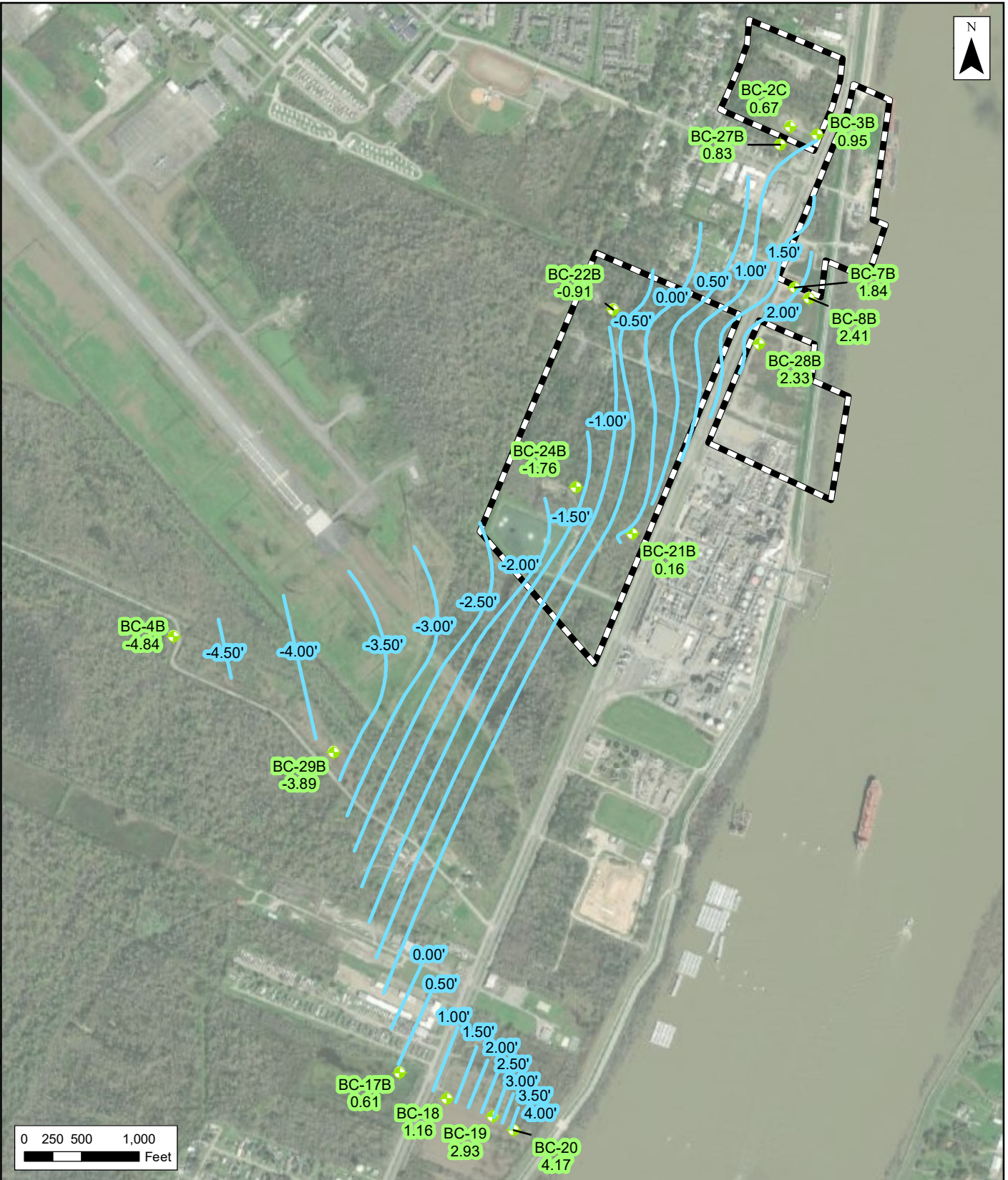


- Property
- ICON B-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements taken 5/7/2019.
 Elevation information based on survey data.
 BC-3B measurement obtained from ICON.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 58
B Zone Potentiometric Surface Map 05-2019
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana



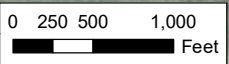
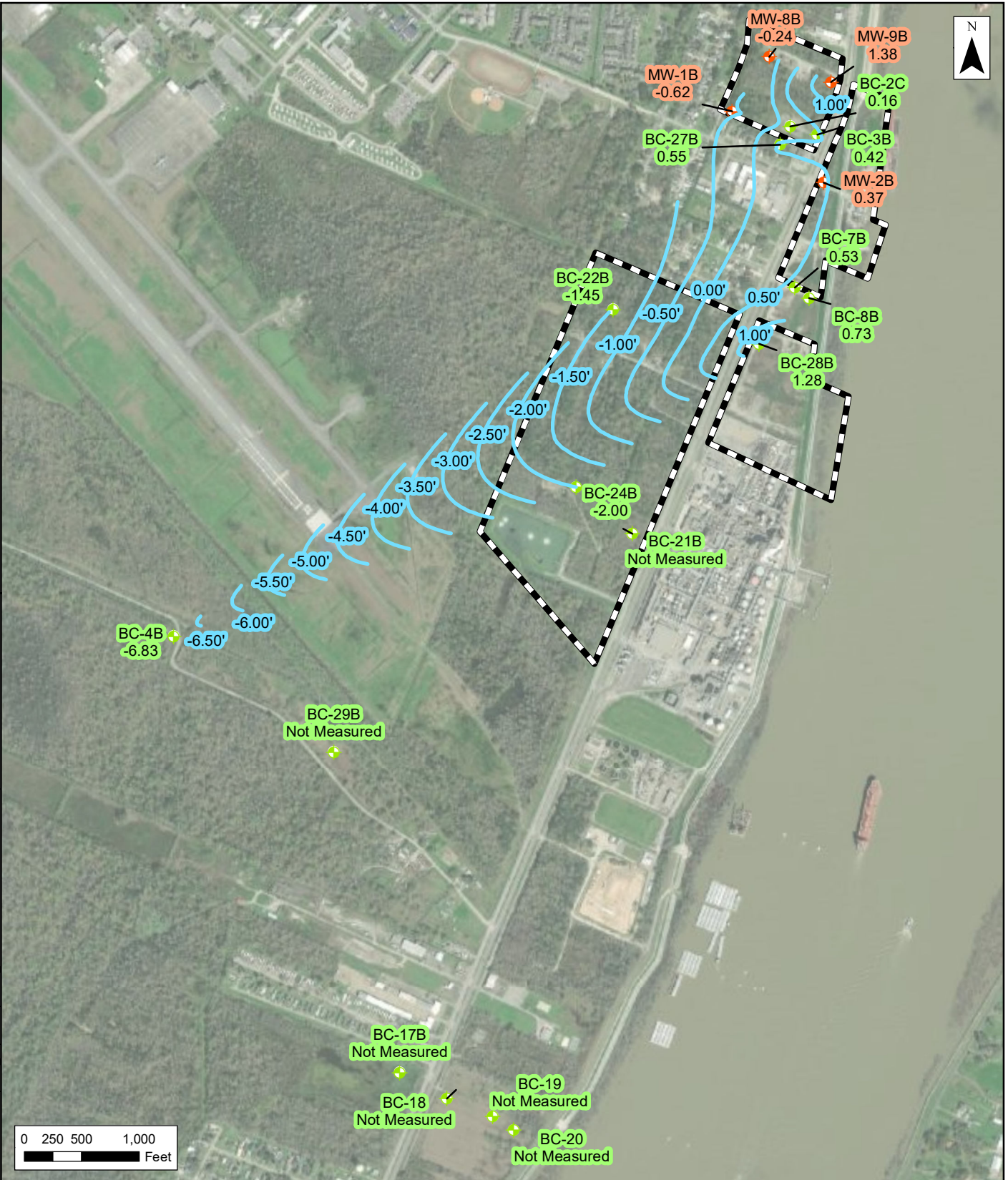
- Property
- ICON B-Zone MW
- Potentiometric Surface Contour

Notes:
 Water level measurements taken 5/7/2019.
 Elevation information based on survey data.
 Water levels corrected to equivalent fresh water head.
 BC-3B measurement obtained from ICON.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 59
B Zone EFWH Potentiometric Surface Map 05-2019

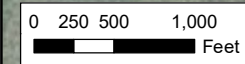
Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana



- Property
- ERM B-Zone Well
- ICON B-Zone Well
- Potentiometric Surface Contour

Notes:
 Water level measurements taken 7/29/2020.
 Elevation information based on survey data.
 Imagery Basemap via ArcGIS Online.

Figure 60
B Zone Potentiometric Surface Map 07-2020
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

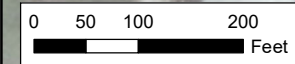
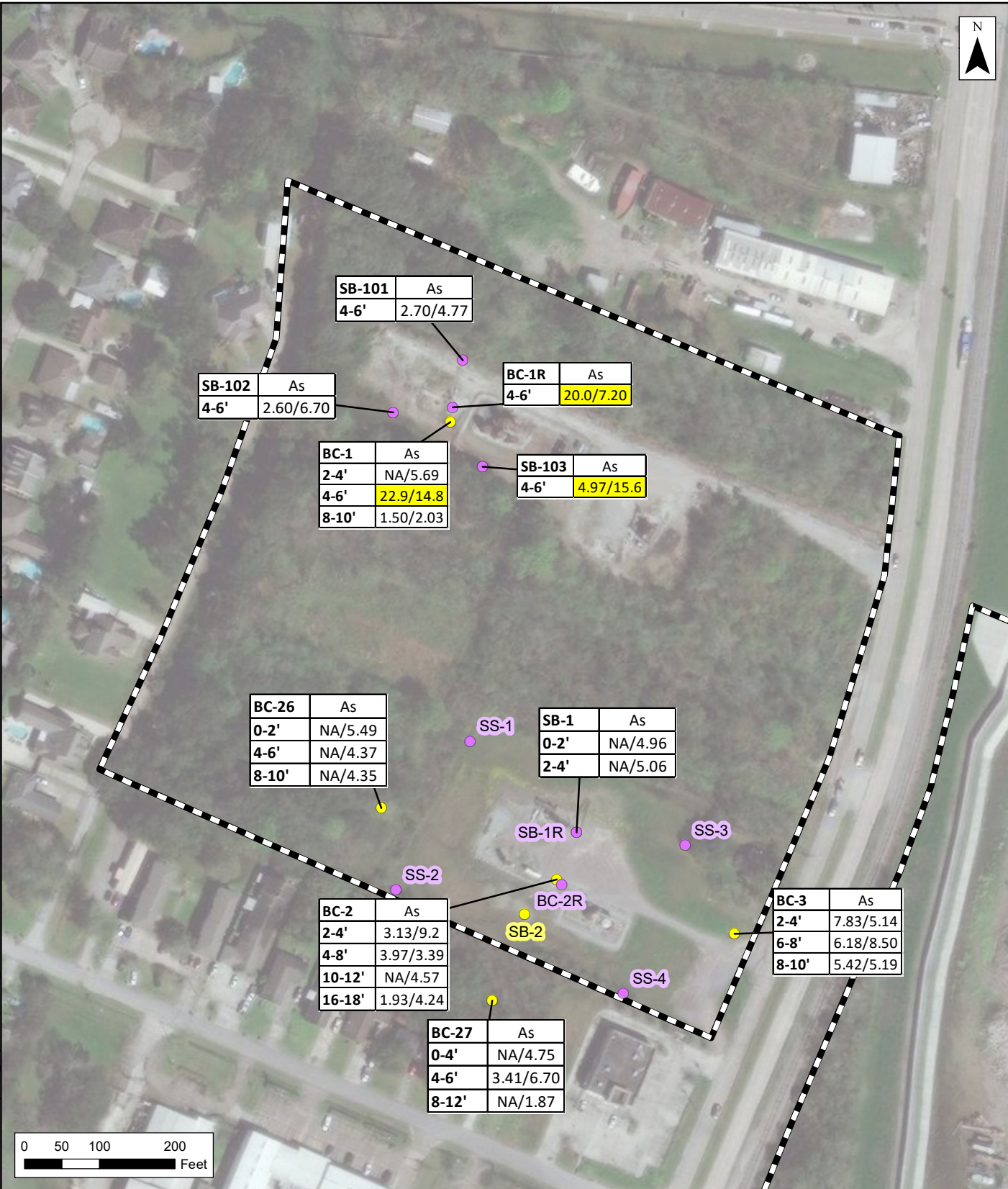


- Property
- ERM B-Zone MW
- ICON B-Zone MW
- B Zone EFWH Pot Surface

Notes:
 Water level measurements taken 7/29/2020.
 Elevation information based on survey data.
 Water levels corrected to equivalent fresh water head.
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 61
B-Zone EFWH Potentiometric Surface Map 07-2020
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

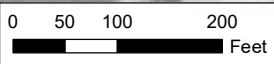
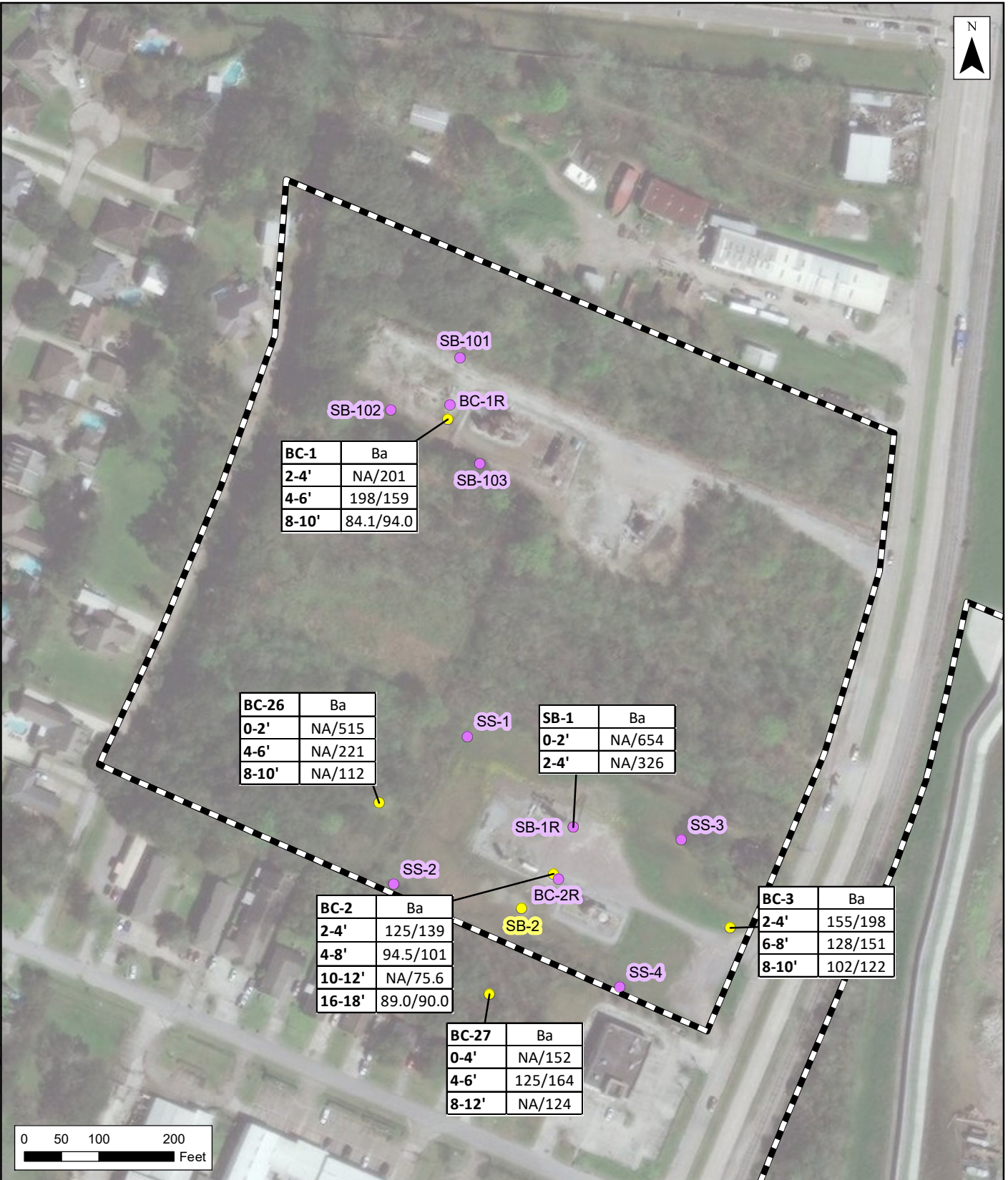


- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result/ICON Result

Notes:
 Highlighted values exceed 29-B Pit Standards.
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Figure 62
Arsenic in Soil - NW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



BC-1	Ba
2-4'	NA/201
4-6'	198/159
8-10'	84.1/94.0

BC-26	Ba
0-2'	NA/515
4-6'	NA/221
8-10'	NA/112

SB-1	Ba
0-2'	NA/654
2-4'	NA/326

BC-2	Ba
2-4'	125/139
4-8'	94.5/101
10-12'	NA/75.6
16-18'	89.0/90.0

BC-3	Ba
2-4'	155/198
6-8'	128/151
8-10'	102/122

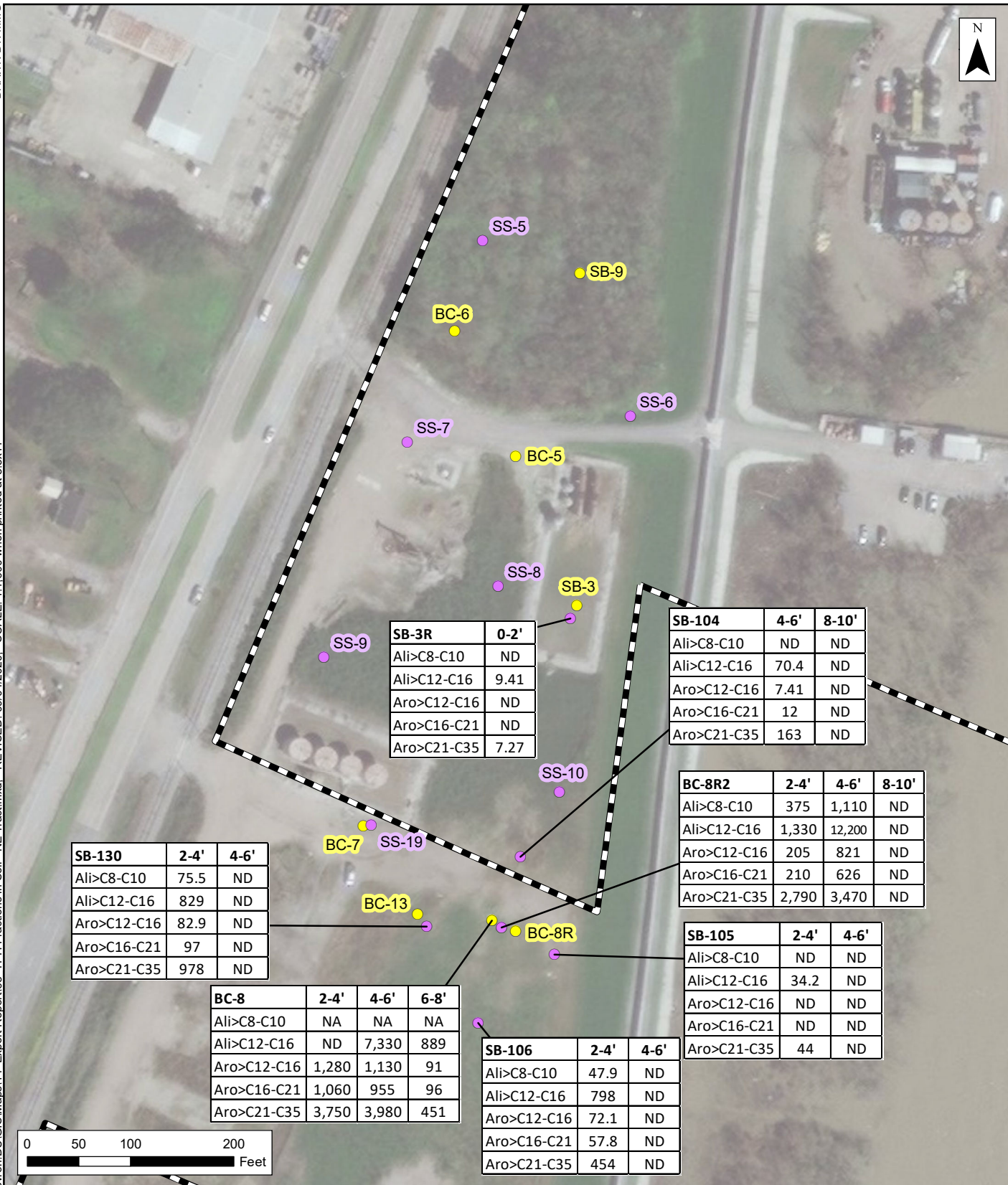
BC-27	Ba
0-4'	NA/152
4-6'	125/164
8-12'	NA/124

- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result/ICON Result

Figure 66
Barium in Soil - NW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



SB-130	2-4'	4-6'
Ali>C8-C10	75.5	ND
Ali>C12-C16	829	ND
Aro>C12-C16	82.9	ND
Aro>C16-C21	97	ND
Aro>C21-C35	978	ND

SB-3R	0-2'
Ali>C8-C10	ND
Ali>C12-C16	9.41
Aro>C12-C16	ND
Aro>C16-C21	ND
Aro>C21-C35	7.27

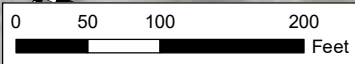
SB-104	4-6'	8-10'
Ali>C8-C10	ND	ND
Ali>C12-C16	70.4	ND
Aro>C12-C16	7.41	ND
Aro>C16-C21	12	ND
Aro>C21-C35	163	ND

BC-8R2	2-4'	4-6'	8-10'
Ali>C8-C10	375	1,110	ND
Ali>C12-C16	1,330	12,200	ND
Aro>C12-C16	205	821	ND
Aro>C16-C21	210	626	ND
Aro>C21-C35	2,790	3,470	ND

SB-105	2-4'	4-6'
Ali>C8-C10	ND	ND
Ali>C12-C16	34.2	ND
Aro>C12-C16	ND	ND
Aro>C16-C21	ND	ND
Aro>C21-C35	44	ND

BC-8	2-4'	4-6'	6-8'
Ali>C8-C10	NA	NA	NA
Ali>C12-C16	ND	7,330	889
Aro>C12-C16	1,280	1,130	91
Aro>C16-C21	1,060	955	96
Aro>C21-C35	3,750	3,980	451

SB-106	2-4'	4-6'
Ali>C8-C10	47.9	ND
Ali>C12-C16	798	ND
Aro>C12-C16	72.1	ND
Aro>C16-C21	57.8	ND
Aro>C21-C35	454	ND

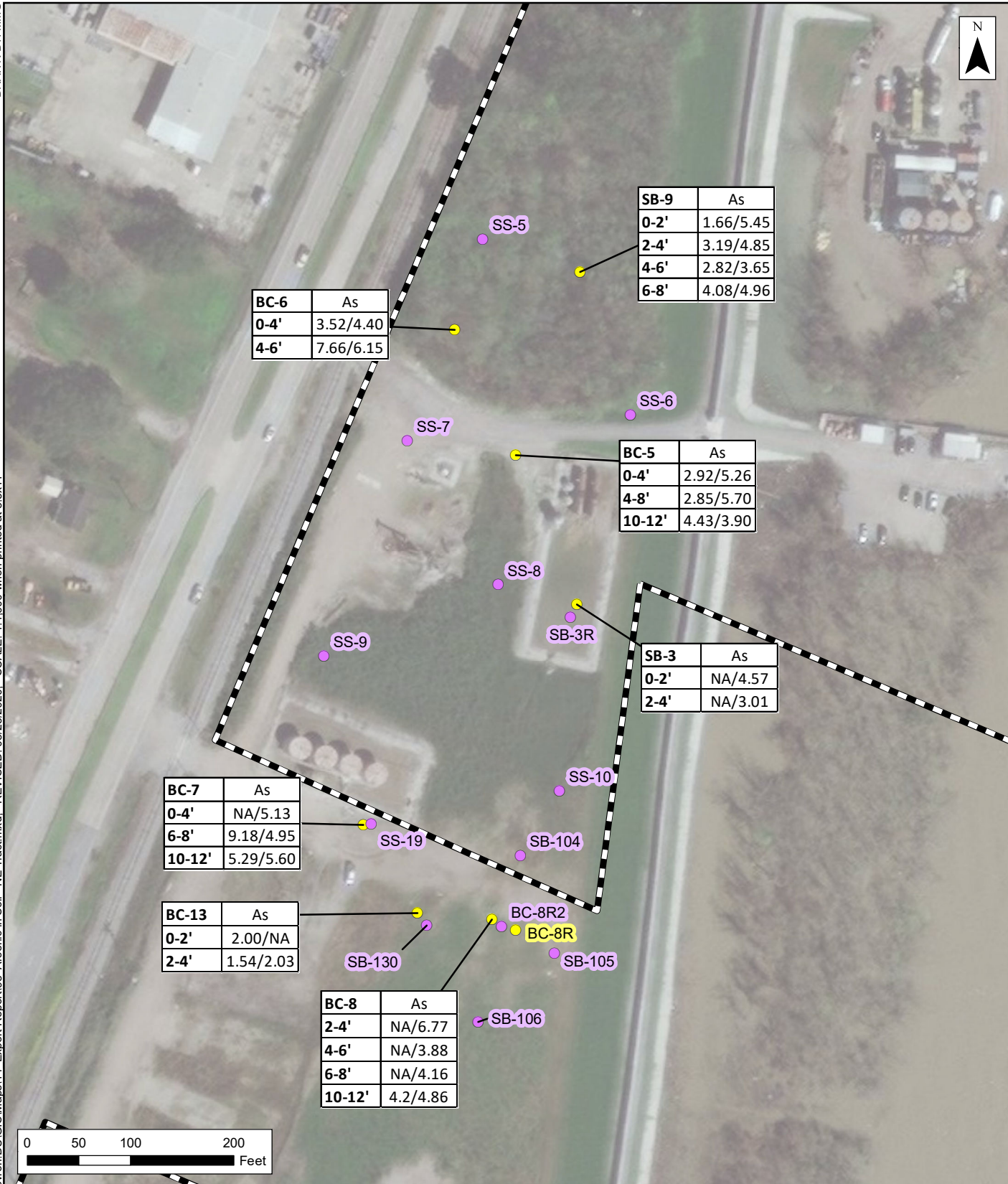


- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Interval
Constituent	ERM Result

Figure 68
TPH Fractions in Soil - NE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



BC-6	As
0-4'	3.52/4.40
4-6'	7.66/6.15

SB-9	As
0-2'	1.66/5.45
2-4'	3.19/4.85
4-6'	2.82/3.65
6-8'	4.08/4.96

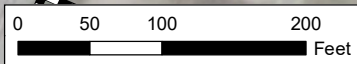
BC-5	As
0-4'	2.92/5.26
4-8'	2.85/5.70
10-12'	4.43/3.90

SB-3	As
0-2'	NA/4.57
2-4'	NA/3.01

BC-7	As
0-4'	NA/5.13
6-8'	9.18/4.95
10-12'	5.29/5.60

BC-13	As
0-2'	2.00/NA
2-4'	1.54/2.03

BC-8	As
2-4'	NA/6.77
4-6'	NA/3.88
6-8'	NA/4.16
10-12'	4.2/4.86

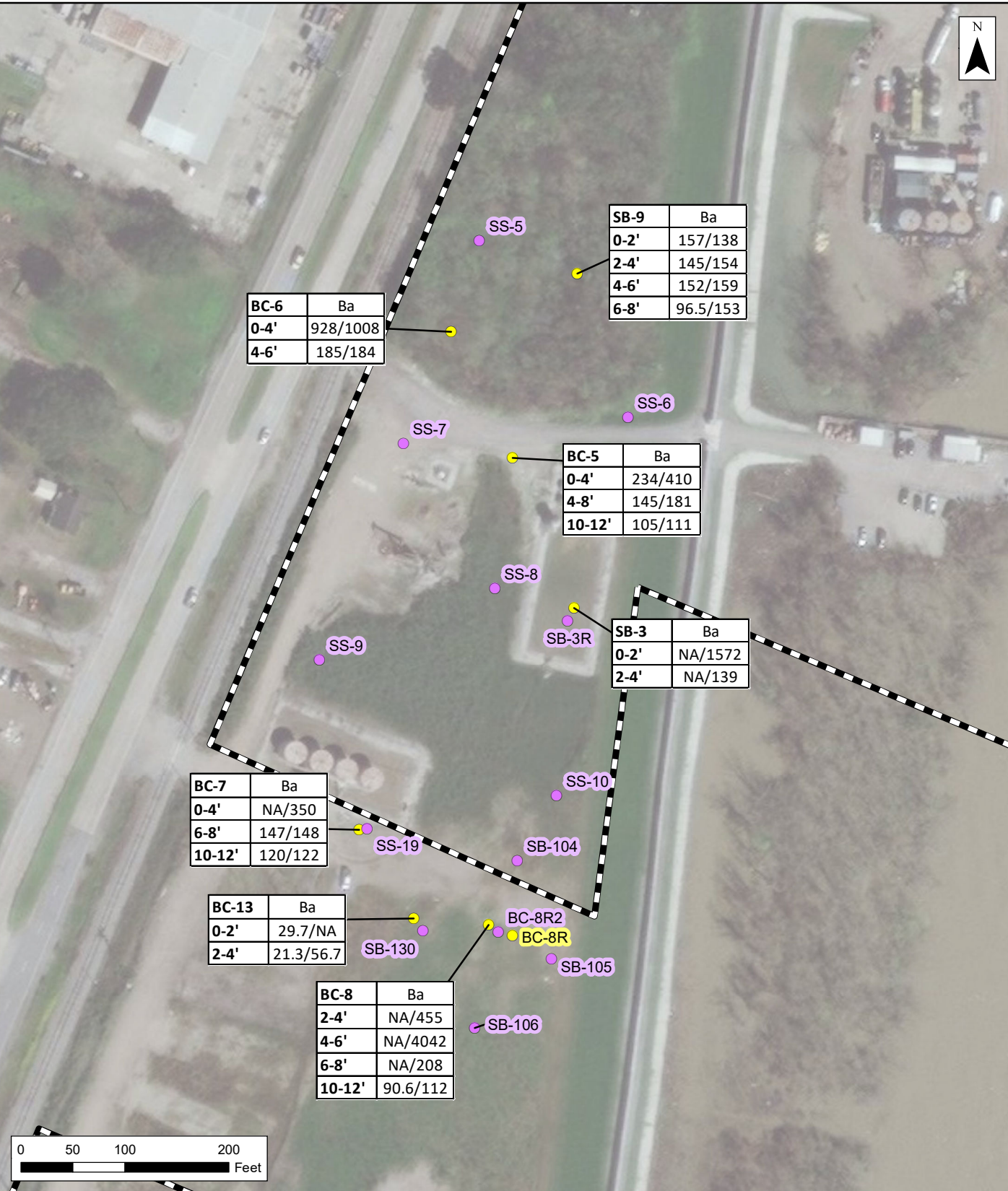


- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result/ICON Result

Figure 69
Arsenic in Soil - NE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil and Gas Field
 Plaquemines Parish, Louisiana

Notes:
 Highlighted values exceed 29-B Pit Standards.
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.



BC-6	Ba
0-4'	928/1008
4-6'	185/184

SB-9	Ba
0-2'	157/138
2-4'	145/154
4-6'	152/159
6-8'	96.5/153

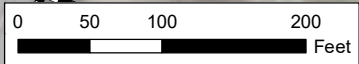
BC-5	Ba
0-4'	234/410
4-8'	145/181
10-12'	105/111

SB-3	Ba
0-2'	NA/1572
2-4'	NA/139

BC-7	Ba
0-4'	NA/350
6-8'	147/148
10-12'	120/122

BC-13	Ba
0-2'	29.7/NA
2-4'	21.3/56.7

BC-8	Ba
2-4'	NA/455
4-6'	NA/4042
6-8'	NA/208
10-12'	90.6/112



- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

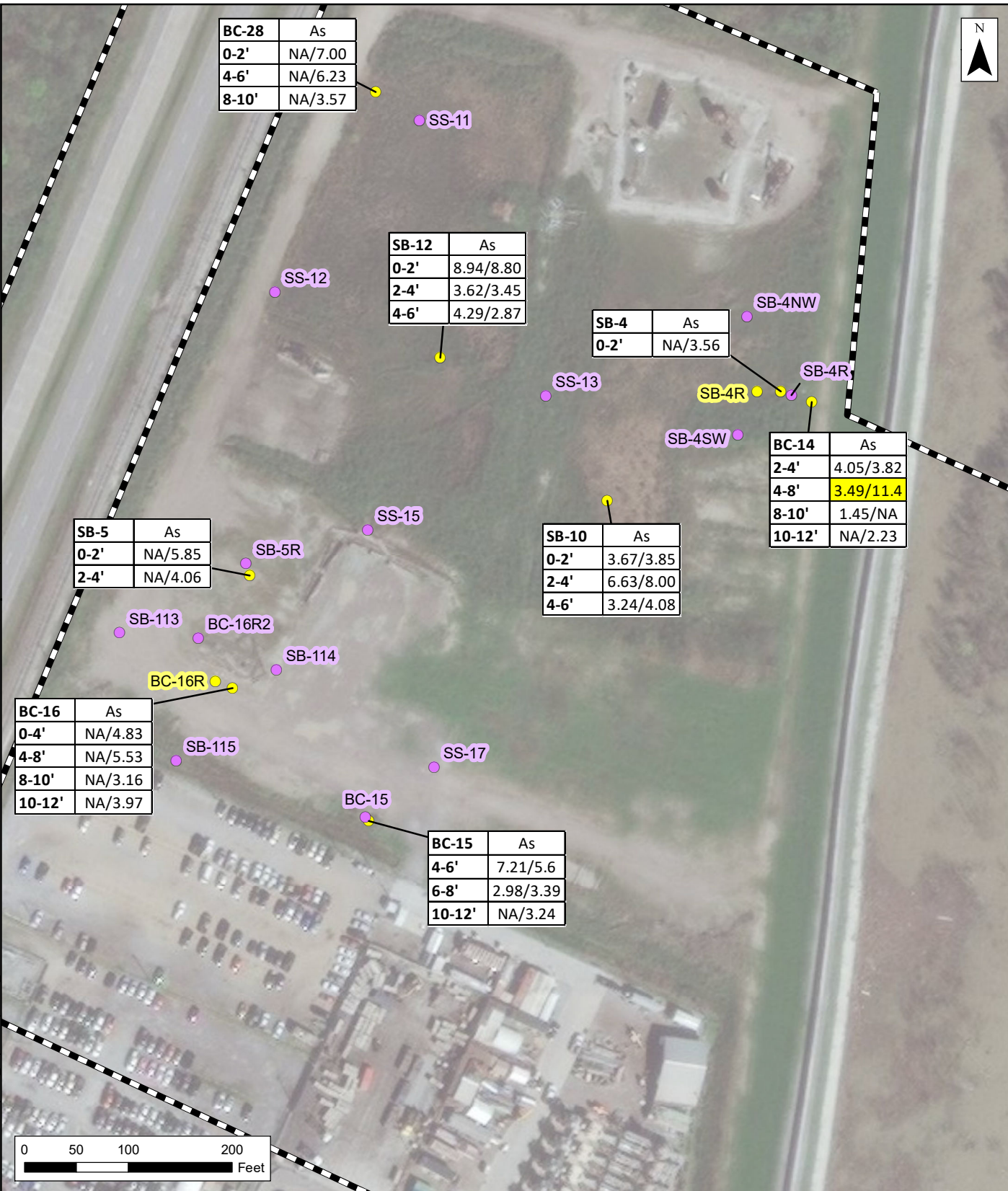
Sample ID	Constituent
Interval	ERM Result/ICON Result

Figure 72
Barium in Soil - NE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

DRAWN BY: MMG

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BC-28	As
0-2'	NA/7.00
4-6'	NA/6.23
8-10'	NA/3.57

SB-12	As
0-2'	8.94/8.80
2-4'	3.62/3.45
4-6'	4.29/2.87

SB-4	As
0-2'	NA/3.56

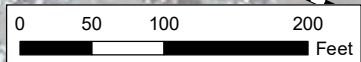
BC-14	As
2-4'	4.05/3.82
4-8'	3.49/11.4
8-10'	1.45/NA
10-12'	NA/2.23

SB-5	As
0-2'	NA/5.85
2-4'	NA/4.06

SB-10	As
0-2'	3.67/3.85
2-4'	6.63/8.00
4-6'	3.24/4.08

BC-16	As
0-4'	NA/4.83
4-8'	NA/5.53
8-10'	NA/3.16
10-12'	NA/3.97

BC-15	As
4-6'	7.21/5.6
6-8'	2.98/3.39
10-12'	NA/3.24



- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

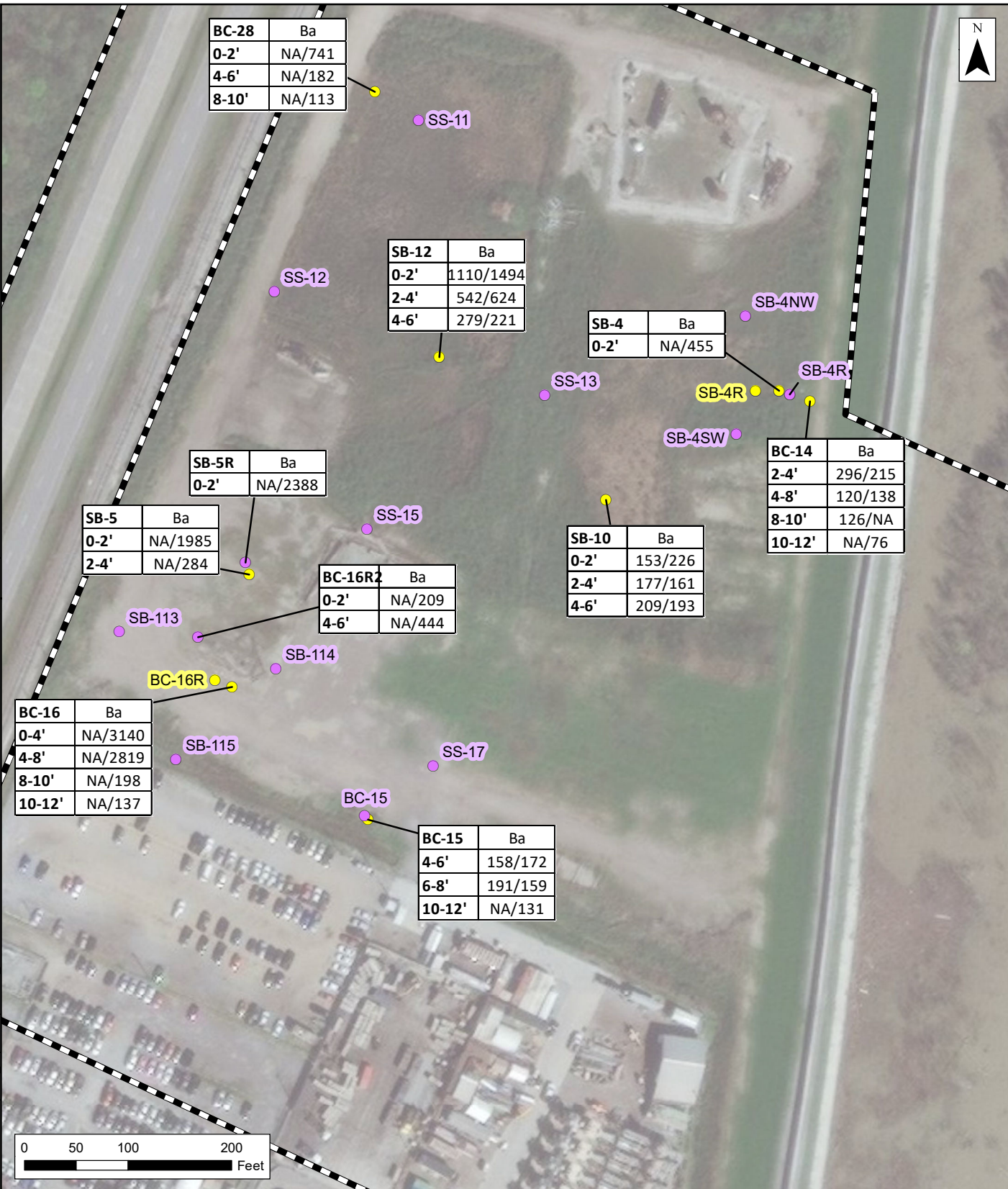
Sample ID	Constituent
Interval	ERM Result/ICON Result

Notes:
 Highlighted values exceed 29-B Pit Standards.
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Figure 74
Arsenic in Soil - SE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

DRAWN BY: MMG

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BC-16	Ba
0-4'	NA/3140
4-8'	NA/2819
8-10'	NA/198
10-12'	NA/137

SB-5	Ba
0-2'	NA/1985
2-4'	NA/284

SB-5R	Ba
0-2'	NA/2388

BC-28	Ba
0-2'	NA/741
4-6'	NA/182
8-10'	NA/113

SB-12	Ba
0-2'	1110/1494
2-4'	542/624
4-6'	279/221

BC-16R2	Ba
0-2'	NA/209
4-6'	NA/444

SB-10	Ba
0-2'	153/226
2-4'	177/161
4-6'	209/193

SB-4	Ba
0-2'	NA/455

BC-14	Ba
2-4'	296/215
4-8'	120/138
8-10'	126/NA
10-12'	NA/76

BC-15	Ba
4-6'	158/172
6-8'	191/159
10-12'	NA/131

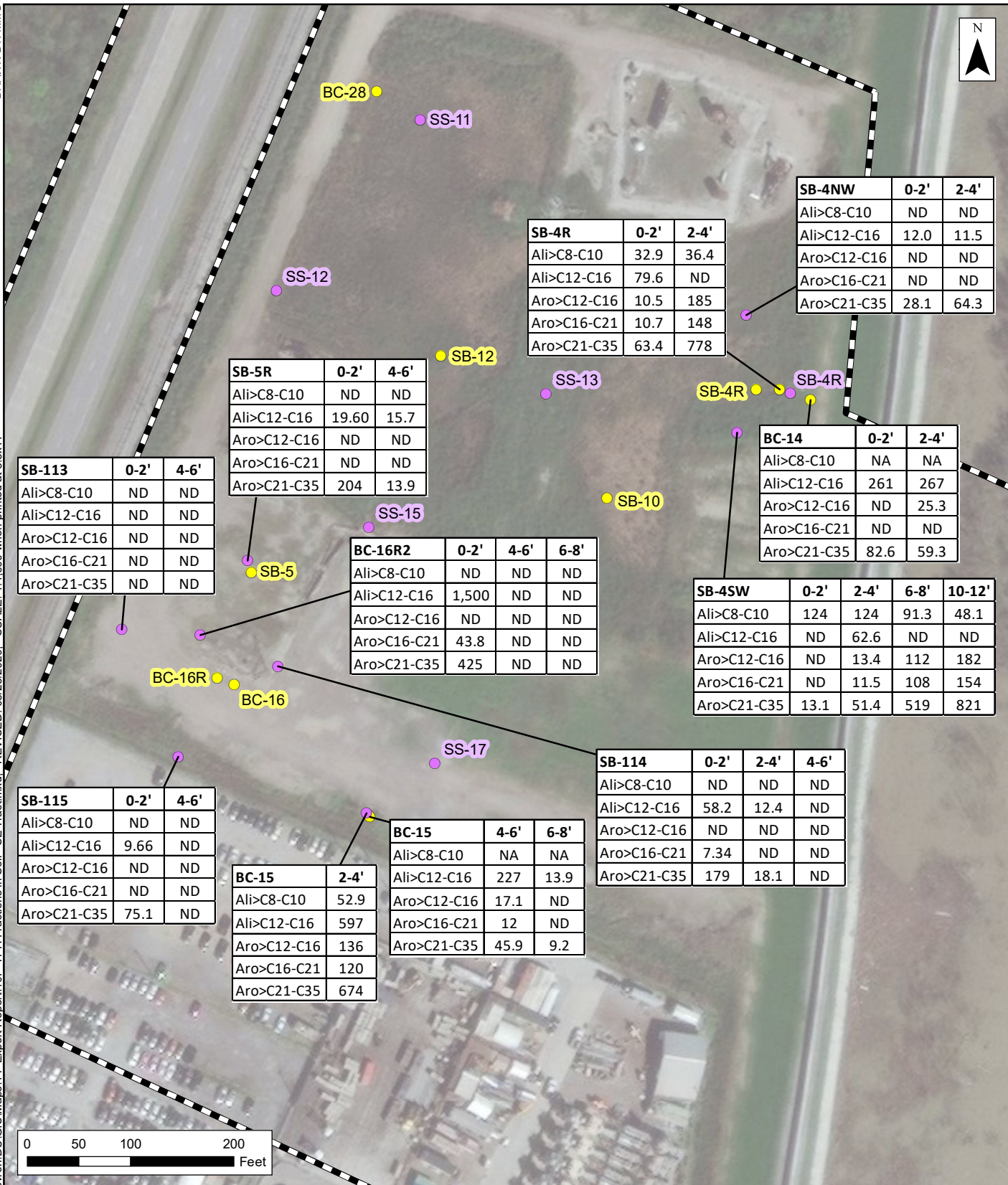
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result/ICON Result

Notes:
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 78
Barium in Soil - SE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

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SB-113	0-2'	4-6'
Ali>C8-C10	ND	ND
Ali>C12-C16	ND	ND
Aro>C12-C16	ND	ND
Aro>C16-C21	ND	ND
Aro>C21-C35	ND	ND

SB-5R	0-2'	4-6'
Ali>C8-C10	ND	ND
Ali>C12-C16	19.60	15.7
Aro>C12-C16	ND	ND
Aro>C16-C21	ND	ND
Aro>C21-C35	204	13.9

BC-16R2	0-2'	4-6'	6-8'
Ali>C8-C10	ND	ND	ND
Ali>C12-C16	1,500	ND	ND
Aro>C12-C16	ND	ND	ND
Aro>C16-C21	43.8	ND	ND
Aro>C21-C35	425	ND	ND

SB-4R	0-2'	2-4'
Ali>C8-C10	32.9	36.4
Ali>C12-C16	79.6	ND
Aro>C12-C16	10.5	185
Aro>C16-C21	10.7	148
Aro>C21-C35	63.4	778

SB-4NW	0-2'	2-4'
Ali>C8-C10	ND	ND
Ali>C12-C16	12.0	11.5
Aro>C12-C16	ND	ND
Aro>C16-C21	ND	ND
Aro>C21-C35	28.1	64.3

BC-14	0-2'	2-4'
Ali>C8-C10	NA	NA
Ali>C12-C16	261	267
Aro>C12-C16	ND	25.3
Aro>C16-C21	ND	ND
Aro>C21-C35	82.6	59.3

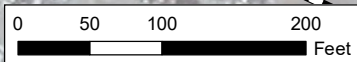
SB-4SW	0-2'	2-4'	6-8'	10-12'
Ali>C8-C10	124	124	91.3	48.1
Ali>C12-C16	ND	62.6	ND	ND
Aro>C12-C16	ND	13.4	112	182
Aro>C16-C21	ND	11.5	108	154
Aro>C21-C35	13.1	51.4	519	821

SB-115	0-2'	4-6'
Ali>C8-C10	ND	ND
Ali>C12-C16	9.66	ND
Aro>C12-C16	ND	ND
Aro>C16-C21	ND	ND
Aro>C21-C35	75.1	ND

BC-15	2-4'
Ali>C8-C10	52.9
Ali>C12-C16	597
Aro>C12-C16	136
Aro>C16-C21	120
Aro>C21-C35	674

BC-15	4-6'	6-8'
Ali>C8-C10	NA	NA
Ali>C12-C16	227	13.9
Aro>C12-C16	17.1	ND
Aro>C16-C21	12	ND
Aro>C21-C35	45.9	9.2

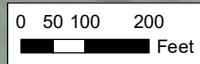
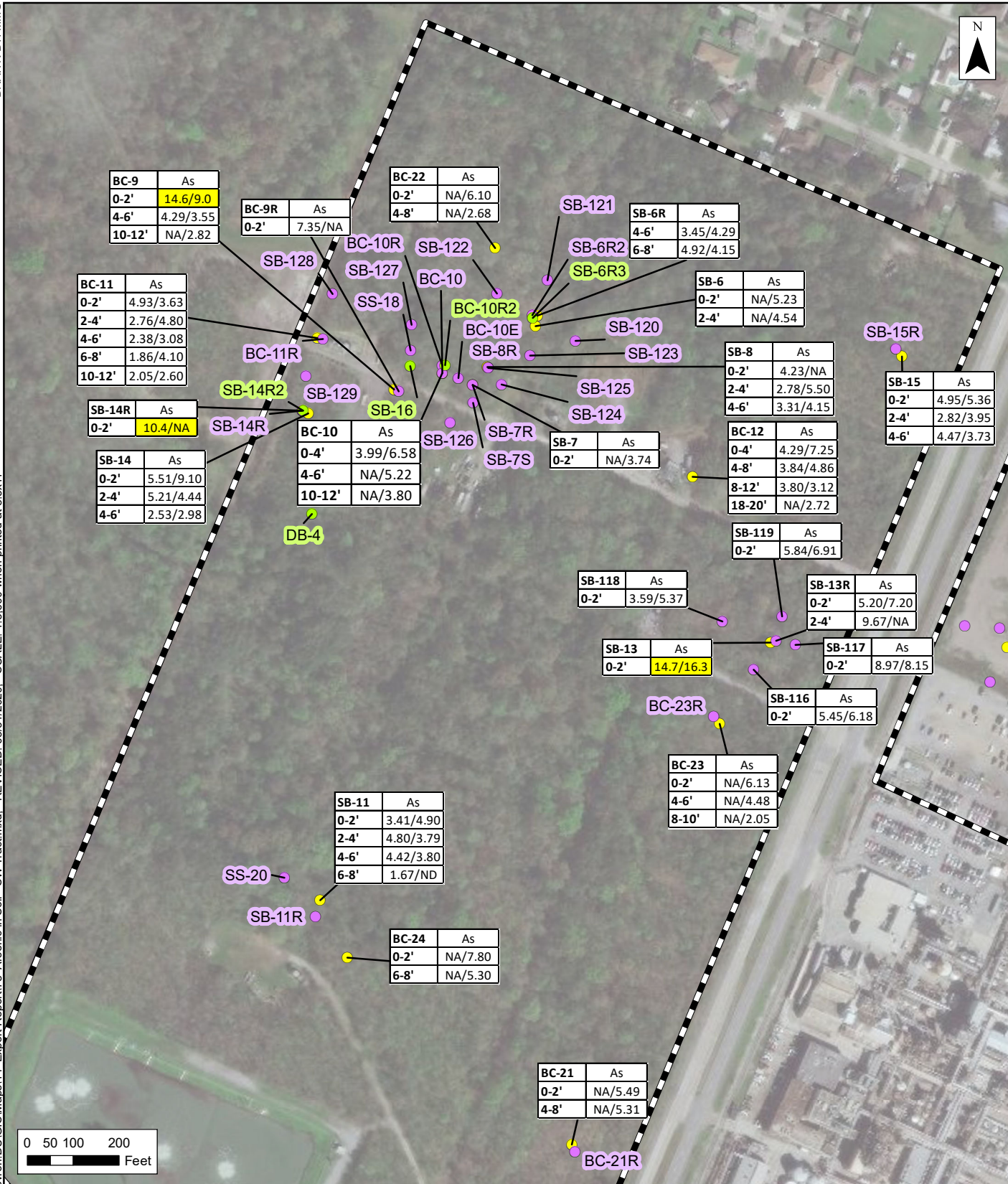
SB-114	0-2'	2-4'	4-6'
Ali>C8-C10	ND	ND	ND
Ali>C12-C16	58.2	12.4	ND
Aro>C12-C16	ND	ND	ND
Aro>C16-C21	7.34	ND	ND
Aro>C21-C35	179	18.1	ND



- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Interval
Constituent	ERM Result

Figure 79
TPH Fractions in Soil - SE Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

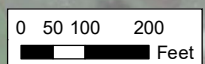
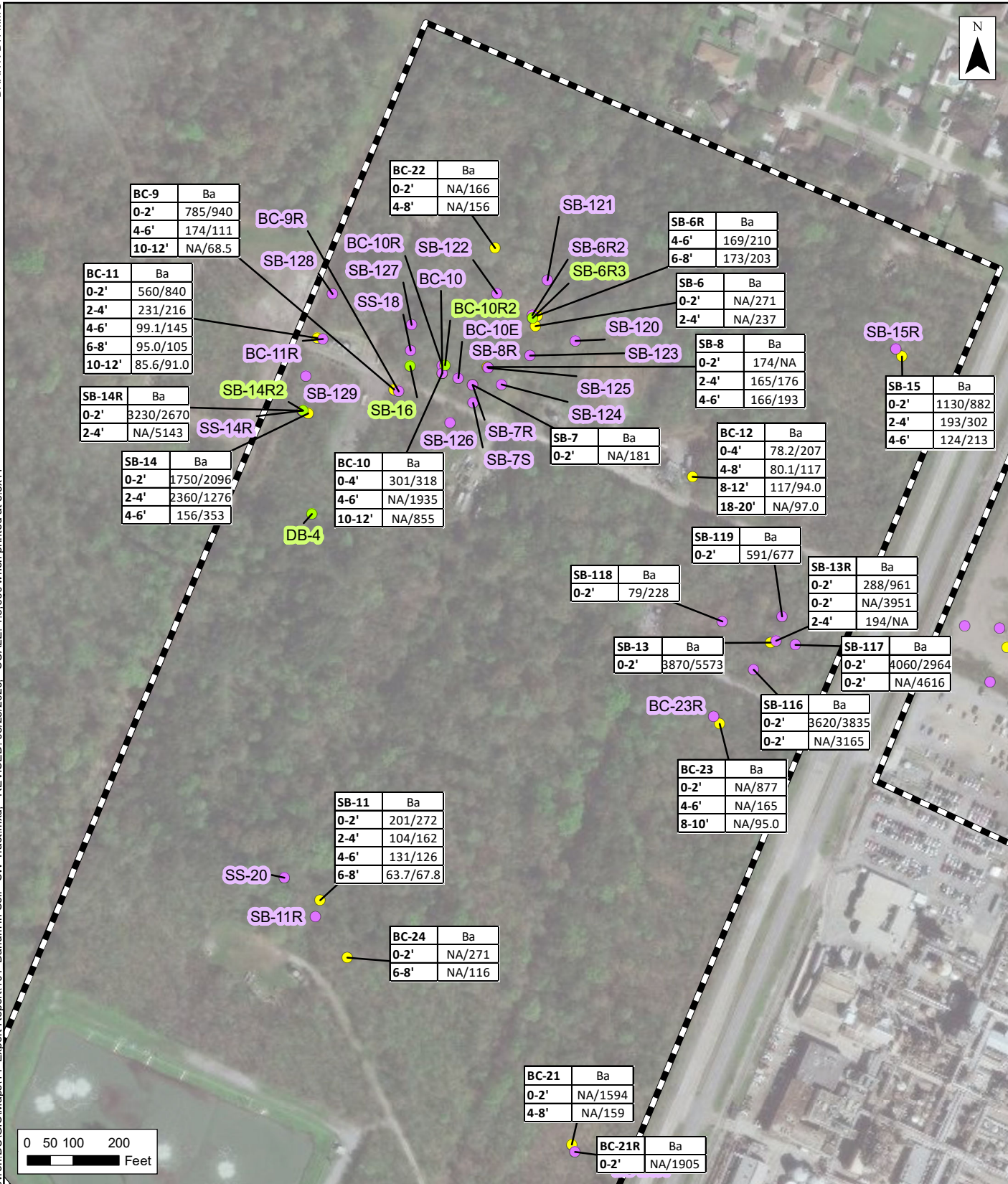


- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Notes:
 HET Soil Boring results are HET Results/ICON Results.
 Highlighted values exceed 29-B Pit Standards.
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Sample ID	Constituent
Interval	ERM Result/ICON Result

Figure 82
Arsenic in Soil - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



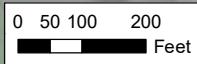
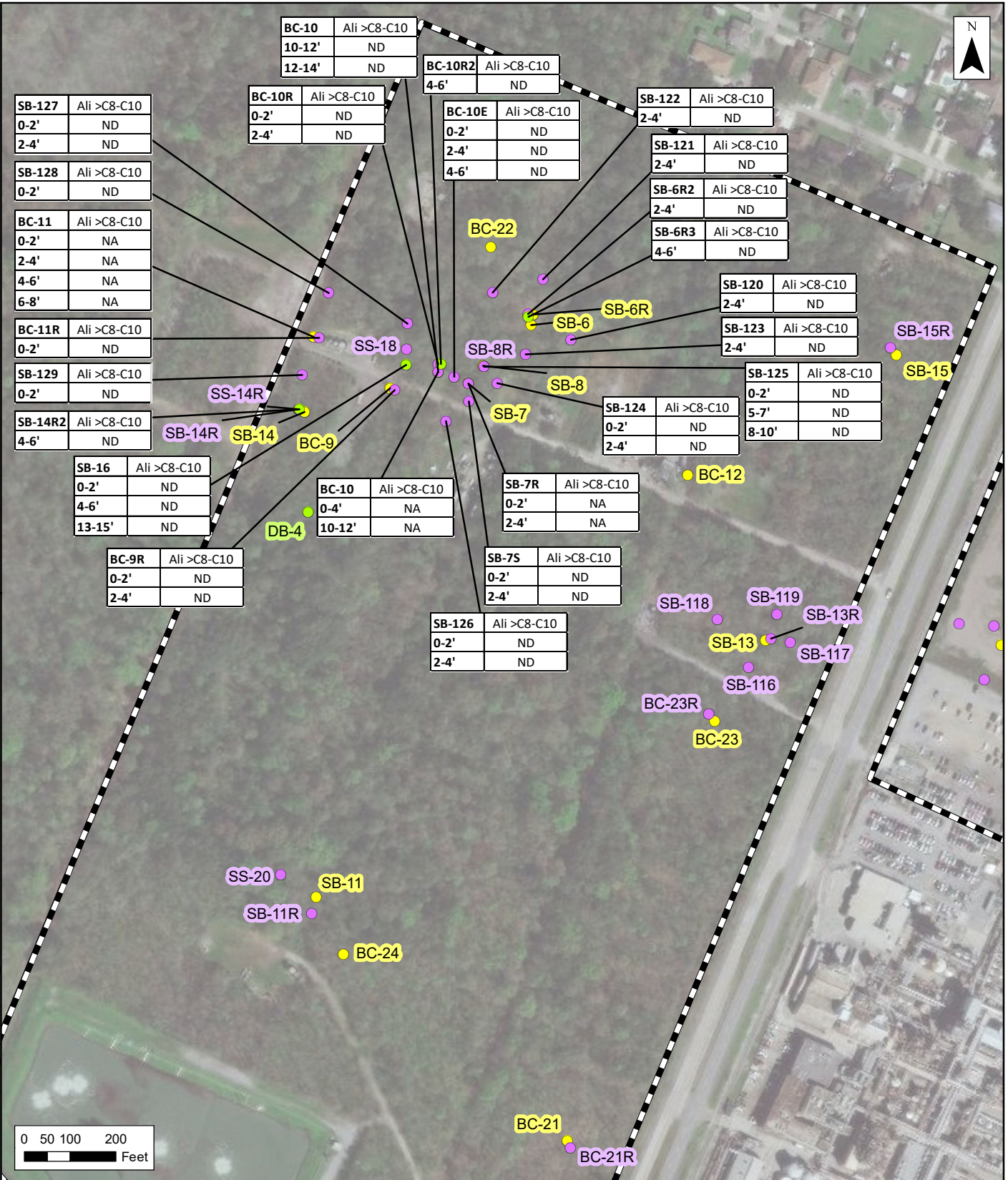
- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Notes:
 HET Soil Boring results are HET Results/ICON Results.
 Results are in wet-weight.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Sample ID	Constituent
Interval	ERM Result/ICON Result

Figure 86
Barium in Soil - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

DRAWN BY: MMG
P:\Projects\0494255 Hero Lands v Chevron.DU\GIS\Maps\14 Expert Report\87 Aliphatic C8-C10 in Soil-SW Tract.mxd, REVISED: 09/04/2020, SCALE: 1:3,600 when printed at 8.5x11



- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

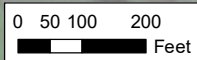
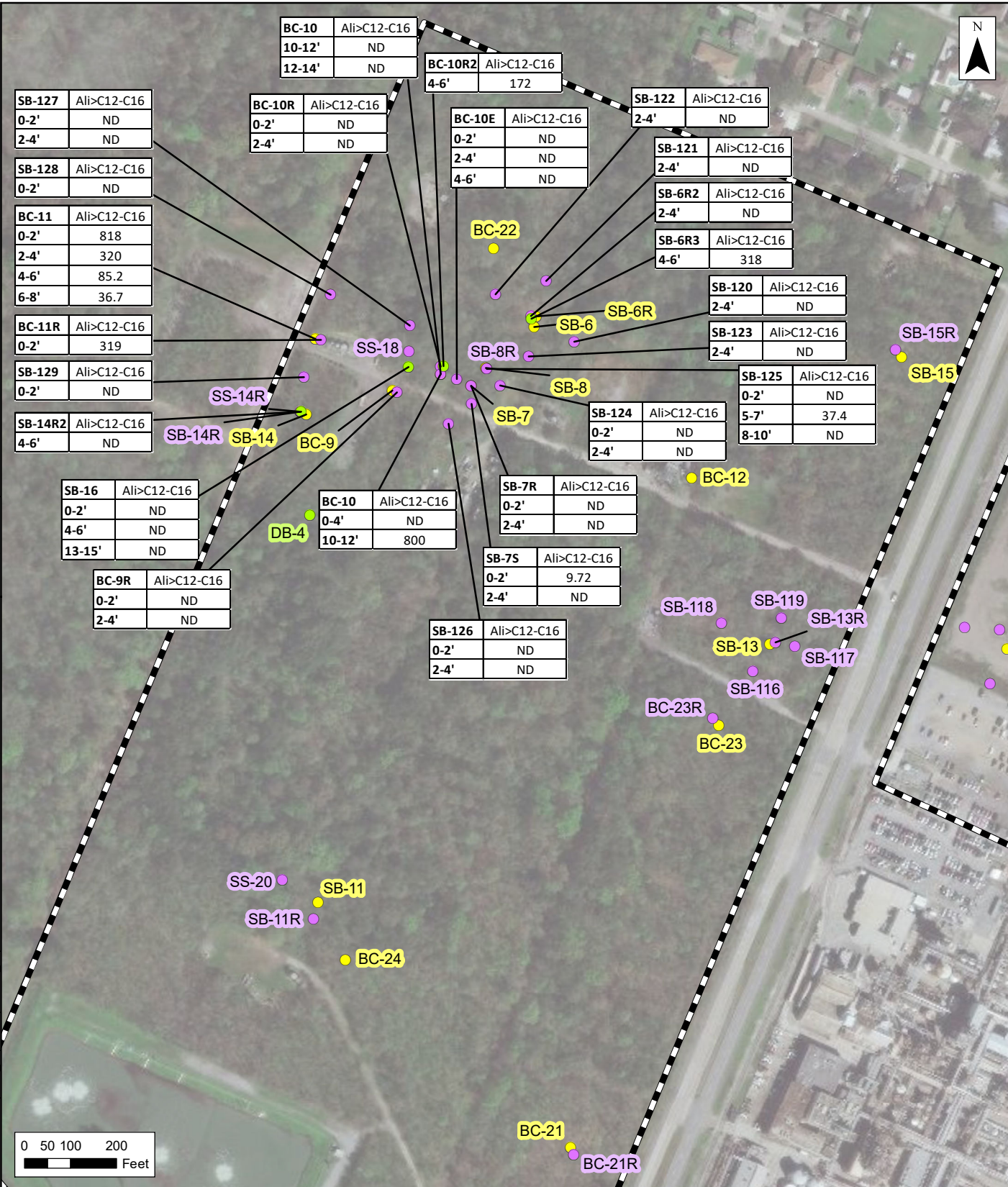
Sample ID	Constituent
Interval	ERM Result

Notes:
 HET Soil Boring Results are HET Results/ICON Results.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Figure 87
Aliphatic C8-C10 in Soil- SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

DRAWN BY: MMG
 P:\Projects\0494255 Hero Lands v Chevron.DU\GIS\Maps\14 Expert Report\109 Aliphatic C12-C16 in Soil - SW Tract.mxd REVISED: 08/25/2020 SCALE: 1:3,600 when printed at 8.5x11



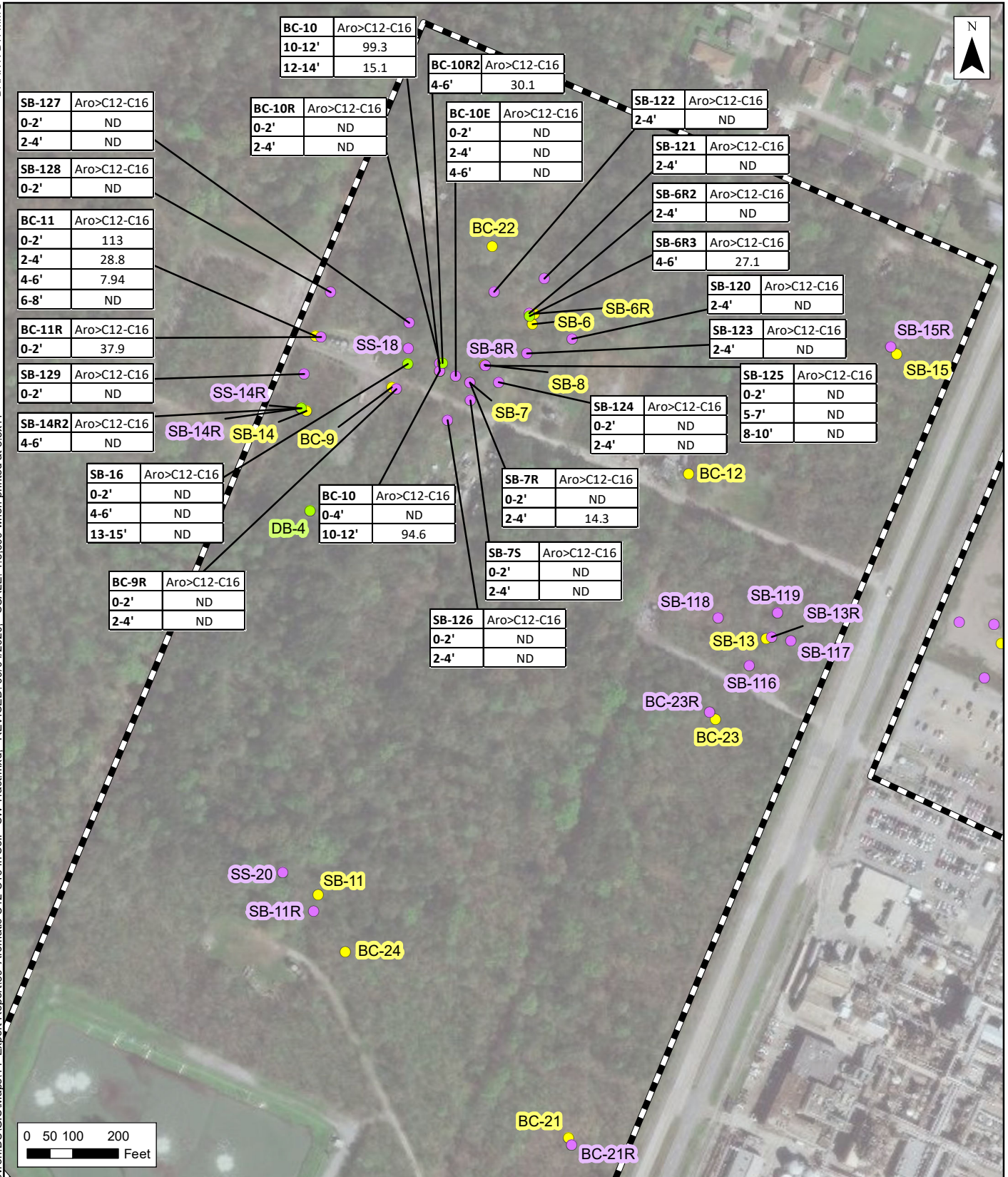
- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result

Notes:
 HET Soil Boring results are HET Results/ICON Results.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.

Figure 88
Aliphatic C12-C16 in Soil - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

DRAWN BY: MMG
P:\Projects\0494255 Hero Lands v Chevron.DU\GIS\Maps\14 Expert Report\89 Aromatic C12-C16 in Soil - SW Tract.mxd, REVISED: 09/04/2020, SCALE: 1:3,600 when printed at 8.5x11



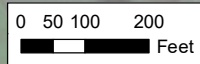
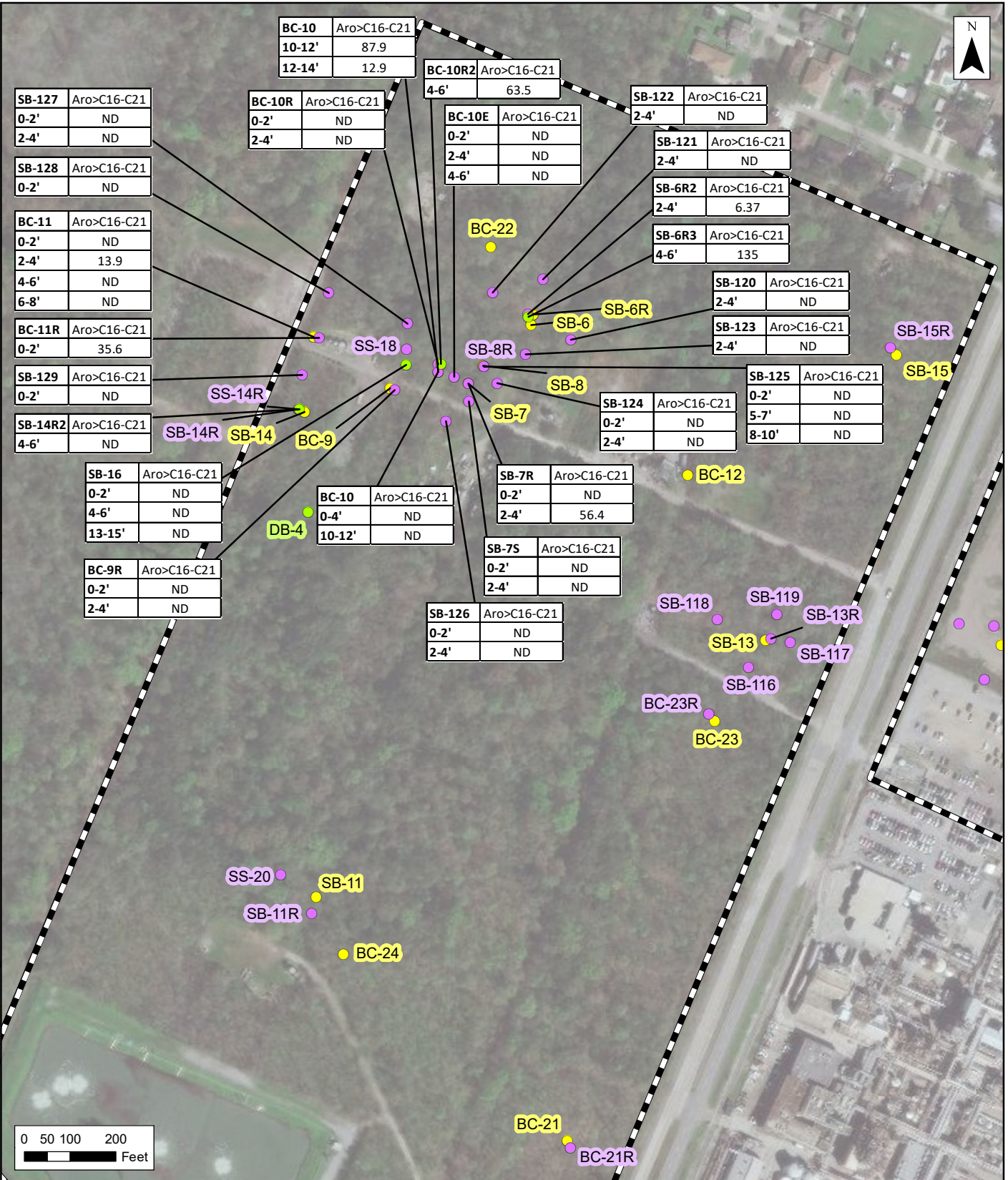
- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result

Figure 89
Aromatic C12-C16 in Soil - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 HET Soil Boring results are HET Results/ICON Results.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

DRAWN BY: MMG
 P:\Projects\0494255 Hero Lands v Chevron.DWG\GIS\Maps\14 Expert Report\1111 Aromatic C16-C21 in Soil - SW Tract.mxd REVISED: 08/25/2020 SCALE: 1:3,600 when printed at 8.5x11

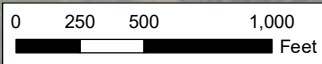
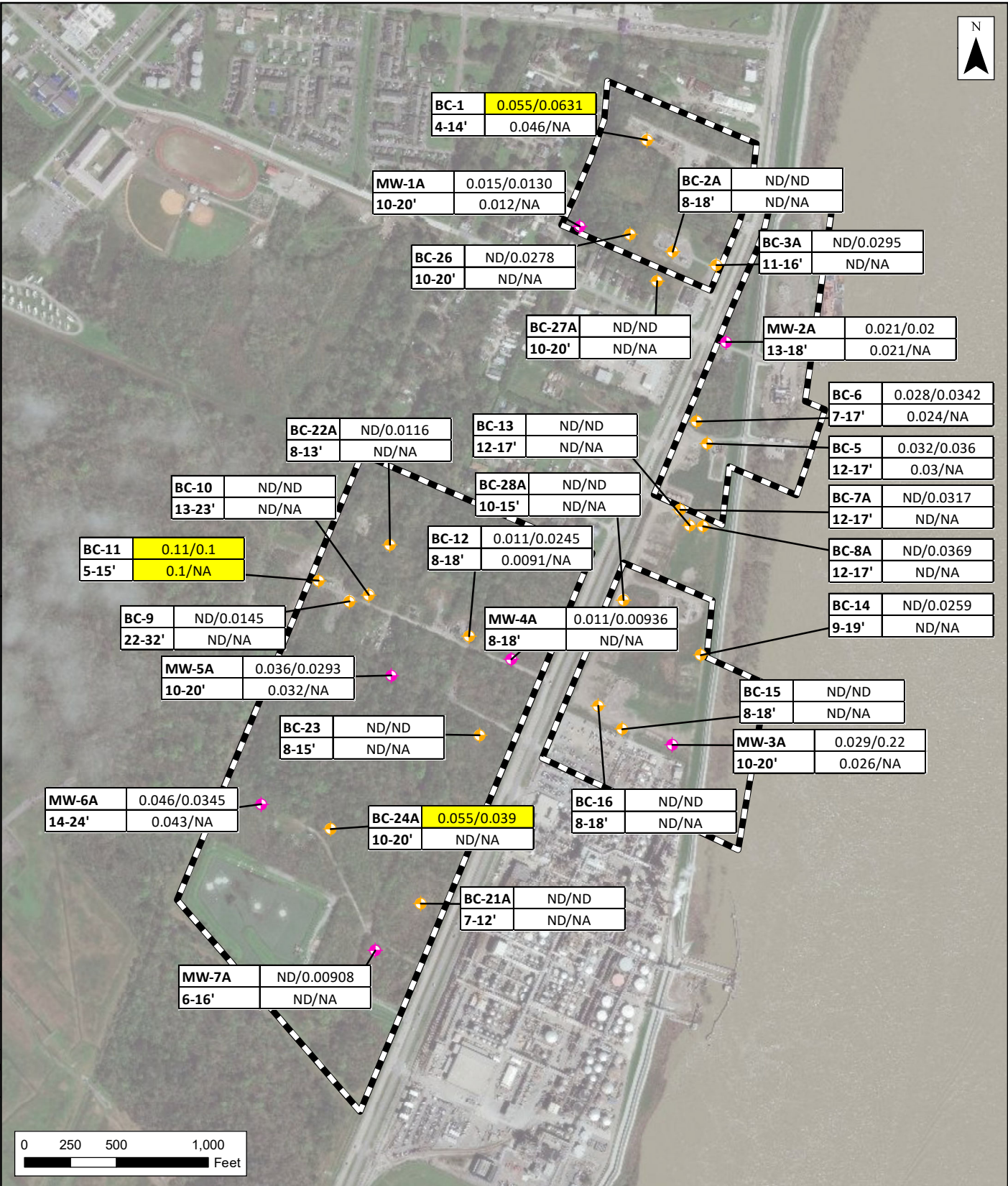


- HET Soil Boring Location
- ERM Soil Boring Location
- ICON Soil Boring Location
- Property

Sample ID	Constituent
Interval	ERM Result

Notes:
 HET Soil Boring results are HET Results/ICON Results.
 Units are mg/kg.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 90
Aromatic C16-C21 in Soil - SW Tract
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

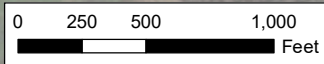
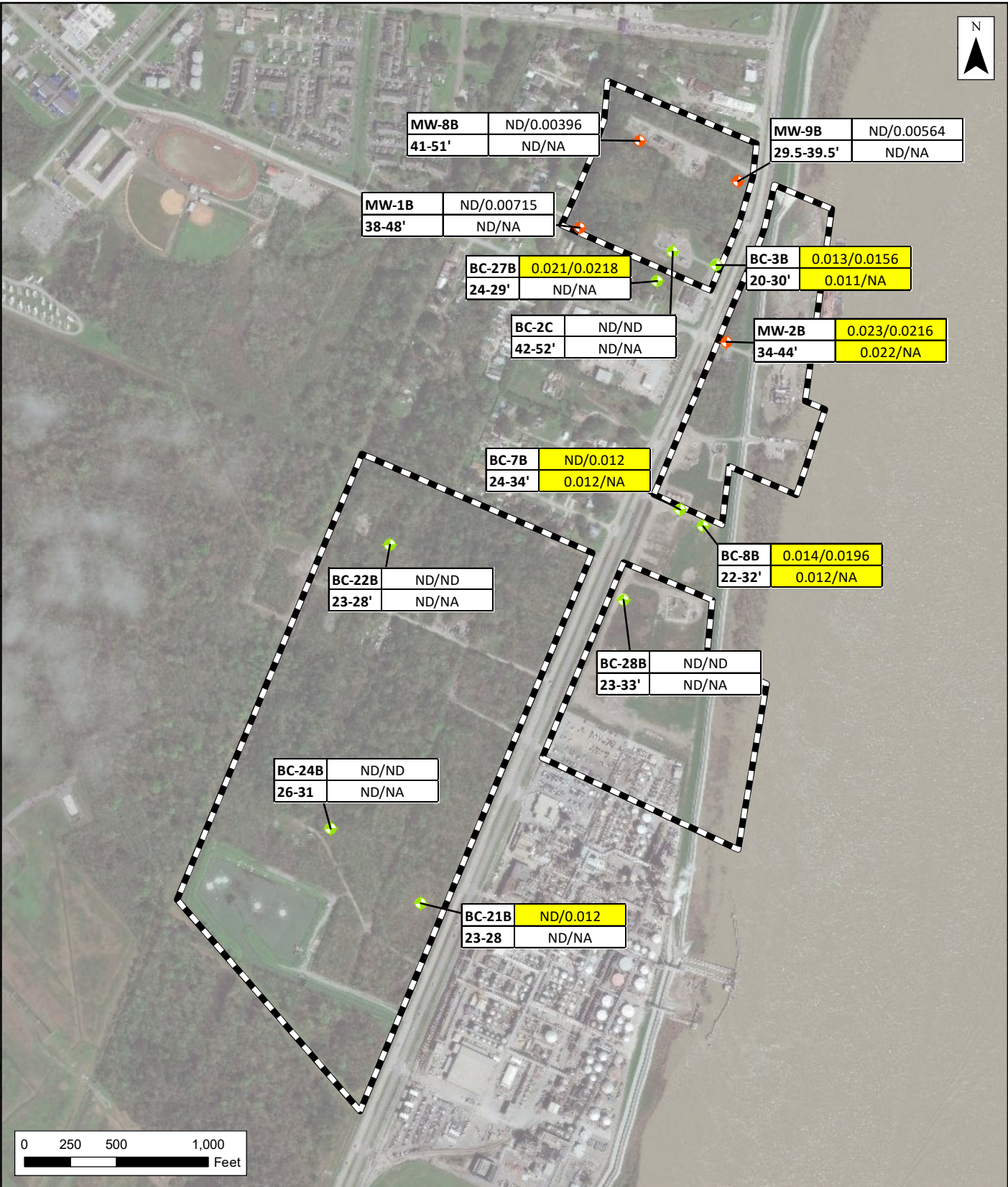


◆ ERM A-Zone MW Property
◆ ICON A-Zone MW

Well ID	Total Results: ERM/ICON
Screen	Dissolved Results: ERM/ICON

Notes:
 All Arsenic sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP GW3NDW MO-1.
 NA - Not Analyzed, ND - Non-Detect
 Imagery Basemap via ArcGIS Online.

Figure 92
GW Results - A Zone Arsenic
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

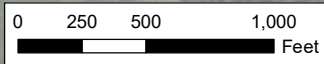
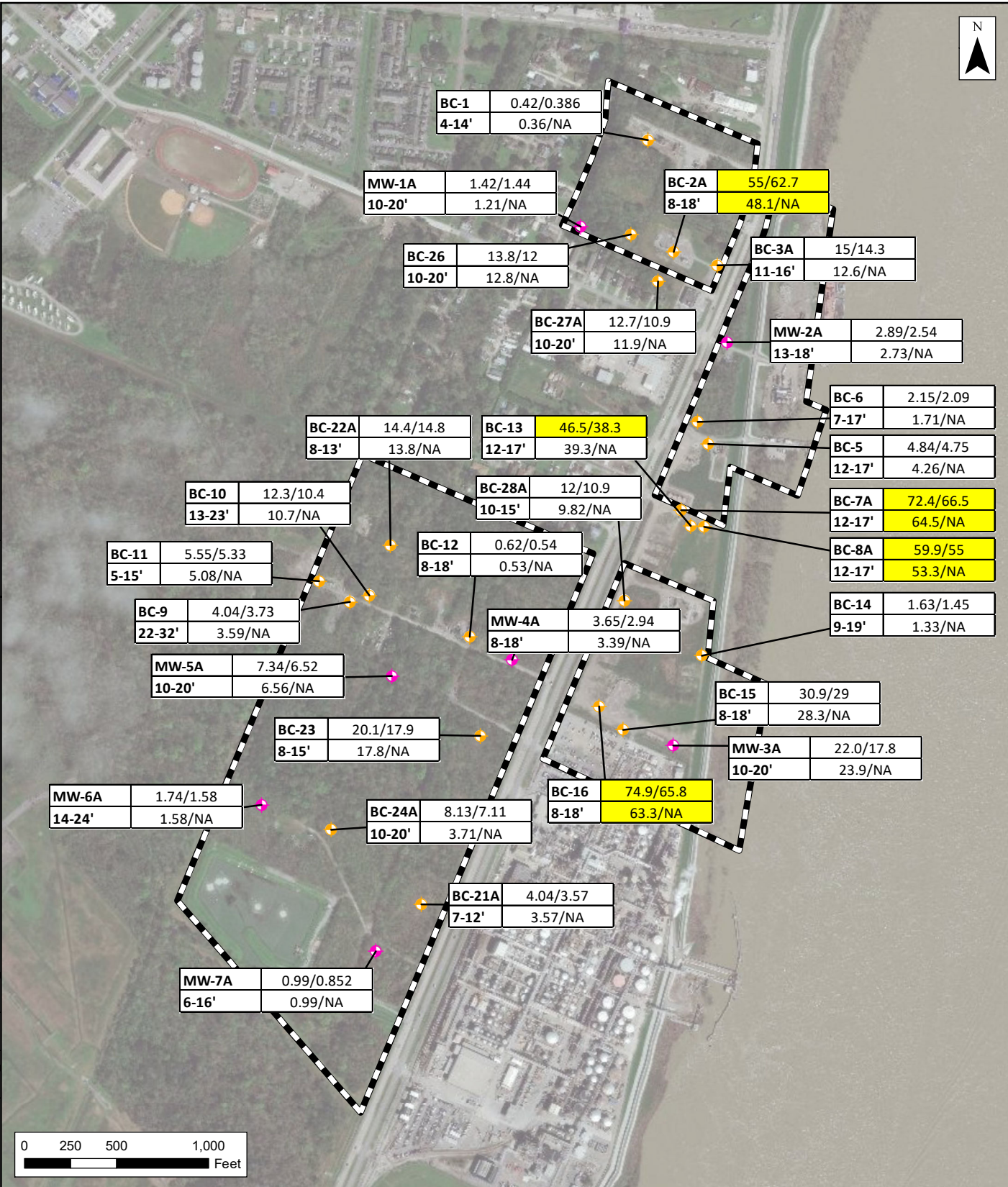


ERM B-Zone MW
 Property
 ICON B-Zone MW

Well ID	Total Results: ERM/ICON
Screen	Dissolved Results: ERM/ICON

Notes:
 All Arsenic sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP Screening Option.
 NA - Not Analyzed, ND - Non-Detect
 Imagery Basemap via ArcGIS Online.

Figure 93
GW Results - B Zone Arsenic
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

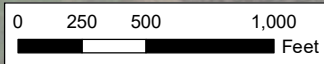
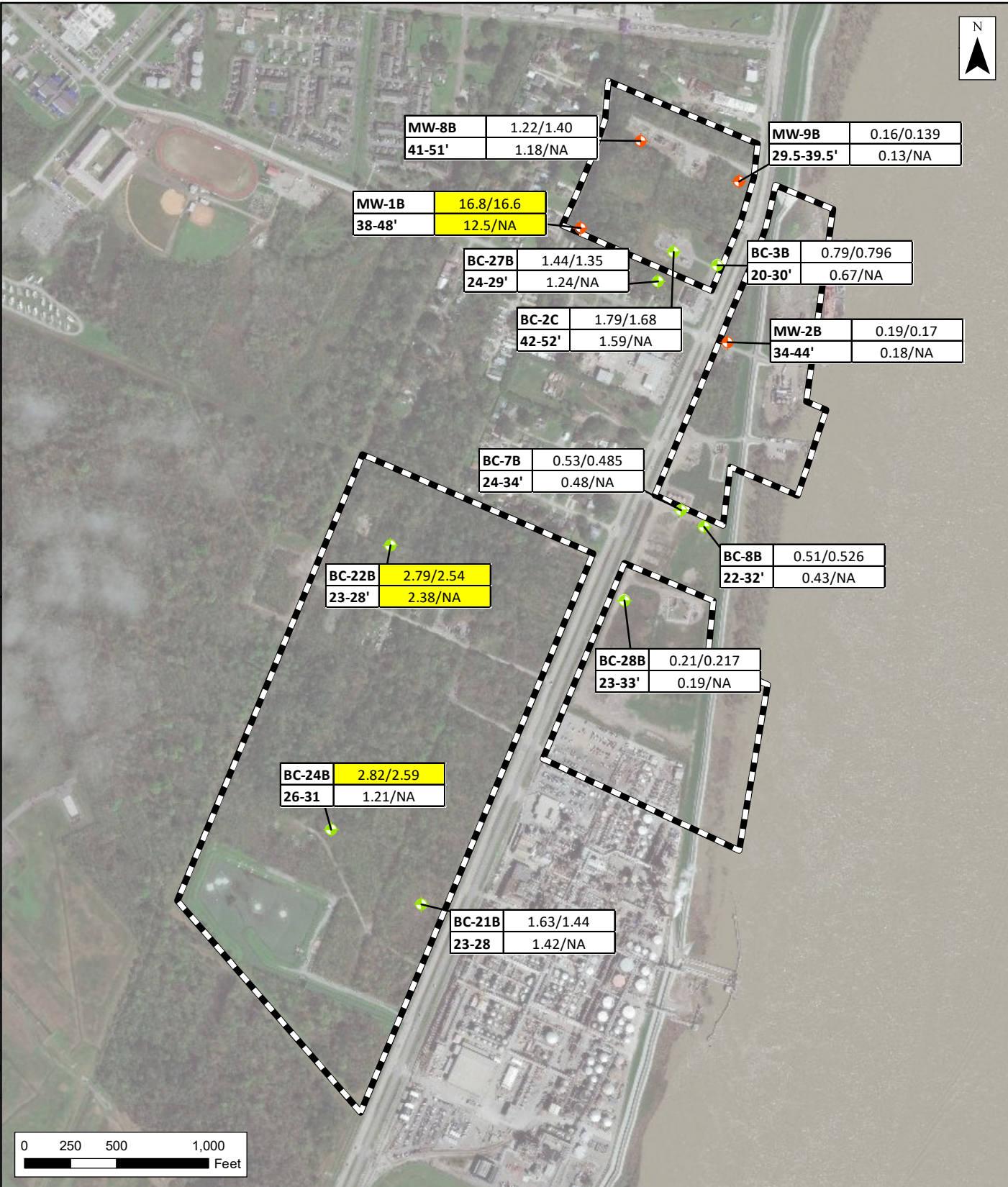


- ◆ ERM A-Zone MW
- ◆ ICON A-Zone MW
- Property

Well ID	Total Results: ERM/ICON
Screen	Dissolved Results: ERM/ICON

Figure 94
GW Results - A Zone Barium
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 All Barium sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP GW3NDW MO-1.
 NA - Not Analyzed
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

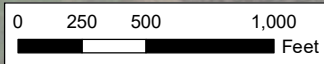
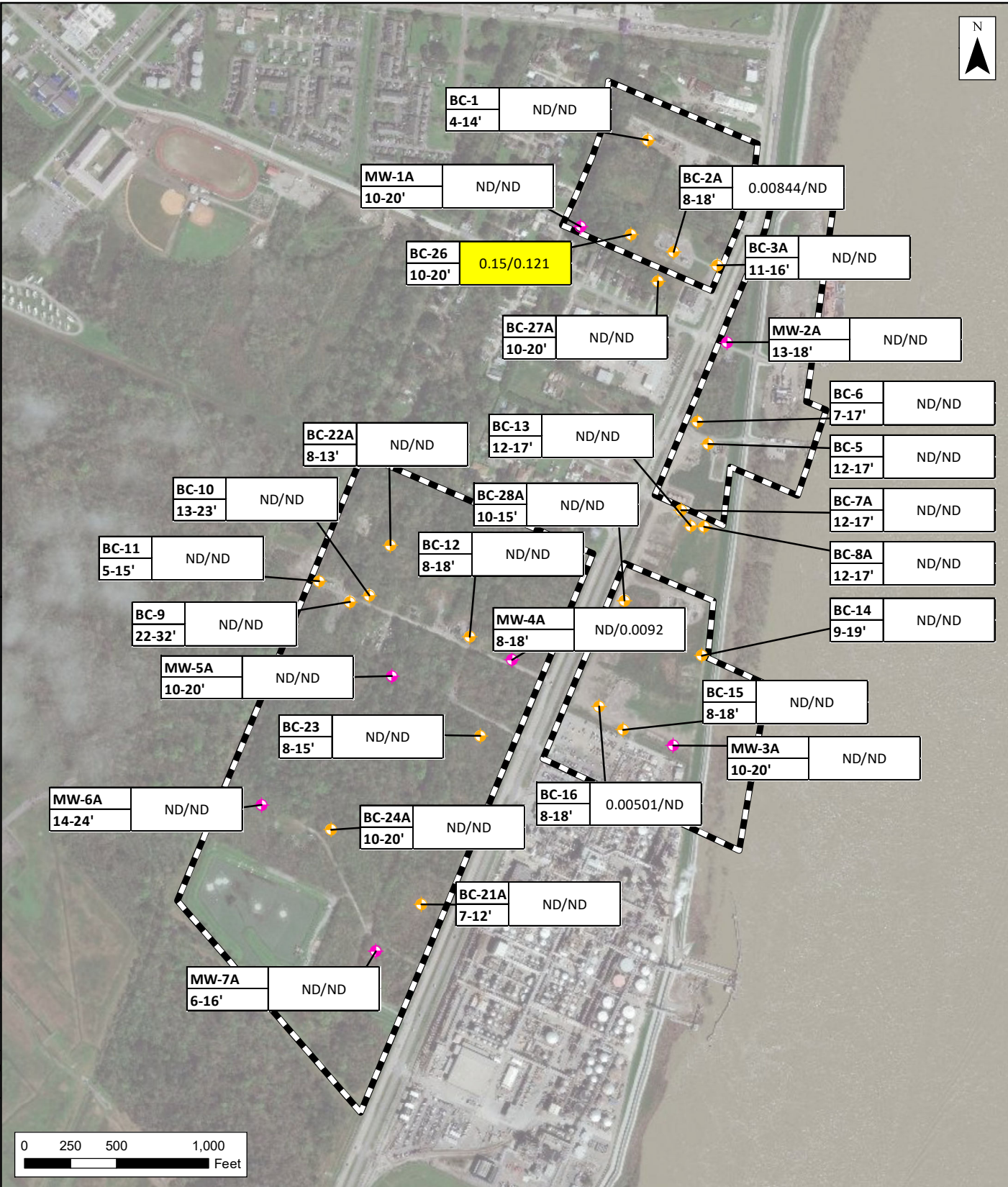


ERM B-Zone MW
 Property
 ICON B-Zone MW

Well ID	Total Results: ERM/ICON
Screen	Dissolved Results: ERM/ICON

Figure 95
GW Results - B Zone Barium
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

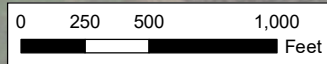
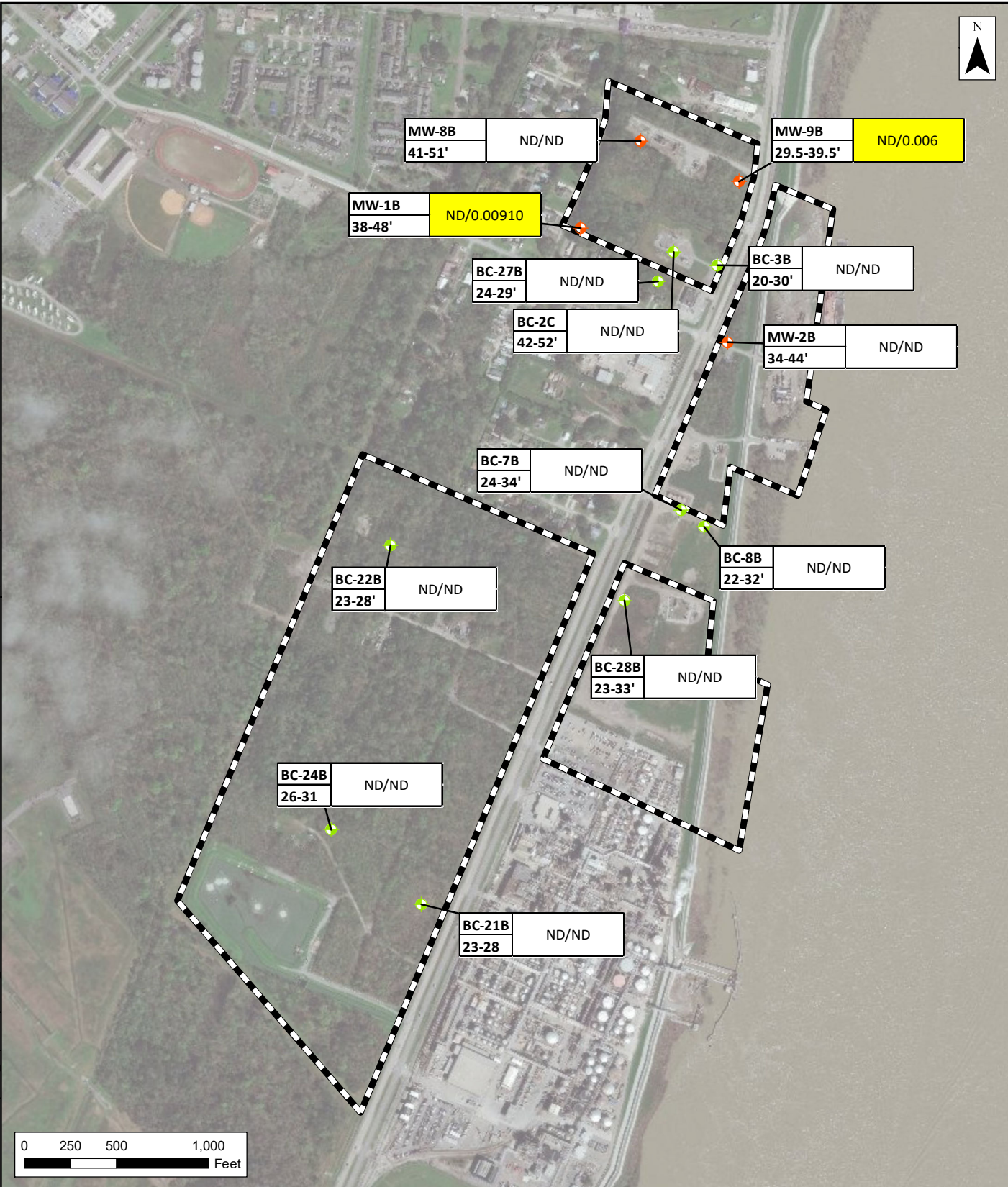
Notes:
 All Barium sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP Screening Option.
 NA - Not Analyzed
 Imagery Basemap via ArcGIS Online.



- ERM A-Zone MW
- ICON A-Zone MW
- Property
- Well ID
- Screen
- ERM Result/ICON Result

Notes:
 All Benzene sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP GW3NDW MO-1.
 ND - Non-Detect
 Imagery Basemap via ArcGIS Online.

Figure 96
GW Results - A Zone Benzene
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

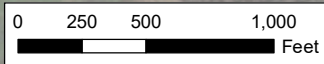
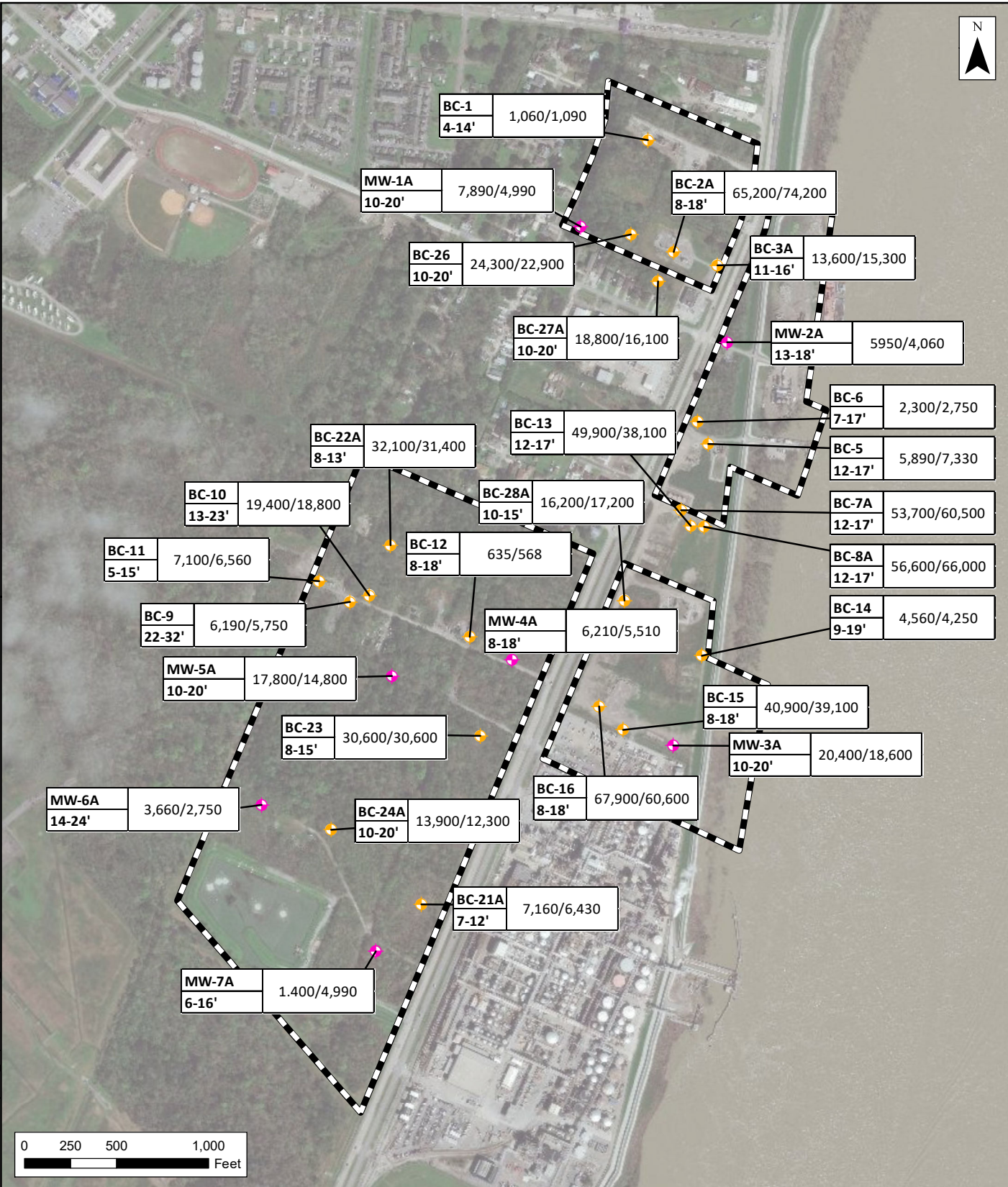


◆ ERM B-Zone MW
 Property

Well ID	ERM Result/ICON Result
Screen	

Notes:
 All Benzene sample results shown.
 Units are mg/l.
 Yellow cells indicate further evaluation is warranted per RECAP Screening Option.
 ND - Non-Detect
 Imagery Basemap via ArcGIS Online.

Figure 97
GW Results - B Zone Benzene
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana



◆ ERM A-Zone MW
 Property

Well ID	ERM Result/ICON Result
Screen	

Figure 98
GW Results - A Zone Chloride
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Notes:
 All Chloride sample results shown.
 Units are mg/l.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



◆ ERM B-Zone MW
 Property

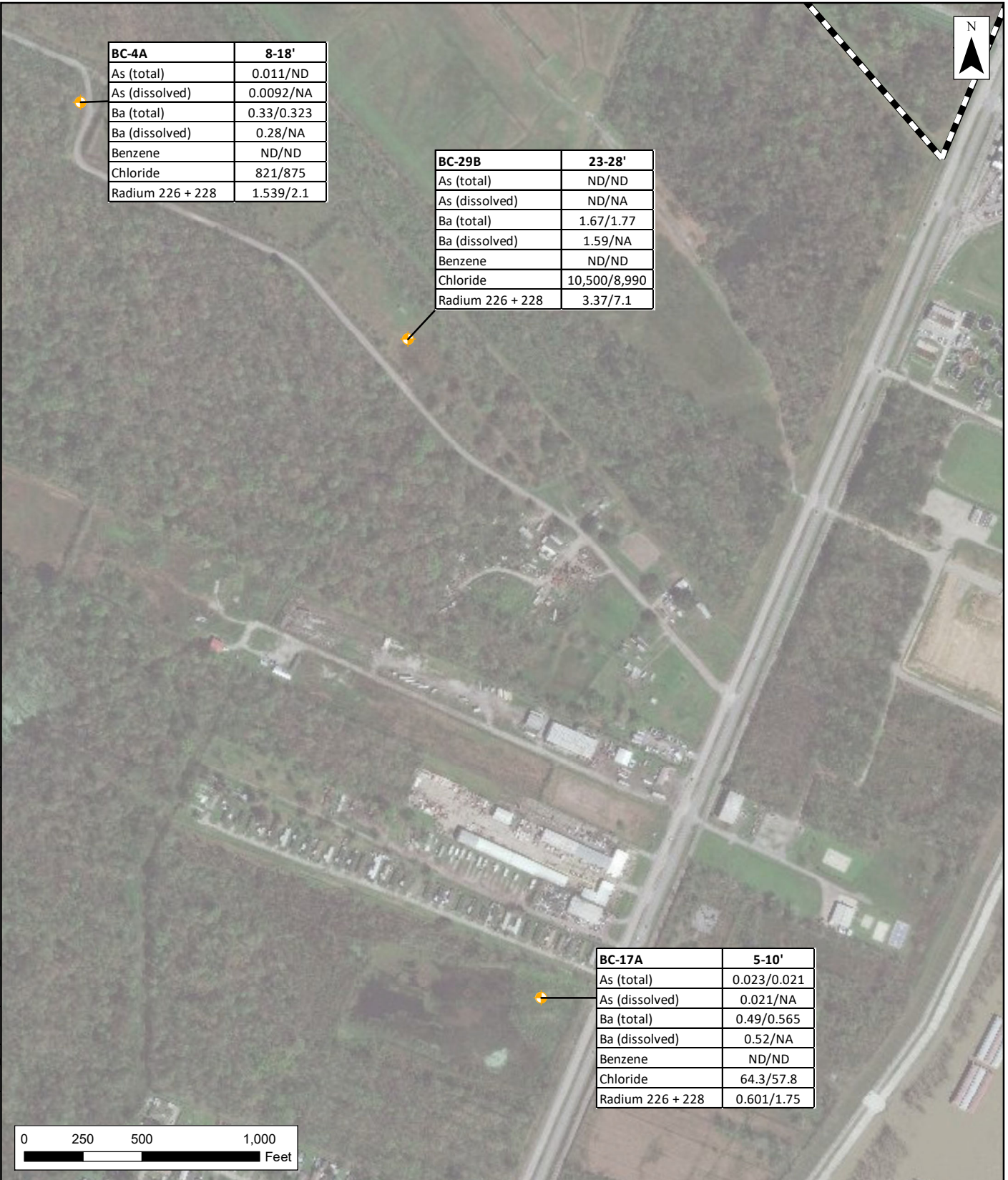
Well ID	Screen	ERM Result/ICON Result
---------	--------	------------------------

Figure 99
GW Results - B Zone Chloride
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana
 Environmental Resources Management
 www.erm.com

Notes:
 All Chloride sample results shown.
 Units are mg/l.
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

DRAWN BY: MMG

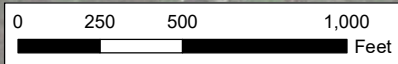
P:\Projects\0494255 Hero Lands v Chevron.DU\GIS\Maps\14 Expert Report\102_GW_Results - A Zone Outside Property.mxd, REVISED: 09/04/2020, SCALE: 1:7,000, when printed at 8.5x11



BC-4A	8-18'
As (total)	0.011/ND
As (dissolved)	0.0092/NA
Ba (total)	0.33/0.323
Ba (dissolved)	0.28/NA
Benzene	ND/ND
Chloride	821/875
Radium 226 + 228	1.539/2.1

BC-29B	23-28'
As (total)	ND/ND
As (dissolved)	ND/NA
Ba (total)	1.67/1.77
Ba (dissolved)	1.59/NA
Benzene	ND/ND
Chloride	10,500/8,990
Radium 226 + 228	3.37/7.1

BC-17A	5-10'
As (total)	0.023/0.021
As (dissolved)	0.021/NA
Ba (total)	0.49/0.565
Ba (dissolved)	0.52/NA
Benzene	ND/ND
Chloride	64.3/57.8
Radium 226 + 228	0.601/1.75



ICON A-Zone MW
 Property

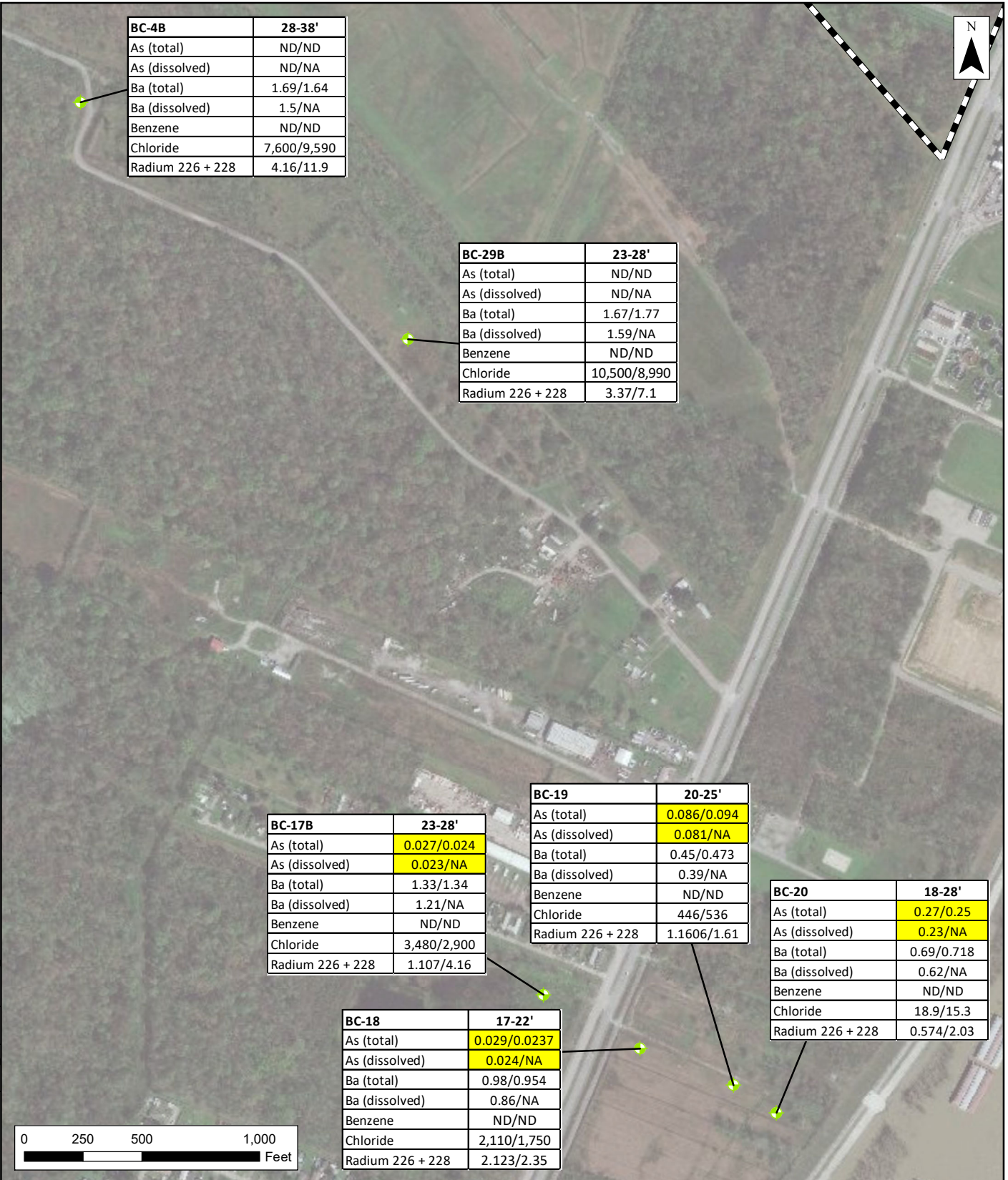
Well ID	Screen
Constituent	ERM Result/ICON Result

Figure 102
GW Results - A Zone Outside Property
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

Environmental Resources Management
 www.erm.com

Notes:
 All Arsenic, Barium, Benzene, Chloride, and Radium 226 + 228 results shown.
 Yellow cells indicate further evaluation is warranted per RECAP GW3NDW MO-1.
 NA - Not Analyzed, ND - Non-Detect
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



BC-4B	28-38'
As (total)	ND/ND
As (dissolved)	ND/NA
Ba (total)	1.69/1.64
Ba (dissolved)	1.5/NA
Benzene	ND/ND
Chloride	7,600/9,590
Radium 226 + 228	4.16/11.9

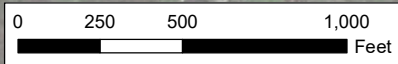
BC-29B	23-28'
As (total)	ND/ND
As (dissolved)	ND/NA
Ba (total)	1.67/1.77
Ba (dissolved)	1.59/NA
Benzene	ND/ND
Chloride	10,500/8,990
Radium 226 + 228	3.37/7.1

BC-17B	23-28'
As (total)	0.027/0.024
As (dissolved)	0.023/NA
Ba (total)	1.33/1.34
Ba (dissolved)	1.21/NA
Benzene	ND/ND
Chloride	3,480/2,900
Radium 226 + 228	1.107/4.16

BC-19	20-25'
As (total)	0.086/0.094
As (dissolved)	0.081/NA
Ba (total)	0.45/0.473
Ba (dissolved)	0.39/NA
Benzene	ND/ND
Chloride	446/536
Radium 226 + 228	1.1606/1.61

BC-20	18-28'
As (total)	0.27/0.25
As (dissolved)	0.23/NA
Ba (total)	0.69/0.718
Ba (dissolved)	0.62/NA
Benzene	ND/ND
Chloride	18.9/15.3
Radium 226 + 228	0.574/2.03

BC-18	17-22'
As (total)	0.029/0.0237
As (dissolved)	0.024/NA
Ba (total)	0.98/0.954
Ba (dissolved)	0.86/NA
Benzene	ND/ND
Chloride	2,110/1,750
Radium 226 + 228	2.123/2.35



ICON B-Zone MW
 Property

Well ID	Screen
Constituent	ERM Result/ICON Result

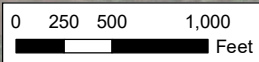
Figure 103
GW Results - B Zone Outside Property
 Hero Lands Company, L.L.C. vs. Chevron U.S.A. Inc., et al. Stella Oil & Gas Field Plaquemines Parish, Louisiana

Notes:
 All Arsenic, Barium, Benzene, Chloride, and Radium 226 + 228 results shown.
 Yellow cells indicate further evaluation is warranted per RECAP Screening Option.
 NA - Not Analyzed, ND - Non-Detect, NYR - Not yet recorded
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N



BC-2D	76-86'
As (total)	ND/0.0234
As (dissolved)	ND/NA
Ba (total)	1.49/1.44
Ba (dissolved)	1.38/NA
Benzene	ND/ND
Chloride	5,360/7,730
Radium 226 + 228	7.97/7.80

BC-4C	76-86'
As (total)	ND/0.02
As (dissolved)	ND/NA
Ba (total)	3.04/2.8
Ba (dissolved)	2.73/NA
Benzene	ND/ND
Chloride	10,300/12,900
Radium 226 + 228	11.56/18.6



- ICON C-Zone MW
- Property

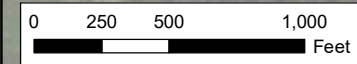
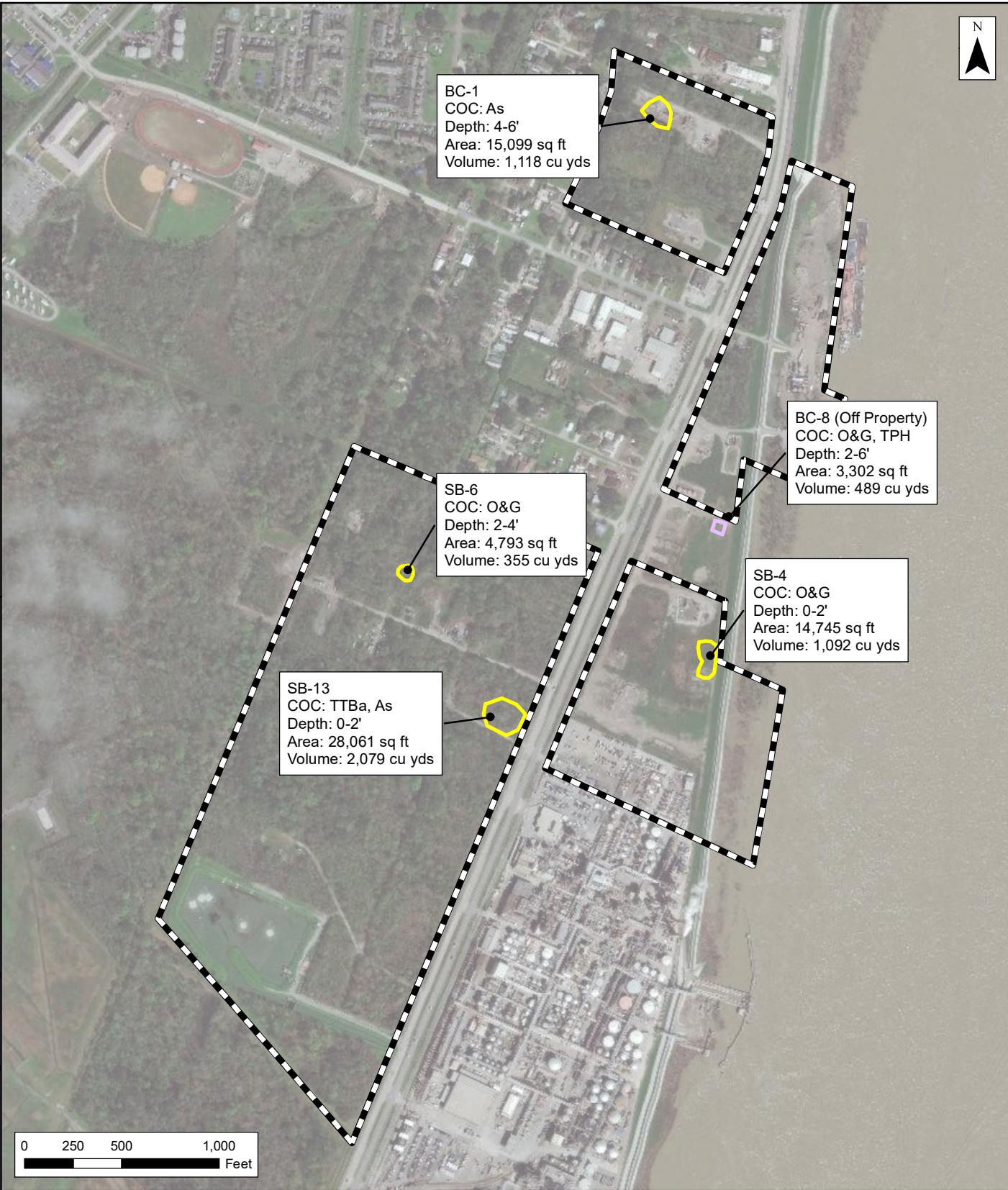
Well ID	Screen
Constituent	ERM Result/ICON Result

Notes:
 All Arsenic, Barium, Benzene, Chloride, and Radium 226 + 228 results shown.
 Yellow cells indicate further evaluation is warranted per RECAP Screening Option.
 NA - Not Analyzed, ND - Non-Detect, NYR - Not yet recorded
 Imagery Basemap via ArcGIS Online.

Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 104
GW Results - C Zone
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana





- Property
- Soil Removal Area
- Soil Removal Area (Off Property)

Notes:
 Imagery Basemap via ArcGIS Online.
 Source: Esri - ArcGIS Online; NAD 1983 UTM Zone 15N

Figure 105
Proposed 29B Metals and Hydrocarbons Remediation Areas
 Hero Lands Company, L.L.C. vs.
 Chevron U.S.A. Inc., et al.
 Stella Oil & Gas Field
 Plaquemines Parish, Louisiana

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