D.Y. Boise River, LLC

Voluntary Remediation Work Plan

For the

Former Goodman Oil Site in Boise, Idaho

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List of Acronyms and Abbreviations

ACM	Asbestos-containing building material
AST	Above ground storage tank
bgs	Below ground surface
BMP	Best management practices
BTEX	Total xylenes
COC	Constituents of concern
DEQ	Idaho Department of Environmental Quality
DU	Decision unit samples
DYBR	D.Y. Boise River LLC
EDB/DBCP	Ethylene dibromide
EDC	1,2-dichloroethane
ESA	Environmental Site Assessment
GWQR	Groundwater Quality Rule
IDTL	Initial Default Target Levels
MCL	Maximum contaminant level
MDL	Method detection limit
MTBE	Methyl-tert-butyl ether
MTI	Materials Testing and Inspection
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated biphenyls
PCE	Tetrachlorothene
POC	Point of compliance
POD	Point of discharge
QAPP	Quality Assurance Project Plan
RATL	Remedial Action Target Levels
RCRA	Resource Conservation and Recovery Act
RECs	Recognized environmental conditions
RSL	Regional Screening Levels
RUSL	Residential Use Screening Levels
SVOC	Semi-volatile organic compounds
SWPPP	Storm Water Pollution Prevention Plan
TCE	Trichloroethene
TCLP	Toxic Characteristic Leaching Procedure
VOC	Volatile organic compounds
VRA	Voluntary Remediation Agreement

1.0 INTRODUCTION

Centra Consulting, Inc. (Centra) on behalf of D.Y. Boise River, LLC (DYBR) has prepared this Voluntary Remediation Work Plan (VRWP) for the former Goodman Oil Company property, located 2850 West Fletcher Street in Boise, Idaho (Site). DYBR has entered into a Voluntary Remediation Agreement (IDEQ 2012) with the Idaho Department of Environmental Quality (IDEQ) as part of IDEQ's Voluntary Cleanup Program to conduct remediation activities on the property in order to facilitate future residential and/or commercial development of the site.

1.1 Purpose and Scope

This VRWP presents a summary of previous activities performed at the Site and a discussion of the proposed remedial actions that will be undertaken to meet the site specific cleanup standards. The specific components of the discussion will include the following components:

- Site characterization and assessment,
- Cleanup objective and goals,
- Remedial action selection,
- Development of scope of work for the selected remedial action.

Included within this VRWP are the following sections:

- Introduction, which provides an overview and description of the purpose and scope of the VRWP,
- Background, which provides a brief site description and history of the site, physical characteristics of the site, and a summary of previous environmental site assessments (ESA), including accompanying investigation activities,
- Constituents of Concern and Remediation Goals, which provides a discussion of proposed future land uses for the Site, identification of the contaminants of concern, and discussion of cleanup objectives and goals,
- Corrective Action for Soil Remediation, this section will identify and discuss the selected corrective action for Soil Remediation. This provides a brief summary of the implementation goals, including timeline, monitoring, and risk evaluation,
- Final Site Tasks and Work Plan Completion Report, this section discusses the final task after soil remediation is completed,
- Health and Safety, this section discusses health and safety considerations to be applied in the Site Health and Safety Plan,
- References, provides references for reports and sources utilized in the VRWP.

2.0 BACKGROUND

This section provides an overview and history of the Site, ownership details, physical characteristics, and a summary of previous environmental site assessments.

2.1 Site Location and Description

The Site is located within the boundaries of the City of Boise, to the immediate southwest of the intersection of Fairview Avenue and South 27th Street. A vicinity map of the site is presented on Figure 1.

The site is comprised of 3.43 acres, and is bounded by Fairview Avenue to the north, West Fletcher Street to the south, and the Boise City Greenbelt/Boise River to the west. The Ada County Assessor had identified this site as Parcel Number S1004346800,but has since split it into 4 separate parcels. The deed and legal description for each parcel is included as Appendix A. A parcel map from the Ada County Assessor website is presented as Figure 2.

To the north and across West Fairview Avenue, are two, commercial business sites (Treasure Valley RV Sales and US Bank), separated by a vacant lot that was formerly used for automotive sales. A commercial lot used by Midas Muffler is located to the immediate east of the site, with a vacant lot located further to the east, across South 27th Street. A commercial business lot is also located to the immediate south of the site (Symposium Bar). Interstate 184 is located to the south of the site and the Symposium Bar, and the City of Boise Fire Training Facility is immediately south of Interstate 184.

2.2 Site History

The Goodman Oil Company purchased the site between 1927 and 1929, and retained ownership until 2012. In 2012, the site was purchased by DYBR, in coordination with IDEQ's Brownfields Assessment Program.

The history of the site is well-documented in the most recent Phase I Environmental Site Assessment (ESA) conducted for the site (URS, 2012). The following summary is largely taken from the site assessment narrative.

Prior to purchase by the Goodman Oil Company, this site was primarily used for unregulated dumping of solid wastes from the 1850s through the early 1900s. Goodman Oil Company procured the site between 1927 and 1929, for use as a bulk petroleum storage and distribution facility. Bulk fuels, oils, lubricants, dry cleaning solvents, and automotive supplies were stored on the central and western portions of the site during active company operations.

Various sized above ground storage tanks (ASTs) were located on the western side of the site during active operations. Bulk petroleum storage operations ended in 2000, and most of the ASTs, as well as a metal warehouse used to store and mix products, were removed in 2008. In addition to petroleum storage, the western side of the site was used for vehicle storage and maintenance operations from 1983 through 2000.

The following structures and features were removed during demolition activities undertaken at the site in July and August 2012.

- Several concrete footings from the former ASTs (in various locations across the far west side of the site);
- A single, 100,000-gallon capacity AST (in the northwest corner of the site);
- The slab and stem walls of the metal warehouse (around 150 feet southeast of the standing AST);

- A vehicle maintenance shop (about 50 feet northeast of the concrete slab from the metal warehouse).

- A former residence, office building, and warehouse located in the central portion of the site. The warehouse (i.e., the "TBA Warehouse") was used to store, sell, and distribute automotive supplies, barreled lubricants, oils, and dry cleaning solvents during the mid-1990s.

- A small, wooden kiosk-type structure used as an automotive sales office on the far eastern corner of the site.

A small automotive repair shop was located on the eastern portion of the site in until the mid 1980s at which point it was removed. The eastern portion of the property was also used by a commercial rock crushing and landscaping company for approximately three months in 2009.

Since 2009, the Site has essentially been vacant and unused. During this time IDEQ has conducted ESAs to characterize the type and extent of possible soil and groundwater contamination at the Site.

2.3 Local Relief and Geology

The site is generally flat, with an earthen berm along the western edge, separating the property from the Boise River and the Boise City Greenbelt. A Phase I ESA conducted by URS Corporation (URS, 2012) indicates that native soils are classified as Urban and Notus loam by the U.S. Department of Agriculture, although actual site observations have indicated the presence of sandy gravel and cobbles. The Phase I ESA also indicated the presence of fill material on the eastern portion of the site.

Groundwater occurs between 7 and 10 feet below ground surface (bgs), and the general gradient is southeast to northwest across the site (URS, June 2010). There are two open irrigation wells on the site, located just east of the former shop. Four monitoring wells were installed as part of site characterization work conducted in 2010.

2.4 Site Characterization

Since 2006 several ESAs have been prepared for the Site to help characterize environmental conditions. Analytical results from the previous ESAs with values exceeding regulatory screening levels are presented in Tables 1 through 4. Following is a brief summary of each of the ESAs.

Materials Testing and Inspection (MTI) Limited Phase II, March of 2006 (MTI, 2006). The ESA involved collection of eight soil samples, which indicated the presence of petroleum hydrocarbons above allowable regulatory levels, and recommended further investigation to determine the extent of contamination.

CAS and Associates, Limited Phase II March 2007 (CAS, 2007). The ESA involved four subsoil and four groundwater samples collected from four boreholes completed adjacent to two of the borings established during the previous ESA work by MTI. The samples showed "non-detectable and/or materially insignificant" concentrations of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, methyl-tert-butyl ether (MTBE), polycyclic aromatic hydrocarbons (PAHs), and trihalomethanes (groundwater only). The ESA indicated that the site was slightly impacted by petroleum related constituents, but found that the extent and concentrations were de minimis in nature

URS Environmental Site Assessment Phase I Report, May 10, 2010 (URS, 2010a). This ESA recommended that a Phase II ESA be performed to address recognized environmental conditions

(RECs) from the former uses at the property that could affect future land use and redevelopment activities. The following recommendations were also made in the 2010 Phase I in regards to follow up activities at the site:

- Installation of multiple groundwater monitoring wells to facilitate an accurate direction of groundwater flow, flow rate, and sampling,
- Conduct direct push subsurface soil sampling and analysis to evaluate possible impact to subsurface soils,
- Perform surficial soil sampling to evaluate potential contaminants related to historic solid waste dumping and surficial lead contamination from paints on the buildings,
- Conduct characterization and removal of the totes containing purge water and fuel tanks being stored in the northwest corner of the Site,
- Chemicals of Concern were identified to be Metals, PCBs, semi-volatile organic compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), and asbestos.

URS Limited Phase II Environmental Site Assessment, June 25, 2010 (URS, 2010b). During the Phase II the following field activities occurred and recommendations were made.

- A majority of the Site was surveyed with a magnetometer to identify possible underground storage tank locations, no conclusive evidence was found of any buried tanks or other items of concern,
- The area south of the vehicle maintenance building was surveyed with ground penetrating radar to determine if disturbed soil in that area may have been from the removal and backfill of a tank basin, no conclusive evidence was found verifying the existence of a former tank basin,
- During fieldwork activities the following samples were collected:
    - 5 low-flow groundwater samples from monitoring wells
    - 1 TCLP waste disposal sample,
    - 22 subsurface soil samples,
    - 1 discrete interval groundwater sample for VOC analysis,
    - 3 discrete interval groundwater samples for BTEX VOC analysis,
    - 22 surficial soil samples for RCRA metals analysis, 10 samples were also analyzed for PCBs from various locations.
- The complete results from the Phase II sampling activities are presented in Appendix A. Following is a brief discussion of sampling that occurred during the Phase II ESA.
- Subsurface Soils
    - Twelve soil samples plus 1 duplicate of the nineteen (19) soil samples collected had BTEX and EDB/DBCP VOC detections. Benzene was detected at 0.032 mg/kg in DP-2 at 3 feet below ground surface (ft bgs) exceeding the RUSL of 0.025 mg/kg. A soil sample collected from boring DP-3 at 7 ft bgs exceeded RUSLs for multiple compounds which included ethylbenzene, total xylenes, and naphthalene. Benzene,

1,2 dichloroethane, and 1,2 dibromoethane were not detected in the sample, but the method detection limit was above the RUSL. Results for these compounds were considered above the RUSL.

- Ten of the soil samples collected had one to multiple detections of PAH compounds. Soils samples from DP-2, DP-6, and DP-19 had detections of PAH compounds that exceeded either RUSLs or IDTLs. DP-2 at 3 ft bgs exceeded RUSLs for the following compounds: Benzo(a)pyrene was detected at 0.26 mg/kg exceeding its RUSL of 0.02 mg/kg and benzo(b)fluoranthene was detected at 0.46 mg/kg exceeding its RUSL of 0.2 mg/kg. Dibenz(a,h)anthracene detection of 0.084 does not have a corresponding RUSL, but the detection exceeds it's IDTL of 0.0422 mg/kg. Naphthalene was detected in DP-6 at 0.12 mg/kg, equal to the RUSL of 0.12 mg/kg. Benzo(a)pyrene was detected in DP-19 at 2 ft bgs with a concentration of 0.16 mg/kg exceeding the RUSL of 0.02 mg/kg.

- Discrete Interval Groundwater
  - Four discrete interval, single event groundwater samples were collected from the upper two to three feet of the groundwater surface. All samples were analyzed for EDB, metals listed under the Resource Conservation and Recovery Act (RCRA), and PAHs.

  - One of the four samples was analyzed for semi-volatile organic compounds (SVOCs) and the full list of volatile organic compounds (VOCs) under U.S. Environmental Protection Agency (EPA) Method 8260. Three samples were analyzed for an abbreviated list of VOCs (i.e., BTEX, EDB, and 1,2-dichloroethane (EDC)) using EPA Method 8011.

  - Several of the samples had detectable results for PAH, SVOC, and VOC constituents. A sample from Boring DP-21 exceeded the RUSL and IDTL benzo(a)anthracene, while the remaining samples did not have results exceeding regulatory screening levels. The MDL for several of the compounds exceeded the applicable screening level for various constituents.

  - None of the four of the groundwater samples analyzed had EDB or DBCP detections

  - The discrete interval groundwater samples collected had detections of dissolved metals including arsenic, barium and selenium. The sample from DP-17 had a dissolved selenium detection of 0.056 mg/l that exceeds the IDTL of 0.05 mg/l. The groundwater sample from DP-21 had a dissolved arsenic detection of 0.011 mg/l that exceeded the IDTL of 0.01 mg/l. All other detections of RCRA metals in the discrete interval groundwater samples did not exceed their corresponding IDTL

- Monitoring Well Groundwater Sampling Results
  - None of the samples from the four monitoring wells had results that exceeded RUSLs or IDTL for VOCs, SVOCs, PAHs, EDB, DBCP, or RCRA Metals.

- Surficial Soil Results
  - Twenty-two surficial soil samples (i.e., 20 samples and two duplicates) were collected and analyzed for RCRA metals. Ten of the 22 samples were also analyzed for the presence of PCBs. Mercury, arsenic, lead, and silver was detected in every sample at values exceeding applicable IDTLs. Cadmium was detected in every sample, and approximately half of the samples exceeded the IDTL. Selenium was detected at

levels exceeding the IDTL in two samples, while barium was detected in every sample, with only one exceeding the IDTL. Chromium was detected in every sample at levels below the IDTL.

- Aroclor 1260 was detected in six samples, although SS-20 (in the northeastern corner of the site) was the only detection above the applicable IDTL.

- The ESA recommended additional surficial soil sampling to determine the extent of the lead contamination and soil/sub-slab vapor sampling on the western side of the site, particularly at the former vehicle maintenance building. The ESA also discussed the potential for soil contamination under the remaining 100,000 gallon AST in the northwest corner of the site.

URS Asbestos Containing Building material and lead Paint Survey and Assessment Report and Asbestos Abatement Project Manual, July 2010 (URS 2010c). The report identified both ACM and lead-containing paint in buildings on the site. All friable and non-friable ACM, and the majority of the lead paint were observed to be in a stable condition, with the exception of the lead paint on the exterior of the former residence, which was noted to be in a deteriorated condition with a majority of the coating having flaked off onto the ground surface bordering the structure. The report included recommendations for proper management and abatement of the ACM and proper management of the lead paint waste streams in support of eventual demolition.

Strata Additional Sampling Activities, September 10, 2010 (Strata, 2010a). The work for this report was conducted to assess the aerial extent of surficial metals contamination at three specific areas on the site that were identified as having metal concentrations exceeding EPA's Region 9 Preliminary Remediation Goals, referred to as Regional Screening Levels (RSLs).

- Assessment work included collection of 18 surficial soil samples in areas around the former residence, Sample Location SS-5 and Sample Location SS-19. Composited samples were also collected and analyzed by Toxic Characteristic Leaching Procedure (TCLP) for RCRA metals.

- Detections of arsenic exceeded RSLs for residential and industrial uses in each of the 18 total surficial soil samples collected during the investigation. Lead concentrations exceeded the residential and/or the industrial RSLs were found around the former residence and bermed area at SS-5 in radial distances greater than five feet. In soil on the eastern edge of the former residence, the extent of elevated lead containing soil appears to be greater than ten feet laterally from the former residence.

- The report provided an estimate of soil volumes at each of the three areas with lead concentrations exceeding the industrial RSL for lead. The TCLP results for the composite samples did not exceed the regulatory limits for RCRA metals identified in 40 CFR 261.24. The report recommended additional evaluations to identify the extent of lead contamination around the former residence and the bermed area, as well as an evaluation of background metal concentrations to assist with interpretation of the existing analytical data.

Strata Additional Phase II ESA Activities, October 27, 2010 (Strata 2010b). The work was conducted to in order to collect additional data needed to perform a human health risk assessment for the site.

- A total of 3 groundwater samples from MW-3, MW-4, and the onsite irrigation well were collected and analyzed for BTEX, PAHs, EDC, EDB and RCRA metals.

- A single, multi-increment composite surficial soil sample was collected from each of 12 decision units (approximately 50 by 100 foot areas) surrounding the former residence and analyzed for RCRA metals.

- Four, discrete interval subsurface soil samples were collected from four separate locations near the former residence and analyzed for RCRA metals.

- A total of three sub-slab vapor samples were collected from three separate sub-slab sample points (at the vehicle maintenance shop and the former site of the metal warehouse) and analyzed for VOCs.

- Three soil vapor samples were collected from two areas near the former metal warehouse site (one sample from each location plus a duplicate) and analyzed for VOCs.

- Groundwater samples showed detections for barium, certain VOCs and SVOCs, but all concentrations were below applicable RUSLs and/or IDTLs.

- Arsenic and lead were detected above the RSLs for industrial and/or residential use in each of the 12 surficial soil samples collected; all other metal detects were below RSLs for industrial use.

- Subsurface soil samples also showed arsenic and lead detects, with all samples exceeding industrial use RSLs for arsenic and half of the samples exceeding applicable industrial RSLs for lead.

- Multiple TO-15 VOCs were detected in each of the sub-slab vapor samples collected. Idaho currently does not publish RUSLs for sub-slab vapor. The EPA RSLs for residential and industrial use were used for analytical result comparison. These RSLs are for indoor and ambient air samples and do not account for attenuation of VOCs during upward migration into breathable air. EPA suggests a conservative attenuation factor of 0.1 be applied to analytical results from samples collected within five feet below the building foundation in their OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (EPA 2002, EPA530-D-02-004). Based upon this EPA guidance and as directed by DEQ, the sub-slab vapor samples were compared to 10 times the EPA RSLs for residential and industrial air to account for attenuation. Comparing results of the sampling to the EPA RSLs showed tetrachloroethene (PCE) concentrations above applicable, residential RSLs but below industrial RSLs. Soil vapor samples had detects for several VOCs that were below applicable, RSLs for residential air, but also showed benzene, PCE, trichloroethene (TCE), and ethyl benzene concentrations that exceeded RSLs for residential and/or industrial uses.

Strata Risk Evaluation Letter Report December of 2010 (Strata 2010c). The Risk Evaluation utilized methodologies in the Idaho Risk Evaluation Manual (DEQ, July 2004), and performed RE-1 and RE-2 evaluations. The RE-1 was performed to evaluate the indoor inhalation of vapor emissions from groundwater migrating off-site pathway for residential and non-residential receptors, and to assess ingestion, outdoor inhalation of vapor emissions and particulates, and dermal contact exposure for construction workers from surficial soils. The RE-2 was performed to evaluate the on-site indoor inhalation of soil vapor emissions pathway using vapor data collected adjacent to the site structure. The RE-1 and RE-2 determined the following:

- Remedial Action Target Levels (RATLs) were not required with respect to the indoor inhalation of vapor emissions emanating from groundwater migrating off-site pathway for residential and non-residential receptors;

- The acceptable cumulative risk/hazard index for construction workers in contact with site surficial soil was not exceeded;

- Arsenic and benzo(a)anthracene groundwater concentrations would exceed the Maximum Contaminant Level (MCL) at the site's point of compliance (POC), but do not exceed the allowable POC concentrations protective of an offsite point of exposure,

- Five analyte concentrations exceed the allowable POC protective of a theoretical point of discharge (POD), located 400 feet hydrogeologically downgradient at the Boise River; however, analyte concentrations were based on MDLs for each constituent and were not actually detected in groundwater samples.

- The RE-2 determined that RATLs were not required for the indoor inhalation of vapor emissions route of exposure for on-site residential and non-residential receptors.

- Based on the findings of the RE-1 and RE-2 evaluations, the Risk Assessment indicated that further site assessment for petroleum constituents was not required, but that surficial soil lead concentrations required remediation.

Strata, Analysis of Brownfields Cleanup Alternatives, (Strata 2010d). This report identified several remediation methods that may eliminate or reduce lead soil concentrations to protective levels by evaluating substantial present or probable future risk to human health or the environment based on future residential use of the site.

URS Phase I Environmental Site Assessment, April 2012. This ESA provided an updated assessment of the site, but does not identify any new RECs. The ESA summarized findings from the previous site assessment work and notes multiple RECs associated with the site's former uses between the 1850s and 2008. The ESA also indicates that additional environmental sampling and testing would likely be a necessary part of any remediation strategy for contaminants. The additional sampling conducted by DYBR is described in the next section.

2.5 Additional Site Characterization

On August 16, 2012 Centra conducted additional soil sampling at the Site. The work was conducted to assess the extent of SVOC and VOC contamination at areas on the site that were identified as having elevated readings in subslab vapor testing conducted by STRATA. Two locations near the former 100,000 gallon capacity AST were selected for sampling based on field observations during demolition of the AST.

- Subsurface soil sampling was conducted as detailed in the Sampling and Analysis Plan for Additional Soil Sampling letter transmitted to IDEQ dated August 10, 2012 (Centra, 2012) and confirmed in follow up communications. A total of 17 subsurface soil samples, 16 discrete samples plus 1 duplicate were collected at 8 locations on the site. 6 samples were taken from 3 locations around the corners of the former shop building. 7 samples were taken from 3 locations around the former warehouse. 4 samples were taken from 2 locations below the former 100,000 gallon capacity AST. The sample locations are found on Figure 3 and labeled as CB-01 through CB-08.

- The subsurface soil samples were collected using a backhoe to excavate the sample locations to their target depths. The shovel of the backhoe was cleaned with Alconox and rinsed with distilled water between sampling events to prevent cross contamination. Samples were placed in jars by hand as well as in containers with the Terracore sampling kits. After collection, each sample was immediately placed on ice in coolers and shipped to ESC Laboratories. Samples were labeled with date, time, sample number, and testing method.

ESC Laboratories analyzed the samples for VOCs by EPA methods 8260B/8270C/8270C-SIM. One sample (CB-04-05) was also analyzed for PCBs using EPA method 8082.

- Prior to collecting samples from each location, soil was collected at 1 ft intervals starting at 1 ft bgs down to 5 ft bgs and put in plastic bags to be tested for the presence of VOCs with a MiniRAE 3000 Photoionization Detector (PID). Results were recorded in a field notebook. The VOC level readings from the PID were used to determine the depth at which each sample was to be collected and analyzed. Two soil samples were collected at each sample location.

- At the former shop building, 6 subsurface soil samples were collected from sample locations CB-01, CB-02, and CB-03. Field screening with the PID at location CB-01 did not show detectable levels of VOCs, subsurface soil samples were collected at 1 ft bgs and 5 ft bgs. Field screening with the PID at CB-02 found elevated readings of VOCs at 2 ft bgs, subsurface soil samples were collected at 2 ft bgs and 5 ft bgs in. Field screening with the PID at CB-03 found elevated readings of VOCs at 1 ft bgs so subsurface soil samples were collected at 1 ft bgs and 5 ft bgs.

- At the former warehouse, 7 subsurface soil samples were collected from sample locations CB-04, CB-05, and CB-06. Field testing with the PID found elevated readings of VOCs at 2 ft bgs, 4 ft bgs, and 5 ft bgs in CB-04. The detected levels of VOCs at 5 ft bgs were higher than the levels found at 4 ft bgs, so subsurface soil samples were collected at 2 ft bgs and 5 ft bgs in CB-04. Included in these subsurface soil samples were 1 sample collected for PCB analysis. For quality control and assurance, a duplicate sample was taken at 5 ft bgs in CB-04. Field testing with the PID did not detect VOCs in CB-05 or CB-06, so subsurface soil samples were collected at 1 ft bgs and 5 ft bgs at both locations.

- At the former 100,000 gallon capacity AST, 4 subsurface soil samples were collected from sample locations CB-07 and CB-08. Field testing with the PID found elevated readings of VOCs at each 1 ft bgs interval in both CB-07 and CB-08. Subsurface soil samples were collected at 1 ft bgs and 5 ft bgs from CB-07 due to the elevated VOC levels found in each sample. The highest VOC levels found in CB-08 were at 1 ft bgs and 4 ft bgs, therefore subsurface soil samples were collected from those depths.

- Analytical results for samples exceeding RUSLs for samples collected during August 2012 are presented in Table 2. Analytical results for all samples and constituents are presented in Appendix B.

- Samples CB-01-01, CB-01-05, CB-02-02, CB-02-05, CB-03-01, CB-03-05 were collected from the areas surrounding the former shop building. 32 VOCs were present above their MDLs. Benzo(a)pyrene was detected at levels exceeding the IDAPA RUSL level of 0.02 mg/kg in samples CB-01-01, CB-01-05, CB-02-02 and CB-02-05. Benzo(b)fluoranthene was detected at levels exceeding the IDAPA RUSL level of 0.2 mg/kg in sample CB-01-01. Napthalene was detected at levels exceeding the IDAPA RUSL level of 0.12 mg/kg in sample CB-01-01. The remaining 29 VOCs were detected below their corresponding IDAPA RUSL levels.

- Samples CB-04-02, CB-04-05, CB-04-05D, CB-05-01, CB-05-05, CB-06-01, CB-06-05 were collected from the areas surrounding the former warehouse. 31 VOCs were present above their MDLs. Benzo(a)pyrene was detected at levels exceeding the IDAPA RUSL level of 0.02 mg/kg in sample CB-04-02. The remaining 30 VOCs were detected below their corresponding

IDAPA RUSL levels. Sample CB-04-05 was also tested for PCBs and only Aroclor 1260 (0.037 mg/kg) was present at a level above the MDL but below the IDTL.

- Samples CB-07-01, CB-07-05, CB-08-01, CB-08-04 were collected from the areas surrounding the former 100,000 gallon capacity AST. 36 VOCs were present above their MDLs. Benzo(a)pyrene was detected at levels exceeding the IDAPA RUSL level of 0.02 mg/kg in samples CB-07-01, CB-07-05, and CB-08-04. Benzo(a)anthracene was detected at levels exceeding the IDAPA RUSL level of 0.09 mg/kg in samples CB-07-01 and CB-07-05. Benzo(b)fluoranthene was detected at levels exceeding the IDAPA RUSL level of 0.2 mg/kg in samples CB-07-01, CB-07-05, and CB-08-04. Napthalene was detected at levels exceeding the IDAPA RUSL level of 0.12 mg/kg in sample CB-07-01. The remaining 32 VOCs were detected below their corresponding IDAPA RUSL levels.

3. CONSTITUENTS OF CONCERN AND REMEDIATION GOALS

As part of preparation of this work plan, Centra reviewed each of the site assessments and other reports discussed in the previous section. Information from the ESAs, risk evaluation, cleanup alternatives report, and the sampling conducted by Centra were used to identify constituents of concern (COC), and environmental risks present at the site, and establish removal goals for the site.

3.1 Land Use

The site is currently vacant and unused. There is no current use of groundwater at the site, and no surface waters are located on the site. Currently there are two unused wells onsite, DYBR has placed welded caps on top of both wells to prevent use until the wells are abandoned as discussed below in Section 4. Current uses of adjacent properties are mostly commercial uses to the north, east, and south, with recreational and aquatic life uses associated with the Boise River and Boise City Greenbelt to the west of the site.

DYBR anticipates that the site will be remediated sufficiently to allow future residential, commercial, or mixed residential and commercial use of the site. In order to facilitate such uses, DYBR currently intends to:

1) Implement site cleanup tasks to mitigate existing issues related to contaminated soil on the site, and
2) Ensure that groundwater use is restricted and to alert any future site purchasers and owners of the possible presence of affected groundwater at the site. .

As stated previously DYBR intends to remediate the site to residential use levels. Residential use typically assumes that residents would be on the site for more than eight hours per day, 365 days per year, and would be in frequent contact with contaminated media. Potential routes of human exposure under these scenarios include ingestion of soils, dermal contact with soils, indoor and outdoor inhalation of soil vapors, ingestion of groundwater, and inhalation of vapors from groundwater migrating off the site.

3.2 Constituents of Concern

Based on applicable RUSLs, IDTLs, RSLs, Maximum Contaminant Levels (MCLs) from drinking water standards, and/or applicable groundwater quality standards from Idaho's *Groundwater Quality Rule* (GWQR), the following COCs were identified at specific sample locations at concentrations that could pose a risk at the site. The analysis results for the identified COCs are presented on Tables 1-4.

Following is a list of COCs that were developed from sample results:

1) Surficial Soil (Analytical results exceeding regulatory levels are presented in Table 1) :

- Arsenic: Detected in SS-1 through SS-20, SS-21 through SS-36, and in DU-1 through DU-12 at levels exceeding the IDTL for surficial soil concentrations, as well as residential and industrial RSLs. However, as noted in the previous ESAs the value for arsenic in surficial soils is similar to background levels for arsenic in and around the Site.

- Barium: Detected in SS-11 at levels exceeding the IDTL, but below residential and industrial RSLs.

- Cadmium: Detected in SS-3 through SS-6, SS-8 through SS-12, SS-16, SS-17, SS-19, and SS-20 at levels exceeding the ITDL, but below residential and industrial RSLs.

- Lead: Detected in SS-1 through SS-14, SS-16 through SS-20, SS-21 through SS-25, SS-27 through SS-36, and DU-1 through DU-12 at levels exceeding the IDTL. Detected in SS-6, SS-20, SS-25, SS-31, SS-33, SS-34, and DU-9 through DU12 at levels exceeding the residential RSL, but below the industrial RSL. Detected in SS-5, SS-10 through SS-12, SS-17, SS-19, SS-28, SS-35, SS-36, DU-1 through DU-3, and DU-5 at levels exceeding both the residential and industrial RSLs.

- Mercury: Detected in SS-1 through SS-6 and SS-8 through SS-20 at levels exceeding the IDTL, but below the residential and industrial RSLs.

- Selenium: Detected in SS-9 at levels exceeding the IDTL, but below the residential and industrial RSLs.

- Silver: Detected in SS-1 through SS-20 at levels exceeding the IDTL, but below the residential and industrial RSLs.

- Aroclor 1260: Detected in SS-20 at levels exceeding the IDTL for surficial soil concentrations.

2) Subsurface soils (Results exceeding regulatory levels are presented in Table 2):
   - Benzene: Detected in DP-2 at a depth of 3 feet bgs at levels exceeding the RUSL.

   - Benzo(a)pyrene: Detected in SS-2 at 3 feet bgs, SS-19 at 2 feet bgs CB-01 at 1 feet bgs and 5 feet bgs, CB-02 at 2 feet bgs and 5 feet bgs, CB-04 at 2 feet bgs, CB-07 at 1 foot and 5 feet bgs, and CB-08 at 4 feet bgs, at levels exceeding the RUSL for direct contact.

   - Benzo(b)fluoranthene: Detected in DP-2 at 3 feet bgs, CB-01 at 1 feet bgs, CB-07 at 1 feet bgs, CB-07 at 5 feet bgs, and CB-08 at 4 feet bgs, at levels exceeding the RUSLs.

   - Dibenz(a,h)anthracene: Detected in DP-2 at 3 feet bgs, and at CB-07 at 1 feet bgs and CB-07 at 5 feet bgs at levels exceeding the RUSL.

   - Ethylbenzene: Detected in DP-3 at 7 feet bgs at levels exceeding the RUSL.

   - Lead: Detected in SS-10 at 2.5 feet bgs, SS-11 at 2 feet bgs, SS-12 at 2 feet bgs, and SS-29 at 1.5 feet bgs at levels exceeding the IDTL for groundwater protection. Detected in SS-10 at 2.5 feet bgs and SS-12 at 2 feet bgs at levels exceeding the residential RSL, but below the industrial RSL. Detected in SS-11 at 2 feet bgs and SS-29 at 1.5 feet bgs at levels exceeding both the residential and industrial RSLs.

- Mercury: Detected in SS-29 at 1.5 feet bgs at levels exceeding the residential RSL, but below the industrial RSL.

- Naphthalene: Detected in DP-3 at 7 feet bgs, CB-01 at 1 feet bgs, and CB-07 at 1 feet bgs, at levels exceeding the RUSL.

- Total xylenes: Detected in DP-3 at 7 feet bgs at a concentration of 4.4 mg/kg. This concentration exceeded the RUSL.

3) Groundwater (Results exceeding regulatory levels are presented in Table 3):
   - Arsenic: Detected in DP-21 at 11 feet bgs at levels exceeding the IDTL for groundwater ingestion and the MCL for drinking water, but below the primary quality standard in the GWQR.

   - Benzo(a)anthracene: Detected in DP-21 at 11 feet bgs at levels exceeding the RUSL for ingestion of groundwater.

   - Selenium: Detected in DP-17 at 15 feet bgs at levels exceeding the IDTL for groundwater ingestion, the MCL for drinking water, and the primary quality standard in the GWQR.

4) Soil vapor (Results exceeding regulatory levels are presented in Table 4):
   - Benzene: Detected in VP-1 at levels exceeding ten times the RSL for residential air and ten times the RSL for industrial air. Detected in VP-2 at levels exceeding ten times the RSL for residential air, but below ten times the RSL for industrial air.

   - Ethylbenzene: Detected in VP-1 at levels exceeding ten times the RSL for residential air, but below ten times the RSL for industrial air.

   - PCE: Detected in VP-1 and VP-2 at levels exceeding ten times the RSL for residential air, but below ten times the RSL for industrial air.

   - TCE: Detected in VP-1 and VP-2 at levels exceeding ten times the RSL for residential air, but below ten times the RSL for industrial air.

5) Sub-slab vapor:
   - PCE: Detected in SVP-1, SVP-2, and SVP-3 at levels exceeding ten times the RSL for residential air, but not exceeding ten times the RSL for industrial air.

Figure 3 shows the locations where samples were collected from previous ESAs and recent sampling events at the site. For a map of decision unit samples (i.e., designated by "DU") surrounding the former residence, refer to maps contained in Attachment A of the *Additional Phase II Environmental Site Assessment Activities* report (STRATA, October 2010).

3.3 Risk Evaluation

The risks posed by the COCs can be further assessed, based on the findings of the risk evaluation conducted for the site (STRATA, December 2010). This evaluation projected risks based on site specific parameters to evaluate the need for remedial action target levels (RATLs) that would be considered protective of human health.

Based on the findings of the risk evaluation indoor inhalation of vapor emissions emanating from 1) the groundwater migrating off-site pathway and 2) the vapor emissions route of exposure for residential and non-residential receptors do not require RATLs. Additionally, while arsenic and benzo(a)anthracene

groundwater concentrations exceed applicable MCLs or RUSLs for ingestion at the point of compliance (i.e., property boundary), they were not projected to exceed the allowable concentrations protective of an off-site point of exposure.

The evaluation also determined that five constituents could exceed allowable concentrations for a groundwater-to-surface water discharge into the Boise River; however, none of the five constituents have actually been detected in groundwater at the site. Finally, the evaluation found that DEQ's acceptable cumulative risk/hazard index for construction workers in contact with surficial soil is not exceeded.

Surficial and subsurface soil samples analyzed for arsenic have exceeded applicable residential and industrial RSLs. These elevated concentrations while exceeding calculated risk levels appear to be consistent with measurements of background soil concentrations in the northwest as shown in the publication "Natural Background Soil Metals Concentrations in Washington State" (WDE, 1994). This comparison was also noted in prior site assessments and characterization work conducted for this site, and pointed out in the Risk Evaluation report (Strata 2010c). DYBR does not propose any remediation activities for arsenic contaminated soils at the site since arsenic levels are at or near background concentrations.

3.4 Remediation Goals

Currently DYBR anticipates that the Site will be remediated to a point that residential use will be allowed.

Since the use of groundwater will be restricted at the site DYBR proposes using the EPA RSLs for residential soil screening levels as the remedial action target levels (RATLs) as discussed in the Risk Evaluation report (Strata, 2010c) the EPA RSLs for metals are based on dermal contact and ingestion from surficial soils, which is considered a complete pathway and the most likely exposure pathway at the site. Idaho's IDTLs for metals are based upon direct contact, soil leaching to groundwater, or groundwater ingestion, which is not likely to occur at the site since the use of groundwater will be restricted. For the risk evaluation at the request of IDEQ metals soil concentrations were compared to the EPA RSLs for residential and industrial receptors to address the surface soil exposure pathway. This comparison resulted in the need for the remediation of the metal COCs discussed in the previous section. The RATLS for the remaining COCs will be based on the most current published RUSLs and IDTLs. Table 4 presents the RATLs for each of the COCs listed in the previous section.

To mitigate risks related to surficial and subsurface soil contamination, as well as sub-slab and soil vapor issues, DYBR proposes to excavate surficial and subsurface soils in areas where COCs are known to exceed applicable screening levels (i.e., RUSLs, IDTLs, or Residential RSLs) for residential use. Any buried waste encountered during excavation will be segregated onsite for characterization, prior to removal and ultimate disposal.

The risk evaluation (STRATA 2010c) determined that groundwater does not pose a risk at an off-site point of exposure. The risk evaluation also determined that certain constituents could exceed allowable concentrations for a groundwater-to-surface water discharge into the Boise River. However, since these analytes were not detected in groundwater the determination was based on the method detection limits for the analytes. It is considered overly conservative to assign risk to the site based on these analytical limitations. Due to the findings in the risk evaluation report DYBR does not propose remediation of groundwater at the site.

4.0 CORRECTIVE ACTION FOR SOIL REMEDIATION

4.1 Remediation Tasks

Based on the site characterization work, risk evaluation, and anticipated future uses of the site, the following measures are proposed to mitigate or limit potential risks to human health and the environment:

- To mitigate the risks associated with direct contact or ingestion of existing contaminated groundwater, or from contact or ingestion of groundwater that becomes contaminated in the future due to contaminants leaching from the soil, DYBR proposes to prohibit the use of groundwater at the site. Additionally, wells at the site (excluding monitoring wells) will be abandoned to prevent any direct access to groundwater. Note that potable water service from the City of Boise is available at the site. This should be sufficient to address concerns with existing concentrations of arsenic, benzo(a)anthracene, and selenium in groundwater. The restriction on the use of groundwater will limit the risks associated with surficial and subsurface soil contaminant screening levels related to groundwater contact or ingestion
- The wells will be abandoned in accordance with Idaho regulations.
- Soil will be excavated and disposed of from the sites shown on Figure 4.

The intent of the remediation tasks is to remove soils that are known to pose unacceptable risks. Figure 4 presents the initial excavation extents with an estimate of the amount of soil that will be removed. Prior to removal from the site, all such materials and excavated soils will be characterized as necessary to determinate final disposal methodologies. It is anticipated that these materials will be sent to a regional landfill for disposal as non-hazardous waste.

4.2 Confirmation Sampling

After the initial remediation tasks have been completed, sampling confirmation will be conducted as described in Appendix D (Quality Assurance Project Plan). The sample results will be compared with the RATLs listed in Table 5 to determine if the site has been remediated sufficiently to support residential or commercial uses.
Based on a comparison of confirmation sampling data against applicable screening levels and/or any RATLs, DYBR may do either of the following:

- Elect to conclude remediation activities and commence with final site tasks for the site if confirmation sampling demonstrates that, at a minimum, the entire site has been successfully remediated to residential use requirements

- Conduct additional soil excavation work in an effort to further remediate the site sufficiently to satisfy residential and/or residential use requirements. Subsequent confirmation sampling will be conducted to re-assess the results of any additional remediation work against applicable screening levels and/or any RATLs developed for the site. Additional excavation and confirmation sampling may be repeated until DYBR elects to conclude such activities and commence with final site tasks.

- DYBR anticipates that remediation work sufficient to allow residential use across the entire site can be achieved, but reserves the right to cease remediation work after confirmation sampling demonstrates commercial/industrial screening levels at the site have been met. If any portions of the site cannot be successfully remediated to allow residential uses, an environmental restriction prohibiting residential use of such portions will be established as part of the final site tasks.

4.3 Final Remediation Tasks

DYBR will work with IDEQ to establish appropriate site delineation(s) for such areas, prior to execution of any environmental restriction. It is presently anticipated that all remediation work will be completed prior to the end of 2012.

The final site tasks to be implemented upon conclusion of excavation activities and confirmation samplings are to include:

- Placement and compaction of clean fill to existing grade in all excavated areas;
- Preparation and submittal of the Work Plan Completion Report required by IDAPA 58.01.18.024.04.

4.4 Schedule for Implementation of Soil Remediation

An estimated schedule for the work to be completed at the site is presented in Table 6. The schedule is tentative and several uncertainties could cause adjustments in the timeline including: availability of materials, regulatory review, permitting, and weather.

5. FINAL SITE TASKS AND WORK PLAN COMPLETION REPORT

The following sections discuss final tasks that will be initiated after the cleanup tasks and confirmation sampling efforts presented in Section 4 have been completed.

5.1 Environmental Restrictions

As part of the final site tasks, DYBR and IDEQ will work together on providing and appropriate restriction on any access or use of groundwater on the property. If necessary, additional restrictions may be required preventing residential use or development of certain portions of the site where soil concentration(s) of any COC exceeds residential screening levels, based on the findings of the sampling confirmation work. DYBR will seek IDEQ approval of appropriate language and exact conditions needed for all restrictions, prior to final execution.

5.2 Work Plan Completion Report

Upon completion of all initial site cleanup tasks, confirmation sampling, and final site task, DYBR will prepare a work plan completion report, per the requirements of IDAPA 58.01.18.024.04. The completion report will present and contain all information required to demonstrate that the objectives of this work plan have been successfully achieved and implemented, and will include a request for issuance of a certificate of completion from IDEQ. Information that will be presented within the completion report includes:

- Documentation/certification of proper ACM removal and disposal from contractor;
- Copies of lab sheets for all analytical work generated from the confirmation sampling plan in Section 4 of this work plan;
- Copies of all reporting and recordkeeping proposed as part of the Quality Assurance Project Plan are contained in Appendix D of this work plan;
- Complete documentation of any risk assessment(s) conducted as part of this work plan;
- Truck manifests for all excavated materials taken off-site for disposal;
- Documentation and/or analytical analyses for all fill materials brought onsite
- Documentation of well abandonment;

- Documentation of all environmental restrictions imposed as part of this work plan;
- Any other information required by IDEQ.

6. Health and Safety

All contractor personnel completing the work must have a Certification of Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations and Emergency Response (HAZWOPER) training that satisfies OSHA requirements under CFR 1910.120, including 8-hour refresher training certificates. A Site Health and Safety Plan (HASP) will be prepared in compliance with CFR 1910.120, and contractor's on-site personnel will be required to review, sign, and date the HASP prior to the commencement of any work.

7.0 REFERENCES

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Tables

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
SS-06	SS-06	06/01/10	Lead	640		49.6	49.6	400	800	6010B	URS
SS-06	SS-06	06/01/10	Silver	1.5		0.189	0.189	390	5100	6010B	URS
SS-06	SS-06D	06/01/10	Mercury	0.89		0.0051	0.0051	4.3	24	7471	URS
SS-06	SS-06D	06/01/10	Arsenic	6.2		0.391	0.391	0.39	1.6	6010B	URS
SS-06	SS-06D	06/01/10	Lead	520		49.6	49.6	400	800	6010B	URS
SS-06	SS-06D	06/01/10	Silver	0.99		0.189	0.189	390	5100	6010B	URS
SS-07	SS-07	06/01/10	Arsenic	3.5		0.391	0.391	0.39	1.6	6010B	URS
SS-07	SS-07	06/01/10	Lead	210		49.6	49.6	400	800	6010B	URS
SS-07	SS-07	06/01/10	Silver	0.41	J	0.189	0.189	390	5100	6010B	URS
SS-08	SS-08	06/01/10	Mercury	0.22		0.0051	0.0051	4.3	24	7471	URS
SS-08	SS-08	06/01/10	Arsenic	3		0.391	0.391	0.39	1.6	6010B	URS
SS-08	SS-08	06/01/10	Cadmium	1.4		1.35	1.35	7	80	6010B	URS
SS-08	SS-08	06/01/10	Lead	130		49.6	49.6	400	800	6010B	URS
SS-08	SS-08	06/01/10	Silver	0.81		0.189	0.189	390	5100	6010B	URS
SS-09	SS-09	06/01/10	Mercury	0.31		0.0051	0.0051	4.3	24	7471	URS
SS-09	SS-09	06/01/10	Arsenic	3.9		0.391	0.391	0.39	1.6	6010B	URS
SS-09	SS-09	06/01/10	Cadmium	2.4		1.35	1.35	7	80	6010B	URS
SS-09	SS-09	06/01/10	Lead	120		49.6	49.6	400	800	6010B	URS
SS-09	SS-09	06/01/10	Selenium	3		2.03	2.03	390	5100	6010B	URS
SS-09	SS-09	06/01/10	Silver	0.53		0.189	0.189	390	5100	6010B	URS
SS-10	SS-10	06/01/10	Mercury	0.83	JQC	0.0051	0.0051	4.3	24	7471	URS
SS-10	SS-10	06/01/10	Arsenic	13		0.391	0.391	0.39	1.6	6010B	URS
SS-10	SS-10	06/01/10	Cadmium	5.4		1.35	1.35	7	80	6010B	URS
SS-10	SS-10	06/01/10	Lead	6,600		49.6	49.6	400	800	6010B	URS
SS-10	SS-10	06/01/10	Silver	1.3		0.189	0.189	390	5100	6010B	URS
SS-11	SS-11	06/01/10	Mercury	1.6		0.0051	0.0051	4.3	24	7471	URS

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
SS-11	SS-11	06/01/10	Arsenic	14		0.391	0.391	0.39	1.6	6010B	URS
SS-11	SS-11	06/01/10	Barium	2,800		896	896	15000	190000	6010B	URS
SS-11	SS-11	06/01/10	Cadmium	4.8		1.35	1.35	7	80	6010B	URS
SS-11	SS-11	06/01/10	Lead	18,000		49.6	49.6	400	800	6010B	URS
SS-11	SS-11	06/01/10	Silver	2.2		0.189	0.189	390	5100	6010B	URS
SS-12	SS-12	06/01/10	Mercury	0.54		0.0051	0.0051	4.3	24	7471	URS
SS-12	SS-12	06/01/10	Arsenic	15		0.391	0.391	0.39	1.6	6010B	URS
SS-12	SS-12	06/01/10	Cadmium	2.7		1.35	1.35	7	80	6010B	URS
SS-12	SS-12	06/01/10	Lead	2,000		49.6	49.6	400	800	6010B	URS
SS-12	SS-12	06/01/10	Silver	1.2		0.189	0.189	390	5100	6010B	URS
SS-13	SS-13	06/01/10	Mercury	0.18		0.0051	0.0051	4.3	24	7471	URS
SS-13	SS-13	06/01/10	Arsenic	6.3		0.391	0.391	0.39	1.6	6010B	URS
SS-13	SS-13	06/01/10	Lead	180		49.6	49.6	400	800	6010B	URS
SS-13	SS-13	06/01/10	Silver	0.89		0.189	0.189	390	5100	6010B	URS
SS-14	SS-14	06/01/10	Mercury	0.1		0.0051	0.0051	4.3	24	7471	URS
SS-14	SS-14	06/01/10	Arsenic	3		0.391	0.391	0.39	1.6	6010B	URS
SS-14	SS-14	06/01/10	Lead	220		49.6	49.6	400	800	6010B	URS
SS-14	SS-14	06/01/10	Silver	0.8		0.189	0.189	390	5100	6010B	URS
SS-15	SS-15	06/01/10	Mercury	0.053		0.0051	0.0051	4.3	24	7471	URS
SS-15	SS-15	06/01/10	Arsenic	7.1		0.391	0.391	0.39	1.6	6010B	URS
SS-10	SS-10	06/01/10	Silver	0.94		0.189	0.189	390	5100	6010B	URS
SS-16	SS-16	06/01/10	Mercury	0.88		0.0051	0.0051	4.3	24	7471	URS
SS-16	SS-16	06/01/10	Arsenic	9.2		0.391	0.391	0.39	1.6	6010B	URS
SS-16	SS-16	06/01/10	Lead	280		49.6	49.6	400	800	6010B	URS
SS-16	SS-16	06/01/10	Silver	0.96		0.189	0.189	390	5100	6010B	URS
SS-16	SS-16D	06/01/10	Mercury	1.4		0.0051	0.0051	4.3	24	7471	URS

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
SS-16	SS-16D	06/01/10	Arsenic	10		0.391	0.391	0.39	1.6	6010B	URS
SS-16	SS-16D	06/01/10	Cadmium	1.4		1.35	1.35	7	80	6010B	URS
SS-16	SS-16D	06/01/10	Lead	300		49.6	49.6	400	800	6010B	URS
SS-16	SS-16D	06/01/10	Silver	1		0.189	0.189	390	5100	6010B	URS
SS-17	SS-17	06/01/10	Mercury	1.9		0.0051	0.0051	4.3	24	7471	URS
SS-17	SS-17	06/01/10	Arsenic	21		0.391	0.391	0.39	1.6	6010B	URS
SS-17	SS-17	06/01/10	Cadmium	2.6		1.35	1.35	7	80	6010B	URS
SS-17	SS-17	06/01/10	Lead	870		49.6	49.6	400	800	6010B	URS
SS-17	SS-17	06/01/10	Silver	2.2		0.189	0.189	390	5100	6010B	URS
SS-18	SS-18	06/01/10	Mercury	0.46		0.0051	0.0051	4.3	24	7471	URS
SS-18	SS-18	06/01/10	Arsenic	6.4		0.391	0.391	0.39	1.6	6010B	URS
SS-18	SS-18	06/01/10	Lead	180		49.6	49.6	400	800	6010B	URS
SS-18	SS-18	06/01/10	Silver	0.92		0.189	0.189	390	5100	6010B	URS
SS-19	SS-19	06/01/10	Mercury	3.6		0.0051	0.0051	4.3	24	7471	URS
SS-19	SS-19	06/01/10	Arsenic	19		0.391	0.391	0.39	1.6	6010B	URS
SS-19	SS-19	06/01/10	Cadmium	3.1		1.35	1.35	7	80	6010B	URS
SS-19	SS-19	06/01/10	Lead	1,600		49.6	49.6	400	800	6010B	URS
SS-19	SS-19	06/01/10	Silver	4		0.189	0.189	390	5100	6010B	URS
SS-20	SS-20	06/01/10	Mercury	0.025		0.0051	0.0051	4.3	24	7471	URS
SS-20	SS-20	06/01/10	Arsenic	3.4		0.391	0.391	0.39	1.6	6010B	URS
SS-20	SS-20	06/01/10	Cadmium	2		1.35	1.35	7	80	6010B	URS
SS-20	SS-20	06/01/10	Lead	410		49.6	49.6	400	800	6010B	URS
SS-20	SS-20	06/01/10	Silver	0.9		0.189	0.189	390	5100	6010B	URS
SS-20	SS-20	06/01/10	PCB 1260	0.16			0.147	0.22	0.74	8082	URS
Exposed Waste	SS-21	07/10/10	Arsenic	10		0.391	0.391	0.39	1.6	6010B	STRATA
Exposed Waste	SS-21	07/10/10	Lead	320		49.6	49.6	400	800	6010B	STRATA

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
Exposed Waste	SS-22	07/10/10	Arsenic	9.4		0.391	0.391	0.39	1.6	6010B	STRATA
Exposed Waste	SS-22	07/10/10	Lead	320		49.6	49.6	400	800	6010B	STRATA
Exposed Waste	SS-22D	07/10/10	Arsenic	7.00		0.391	0.391	0.39	1.6	6010B	STRATA
Exposed Waste	SS-22D	07/10/10	Lead	300		49.6	49.6	400	800	6010B	STRATA
Exposed Waste	SS-23	07/10/10	Arsenic	16.00		0.391	0.391	0.39	1.6	6010B	STRATA
Exposed Waste	SS-23	07/10/10	Lead	370		49.6	49.6	400	800	6010B	STRATA
Exposed Waste	SS-24	07/10/10	Arsenic	3.00		0.391	0.391	0.39	1.6	6010B	STRATA
Exposed Waste	SS-24	07/10/10	Lead	95.00		49.6	49.6	400	800	6010B	STRATA
Bermed Area	SS-25	07/10/10	Arsenic	5.90		0.391	0.391	0.39	1.6	6010B	STRATA
Bermed Area	SS-25	07/10/10	Lead	700.00		49.6	49.6	400	800	6010B	STRATA
Bermed Area	SS-25D	07/10/10	Arsenic	7.00		0.391	0.391	0.39	1.6	6010B	STRATA
Bermed Area	SS-25D	07/10/10	Lead	530.00		49.6	49.6	400	800	6010B	STRATA
Bermed Area	SS-26	07/10/10	Arsenic	3.70		0.391	0.391	0.39	1.6	6010B	STRATA
Bermed Area	SS-27	07/10/10	Arsenic	16.00		0.391	0.391	0.39	1.6	6010B	STRATA
Bermed Area	SS-27	07/10/10	Lead	260.00		49.6	49.6	400	800	6010B	STRATA
Bermed Area	SS-28	07/10/10	Arsenic	10.00		0.391	0.391	0.39	1.6	6010B	STRATA
Bermed Area	SS-28	07/10/10	Lead	1700.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-29	07/10/10	Arsenic	9.70		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-29	07/10/10	Lead	300.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-30	07/10/10	Arsenic	9.90		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-30	07/10/10	Lead	290.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-31	07/10/10	Arsenic	8.60		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-31	07/10/10	Lead	430.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-32	07/10/10	Arsenic	4.60		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-32	07/10/10	Lead	84.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-33	07/10/10	Arsenic	9.80		0.391	0.391	0.39	1.6	6010B	STRATA

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
Former Home	SS-33	07/10/10	Lead	700.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-34	07/10/10	Arsenic	6.00		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-34	07/10/10	Lead	400.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-35	07/10/10	Arsenic	16.00		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-35	07/10/10	Lead	1200.00		49.6	49.6	400	800	6010B	STRATA
Former Home	SS-36	07/10/10	Arsenic	23.00		0.391	0.391	0.39	1.6	6010B	STRATA
Former Home	SS-36	07/10/10	Lead	840.00		49.6	49.6	400	800	6010B	STRATA
DU-1	DU-1	09/15/10	Arsenic	15		0.391	0.391	0.39	1.6	6010B	STRATA
DU-1	DU-1	09/15/10	Lead	23000		49.6	49.6	400	800	6010B	STRATA
DU-2	DU-2	09/15/10	Arsenic	21		0.391	0.391	0.39	1.6	6010B	STRATA
DU-2	DU-2	09/15/10	Lead	1200		49.6	49.6	400	800	6010B	STRATA
DU-3	DU-3	09/15/10	Arsenic	19		0.391	0.391	0.39	1.6	6010B	STRATA
DU-3	DU-3	09/15/10	Lead	820		49.6	49.6	400	800	6010B	STRATA
DU-4	DU-4	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA
DU-5	DU-5	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA
DU-5	DU-5	09/15/10	Lead	1200		49.6	49.6	400	800	6010B	STRATA
DU-6	DU-6	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA
DU-7	DU-7	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA
DU-8	DU-8	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA
DU-9	DU-9	09/15/10	Arsenic	14		0.391	0.391	0.39	1.6	6010B	STRATA
DU-10	DU-10	09/15/10	Arsenic	15		0.391	0.391	0.39	1.6	6010B	STRATA

Table 1
Surficial Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSL[1] (mg/kg)	IDTL[2] (mg/kg)	EPA Residential RSL[3] (mg/kg)	EPA Industrial RSL[3] (mg/kg)	Analysis Method	Sampled By
DU-11	DU-11	09/15/10	Arsenic	11		0.391	0.391	0.39	1.6	6010B	STRATA
DU-12	DU-12	09/15/10	Arsenic	12		0.391	0.391	0.39	1.6	6010B	STRATA

J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
JQC qualifier: Estimated value based on QC evaluation.

[1] IDAPA 58.01.24 - Application of Risk Based Corrective Action at Petroleum Release Sites 2009

[2] DEQ Idaho Risk Evaluation Manual July 2004

[3] EPA Regional Screening Level Table (RSL) Master April 2012

Table 2
Subsurface Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSLs[1] (mg/kg)	IDTL[2] (mg/kg)	EPA RSL[3] Residential (mg/kg)	EPA RSL[3] Industrial (mg/kg)	Analysis Method	Sampled By
DP-2 (2-3 FT)	DP-02-2-3	06/01/10	Benzene	0.032	JQC	0.0178	0.0178	1.1	5.6	8260B	URS
DP-2 (2-3 FT)	DP-02-2-3	06/01/10	Benzo(a)pyrene	0.26		0.0422	0.0422			8270C-SIM	URS
DP-2 (2-3 FT)	DP-02-2-3	06/01/10	Benzo(b)fluoranthene	0.46		0.422	0.422			8270C-SIM	URS
DP-2 (2-3 FT)	DP-02-2-3	06/01/10	Dibenz(a,h)anthracene	0.084	J		0.0422			8270C-SIM	URS
DP-3 (7 FT)	DP-03-7	06/01/10	Ethylbenzene	0.53		0.071	10.2	5.7	29	8260B	URS
DP-3 (7 FT)	DP-03-7	06/01/10	Total Xylenes	4.4		1.68	1.67	600	2600	8260B	URS
DP-3 (7 FT)	DP-03-7	06/01/10	Naphthalene	1	J	0.078	1.14	3.9	20	8260B	URS
DP-2 (2 FT)	DP-02-2-3D	06/01/10	Benzo(a)pyrene	0.26	J	0.0422	0.0422			8270C-SIM	URS
DP-2 (2 FT)	DP-02-2-3D	06/01/10	Benzo(b)fluoranthene	0.7		0.422	0.422			8270C-SIM	URS
DP-6 (8 FT)	DP-06-8	06/01/10	Naphthalene	0.12	J	0.078	1.14	3.9	20	8270C-SIM	URS
DP-19 (2 FT)	DP-19-2	06/01/10	Benzo(a)pyrene	0.16	JQC	0.0422	0.0422			8270C-SIM	URS
SS-10 (2-2.5 FT)	SS-10 2-2.5	09/15/10	Arsenic	6.6		0.391	0.391	0.39	1.6	6010B	STRATA
SS-11 (1.5-2 FT)	SS-11 1.5-2	09/15/10	Arsenic	17		0.391	0.391	0.39	1.6	6010B	STRATA
SS-11 (1.5-2 FT)	SS-11 1.5-2	09/15/10	Lead	2200		49.6	49.6	400	800	6010B	STRATA
SS-12 (1.5-2 FT)	SS-12 1.5-2	09/15/10	Arsenic	8.6		0.391	0.391	0.39	1.6	6010B	STRATA
SS-29 (1-1.5 FT)	SS-29 1-1.5	09/15/10	Arsenic	15		0.391	0.391	0.39	1.6	6010B	STRATA
SS-29 (1-1.5 FT)	SS-29 1-1.5	09/15/10	Lead	2100		49.6	49.6	400	800	6010B	STRATA
CB-01 (1 FT)	CB-01-1	08/16/12	Benzo(a)pyrene	0.35		0.0422	0.0422	0.015	0.21	8270C-SIM	Centra
CB-01 (1 FT)	CB-01-1	08/16/12	Benzo(b)fluoranthene	0.44		0.422	0.422	0.15	2.1	8270C-SIM	Centra
CB-01 (1 FT)	CB-01-1	08/16/12	Naphthalene	0.2		0.078	1.14	3.6	18	8270C-SIM	Centra
CB-04 (2 FT)	CB-04-2	08/16/12	Benzo(a)pyrene	0.087	J	0.0422	0.0422	0.015	0.21	8270C-SIM	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Benzo(a)anthracene	1.2		0.422	0.422	0.15	2.1	8270C-SIM	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Benzo(a)pyrene	1.2		0.0422	0.0422	0.015	0.21	8270C-SIM	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Benzo(b)fluoranthene	1.4		0.422	0.422	0.15	2.1	8270C-SIM	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Naphthalene	0.16		0.078	1.14	3.6	18	8270C-SIM	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Benzo(a)anthracene	0.93		0.422	0.422	0.15	2.1	8270C	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Benzo(b)fluoranthene	1.4		0.422	0.422	0.15	2.1	8270C	Centra
CB-07 (1 FT)	CB-07-1	08/16/12	Naphthalene	0.2	J	0.078	1.14	3.6	18	8270C	Centra

Table 2
Subsurface Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/kg)	Qualifier	RUSLs[1] (mg/kg)	IDTL[2] (mg/kg)	EPA RSL[3] Residential (mg/kg)	EPA RSL[3] Industrial (mg/kg)	Analysis Method	Sampled By
CB-07 (5 FT)	CB-07-5	08/16/12	Benzo(a)anthracene	2		0.422	0.422	0.15	2.1	8270C-SIM	Centra
CB-07 (5 FT)	CB-07-5	08/16/12	Benzo(a)pyrene	2		0.0422	0.0422	0.015	0.21	8270C-SIM	Centra
CB-07 (5 FT)	CB-07-5	08/16/12	Benzo(b)fluoranthene	2.4		0.422	0.422	0.15	2.1	8270C-SIM	Centra
CB-07 (5 FT)	CB-07-5	08/16/12	Benzo(a)anthracene	0.56		0.422	0.422	0.15	2.1	8270C	Centra
CB-07 (5 FT)	CB-07-5	08/16/12	Benzo(b)fluoranthene	0.72		0.422	0.422	0.15	2.1	8270C	Centra
CB-08 (4 FT)	CB-08-4	08/16/12	Benzo(a)pyrene	0.12		0.0422	0.0422	0.015	0.21	8270C-SIM	Centra

J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
JQC qualifier: Estimated value based on QC evaluation.

[1] IDAPA 58.01.24 - Application of Risk Based Corrective Action at Petroleum Release Sites 2009

[2] DEQ Idaho Risk Evaluation Manual July 2004

[3] EPA Regional Screening Level Table (RSL) Master April 2009

Table 3
Groundwater Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample Location	Sample ID	Sample Date	Parameter	Value (mg/L)	Qualifier	RUSL[1] (mg/L)	IDTL[2] (mg/L)	EPA RSL[3] Industrial (mg/kg)	EPA RSL[3] Residential (mg/kg)	Analysis Method	Sampled By
DP-21 (9-11 FT)	DP-21-9-11	06/01/10	Benzo(a)anthracene	0.00012		0.00003	0.0000765			8270C- SIM	URS
DP-17 (13-15 FT)	DP-17-13-15	06/01/10	Selenium,Dissolved	0.056		0.05	0.05	0.95	0.26	6010B	URS
DP-21 (9-11 FT)	DP-21-9-11	06/01/10	Arsenic,Dissolved	0.011	J	0.01	0.01	0.29	0.0013	6010B	URS

J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.

[1] IDAPA 58.01.24 - Application of Risk Based Corrective Action at Petroleum Release Sites 2009

[2] DEQ Idaho Risk Evaluation Manual July 2004

[3] EPA Regional Screening Level Table (RSL) Master April 2009

TABLE 4
Soil Vapor Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Sample ID	Sample Date	Parameter	Value ($\mu g/m^3$)	EPA Residential RSL[1] ($\mu g/m^3$)	EPA Industrial RSL[1] ($\mu g/m^3$)	Analysis Method	Sampled By
SVP-1	09/15/10	Tetrachloroethene	6.5	0.41	2.1	TO-15	STRATA
SVP-2	09/15/10	Tetrachloroethene	4.4	0.41	2.1	TO-15	STRATA
SVP-3	09/15/10	Tetrachloroethene	10	0.41	2.1	TO-15	STRATA
VP-1	09/15/10	Benzene	42	0.31	1.6	TO-15	STRATA
VP-1	09/15/10	Trichloroethene	32	1.2	6.1	TO-15	STRATA
VP-1	09/15/10	Tetrachloroethene	11	0.41	2.1	TO-15	STRATA
VP-1	09/15/10	Ethyl Benzene	17	0.97	4.9	TO-15	STRATA
VP-2	09/15/10	Benzene	8.1	0.31	1.6	TO-15	STRATA
VP-2	09/15/10	Trichloroethene	16	1.2	6.1	TO-15	STRATA
VP-2	09/15/10	Tetrachloroethene	8.4	0.41	2.1	TO-15	STRATA
VP-2-D	09/15/10	Benzene	6.7	0.31	1.6	TO-15	STRATA
VP-2-D	09/15/10	Trichloroethene	16	1.2	6.1	TO-15	STRATA
VP-2-D	09/15/10	Tetrachloroethene	8.6	0.41	2.1	TO-15	STRATA

[1] EPA Regional Screening Level Table (RSL) Master April 2009

Table 5
RATLs for COCs
Former Goodman Oil Site
Voluntary Remediation Work Plan

Chemicals of Concern	Screening Concentration	Units	Source
Arsenic	0.39	mg/kg	EPA Residential RSL
Barium	15000	mg/kg	EPA Residential RSL
Cadmium	7	mg/kg	EPA Residential RSL
Lead	400	mg/kg	EPA Residential RSL
Mercury	4.3	mg/kg	EPA Residential RSL
Selenium	390	mg/kg	EPA Residential RSL
Silver	390	mg/kg	EPA Residential RSL
Aroclor 1260	0.147	mg/kg	IDEQ IDTL
Benzene	0.0178	mg/kg	IDAPA RUSL
Benzo(a)pyrene	0.0422	mg/kg	IDAPA RUSL
Benzo(b)fluoranthene	0.422	mg/kg	IDAPA RUSL
Dibenz(a,h)anthracene	0.0422	mg/kg	IDEQ IDTL
Ethylbenzene	0.071	mg/kg	IDAPA RUSL
Napthalene	0.078	mg/kg	IDAPA RUSL
Total xylenes	1.68	mg/kg	IDAPA RUSL
Benzo(a)anthracene	0.09	mg/kg	IDAPA RUSL

Table 6
Preliminary Work Plan Schedule
Former Goodman Oil Site
Voluntary Remediation Work Plan

Task Name	Duration (days)	Start Date	Finish Date
VRWP Preparation	**47**	**10/3/2012**	**11/19/2012**
IDEQ VRWP Review	16	10/3/2012	10/19/2012
Public Comment Period	24	10/19/2012	11/12/2012
Approval & Finalization of VRWP	7	11/12/2012	11/19/2012
Soil Remediation	**74**	**10/3/2012**	**12/16/2012**
Waste Characterization for Disposal	18	10/3/2012	10/21/2012
Excavation and Disposal	10	11/19/2012	11/29/2012
Confirmation Sampling	12	11/21/2012	12/3/2012
Fill Excavated Areas to Grade	8	12/4/2012	12/12/2012
Placement of Topsoil Cap	4	12/12/2012	12/16/2012
Work Plan Closeout	**35**	**12/16/2012**	**1/20/2013**
Execution of Covenant Restrictions	21	12/16/2012	1/6/2013
Work Plan Completion Report	14	1/6/2013	1/20/2013

Figures

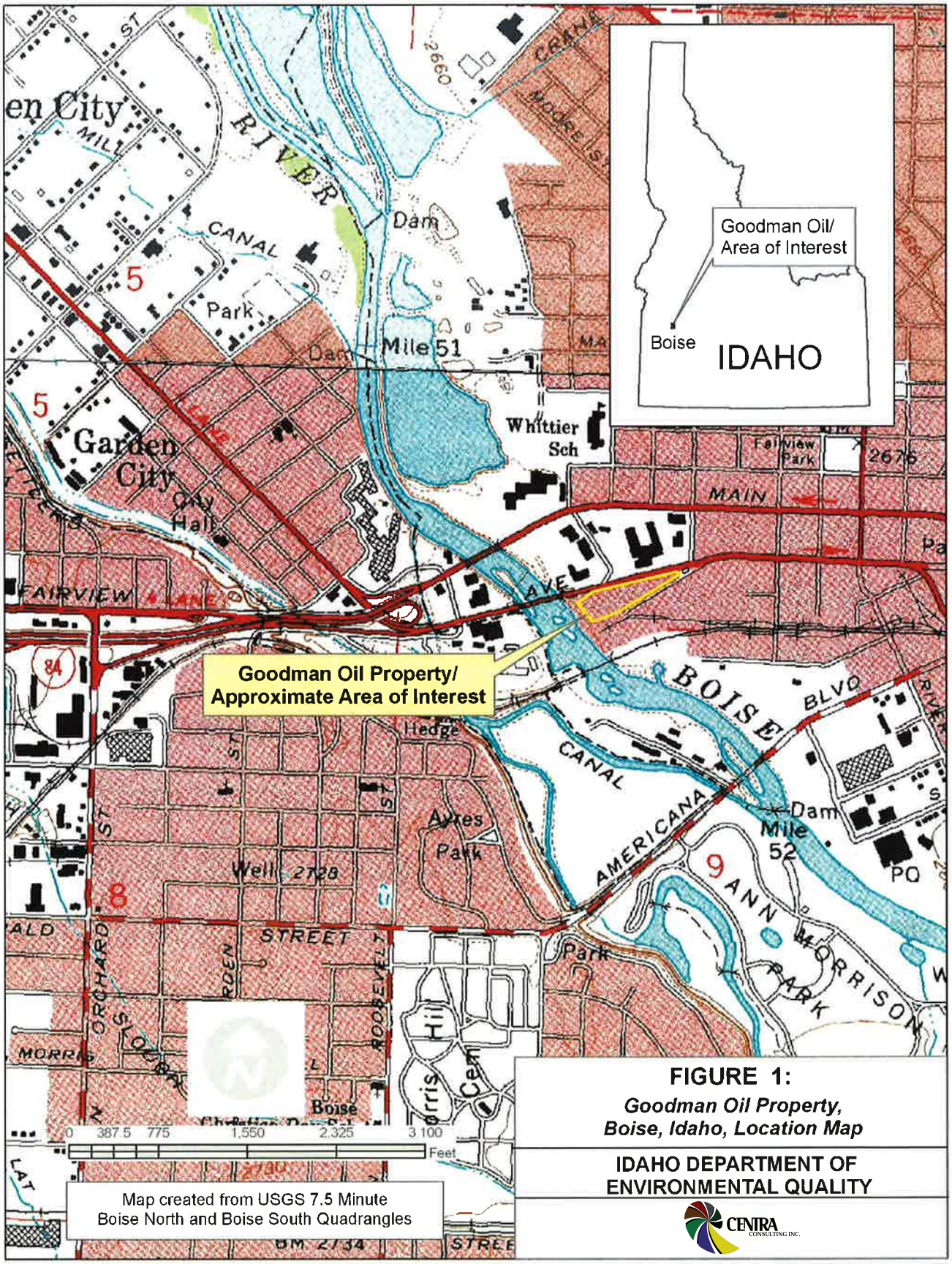


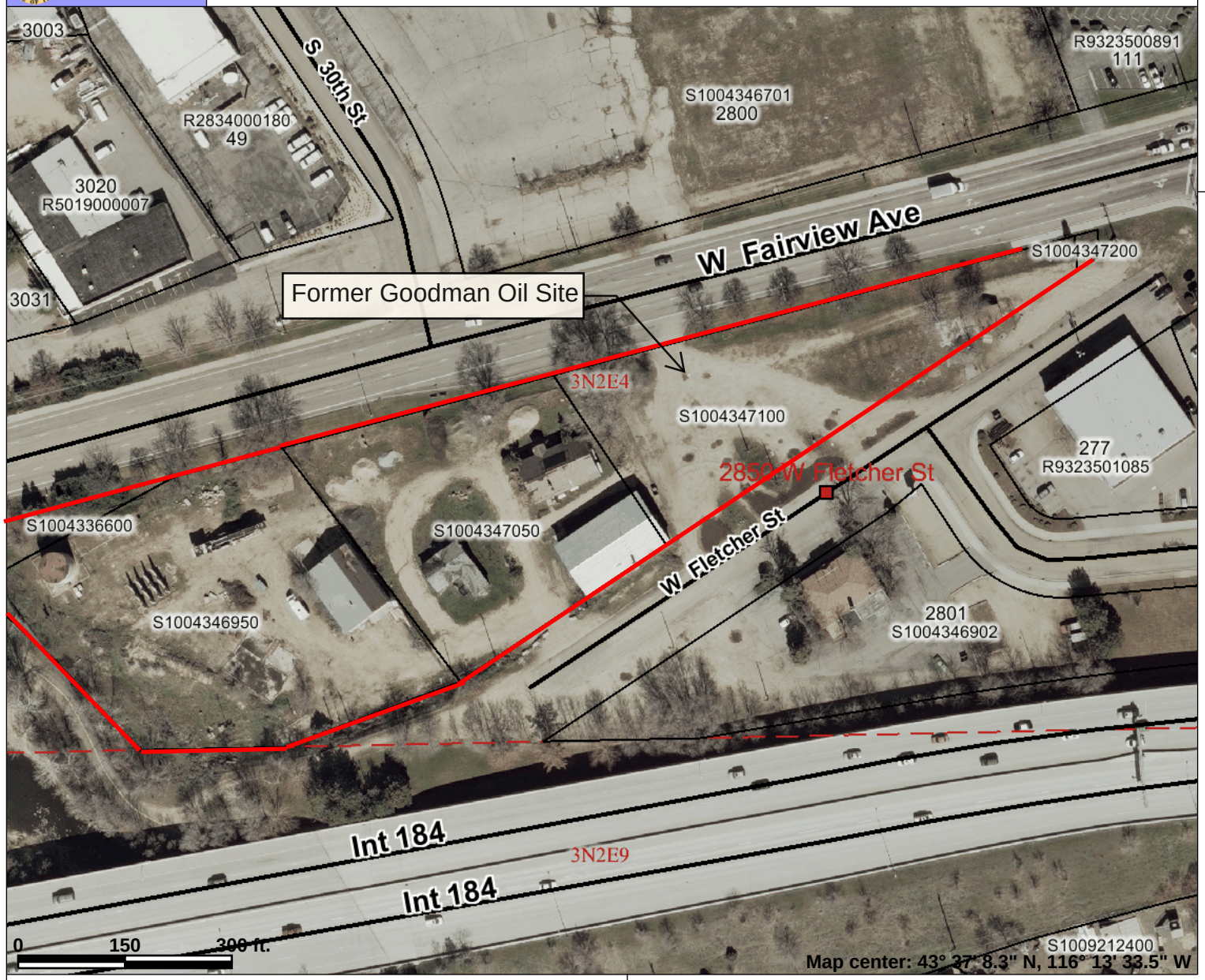
FIGURE 1:

Goodman Oil Property, Boise, Idaho, Location Map

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

CENTRA CONSULTING INC.

Former Goodman Oil - Parcel Map



Legend

Major Streets

- Minor Arterial
- Collector
- SECTION
- PRINCIPAL Arterial
- INTERSTATE
- Other

Parcels

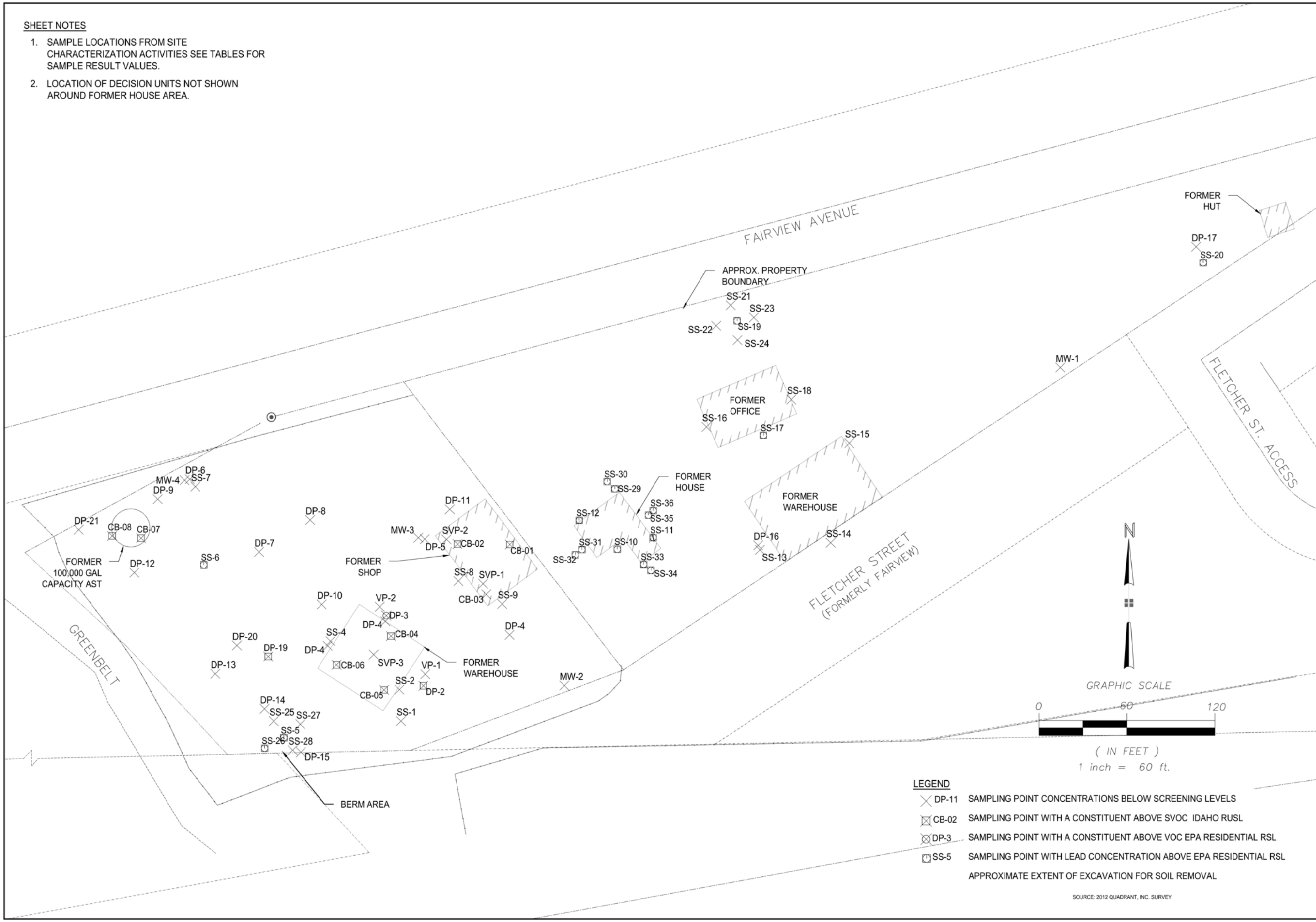
N

Scale: 1:2,553

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

SHEET NOTES

1. SAMPLE LOCATIONS FROM SITE CHARACTERIZATION ACTIVITIES SEE TABLES FOR SAMPLE RESULT VALUES.
2. LOCATION OF DECISION UNITS NOT SHOWN AROUND FORMER HOUSE AREA.



LEGEND

DP-11	SAMPLING POINT CONCENTRATIONS BELOW SCREENING LEVELS
CB-02	SAMPLING POINT WITH A CONSTITUENT ABOVE SVOC IDAHO RUSL
DP-3	SAMPLING POINT WITH A CONSTITUENT ABOVE VOC EPA RESIDENTIAL RSL
SS-5	SAMPLING POINT WITH LEAD CONCENTRATION ABOVE EPA RESIDENTIAL RSL
	APPROXIMATE EXTENT OF EXCAVATION FOR SOIL REMOVAL

SOURCE: 2012 QUADRANT, INC. SURVEY

REVISIONS			
No.	BY	DATE	DESCRIPTION
1			

DRAFT

PROJECT LOCATION: ADA COUNTY

PROJECT CONTACT: STEVE OGLE, P.E.

OWNER/DEVELOPER: D.Y. BOISE RIVER, LLC

CENTRA CONSULTING INC.
413 WEST IDAHO, SUITE 302
BOISE, IDAHO 83702
208.336.5400 OFFICE
208.336.5401 FAX
WWW.CENTRACONSULTING.COM

TITLE: FIGURE 3
SITE ASSESMENT SAMPLE LOCATIONS

DATE	DESIGNED BY: RAE	DRAWN BY: RAE	CHECKED BY: SW
SHEET	FIGURE 3	DRAWING #	

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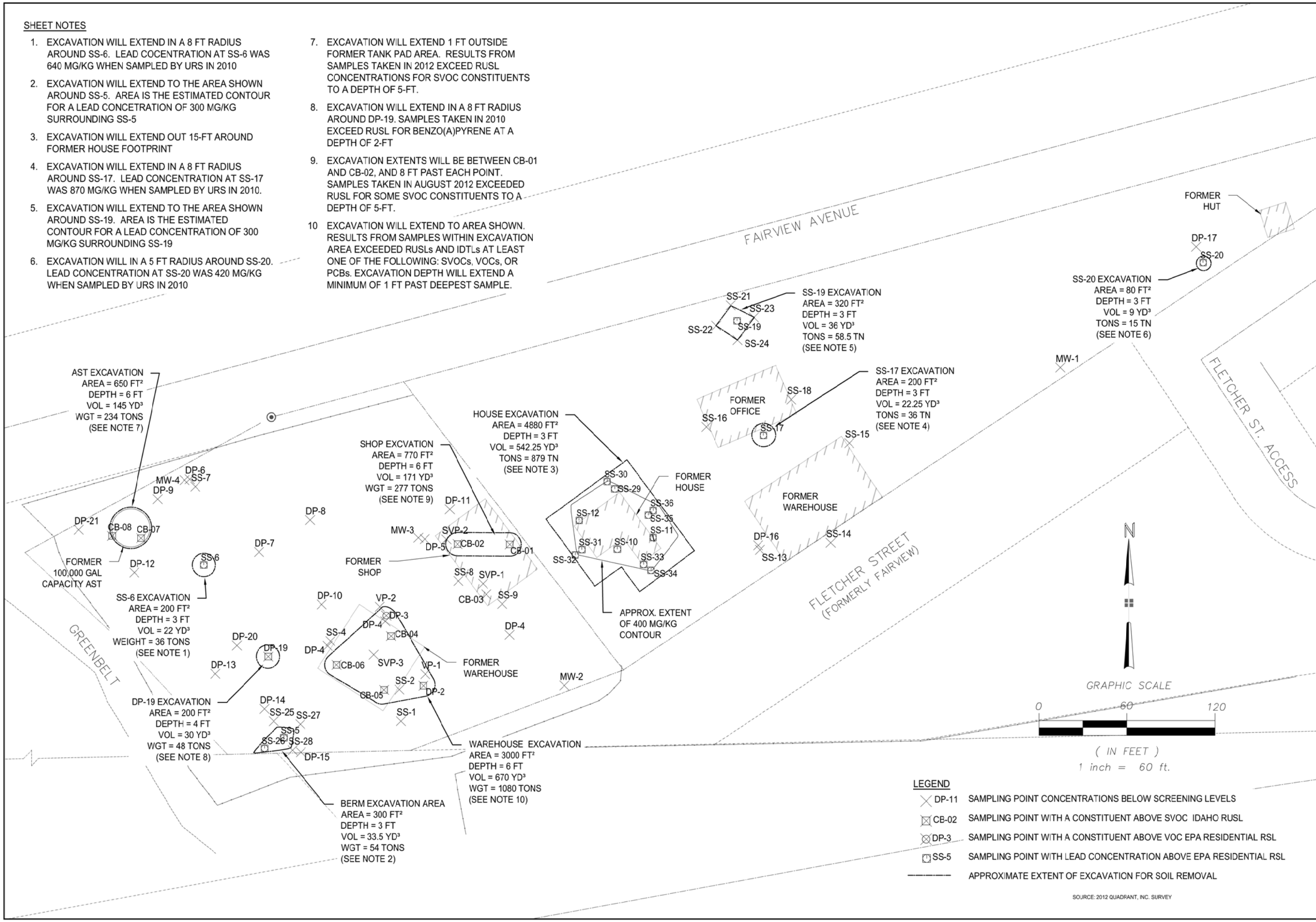
SHEET NOTES

1. EXCAVATION WILL EXTEND IN A 8 FT RADIUS AROUND SS-6. LEAD COCENTRATION AT SS-6 WAS 640 MG/KG WHEN SAMPLED BY URS IN 2010
2. EXCAVATION WILL EXTEND TO THE AREA SHOWN AROUND SS-5. AREA IS THE ESTIMATED CONTOUR FOR A LEAD CONCETRATION OF 300 MG/KG SURROUNDING SS-5
3. EXCAVATION WILL EXTEND OUT 15-FT AROUND FORMER HOUSE FOOTPRINT
4. EXCAVATION WILL EXTEND IN A 8 FT RADIUS AROUND SS-17. LEAD CONCENTRATION AT SS-17 WAS 870 MG/KG WHEN SAMPLED BY URS IN 2010.
5. EXCAVATION WILL EXTEND TO THE AREA SHOWN AROUND SS-19. AREA IS THE ESTIMATED CONTOUR FOR A LEAD CONCENTRATION OF 300 MG/KG SURROUNDING SS-19
6. EXCAVATION WILL IN A 5 FT RADIUS AROUND SS-20. LEAD CONCENTRATION AT SS-20 WAS 420 MG/KG WHEN SAMPLED BY URS IN 2010
7. EXCAVATION WILL EXTEND 1 FT OUTSIDE FORMER TANK PAD AREA. RESULTS FROM SAMPLES TAKEN IN 2012 EXCEED RUSL CONCENTRATIONS FOR SVOC CONSTITUENTS TO A DEPTH OF 5-FT.
8. EXCAVATION WILL EXTEND IN A 8 FT RADIUS AROUND DP-19. SAMPLES TAKEN IN 2010 EXCEED RUSL FOR BENZO(A)PYRENE AT A DEPTH OF 2-FT
9. EXCAVATION EXTENTS WILL BE BETWEEN CB-01 AND CB-02, AND 8 FT PAST EACH POINT. SAMPLES TAKEN IN AUGUST 2012 EXCEEDED RUSL FOR SOME SVOC CONSTITUENTS TO A DEPTH OF 5-FT.
10. EXCAVATION WILL EXTEND TO AREA SHOWN. RESULTS FROM SAMPLES WITHIN EXCAVATION AREA EXCEEDED RUSLs AND IDTLs AT LEAST ONE OF THE FOLLOWING: SVOCs, VOCs, OR PCBs. EXCAVATION DEPTH WILL EXTEND A MINIMUM OF 1 FT PAST DEEPEST SAMPLE.



LEGEND

DP-11	SAMPLING POINT CONCENTRATIONS BELOW SCREENING LEVELS
CB-02	SAMPLING POINT WITH A CONSTITUENT ABOVE SVOC IDAHO RUSL
DP-3	SAMPLING POINT WITH A CONSTITUENT ABOVE VOC EPA RESIDENTIAL RSL
SS-5	SAMPLING POINT WITH LEAD CONCENTRATION ABOVE EPA RESIDENTIAL RSL
———	APPROXIMATE EXTENT OF EXCAVATION FOR SOIL REMOVAL

SOURCE: 2012 QUADRANT, INC. SURVEY

No.	BY	DATE	DESCRIPTION
1			

REVISIONS

DRAFT

PROJECT LOCATION: ADA COUNTY

PROJECT CONTACT: STEVE OGLE, P.E.

OWNER/DEVELOPER: D.Y. BOISE RIVER, LLC

CENTRA CONSULTING INC.
413 WEST IDAHO, SUITE 302
BOISE, IDAHO 83702
208.336.8400 OFFICE
208.336.8401 FAX
WWW.CENTRACONSULTING.COM

TITLE: FIGURE 4 EXCAVATION EXTENTS

DATE | DESIGNED BY: RAE | DRAWN BY: RAE | CHECKED BY: SW

SHEET FIGURE 4 | DRAWING #

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Appendix A
Recorded Deeds and Legal Descriptions of Property

ADA COUNTY RECORDER Christopher D. Rich AMOUNT 25.00 6
BOISE IDAHO 05/10/2012 11:57 AM
DEPUTY Bonnie Oberbillig
Simplifile Electronic Recording
RECORDED-REQUEST OF
TITLEONE BOISE
112044126

TitleOne
a title & escrow co.

Order No.: 12201708 ST/SD

Corporation Warranty Deed

For value received,

Goodman Oil Company, a corporation

the grantor, does hereby grant, bargain, sell, and convey unto

D.Y. Boise River, LLC, an Idaho limited liability company

whose current address is 4414 S. Gekeler Lane, Boise, ID 83716

the grantee, the following described premises, in Ada County, Idaho, to wit:

EXHIBIT "A" ATTACHED HERETO AND MADE APART HEREOF

To have and to hold the said premises, with their appurtenances unto the said Grantee, its heirs and assigns forever. And the said Grantor does hereby covenant to and with the said Grantee, that Grantor is the owner in fee simple of said premises; that they are free from all encumbrances except those to which this conveyance is expressly made subject and those made, suffered or done by the Grantee; and subject to all existing patent reservations, easements, right(s) of way, protective covenants, zoning ordinances, and applicable building codes, laws and regulations, general taxes and assessments, including irrigation and utility assessments (if any) for the current year, which are not due and payable, and that Grantor will warrant and defend the same from all lawful claims whatsoever. Whenever the context so requires, the singular number includes the plural.

In witness whereof, the Grantor, pursuant to a resolution of its Board of Directors has caused its corporate name to be hereunto subscribed.

Dated: May 9, 2012

Goodman Oil Company, a corporation

By: _____
Royce Goodman, President

State of Idaho, County of Ada, ss.

On this 9th day of May, in the year of 2012, before me, the undersigned, a Notary Public in and for said State, personally appeared Royce Goodman, known or identified to me to be the President of the corporation that executed the instrument or the person who executed the instrument on behalf of said corporation, and acknowledged to me that such corporation executed the same.

Notary Public
My Commission Expires:
(seal)

SCOTT DARLING
ESCROW OFFICER
RESIDING: EAGLE, ID
COMMISSION EXPIRES: 11-28-13

SCOTT DARLING
NOTARY
PUBLIC
STATE OF IDAHO

Quadrant Consulting, Inc.

April 24, 2012

PARCEL 1
GOODMAN OIL PROPERTY

Parcel 1 as shown on Record of Survey Number 9176, Instrument 112032485, corrected by an Affidavit of Correction, Instrument 112037807, records of Ada County being a parcel previously described in a Warranty Deed, recorded in Book 403 of Deeds at Pages 217-218, less that portion deeded to the State of Idaho in Book 200 of Deeds and Page 232, records of Ada County being situated in the SE ¼ of the SW ¼ of Section 4, Township 3 North, Range 2 East, Boise Meridian is more particularly described below,

Commencing at the ¼ corner common to said Section 4 and Section 9 of said Township and Range thence along the south line of said Section 4 South 88°46'47" West 869.82 feet (formerly S. 89° 52' West 871.05 feet) to a point, thence leaving said section line
North 1°13'15" West 94.17 feet (formerly North 0°08' West 94 feet) to the **POINT OF BEGINNING**, thence

North 37°20'09" West 195.34 feet to the southeasterly Right-Of-Way line of the Old Oregon Trail (F.A.P. 86-A re-open) now known as Fairview Avenue, thence

South 75°00'44" West 93.44 feet along said southeasterly Right-Of-Way to a 5/8" rebar marking Station 43+70, 40' right of said Oregon Trail (F.A.P. 86-A re-open), thence leaving said southeasterly Right-Of-Way

South 61°13'45" West 192.28 feet to a point on the East or right bank of the Boise River, thence along said right bank

South 47°24'04" East 93.06 feet to a found 5/8" rebar and cap stamped "M&T", thence

South 43°04'06" East 102.48 feet to a point on said South line of Section 4, marked by a ½" rebar and cap stamped "M&T", thence leaving said right bank

North 88°46'47" East 125.07 feet (formerly North 89°52' East 46 feet) along said South line of Section 4 to the intersection with the Northerly Right-of-Way of the Boise Valley Traction Company, marked by a bare 5/8" rebar thence along said Northerly Right-Of-Way

North 69°17'03" East 155.52 feet (formerly Northeasterly 158 feet) to a 5/8" rebar and cap stamped "M&T", thence

North 37°20'09" West 52.28 feet (formerly North 36°26' West 52.3') to the **POINT OF BEGINNING.**

Said Parcel Contains 61,905 square feet or 1.421 acres, more or less

PROFESSIONAL LAND SURVEYOR REGISTERED 7876 4-24-12 STATE OF IDAHO PETER W. LOUNSBURY

1904 W. Overland • Boise, ID 83705 • Phone (208) 342-0091 • Fax (208) 342-0092 • www.quadrant
Civil Engineering • Surveying

Quadrant
Consulting, Inc.

April 24, 2012

PARCEL 2
GOODMAN OIL PROPERTY

Parcel 2 as shown on Record of Survey Number 9176, Instrument 112032485, corrected by an Affidavit of Correction, Instrument 112037807, records of Ada County being a parcel previously described in a Warranty Deed, recorded in Book 403 of Deeds at Pages 213-214, records of Ada County being situated in the SE ¼ of the SW ¼ of Section 4, Township 3 North, Range 2 East, Boise Meridian is more particularly described below,

Commencing at the SW Corner of said Section 4 thence North 88°46'47" East 2658.66 feet to the ¼ corner common to said Section 4 and Section 9 of said Township and Range thence North 40°05' 48" West 497.22 feet (formerly North 40°20' West 495.1 feet) to a point on the northerly line of West Fletcher Street (formerly Fairview Avenue) to a ½" rebar and cap marked "PLS 7876" , thence along said Northerly line South 56°19' 10" West 416.19 feet (formerly South 56°03' West 417 feet) to the **POINT OF BEGINNING**, thence leaving said northerly line

North 33°40'34" West 171.29 feet (formerly North 33°57' West 170 feet) to a found ¾" rebar on the southeasterly Right-Of-Way line of the Old Oregon Trail (F.A.P. 86-A re-open) now known as Fairview Avenue, thence along said southeasterly Right-Of-Way line

South 75°00'44" West 236.59 feet (formerly South 74°32' West 232 feet) to a point, thence leaving said southeasterly Right-Of-Way

South 37°20'09" East 247.62 feet (formerly South 36°26' East 248.74 feet) to a 5/8" rebar and cap marked "M&T" on said northerly line of West Fletcher Street, thence along said northerly line

North 56°19'10" East 208.31 feet (formerly North 56°03' East) to the **POINT OF BEGINNING.**

Said Parcel Contains 44,934 square feet or 1.032 acres, more or less.

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4-24-12
STATE OF IDAHO
PETER W. LOUNSBURY

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Civil Engineering • Surveying

Quadrant
Consulting, Inc.

April 24, 2012

PARCEL 3
GOODMAN OIL PROPERTY

Parcel 3 as shown on Record of Survey Number 9176, Instrument 112032485, corrected by an Affidavit of Correction, Instrument 112037807, records of Ada County being a parcel previously described in a Warranty Deed, recorded in Book 403 of Deeds at Pages 215-216, records of Ada County being situated in the SE ¼ of the SW ¼ of Section 4, Township 3 North, Range 2 East, Boise Meridian is more particularly described below,

Commencing at the SW Corner of said Section 4 thence North 88°46'47" East 2658.66 feet to the ¼ corner common to said Section 4 and Section 9 of said Township and Range thence North 40°05' 48" West 497.22 feet (formerly North 40°20' West 495.1 feet) to a point on the northerly line of West Fletcher Street (formerly Fairview Avenue) being the **POINT OF BEGINNING**, thence along said northerly line

South 56°19'10" West 416.19 feet (formerly South 56°03' West 417 feet), thence leaving said northerly line

North 33°40'34" West 171.29 feet (formerly North 33°57' West 170 feet) to a found ¾" rebar on the southeasterly Right-Of-Way line of the Old Oregon Trail (F.A.P. 86-A re-open) now known as Fairview Avenue, thence along said southeasterly Right-Of-Way line

North 75°00'44" East 454.24 feet (formerly North 74°32' East 454.4 feet) to a point, thence leaving said southeasterly Right-Of-Way

South 04°56'15" East 29.32 feet (formerly South 5°25' East 29.4 feet) to the **POINT OF BEGINNING.**

Said Parcel Contains 42,202 square feet or 0.969 acres, more or less.

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Civil Engineering • Surveying

Quadrant
Consulting, Inc.

April 24, 2012

PARCEL 4
GOODMAN OIL PROPERTY

Parcel 4 as shown on Record of Survey Number 9176, Instrument 112032485, corrected by an Affidavit of Correction, Instrument 112037807, records of Ada County being a parcel previously described in a Warranty Deed, recorded in Book 403 of Deeds at Pages 215-216, records of Ada County being situated in the SE ¼ of the SW ¼ of Section 4, Township 3 North, Range 2 East, Boise Meridian is more particularly described below,

Commencing at the SW Corner of said Section 4 thence North 88°46'47" East 2658.66 feet to the ¼ corner common to said Section 4 and Section 9 of said Township and Range thence North 40°05' 48" West 497.22 feet (formerly North 40°20' West 495.1 feet) to a point on the northerly line of West Fletcher Street (formerly Fairview Avenue) being the **POINT OF BEGINNING,** thence leaving said northerly line

North 04°56'15" West 29.32 feet (formerly North 5°25' West 29.4 feet) to a point on the southeasterly Right-Of-Way line of the Old Oregon Trail (F.A.P. 86-A re-open) now known as Fairview Avenue, thence along said southeasterly Right-Of-Way line

North 75°00'44" East (formerly North 74°32' East) 20.10 feet to an unmarked ITD brass capped highway marker, thence
South 04°47'26" East 22.01 feet (formerly South 5°25' East 20.8 feet) to an unmarked ITD brass capped highway marker on the northerly line of said West Fletcher Street, thence along said northerly line

South 56°19'10" West 22.50 feet (formerly South 56°03' West 23 feet) to the **POINT OF BEGINNING.**

Said Parcel Contains 507 square feet or 0.012 acres, more or less.

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SURVEY NO. 9176

RECORD OF SURVEY

D.Y. BOISE RIVER DEVELOPMENT, LLC

LOCATED IN THE ~~SOUTHEAST 1/4~~ OF SECTION 4, TOWNSHIP 3 NORTH, RANGE 2 EAST, BOISE MERIDIAN, BOISE CITY, ADA COUNTY, IDAHO

2012

SOUTHWEST 1/4 PER AFFIDAVIT 112037807

CERTIFICATE OF COUNTY RECORDER

STATE OF IDAHO } SS
COUNTY OF ADA }

I HEREBY CERTIFY THAT THIS RECORD OF SURVEY WAS FILED FOR RECORD AT THE REQUEST OF QUADRANT CONSULTING, INC.
AT 36 MINUTES PAST 2 O'CLOCK P.M., ON
THIS DAY 9TH OF APR IN 2012.
AS INSTRUMENT NO. 112032465
ADA COUNTY RECORDER
BY DEPUTY J. FULLER — CHRISTOPHER D. RICH
Fee $5.00 Ex-OFFICIO

N

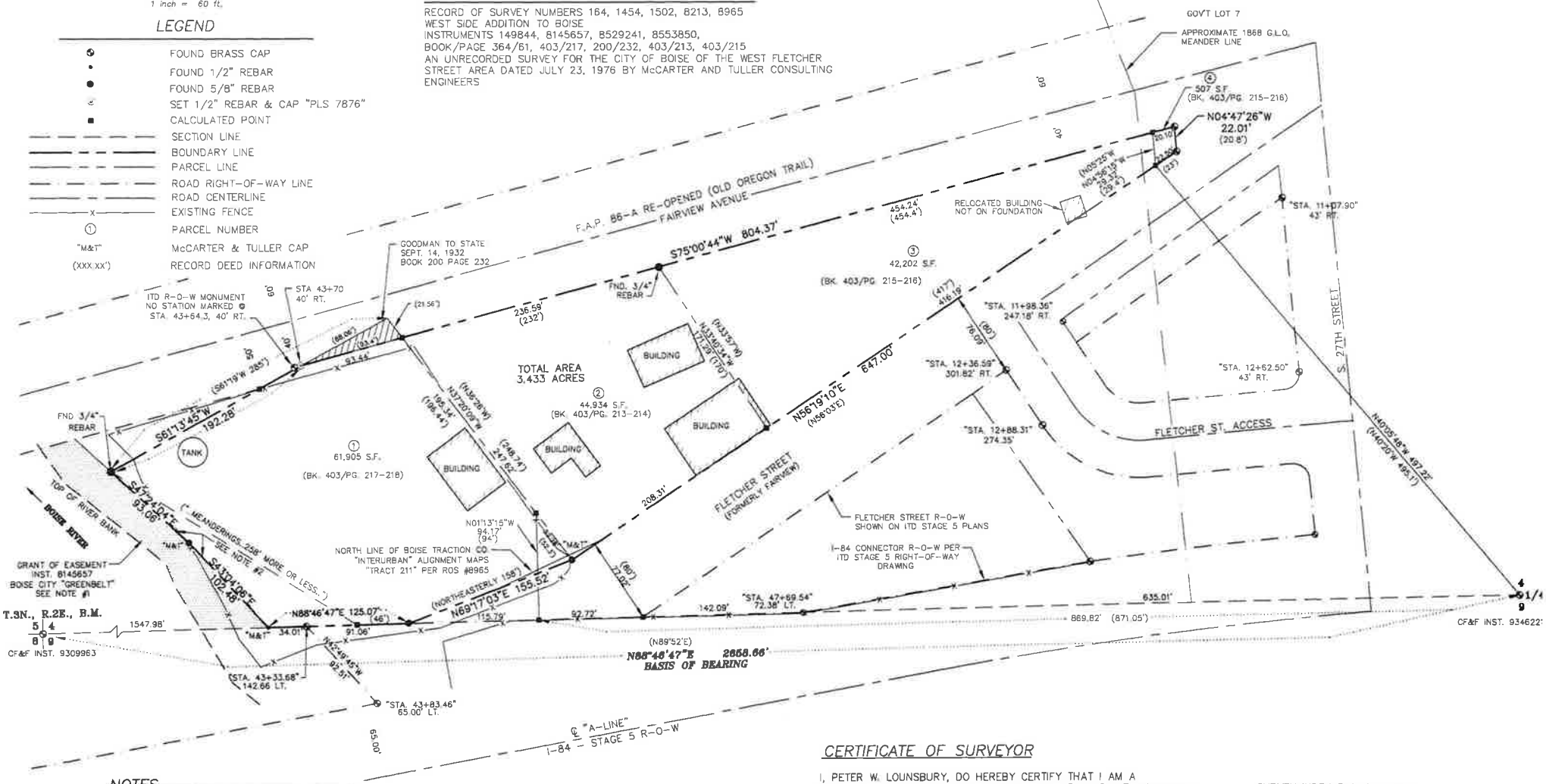
GRAPHIC SCALE
0 60 120
(IN FEET)
1 inch = 60 ft.

LEGEND

- FOUND BRASS CAP
- FOUND 1/2" REBAR
- FOUND 5/8" REBAR
- SET 1/2" REBAR & CAP "PLS 7876"
- CALCULATED POINT
- SECTION LINE
- BOUNDARY LINE
- PARCEL LINE
- ROAD RIGHT-OF-WAY LINE
- ROAD CENTERLINE
- EXISTING FENCE
- (1) PARCEL NUMBER
- "M&T" McCARTER & TULLER CAP
- (XXX.XX') RECORD DEED INFORMATION

RECORD DATA REFERENCES

RECORD OF SURVEY NUMBERS 164, 1454, 1502, 8213, 8965
WEST SIDE ADDITION TO BOISE
INSTRUMENTS 149844, 8145657, 8529241, 8553850,
BOOK/PAGE 364/61, 403/217, 200/232, 403/213, 403/215
AN UNRECORDED SURVEY FOR THE CITY OF BOISE OF THE WEST FLETCHER STREET AREA DATED JULY 23, 1976 BY McCARTER AND TULLER CONSULTING ENGINEERS



NOTES

1. GOODMAN OIL COMPANY GRANTED AN EASEMENT TO THE CITY OF BOISE TO "DEVELOP AND MAINTAIN A GREENBELT AREA" IN 1981 RECORDED AS INSTRUMENT #8145657. THE LEGAL DESCRIPTION OF THE EASEMENT WITHIN THIS DOCUMENT CONTAINS A TYPOGRAPHICAL ERROR. THE DOTTED HATCH AREA SHOWN ON THIS MAP IS THE APPROXIMATE INTENDED LOCATION OF THE EASEMENT AS IT EXISTS TODAY.

2. THE DEED AT BOOK 413 PAGES 217-218 CALLS "..FOLLOWING THE MEANDERINGS OF SAID EAST OR RIGHT BANK OF THE BOISE RIVER UP STREAM A DISTANCE OF 258 FEET MORE OR LESS..". A DIKE WAS CONSTRUCTED SOMETIME BETWEEN 1943 AND 1947 THAT MOVED THE APPROXIMATE ORDINARY HIGH WATER LINE TO THE TOE OF THE NEW DIKE BEING THE LINES SHOWN ON THIS SURVEY. THIS LINE WAS MONUMENTED AND PERPETUATED BY McCATER AND TULLER SURVEYS BETWEEN 1976 AND 1989 (ROS 1454).

CERTIFICATE OF SURVEYOR

I, PETER W. LOUNSBURY, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR, LICENSED BY THE STATE OF IDAHO AND THAT THIS MAP REPRESENTS AN ACTUAL SURVEY MADE ON THE GROUND UNDER MY DIRECT SUPERVISION AND COMPLIES WITH ACCEPTED STANDARDS OF SURVEYING AND THAT THIS MAP IS AN ACCURATE REPRESENTATION OF SAID SURVEY.

PETER W. LOUNSBURY — IDAHO NO. 7876

PROFESSIONAL LAND SURVEYOR 7876 4-5-12 STATE OF IDAHO PETER W. LOUNSBURY

SURVEY INDEX 321-4-3-2-0

Quadrant Consulting, Inc.
CIVIL ENGINEERING-SURVEYING
1904 West Overland Road Boise, Idaho 83705
(208) 342-0091 PHONE (208) 342-0092 FAX
EMAIL: pete@quadrant.cc

Appendix B
Previous ESA Sampling Results

TABLE 1: SURFACE SOIL METAL SAMPLE RESULTS

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	EPA Industrial Use Screening Levels	EPA Residential Use Screening Levels
SS-21	Exposed Waste	7471	Mercury	0.47	mg/kg		34	5.6
		6010B	Arsenic	***10***	mg/kg		1.6	0.39
			Barium	140	mg/kg		190000	15000
			Cadmium	0.48	mg/kg		800	70
			Chromium	13	mg/kg		NE	NE
			Lead	320	mg/kg		800	400
			Selenium	<1.1	mg/kg		5100	390
			Silver	<0.53	mg/kg		5100	390
SS-22	Exposed Waste	7471	Mercury	0.99	mg/kg		34	5.6
		6010B	Arsenic	***9.4***	mg/kg		1.6	0.39
			Barium	190	mg/kg		190000	15000
			Cadmium	0.97	mg/kg		800	70
			Chromium	20	mg/kg		NE	NE
			Lead	320	mg/kg		800	400
			Selenium	9.1	mg/kg		5100	390
			Silver	0.6	mg/kg		5100	390
SS-22D	Exposed Waste	7471	Mercury	1.1	mg/kg		34	5.6
		6010B	Arsenic	***7***	mg/kg		1.6	0.39
			Barium	190	mg/kg		190000	15000
			Cadmium	1.2	mg/kg		800	70
			Chromium	19	mg/kg		NE	NE
			Lead	300	mg/kg		800	400
			Selenium	9.1	mg/kg		5100	390
			Silver	<0.54	mg/kg		5100	390
SS-23	Exposed Waste	7471	Mercury	0.14	mg/kg		34	5.6
		6010B	Arsenic	***16***	mg/kg		1.6	0.39
			Barium	220	mg/kg		190000	15000
			Cadmium	0.94	mg/kg		800	70
			Chromium	21	mg/kg		NE	NE
			Lead	370	mg/kg		800	400
			Selenium	8.5	mg/kg		5100	390
			Silver	0.23	mg/kg	J	5100	390
SS-24	Exposed Waste	7471	Mercury	0.11	mg/kg		34	5.6
		6010B	Arsenic	***3***	mg/kg		1.6	0.39

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	EPA Industrial Use Screening Levels	EPA Residential Use Screening Levels
SS-24 Cont.	Exposed Waste	6010B	Barium	120	mg/kg		190000	15000
			Cadmium	0.39	mg/kg		800	70
			Chromium	14	mg/kg		NE	NE
			Lead	95	mg/kg		800	400
			Selenium	6.1	mg/kg		5100	390
			Silver	<0.56	mg/kg		5100	390
SS-25	Bermed Area	7471	Mercury	0.08	mg/kg		34	5.6
		6010B	Arsenic	***5.9***	mg/kg		1.6	0.39
			Barium	350	mg/kg		190000	15000
			Cadmium	1.8	mg/kg		800	70
			Chromium	58	mg/kg		NE	NE
			Lead	**700**	mg/kg		800	400
			Selenium	<1.0	mg/kg		5100	390
			Silver	<0.50	mg/kg		5100	390
SS-25-D	Bermed Area	7471	Mercury	0.072	mg/kg		34	5.6
		6010B	Arsenic	***7***	mg/kg		1.6	0.39
			Barium	250	mg/kg		190000	15000
			Cadmium	1.8	mg/kg		800	70
			Chromium	55	mg/kg		NE	NE
			Lead	**530**	mg/kg		800	400
			Selenium	<1.0	mg/kg		5100	390
			Silver	<0.50	mg/kg		5100	390
SS-26	Bermed Area	7471	Mercury	0.038	mg/kg		34	5.6
		6010B	Arsenic	***3.7***	mg/kg		1.6	0.39
			Barium	30	mg/kg		190000	15000
			Cadmium	0.14	mg/kg	J	800	70
			Chromium	8.8	mg/kg		NE	NE
			Lead	40	mg/kg		800	400
			Selenium	0.69	mg/kg	J	5100	390
			Silver	<0.50	mg/kg		5100	390
SS-27	Bermed Area	7471	Mercury	0.15	mg/kg		34	5.6
		6010B	Arsenic	***16***	mg/kg		1.6	0.39
			Barium	190	mg/kg		190000	15000
			Cadmium	1.2	mg/kg		800	70
			Chromium	25	mg/kg		NE	NE

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	EPA Industrial Use Screening Levels	EPA Residential Use Screening Levels
SS-27 Cont.	Bermed Area	6010B	Lead	260	mg/kg		800	400
			Selenium	<1.0	mg/kg		5100	390
			Silver	0.21	mg/kg	J	5100	390
SS-28	Bermed Area	7471	Mercury	0.092	mg/kg		34	5.6
		6010B	Arsenic	***10***	mg/kg		1.6	0.39
			Barium	560	mg/kg		190000	15000
			Cadmium	3.2	mg/kg		800	70
			Chromium	100	mg/kg		NE	NE
			Lead	***1700***	mg/kg		800	400
			Selenium	<1.0	mg/kg		5100	390
			Silver	<0.50	mg/kg		5100	390
SS-29	Former Home	7471	Mercury	1.6	mg/kg		34	5.6
		6010B	Arsenic	***9.7***	mg/kg		1.6	0.39
			Barium	160	mg/kg	V, J3	190000	15000
			Cadmium	0.47	mg/kg		800	70
			Chromium	13	mg/kg		NE	NE
			Lead	300	mg/kg	J3, V	800	400
			Selenium	1.2	mg/kg	J3	5100	390
			Silver	0.4	mg/kg	J, P1	5100	390
SS-30	Former Home	7471	Mercury	0.97	mg/kg		34	5.6
		6010B	Arsenic	***9.9***	mg/kg		1.6	0.39
			Barium	130	mg/kg		190000	15000
			Cadmium	0.47	mg/kg		800	70
			Chromium	12	mg/kg		NE	NE
			Lead	290	mg/kg		800	400
			Selenium	1.1	mg/kg		5100	390
			Silver	0.16	mg/kg	J	5100	390
SS-31	Former Home	7471	Mercury	0.79	mg/kg		34	5.6
		6010B	Arsenic	***8.6***	mg/kg		1.6	0.39
			Barium	250	mg/kg		190000	15000
			Cadmium	0.66	mg/kg		800	70
			Chromium	14	mg/kg		NE	NE
			Lead	**430**	mg/kg	B	800	400
			Selenium	7.3	mg/kg		5100	390
			Silver	0.27	mg/kg	J	5100	390
SS-32	Former Home	7471	Mercury	0.21	mg/kg		34	5.6

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	EPA Industrial Use Screening Levels	EPA Residential Use Screening Levels
SS-32	Former Home	6010B	Arsenic	***4.6***	mg/kg		1.6	0.39
			Barium	91	mg/kg		190000	15000
			Cadmium	0.18	mg/kg	J	800	70
			Chromium	10	mg/kg		NE	NE
			Lead	84	mg/kg	B	800	400
			Selenium	4.8	mg/kg		5100	390
			Silver	<0.51	mg/kg		5100	390
SS-33	Former Home	7471	Mercury	2.7	mg/kg		34	5.6
		6010B	Arsenic	***9.8***	mg/kg		1.6	0.39
			Barium	270	mg/kg		190000	15000
SS-33 Cont.	Former Home	6010B	Cadmium	1.2	mg/kg		800	70
			Chromium	21	mg/kg		NE	NE
			Lead	**700**	mg/kg		800	400
			Selenium	8.6	mg/kg		5100	390
			Silver	0.33	mg/kg	J	5100	390
SS-34	Former Home	7471	Mercury	0.86	mg/kg		34	5.6
		6010B	Arsenic	***6***	mg/kg		1.6	0.39
			Barium	160	mg/kg		190000	15000
			Cadmium	1.1	mg/kg		800	70
			Chromium	20	mg/kg		NE	NE
			Lead	**400**	mg/kg	B	800	400
			Selenium	7.8	mg/kg		5100	390
			Silver	0.27	mg/kg	J	5100	390
SS-35	Former Home	7471	Mercury	2.3	mg/kg		34	5.6
		6010B	Arsenic	***16***	mg/kg		1.6	0.39
			Barium	450	mg/kg		190000	15000
			Cadmium	1.3	mg/kg		800	70
			Chromium	25	mg/kg		NE	NE
			Lead	***1200***	mg/kg		800	400
			Selenium	0.98	mg/kg	J	5100	390
			Silver	0.84	mg/kg		5100	390
SS-36	Former Home	7471	Mercury	2	mg/kg		34	5.6
		6010B	Arsenic	***23***	mg/kg	J3	1.6	0.39
			Barium	340	mg/kg	V	190000	15000
			Cadmium	1	mg/kg		800	70
			Chromium	23	mg/kg		NE	NE
			Lead	***840***	mg/kg	J3, V	800	400

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	EPA Industrial Use Screening Levels	EPA Residential Use Screening Levels
SS-36	Former Home	6010B	Selenium	0.9	mg/kg	J, P1	5100	390
			Silver	0.65	mg/kg	P1	5100	390

Notes:
NE – Not Established

Results:
Bold Underline = Result exceeds EPA Residential RSL
Bold Underline Italic Highlight = Result exceeds EPA Industrial RSL

Qualifiers:
J3 = The associated batch QC was outside the established quality control range for precision.
B = The indicated compound was found in the associated method blank as well as the laboratory sample.
P1 = RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V = Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.
J = Estimated value below the lowest calibration point. Confidence correlates with concentration.

TABLE 2: TCLP RESULTS

Sample ID	Location	Method	Parameter	Value	Units	Qualifier	40 CFR (261.24).
COMP-SS	Composite of exposed waste and bermed area soil	7470A	Mercury	<0.0010	mg/l		0.2
		6010B	Arsenic	<0.050	mg/l		5.0
			Barium	0.88	mg/l		100.0
			Cadmium	<0.050	mg/l		1.0
			Chromium	<0.050	mg/l		5.0
			Lead	0.57	mg/l		5.0
			Selenium	0.081	mg/l		1.0
			Silver	<0.050	mg/l		5.0
FH-COMP	Composite of former home area soil	7470A	Mercury	<0.0010	mg/l		0.2
		6010B	Arsenic	<0.050	mg/l		5.0
			Barium	0.66	mg/l		100.0
			Cadmium	<0.050	mg/l		1.0
			Chromium	<0.050	mg/l		5.0
			Lead	2.5	mg/l		5.0
			Selenium	0.08	mg/l		1.0
			Silver	<0.050	mg/l		5.0

Table 1: Subsurface Soil Sampling BTEX and EDB/DBCP Results.							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSLs**
DP-1 (4.5 FT)	DP-01-4.5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	**0.0018**	mg/kg	J	1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-2 (2-3 FT)	DP-02-2-3	8260B	Benzene	**0.032**	mg/kg	J^{QC}	0.0178
			Toluene	**0.036**	mg/kg	J^{QC}	4.89
			Ethylbenzene	**0.0043**	mg/kg	J^{QC}	0.071
			Total Xylenes	**0.039**	mg/kg	J^{QC}	1.68
			Naphthalene	**0.02**	mg/kg	J^{QC}	0.078
			1,2-Dichloroethane	**0.00067**	mg/kg	J	0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
	DP-02-2-3D	8260B	Benzene	**0.0041**	mg/kg	J^{QC}	0.0178
			Toluene	**0.0041**	mg/kg	J, J^{QC}	4.89
			Ethylbenzene	**0.00057**	mg/kg	J, J^{QC}	0.071
			Total Xylenes	**0.0055**	mg/kg	J^{QC}	1.68
			Naphthalene	**0.0017**	mg/kg	J, J^{QC}	0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-3 (7 FT)	DP-03-7	8260B	Benzene	<0.10	mg/kg	US	0.0178
			Toluene	**2.4**	mg/kg		4.89
			Ethylbenzene	**0.53**	mg/kg		0.071
			Total Xylenes	**4.4**	mg/kg		1.68
			Naphthalene	**1**	mg/kg	J	0.078
			1,2-Dichloroethane	<0.088	mg/kg	US	0.00771
			1,2-Dibromoethane	<0.072	mg/kg	US	0.000143
DP-4 (2 FT)	DP-04-2	8260B	Benzene	**0.00053**	mg/kg	J	0.0178
			Toluene	**0.0015**	mg/kg	J	4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	**0.00051**	mg/kg	J	1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-5 (8.5 FT)	DP-05-8.5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-6 (8 FT)	DP-06-8	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	**0.0017**	mg/kg	J	4.89
			Ethylbenzene	**0.026**	mg/kg		0.071

Table 1: Subsurface Soil Sampling BTEX and EDB/DBCP Results.							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSLs**
DP-6 (8 FT) Cont.	DP-06-8	8260B	Total Xylenes	**0.34**	mg/kg		1.68
			Naphthalene	**0.015**	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-7 (4.5 FT)	DP-7-4.5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	**0.0042**	mg/kg	J	0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-10 (7.5 FT)	DP-10-7.5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-11 (8.5 FT)	DP-11-8.5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-12 (8 FT)	DP-12-8	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	**0.0033**	mg/kg	J	0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-13 (4-5 FT)	DP-13-4-5	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-14 (6-7 FT)	DP-14-6-7	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	**0.00038**	mg/kg	J	4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771

Table 1: Subsurface Soil Sampling BTEX and EDB/DBCP Results.							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSLs**
DP-14 Cont.	DP-14-6-7	8260B	1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
	DP-14-6-7D	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
DP-14 (6-7 FT) Cont.	DP-14-6-7D	8260B	Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-15 (8 FT)	DP-15-8	8260B	Benzene	**0.0025**	mg/kg		0.0178
			Toluene	**0.005**	mg/kg	J	4.89
			Ethylbenzene	**0.00039**	mg/kg	J	0.071
			Total Xylenes	**0.0066**	mg/kg		1.68
			Naphthalene	**0.0017**	mg/kg	J	0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-16 (2.5 FT)	DP-16-2.5	8260B	Benzene	**0.0018**	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-17 (3 FT)	DP-17-3	8260B	Benzene	**0.0018**	mg/kg		0.0178
			Toluene	**0.00089**	mg/kg	J	4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-18 (7 FT)	DP-18-7	8260B	Benzene	<0.00042	mg/kg		0.0178
			Toluene	<0.00033	mg/kg		4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143
DP-19 (2 FT)	DP-19-2	8260B	Benzene	**0.0031**	mg/kg		0.0178
			Toluene	**0.0013**	mg/kg	J	4.89
			Ethylbenzene	<0.00032	mg/kg		0.071
			Total Xylenes	<0.00046	mg/kg		1.68
			Naphthalene	<0.00028	mg/kg		0.078
			1,2-Dichloroethane	<0.00038	mg/kg		0.00771
			1,2-Dibromoethane	<0.00031	mg/kg	US	0.000143

Bold and highlighted: Detected value exceeds regulatory standard.
Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard

J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.
J^{QC} qualifier: Estimated value based on QC evaluation.

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-1 (4.5 FT)	DP-01-4.5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg	UJ^{QC}	52.3	52.3
			Acenaphthylene	<0.0011	mg/kg	UJ^{QC}		78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	**0.0047**	mg/kg	J		1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	**0.0014**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	**0.0084**	mg/kg	J^{QC}	0.078	1.14
			Phenanthrene	**0.0011**	mg/kg	J		79
			Pyrene	**0.0011**	mg/kg	J	359	359
			1-Methylnaphthalene	**0.012**	mg/kg			
			2-Methylnaphthalene	**0.018**	mg/kg	J^{QC}		3.31
			2-Chloronaphthalene	<0.0010	mg/kg	UJ^{QC}		128
DP-2 (3 FT)	DP-02-2-3	8270C-SIM	Anthracene	**0.088**	mg/kg	J	1040	1040
			Acenaphthene	<0.025	mg/kg	UJ^{QC}	52.3	52.3
			Acenaphthylene	**0.15**	mg/kg	J^{QC}		78
			Benzo(a)anthracene	**0.1**	mg/kg	J	0.422	0.422
			Benzo(a)pyrene	**0.26**	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	**0.46**	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	**0.3**	mg/kg			1180
			Benzo(k)fluoranthene	**0.12**	mg/kg		4.22	4.22
			Chrysene	**0.36**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	**0.084**	mg/kg	J		0.0422
			Fluoranthene	**0.23**	mg/kg		364	364
			Fluorene	<0.020	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.23**	mg/kg			0.422
			Naphthalene	**0.077**	mg/kg	J, J^{QC}	0.078	1.14
			Phenanthrene	**0.076**	mg/kg	J		79
			Pyrene	**0.7**	mg/kg		359	359
			1-Methylnaphthalene	**0.034**	mg/kg	J		
			2-Methylnaphthalene	**0.076**	mg/kg	J, J^{QC}		3.31
			2-Chloronaphthalene	<0.021	mg/kg	UJ^{QC}		128

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-2 (2 FT) Cont.	DP-02-2-3D	8270C-SIM	Anthracene	**0.066**	mg/kg	J	1040	1040
			Acenaphthene	<0.025	mg/kg		52.3	52.3
			Acenaphthylene	**0.07**	mg/kg	J		78
			Benzo(a)anthracene	**0.15**	mg/kg		0.422	0.422
			Benzo(a)pyrene	**0.26**	mg/kg	J	0.0422	0.0422
			Benzo(b)fluoranthene	**0.7**	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	**0.21**	mg/kg	J		1180
			Benzo(k)fluoranthene	<0.058	mg/kg		4.22	4.22
			Chrysene	**0.38**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.044	mg/kg	US		0.0422
			Fluoranthene	**0.34**	mg/kg		364	364
			Fluorene	**0.043**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.17**	mg/kg	J		0.422
			Naphthalene	**0.041**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.093**	mg/kg	J		79
			Pyrene	**0.76**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	<0.030	mg/kg			
			2-Methylnaphthalene	**0.047**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.021	mg/kg			128
DP-3 (7 FT)	DP-03-7	8270C-SIM	Anthracene	<0.013	mg/kg		1040	1040
			Acenaphthene	<0.013	mg/kg		52.3	52.3
			Acenaphthylene	<0.011	mg/kg			78
			Benzo(a)anthracene	**0.022**	mg/kg	J	0.422	0.422
			Benzo(a)pyrene	<0.0083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.0098	mg/kg			1180
			Benzo(k)fluoranthene	<0.012	mg/kg		4.22	4.22
			Chrysene	<0.0087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.0089	mg/kg			0.0422
			Fluoranthene	**0.013**	mg/kg	J	364	364
			Fluorene	**0.016**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.0088	mg/kg			0.422
			Naphthalene	**0.019**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.024**	mg/kg	J		79
			Pyrene	**0.035**	mg/kg	J	359	359
			1-Methylnaphthalene	**0.022**	mg/kg	J		
			2-Methylnaphthalene	**0.027**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.010	mg/kg			128
DP-4 (2 FT)	DP-04-2	8270C-SIM	Anthracene	**0.0032**	mg/kg	J	1040	1040
			Acenaphthene	**0.002**	mg/kg	J	52.3	52.3
			Acenaphthylene	**0.0017**	mg/kg	J		78
			Benzo(a)anthracene	**0.02**	mg/kg		0.422	0.422

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-4 (2 FT) Cont.	DP-04-2	8270C-SIM	Benzo(a)pyrene	**0.026**	mg/kg	J, J^{QC}	0.0422	0.0422
			Benzo(b)fluoranthene	**0.044**	mg/kg	J, J^{QC}	0.422	0.422
			Benzo(g,h,i)perylene	**0.013**	mg/kg	J, J^{QC}		1180
			Benzo(k)fluoranthene	**0.015**	mg/kg	J, J^{QC}	4.22	4.22
			Chrysene	**0.027**	mg/kg		33.4	33.4
DP-4 (2 FT) Cont.	DP-04-2	8270C-SIM	Dibenz(a,h)anthracene	<0.0044	mg/kg	UJ^{QC}		0.0422
			Fluoranthene	**0.039**	mg/kg		364	364
			Fluorene	**0.0017**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.012**	mg/kg	J, J^{QC}		0.422
			Naphthalene	**0.0027**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.019**	mg/kg			79
			Pyrene	**0.038**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	**0.0019**	mg/kg	J		
			2-Methylnaphthalene	**0.0032**	mg/kg	J		3.31
			2-Chloronaphthalene	**0.0032**	mg/kg	J		128
DP-5 (8.5 FT)	DP-05-8.5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	UJ^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-6 (8 FT)	DP-06-8	8270C-SIM	Anthracene	**0.72**	mg/kg		1040	1040
			Acenaphthene	**0.27**	mg/kg		52.3	52.3
			Acenaphthylene	**0.054**	mg/kg	J		78
			Benzo(a)anthracene	<0.019	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.017	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.029	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.020	mg/kg			1180
			Benzo(k)fluoranthene	<0.023	mg/kg		4.22	4.22

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-6 Cont.	DP-06-8	8270C-SIM	Chrysene	<0.017	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.018	mg/kg			0.0422
			Fluoranthene	**0.12**	mg/kg		364	364
			Fluorene	**0.57**	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.018	mg/kg			0.422
			Naphthalene	**0.12**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.62**	mg/kg			79
			Pyrene	**0.43**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	**0.49**	mg/kg			
			2-Methylnaphthalene	**0.16**	mg/kg			3.31
			2-Chloronaphthalene	**0.058**	mg/kg	J		128
DP-7 (4.5 FT)	DP-7-4.5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	UJ^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-10 (7.5 FT)	DP-10-7.5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8

Table 2: Subsurface Soil Sampling PAH Results.								
Description	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSLs**	**IDTL Soil**
DP-10 (7.5 FT) Cont.	DP-10-7.5	8270C-SIM	Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	UJ^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-11 (8.5 FT)	DP-11-8.5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	UJ^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-12 (8 FT)	DP-12-8	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-12 (8 FT) Cont.	DP-12-8	8270C-SIM	Pyrene	<0.00096	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-13 (4-5 FT)	DP-13-4-5	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22
			Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	UJ^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-14 (6-7 FT)	DP-14-6-7	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	**0.0088**	mg/kg		0.422	0.422
			Benzo(a)pyrene	**0.0023**	mg/kg	J, J^{QC}	0.0422	0.0422
			Benzo(b)fluoranthene	**0.0038**	mg/kg	J, J^{QC}	0.422	0.422
			Benzo(g,h,i)perylene	**0.0011**	mg/kg	J, J^{QC}		1180
			Benzo(k)fluoranthene	<0.0012	mg/kg	UJ^{QC}	4.22	4.22
			Chrysene	**0.0016**	mg/kg	J	33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg	UJ^{QC}		0.0422
			Fluoranthene	**0.0042**	mg/kg	J	364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.001**	mg/kg	J, J^{QC}		0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	**0.0028**	mg/kg	J		79
			Pyrene	**0.0037**	mg/kg	J, J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-14 (6-7 FT) Cont.	DP-14-6-7D	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	**0.0068**	mg/kg		0.422	0.422
			Benzo(a)pyrene	**0.0012**	mg/kg	J, J^{QC}	0.0422	0.0422
			Benzo(b)fluoranthene	**0.002**	mg/kg	J, J^{QC}	0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg	UJ^{QC}		1180
			Benzo(k)fluoranthene	<0.0012	mg/kg	UJ^{QC}	4.22	4.22
			Chrysene	**0.00092**	mg/kg	J	33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg	UJ^{QC}		0.0422
			Fluoranthene	**0.0025**	mg/kg	J	364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg	UJ^{QC}		0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	**0.0017**	mg/kg	J		79
			Pyrene	**0.0018**	mg/kg	J, J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-15 (8 FT)	DP-15-8	8270C-SIM	Anthracene	**0.003**	mg/kg	J	1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	**0.0029**	mg/kg	J	0.422	0.422
			Benzo(a)pyrene	**0.004**	mg/kg	J, J^{QC}	0.0422	0.0422
			Benzo(b)fluoranthene	**0.0058**	mg/kg	J, J^{QC}	0.422	0.422
			Benzo(g,h,i)perylene	**0.0023**	mg/kg	J, J^{QC}		1180
			Benzo(k)fluoranthene	**0.003**	mg/kg	J, J^{QC}	4.22	4.22
			Chrysene	**0.012**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg	UJ^{QC}		0.0422
			Fluoranthene	**0.0067**	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.0018**	mg/kg	J, J^{QC}		0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	**0.0024**	mg/kg	J		79
			Pyrene	**0.011**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	**0.0028**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-16 (2.5 FT)	DP-16-2.5	8270C-SIM	Anthracene	**0.0018**	mg/kg	J	1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	**0.011**	mg/kg		0.422	0.422

Table 2: Subsurface Soil Sampling PAH Results.

Description	Sample ID	Method	Parameter	Value	Units	Qualifier	RUSLs	IDTL Soil
DP-16 (2.5 FT) Cont.	DP-16-2.5	8270C-SIM	Benzo(a)pyrene	**0.011**	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	**0.017**	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	**0.0039**	mg/kg	J		1180
			Benzo(k)fluoranthene	**0.0054**	mg/kg	J	4.22	4.22
			Chrysene	**0.011**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	**0.021**	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.0035**	mg/kg	J		0.422
			Naphthalene	**0.0033**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.01**	mg/kg			79
			Pyrene	**0.017**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	**0.0052**	mg/kg	J		
			2-Methylnaphthalene	**0.0047**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-17 (3 FT)	DP-17-3	8270C-SIM	Anthracene	**0.0036**	mg/kg	J	1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	**0.0075**	mg/kg			78
			Benzo(a)anthracene	**0.021**	mg/kg		0.422	0.422
			Benzo(a)pyrene	**0.028**	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	**0.039**	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	**0.0092**	mg/kg			1180
			Benzo(k)fluoranthene	**0.021**	mg/kg		4.22	4.22
			Chrysene	**0.024**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	**0.0031**	mg/kg	J		0.0422
			Fluoranthene	**0.048**	mg/kg		364	364
			Fluorene	**0.0018**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.0091**	mg/kg			0.422
			Naphthalene	**0.0036**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.025**	mg/kg			79
			Pyrene	**0.032**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	**0.0047**	mg/kg	J		
			2-Methylnaphthalene	**0.0042**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-18 (7 FT)	DP-18-7	8270C-SIM	Anthracene	<0.0013	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	<0.0011	mg/kg			78
			Benzo(a)anthracene	<0.00096	mg/kg		0.422	0.422
			Benzo(a)pyrene	<0.00083	mg/kg		0.0422	0.0422
			Benzo(b)fluoranthene	<0.0014	mg/kg		0.422	0.422
			Benzo(g,h,i)perylene	<0.00098	mg/kg			1180
			Benzo(k)fluoranthene	<0.0012	mg/kg		4.22	4.22

Table 2: Subsurface Soil Sampling PAH Results.								
Description	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSLs**	**IDTL Soil**
DP-18 (7 FT) Cont.	DP-18-7	8270C-SIM	Chrysene	<0.00087	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	<0.00089	mg/kg			0.0422
			Fluoranthene	<0.00081	mg/kg		364	364
			Fluorene	<0.0010	mg/kg		54.8	54.8
			Indeno(1,2,3-cd)pyrene	<0.00088	mg/kg			0.422
			Naphthalene	<0.0014	mg/kg		0.078	1.14
			Phenanthrene	<0.00098	mg/kg			79
			Pyrene	<0.00096	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	<0.0020	mg/kg			3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128
DP-19 (2 FT)	DP-19-2	8270C-SIM	Anthracene	**0.016**	mg/kg		1040	1040
			Acenaphthene	<0.0013	mg/kg		52.3	52.3
			Acenaphthylene	**0.0098**	mg/kg			78
			Benzo(a)anthracene	**0.14**	mg/kg		0.422	0.422
			Benzo(a)pyrene	**0.16**	mg/kg	J^{QC}	0.0422	0.0422
			Benzo(b)fluoranthene	**0.19**	mg/kg	J^{QC}	0.422	0.422
			Benzo(g,h,i)perylene	**0.069**	mg/kg	J^{QC}		1180
			Benzo(k)fluoranthene	**0.066**	mg/kg	J^{QC}	4.22	4.22
			Chrysene	**0.13**	mg/kg		33.4	33.4
			Dibenz(a,h)anthracene	**0.021**	mg/kg	J, J^{QC}		0.0422
			Fluoranthene	**0.21**	mg/kg		364	364
			Fluorene	**0.0042**	mg/kg	J	54.8	54.8
			Indeno(1,2,3-cd)pyrene	**0.069**	mg/kg	J^{QC}		0.422
			Naphthalene	**0.0052**	mg/kg	J	0.078	1.14
			Phenanthrene	**0.058**	mg/kg			79
			Pyrene	**0.2**	mg/kg	J^{QC}	359	359
			1-Methylnaphthalene	<0.0015	mg/kg			
			2-Methylnaphthalene	**0.0026**	mg/kg	J		3.31
			2-Chloronaphthalene	<0.0010	mg/kg			128

Bold and highlighted: Detected value exceeds regulatory standard.
Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.
J^{QC} qualifier: Estimated value based on QC evaluation.
UJ^{QC} qualifier: Not detected value estimated based on QC evaluation.

Table 3: Discrete Interval Direct Push Boring VOC Sample Results.								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-1 (7-11 FT)	DP-1-7-11	8260B	Benzene	**0.00067**	mg/l	J	0.005	0.005
			Toluene	<0.00032	mg/l		1	1
			Ethylbenzene	<0.00022	mg/l		0.107	0.7
			Total Xylenes	**0.0034**	mg/l		4.46	4.34
			Naphthalene	**0.0014**	mg/l	J	0.102	0.209
DP-14 (9-11 FT)	DP-14-9-11	8260B	1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			Benzene	<0.00023	mg/l		0.005	0.005
			Toluene	<0.00032	mg/l		1	1
			Ethylbenzene	<0.00022	mg/l		0.107	0.7
			Total Xylenes	<0.00086	mg/l		4.46	4.34
			Naphthalene	<0.00098	mg/l		0.102	0.209
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
DP-17 (13-15 FT)	DP-17-13-15	8260B	Benzene	<0.00023	mg/l		0.005	0.005
			Toluene	<0.00032	mg/l		1	1
			Ethylbenzene	<0.00022	mg/l		0.107	0.7
			Total Xylenes	<0.00086	mg/l		4.46	4.34
			Naphthalene	<0.00098	mg/l		0.102	0.209
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
DP-21 (9-11 FT)	DP-21-9-11	8260B	Acetone	<0.016	mg/l			9.39
			Acrolein	<0.0076	mg/l	US		0.00521
			Acrylonitrile	<0.0019	mg/l	US		0.000103
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l			0.000901
			Bromoform	<0.00037	mg/l			0.00707
			Bromomethane	<0.0016	mg/l			0.0146
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	**0.00053**	mg/l	J		0.104
			tert-Butylbenzene	<0.00020	mg/l			0.104
			Carbon tetrachloride	<0.00020	mg/l			0.00456
			Chlorobenzene	<0.00030	mg/l			0.1
			Chlorodibromomethane	<0.00024	mg/l			0.000665
			Chloroethane	<0.00087	mg/l			0.0193
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l			0.0018
			Chloromethane	<0.00076	mg/l			0.0043
			2-Chlorotoluene	<0.00028	mg/l			0.209
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US		0.0002
			1,2-Dibromoethane	<0.00027	mg/l	US	5E-05	
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l			0.6
			1,3-Dichlorobenzene	<0.00029	mg/l			0.00939
			1,4-Dichlorobenzene	<0.00031	mg/l			0.075

Table 3: Discrete Interval Direct Push Boring VOC Sample Results.								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-21 (9-11 FT) Cont.	DP-21-9-11	8260B	Dichlorodifluoromethane	<0.0016	mg/l			0.195
			1,1-Dichloroethane	<0.00032	mg/l			1.04
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l			0.007
			cis-1,2-Dichloroethene	<0.00034	mg/l			0.07
			trans-1,2-Dichloroethene	<0.00026	mg/l			0.1
			1,2-Dichloropropane	<0.00039	mg/l			0.005
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l			0.000559
			trans-1,3-Dichloropropene	<0.00024	mg/l			0.000559
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.107	0.7
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	**0.00078**	mg/l	J		1.04
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l			6.26
			Methylene Chloride	<0.00091	mg/l			0.00745
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l			8.97
			Methyl tert-butyl ether	<0.00063	mg/l		0.031	0.0169
			Naphthalene	<0.00098	mg/l		0.102	0.209
			n-Propylbenzene	**0.00092**	mg/l	J		
			Styrene	<0.00024	mg/l			0.1
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l			0.00215
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l			0.000279
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l			0.005
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l			0.07
			1,1,1-Trichloroethane	<0.00031	mg/l			0.2
			1,1,2-Trichloroethane	<0.00029	mg/l			0.005
			Trichloroethene	<0.00031	mg/l			0.00332
			Trichlorofluoromethane	<0.0011	mg/l			2.05
			1,2,3-Trichloropropane	<0.00074	mg/l	US		2.79E-05
			1,2,4-Trimethylbenzene	<0.00018	mg/l			0.439
			1,2,3-Trimethylbenzene	**0.0021**	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l			0.304
			Vinyl chloride	<0.00034	mg/l			0.002
			Xylenes, Total	**0.0027**	mg/l	J	4.46	4.34
TRIP BLANK	TRIP BLANK	8260B	Acetone	<0.016	mg/l	UJ^{QC}		9.39
			Acrolein	<0.0076	mg/l	US		0.00521
			Acrylonitrile	<0.0019	mg/l	US		0.000103

Table 3: Discrete Interval Direct Push Boring VOC Sample Results.								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
TRIP BLANK Cont.	TRIP BLANK	8260B	Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l			0.000901
			Bromoform	<0.00037	mg/l			0.00707
			Bromomethane	<0.0016	mg/l	UJ[QC]		0.0146
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l			0.104
			tert-Butylbenzene	<0.00020	mg/l			0.104
			Carbon tetrachloride	<0.00020	mg/l			0.00456
			Chlorobenzene	<0.00030	mg/l			0.1
			Chlorodibromomethane	<0.00024	mg/l			0.000665
			Chloroethane	<0.00087	mg/l			0.0193
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l			0.0018
			Chloromethane	<0.00076	mg/l	UJ[QC]		0.0043
			2-Chlorotoluene	<0.00028	mg/l			0.209
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US		0.0002
			1,2-Dibromoethane	<0.00027	mg/l	US	5E-05	
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l			0.6
			1,3-Dichlorobenzene	<0.00029	mg/l			0.00939
			1,4-Dichlorobenzene	<0.00031	mg/l			0.075
			Dichlorodifluoromethane	<0.0016	mg/l			0.195
			1,1-Dichloroethane	<0.00032	mg/l			1.04
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l			0.007
			cis-1,2-Dichloroethene	<0.00034	mg/l			0.07
			trans-1,2-Dichloroethene	<0.00026	mg/l			0.1
			1,2-Dichloropropane	<0.00039	mg/l			0.005
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l			0.000559
			trans-1,3-Dichloropropene	<0.00024	mg/l			0.000559
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.107	0.7
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l			1.04
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l			6.26
			Methylene Chloride	<0.00091	mg/l	UJ[QC]		0.00745
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l			8.97

Table 3: Discrete Interval Direct Push Boring VOC Sample Results.								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
TRIP BLANK Cont.	TRIP BLANK	8260B	Methyl tert-butyl ether	<0.00063	mg/l		0.031	0.0169
			Naphthalene	<0.00098	mg/l		0.102	0.209
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l			0.1
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l			0.00215
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l			0.000279
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l	UJ^{QC}		
			Tetrachloroethene	<0.00032	mg/l			0.005
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l			0.07
			1,1,1-Trichloroethane	<0.00031	mg/l			0.2
			1,1,2-Trichloroethane	<0.00029	mg/l			0.005
			Trichloroethene	<0.00031	mg/l			0.00332
			Trichlorofluoromethane	<0.0011	mg/l	UJ^{QC}		2.05
			1,2,3-Trichloropropane	<0.00074	mg/l	US		2.79E-05
			1,2,4-Trimethylbenzene	<0.00018	mg/l			0.439
			1,2,3-Trimethylbenzene	<0.00030	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l			0.304
			Vinyl chloride	<0.00034	mg/l			0.002
			Xylenes, Total	<0.00086	mg/l		4.46	4.34

Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.
J^{QC} qualifier: Estimated value based on QC evaluation.
UJ^{QC} qualifier: Not detected value estimated based on QC evaluation.

Table 4: Discrete Interval Direct Push Boring SVOC Sample Results								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-21 (9-11 FT)	DP-21-9-11	8270C	Acenaphthene	**0.002**	mg/l		0.626	0.626
			Acenaphthylene	**0.00054**	mg/l	J		0.626
			Anthracene	<0.00036	mg/l		3.13	3.13
			Benzidine	<0.0013	mg/l	US		2.43E-07
			Benzo(a)anthracene	<0.00040	mg/l	US	7.65E-05	0.0000765
			Benzo(b)fluoranthene	<0.00046	mg/l	US	7.65E-05	0.0000765
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l			0.313
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US		0.0000508
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l			0.417
			4-Bromophenyl-phenylether	<0.0013	mg/l	US		0.00000372
			2-Chloronaphthalene	<0.00035	mg/l			0.834

Table 4: Discrete Interval Direct Push Boring SVOC Sample Results								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-21 (9-11 FT) Cont.	DP-21-9-11	8270C	4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	**0.0003**	mg/l	J	0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US		0.00000765
			3,3-Dichlorobenzidine	<0.0012	mg/l	US		0.000124
			2,4-Dinitrotoluene	<0.0013	mg/l	US		0.0000822
			2,6-Dinitrotoluene	<0.0014	mg/l	US		0.0000822
			Fluoranthene	<0.00040	mg/l		0.417	0.417
			Fluorene	**0.0062**	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l			0.001
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l			0.00701
			Hexachloroethane	<0.0020	mg/l			0.00399
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US		0.0000765
			Isophorone	<0.00072	mg/l			0.0588
			Naphthalene	<0.00098	mg/l		0.102	0.209
			Nitrobenzene	<0.0016	mg/l			0.00521
			n-Nitrosodimethylamine	<0.0020	mg/l	US		0.0000011
			n-Nitrosodiphenylamine	<0.00079	mg/l			0.0114
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US		0.00000798
			Phenanthrene	**0.0059**	mg/l			0.313
			Benzylbutyl phthalate	<0.00027	mg/l			2.09
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l			0.006
			Di-n-butyl phthalate	<0.00021	mg/l			1.04
			Diethyl phthalate	<0.00019	mg/l			8.34
			Dimethyl phthalate	<0.00021	mg/l			104
			Di-n-octyl phthalate	<0.00040	mg/l			0.417
			Pyrene	**0.00081**	mg/l	J	0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l			0.07
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l			0.0521
			2,4-Dichlorophenol	<0.0011	mg/l			0.0313
			2,4-Dimethylphenol	<0.0046	mg/l			0.209
			4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l			0.0209
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l			0.0834
			Pentachlorophenol	<0.00086	mg/l			0.001
			Phenol	<0.00052	mg/l			3.13
			2,4,6-Trichlorophenol	<0.0021	mg/l	US		0.00104

Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.

Table 5: Discrete Interval Direct Push Boring PAH Sample Results								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-1 (7-11 FT)	DP-1-7-11	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	**0.000024**	mg/l	J	0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l			0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	**0.000017**	mg/l	J	0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
DP-1 (7-11 FT) Cont.	DP-1-7-11	8270C-SIM	Naphthalene	**0.00084**	mg/l		0.102	0.209
			Phenanthrene	**0.00003**	mg/l	J		0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	**0.00068**	mg/l			
			2-Methylnaphthalene	**0.00081**	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
DP-14 (9-11 FT)	DP-14-9-11	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l			0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	**0.000015**	mg/l	J	0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	**0.000036**	mg/l	J	0.102	0.209
			Phenanthrene	**0.000035**	mg/l	J		0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	**0.000084**	mg/l	J		
			2-Methylnaphthalene	**0.000096**	mg/l	J		0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
DP-17 (13-15 FT)	DP-17-13-15	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765

Table 5: Discrete Interval Direct Push Boring PAH Sample Results								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-17 (13-15 FT) Cont.	DP-17-13-15	8270C-SIM	Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l			0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	<0.000012	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	<0.000023	mg/l		0.102	0.209
			Phenanthrene	<0.000018	mg/l			0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	<0.000014	mg/l			
			2-Methylnaphthalene	<0.000014	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
DP-21 (9-11 FT)	DP-21-9-11	8270C-SIM	Anthracene	**0.0009**	mg/l	J^{QC}	3.13	3.13
			Acenaphthene	**0.0016**	mg/l	J^{QC}	0.626	0.626
			Acenaphthylene	**0.00045**	mg/l	J^{QC}		0.626
			Benzo(a)anthracene	**0.00012**	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	**0.000015**	mg/l	J	0.0002	0.0002
			Benzo(b)fluoranthene	**0.000024**	mg/l	J	0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	**0.000082**	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l			0.00000765
			Fluoranthene	**0.0002**	mg/l		0.417	0.417
			Fluorene	**0.0048**	mg/l	J^{QC}	0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	**0.0017**	mg/l	J^{QC}	0.102	0.209
			Phenanthrene	**0.0045**	mg/l	J^{QC}		0.313
			Pyrene	**0.00063**	mg/l		0.313	0.313
			1-Methylnaphthalene	**0.0035**	mg/l	J^{QC}		
			2-Methylnaphthalene	**0.00014**	mg/l	J, J^{QC}		0.0417
			2-Chloronaphthalene	**0.00011**	mg/l	J, J^{QC}		0.834

Bold and highlighted: Detected value exceeds regulatory standard.
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
J^{QC} qualifier: Estimated value based on QC evaluation.

Table 6: Discrete Interval Direct Push Boring EDB DBCP Sample Results								
Boring	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
DP-1 (7-11 FT)	DP-1-7-11	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l			0.0002

DP-14 (9-11 FT)	DP-14-9-11	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l			0.0002
DP-17 (13-15 FT)	DP-17-13-15		Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l			0.0002
DP-21 (9-11 FT)	DP-21-9-11		Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l			0.0002

Table 7: Discrete Interval Direct Push Boring RCRA Metals Sample Results

Boring	Sample ID	Method	Parameter	Value	Units	Qualifier	IDTL
DP-1 (7-11 FT)	DP-1-7-11	6010B	Arsenic,Dissolved	**0.0098**	mg/l	J	0.01
			Barium,Dissolved	**0.06**	mg/l		2
			Cadmium,Dissolved	<0.00080	mg/l		0.005
			Chromium,Dissolved	<0.0017	mg/l		0.1
			Lead,Dissolved	<0.0036	mg/l	D	0.015
			Selenium,Dissolved	**0.026**	mg/l		0.05
			Silver,Dissolved	<0.0033	mg/l		0.0521
DP-14	DP-14-9-11	6010B	Arsenic,Dissolved	<0.0065	mg/l		0.01
DP-14 (7-11 FT)	DP-14-9-11	6010B	Barium,Dissolved	**0.037**	mg/l		2
			Cadmium,Dissolved	<0.00080	mg/l		0.005
			Chromium,Dissolved	<0.0017	mg/l		0.1
			Lead,Dissolved	<0.0036	mg/l	D	0.015
			Selenium,Dissolved	**0.018**	mg/l	J	0.05
			Silver,Dissolved	<0.0033	mg/l		0.0521
DP-17 (13-15 FT)	DP-17-13-15	6010B	Arsenic,Dissolved	<0.0065	mg/l		0.01
			Barium,Dissolved	**0.093**	mg/l		2
			Cadmium,Dissolved	<0.00080	mg/l		0.005
			Chromium,Dissolved	<0.0017	mg/l		0.1
			Lead,Dissolved	**0.002**	mg/l	J, J^{QC}	0.015
			Selenium,Dissolved	**0.056**	mg/l		0.05
			Silver,Dissolved	<0.0033	mg/l	UJ^{QC}	0.0521
DP-21 (9-11 FT)	DP-21-9-11	6010B	Arsenic,Dissolved	**0.011**	mg/l	J	0.01
			Barium,Dissolved	**0.062**	mg/l		2
			Cadmium,Dissolved	<0.00080	mg/l		0.005
			Chromium,Dissolved	<0.0017	mg/l		0.1
			Lead,Dissolved	<0.0018	mg/l		0.015
			Selenium,Dissolved	**0.023**	mg/l		0.05
			Silver,Dissolved	<0.0033	mg/l		0.0521

Bold and highlighted: Detected value exceeds regulatory standard.
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
D: Sample dilution.
J^{QC} qualifier: Estimated value based on QC evaluation.
UJ^{QC} qualifier: Not detected value estimated based on QC evaluation.

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-1	MW-1	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l		0.104	
			tert-Butylbenzene	<0.00020	mg/l		0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	
			1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l		1.04	
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l		6.26	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-1 Cont.	MW-1	8260B	Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	<0.00098	mg/l		0.209	0.102
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	<0.00018	mg/l		0.439	
			1,2,3-Trimethylbenzene	<0.00030	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l		0.304	
			Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	<0.00086	mg/l		4.34	4.46
MW-2	MW-2	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l		0.104	
			tert-Butylbenzene	<0.00020	mg/l		0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-2 Cont.	MW-2	8260B	1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l		1.04	
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l		6.26	
			Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	<0.00098	mg/l		0.209	0.102
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	<0.00018	mg/l		0.439	
			1,2,3-Trimethylbenzene	<0.00030	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l		0.304	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-2 Cont.	MW-2	8260B	Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	<0.00086	mg/l		4.34	4.46
MW-3	MW-3	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l		0.104	
			tert-Butylbenzene	<0.00020	mg/l		0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	
			1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l		1.04	
			p-Isopropyltoluene	<0.00031	mg/l			

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-3	MW-3	8260B	2-Butanone (MEK)	<0.0034	mg/l		6.26	
			Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	<0.00098	mg/l		0.209	0.102
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	<0.00018	mg/l		0.439	
			1,2,3-Trimethylbenzene	<0.00030	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l		0.304	
			Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	<0.00086	mg/l		4.34	4.46
	MW-3-D	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l		0.104	
			tert-Butylbenzene	<0.00020	mg/l		0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	
			4-Chlorotoluene	<0.00020	mg/l			

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-3 Cont.	MW-3-D	8260B	1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	
			1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l		1.04	
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l		6.26	
			Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	<0.00098	mg/l		0.209	0.102
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	**0.0007**	mg/l	J	0.439	
			1,2,3-Trimethylbenzene	<0.00030	mg/l			

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-3 Cont.	MW-3-D	8260B	1,3,5-Trimethylbenzene	<0.00033	mg/l		0.304	
			Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	<0.00086	mg/l		4.34	4.46
MW-4	MW-4	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	**0.0041**	mg/l			
			sec-Butylbenzene	**0.0038**	mg/l		0.104	
			tert-Butylbenzene	**0.0008**	mg/l	J	0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	
			4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	
			1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	**0.036**	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	**0.0061**	mg/l		1.04	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-4 Cont.	MW-4	8260B	p-Isopropyltoluene	**0.003**	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l		6.26	
			Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	**0.06**	mg/l		0.209	0.102
			n-Propylbenzene	**0.017**	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	**0.0052**	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	**0.16**	mg/l		0.439	
			1,2,3-Trimethylbenzene	**0.045**	mg/l			
			1,3,5-Trimethylbenzene	**0.05**	mg/l		0.304	
			Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	**0.22**	mg/l		4.34	4.46
TRIP BLANK	TRIP BLANK	8260B	Acetone	<0.016	mg/l		9.39	
			Acrolein	<0.0076	mg/l	US	0.00521	
			Acrylonitrile	<0.0019	mg/l	US	0.000103	
			Benzene	<0.00023	mg/l		0.005	0.005
			Bromobenzene	<0.00023	mg/l			
			Bromodichloromethane	<0.00023	mg/l		0.000901	
			Bromoform	<0.00037	mg/l		0.00707	
			Bromomethane	<0.0016	mg/l		0.0146	
			n-Butylbenzene	<0.00031	mg/l			
			sec-Butylbenzene	<0.00022	mg/l		0.104	
			tert-Butylbenzene	<0.00020	mg/l		0.104	
			Carbon tetrachloride	<0.00020	mg/l		0.00456	
			Chlorobenzene	<0.00030	mg/l		0.1	
			Chlorodibromomethane	<0.00024	mg/l		0.000665	
			Chloroethane	<0.00087	mg/l		0.0193	
			2-Chloroethyl vinyl ether	<0.0057	mg/l			
			Chloroform	<0.00027	mg/l		0.0018	
			Chloromethane	<0.00076	mg/l		0.0043	
			2-Chlorotoluene	<0.00028	mg/l		0.209	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
TRIP BLANK Cont.	TRIP BLANK	8260B	4-Chlorotoluene	<0.00020	mg/l			
			1,2-Dibromo-3-Chloropropane	<0.0013	mg/l	US	0.0002	
			1,2-Dibromoethane	<0.00027	mg/l	US		5E-05
			Dibromomethane	<0.00035	mg/l			
			1,2-Dichlorobenzene	<0.00029	mg/l		0.6	
			1,3-Dichlorobenzene	<0.00029	mg/l		0.00939	
			1,4-Dichlorobenzene	<0.00031	mg/l		0.075	
			Dichlorodifluoromethane	<0.0016	mg/l		0.195	
			1,1-Dichloroethane	<0.00032	mg/l		1.04	
			1,2-Dichloroethane	<0.00025	mg/l		0.005	0.005
			1,1-Dichloroethene	<0.00041	mg/l		0.007	
			cis-1,2-Dichloroethene	<0.00034	mg/l		0.07	
			trans-1,2-Dichloroethene	<0.00026	mg/l		0.1	
			1,2-Dichloropropane	<0.00039	mg/l		0.005	
			1,1-Dichloropropene	<0.00026	mg/l			
			1,3-Dichloropropane	<0.00028	mg/l			
			cis-1,3-Dichloropropene	<0.00025	mg/l		0.000559	
			trans-1,3-Dichloropropene	<0.00024	mg/l		0.000559	
			2,2-Dichloropropane	<0.00036	mg/l			
			Di-isopropyl ether	<0.00026	mg/l			
			Ethylbenzene	<0.00022	mg/l		0.7	0.107
			Hexachloro-1,3-butadiene	<0.00038	mg/l			
			Isopropylbenzene	<0.00020	mg/l		1.04	
			p-Isopropyltoluene	<0.00031	mg/l			
			2-Butanone (MEK)	<0.0034	mg/l		6.26	
			Methylene Chloride	<0.00091	mg/l		0.00745	
			4-Methyl-2-pentanone (MIBK)	<0.0017	mg/l		8.97	
			Methyl tert-butyl ether	<0.00063	mg/l		0.0169	0.031
			Naphthalene	<0.00098	mg/l		0.209	0.102
			n-Propylbenzene	<0.00031	mg/l			
			Styrene	<0.00024	mg/l		0.1	
			1,1,1,2-Tetrachloroethane	<0.00032	mg/l		0.00215	
			1,1,2,2-Tetrachloroethane	<0.00025	mg/l		0.000279	
			1,1,2-Trichloro-1,2,2-trifluoroethane	<0.00039	mg/l			
			Tetrachloroethene	<0.00032	mg/l		0.005	
			Toluene	<0.00032	mg/l		1	1
			1,2,3-Trichlorobenzene	<0.00032	mg/l			
			1,2,4-Trichlorobenzene	<0.00035	mg/l		0.07	
			1,1,1-Trichloroethane	<0.00031	mg/l		0.2	
			1,1,2-Trichloroethane	<0.00029	mg/l		0.005	
			Trichloroethene	<0.00031	mg/l		0.00332	
			Trichlorofluoromethane	<0.0011	mg/l		2.05	
			1,2,3-Trichloropropane	<0.00074	mg/l	US	2.79E-05	
			1,2,4-Trimethylbenzene	<0.00018	mg/l		0.439	

Table 8: Groundwater Monitoring Well VOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
TRIP BLANK Cont.	TRIP BLANK	8260B	1,2,3-Trimethylbenzene	<0.00030	mg/l			
			1,3,5-Trimethylbenzene	<0.00033	mg/l		0.304	
			Vinyl chloride	<0.00034	mg/l		0.002	
			Xylenes, Total	<0.00086	mg/l		4.34	4.46

Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-1	MW-1	8270C	Acenaphthene	<0.00032	mg/l		0.626	0.626
			Acenaphthylene	<0.00026	mg/l		0.626	
			Anthracene	<0.00036	mg/l		3.13	3.13
			Benzidine	<0.0013	mg/l	US	2.43E-07	
			Benzo(a)anthracene	<0.00040	mg/l	US	0.0000765	7.65E-05
			Benzo(b)fluoranthene	<0.00046	mg/l	US	0.0000765	7.65E-05
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l		0.313	
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US	0.0000508	
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l		0.417	
			4-Bromophenyl-phenylether	<0.0013	mg/l	US	0.00000372	
			2-Chloronaphthalene	<0.00035	mg/l		0.834	
			4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	<0.00028	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US	0.00000765	
			3,3-Dichlorobenzidine	<0.0012	mg/l	US	0.000124	
			2,4-Dinitrotoluene	<0.0013	mg/l	US	0.0000822	
			2,6-Dinitrotoluene	<0.0014	mg/l	US	0.0000822	
			Fluoranthene	<0.00040	mg/l		0.417	0.417
			Fluorene	<0.00042	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l		0.001	
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l		0.00701	
			Hexachloroethane	<0.0020	mg/l		0.00399	
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US	0.0000765	
			Isophorone	<0.00072	mg/l		0.0588	
			Naphthalene	<0.00098	mg/l		0.209	0.102
			Nitrobenzene	<0.0016	mg/l		0.00521	
			n-Nitrosodimethylamine	<0.0020	mg/l	US	0.0000011	

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-1 Cont.	MW-1	8270C	n-Nitrosodiphenylamine	<0.00079	mg/l		0.0114	
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US	0.00000798	
			Phenanthrene	<0.00045	mg/l		0.313	
			Benzylbutyl phthalate	<0.00027	mg/l		2.09	
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l		0.006	
			Di-n-butyl phthalate	<0.00021	mg/l		1.04	
			Diethyl phthalate	<0.00019	mg/l		8.34	
			Dimethyl phthalate	<0.00021	mg/l		104	
			Di-n-octyl phthalate	<0.00040	mg/l		0.417	
			Pyrene	<0.00035	mg/l		0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l		0.07	
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l		0.0521	
			2,4-Dichlorophenol	<0.0011	mg/l		0.0313	
			2,4-Dimethylphenol	<0.0046	mg/l		0.209	
			4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l		0.0209	
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l		0.0834	
			Pentachlorophenol	<0.00086	mg/l		0.001	
			Phenol	<0.00052	mg/l		3.13	
			2,4,6-Trichlorophenol	<0.0021	mg/l	US	0.00104	
MW-2	MW-2	8270C	Acenaphthene	<0.00032	mg/l		0.626	0.626
			Acenaphthylene	<0.00026	mg/l		0.626	
			Anthracene	<0.00036	mg/l		3.13	3.13
			Benzidine	<0.0013	mg/l	US	2.43E-07	
			Benzo(a)anthracene	<0.00040	mg/l	US	0.0000765	7.65E-05
			Benzo(b)fluoranthene	<0.00046	mg/l	US	0.0000765	7.65E-05
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l		0.313	
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US	0.0000508	
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l		0.417	
			4-Bromophenyl-phenylether	<0.0013	mg/l	US	0.00000372	
			2-Chloronaphthalene	<0.00035	mg/l		0.834	
			4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	<0.00028	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US	0.00000765	
			3,3-Dichlorobenzidine	<0.0012	mg/l	US	0.000124	
			2,4-Dinitrotoluene	<0.0013	mg/l	US	0.0000822	
			2,6-Dinitrotoluene	<0.0014	mg/l	US	0.0000822	
			Fluoranthene	<0.00040	mg/l		0.417	0.417

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-2 Cont.	MW-2	8270C	Fluorene	<0.00042	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l		0.001	
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l		0.00701	
			Hexachloroethane	<0.0020	mg/l		0.00399	
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US	0.0000765	
			Isophorone	<0.00072	mg/l		0.0588	
			Naphthalene	<0.00098	mg/l		0.209	0.102
			Nitrobenzene	<0.0016	mg/l		0.00521	
			n-Nitrosodimethylamine	<0.0020	mg/l	US	0.0000011	
			n-Nitrosodiphenylamine	<0.00079	mg/l		0.0114	
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US	0.00000798	
			Phenanthrene	<0.00045	mg/l		0.313	
			Benzylbutyl phthalate	<0.00027	mg/l		2.09	
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l		0.006	
			Di-n-butyl phthalate	<0.00021	mg/l		1.04	
			Diethyl phthalate	<0.00019	mg/l		8.34	
			Dimethyl phthalate	<0.00021	mg/l		104	
			Di-n-octyl phthalate	<0.00040	mg/l		0.417	
			Pyrene	<0.00035	mg/l		0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l		0.07	
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l		0.0521	
			2,4-Dichlorophenol	<0.0011	mg/l		0.0313	
			2,4-Dimethylphenol	<0.0046	mg/l		0.209	
			4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l		0.0209	
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l		0.0834	
			Pentachlorophenol	<0.00086	mg/l		0.001	
			Phenol	<0.00052	mg/l		3.13	
			2,4,6-Trichlorophenol	<0.0021	mg/l	US	0.00104	
MW-3	MW-3	8270C	Acenaphthene	<0.00032	mg/l		0.626	0.626
			Acenaphthylene	<0.00026	mg/l		0.626	
			Anthracene	<0.00036	mg/l		3.13	3.13
			Benzidine	<0.0013	mg/l	US	2.43E-07	
			Benzo(a)anthracene	<0.00040	mg/l	US	0.0000765	7.65E-05
			Benzo(b)fluoranthene	<0.00046	mg/l	US	0.0000765	7.65E-05
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l		0.313	
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US	0.0000508	
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l		0.417	
			4-Bromophenyl-	<0.0013	mg/l	US	0.00000372	

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
			phenylether					
MW-3 Cont.	MW-3	8270C	2-Chloronaphthalene	<0.00035	mg/l		0.834	
			4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	<0.00028	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US	0.00000765	
			3,3-Dichlorobenzidine	<0.0012	mg/l	US	0.000124	
			2,4-Dinitrotoluene	<0.0013	mg/l	US	0.0000822	
			2,6-Dinitrotoluene	<0.0014	mg/l	US	0.0000822	
			Fluoranthene	<0.00040	mg/l		0.417	0.417
			Fluorene	<0.00042	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l		0.001	
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l		0.00701	
			Hexachloroethane	<0.0020	mg/l		0.00399	
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US	0.0000765	
			Isophorone	<0.00072	mg/l		0.0588	
			Naphthalene	<0.00098	mg/l		0.209	0.102
			Nitrobenzene	<0.0016	mg/l		0.00521	
			n-Nitrosodimethylamine	<0.0020	mg/l	US	0.0000011	
			n-Nitrosodiphenylamine	<0.00079	mg/l		0.0114	
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US	0.00000798	
			Phenanthrene	<0.00045	mg/l		0.313	
			Benzylbutyl phthalate	<0.00027	mg/l		2.09	
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l		0.006	
			Di-n-butyl phthalate	<0.00021	mg/l		1.04	
			Diethyl phthalate	<0.00019	mg/l		8.34	
			Dimethyl phthalate	<0.00021	mg/l		104	
			Di-n-octyl phthalate	<0.00040	mg/l		0.417	
			Pyrene	<0.00035	mg/l		0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l		0.07	
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l		0.0521	
			2,4-Dichlorophenol	<0.0011	mg/l		0.0313	
			2,4-Dimethylphenol	<0.0046	mg/l		0.209	
			4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l		0.0209	
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l		0.0834	
			Pentachlorophenol	<0.00086	mg/l		0.001	
			Phenol	<0.00052	mg/l		3.13	
			2,4,6-Trichlorophenol	<0.0021	mg/l	US	0.00104	
	MW-3-D	8270C	Acenaphthene	<0.00032	mg/l		0.626	0.626
			Acenaphthylene	<0.00026	mg/l		0.626	
			Anthracene	<0.00036	mg/l		3.13	3.13

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-3 Cont.	MW-3-D	8270C	Benzidine	<0.0013	mg/l	US	2.43E-07	
			Benzo(a)anthracene	<0.00040	mg/l	US	0.0000765	7.65E-05
			Benzo(b)fluoranthene	<0.00046	mg/l	US	0.0000765	7.65E-05
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l		0.313	
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US	0.0000508	
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l		0.417	
			4-Bromophenyl-phenylether	<0.0013	mg/l	US	0.00000372	
			2-Chloronaphthalene	<0.00035	mg/l		0.834	
			4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	<0.00028	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US	0.00000765	
			3,3-Dichlorobenzidine	<0.0012	mg/l	US	0.000124	
			2,4-Dinitrotoluene	<0.0013	mg/l	US	0.0000822	
			2,6-Dinitrotoluene	<0.0014	mg/l	US	0.0000822	
			Fluoranthene	<0.00040	mg/l		0.417	0.417
			Fluorene	<0.00042	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l		0.001	
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l		0.00701	
			Hexachloroethane	<0.0020	mg/l		0.00399	
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US	0.0000765	
			Isophorone	<0.00072	mg/l		0.0588	
			Naphthalene	<0.00098	mg/l		0.209	0.102
			Nitrobenzene	<0.0016	mg/l		0.00521	
			n-Nitrosodimethylamine	<0.0020	mg/l	US	0.0000011	
			n-Nitrosodiphenylamine	<0.00079	mg/l		0.0114	
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US	0.00000798	
			Phenanthrene	<0.00045	mg/l		0.313	
			Benzylbutyl phthalate	<0.00027	mg/l		2.09	
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l		0.006	
			Di-n-butyl phthalate	<0.00021	mg/l		1.04	
			Diethyl phthalate	<0.00019	mg/l		8.34	
			Dimethyl phthalate	<0.00021	mg/l		104	
			Di-n-octyl phthalate	<0.00040	mg/l		0.417	
			Pyrene	<0.00035	mg/l		0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l		0.07	
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l		0.0521	
			2,4-Dichlorophenol	<0.0011	mg/l		0.0313	
			2,4-Dimethylphenol	<0.0046	mg/l		0.209	

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-3 Cont.	MW-3-D	8270C	4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l		0.0209	
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l		0.0834	
			Pentachlorophenol	<0.00086	mg/l		0.001	
			Phenol	<0.00052	mg/l		3.13	
			2,4,6-Trichlorophenol	<0.0021	mg/l	US	0.00104	
MW-4	MW-4	8270C	Acenaphthene	**0.0018**	mg/l		0.626	0.626
			Acenaphthylene	<0.00026	mg/l		0.626	
			Anthracene	<0.00036	mg/l		3.13	3.13
			Benzidine	<0.0013	mg/l	US	2.43E-07	
			Benzo(a)anthracene	<0.00040	mg/l	US	0.0000765	7.65E-05
MW-4	MW-4	8270C	Benzo(b)fluoranthene	<0.00046	mg/l	US	0.0000765	7.65E-05
			Benzo(k)fluoranthene	<0.00036	mg/l		0.000765	0.000765
			Benzo(g,h,i)perylene	<0.00032	mg/l		0.313	
			Benzo(a)pyrene	<0.00053	mg/l	US	0.0002	0.0002
			Bis(2-chlorethoxy)methane	<0.0017	mg/l			
			Bis(2-chloroethyl)ether	<0.0019	mg/l	US	0.0000508	
			Bis(2-chloroisopropyl)ether	<0.0020	mg/l		0.417	
			4-Bromophenyl-phenylether	<0.0013	mg/l	US	0.00000372	
			2-Chloronaphthalene	<0.00035	mg/l		0.834	
			4-Chlorophenyl-phenylether	<0.0010	mg/l			
			Chrysene	<0.00028	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.00033	mg/l	US	0.00000765	
			3,3-Dichlorobenzidine	<0.0012	mg/l	US	0.000124	
			2,4-Dinitrotoluene	<0.0013	mg/l	US	0.0000822	
			2,6-Dinitrotoluene	<0.0014	mg/l	US	0.0000822	
			Fluoranthene	<0.00040	mg/l		0.417	0.417
			Fluorene	**0.0025**	mg/l		0.417	0.417
			Hexachlorobenzene	<0.00028	mg/l		0.001	
			Hexachloro-1,3-butadiene	<0.0016	mg/l			
			Hexachlorocyclopentadiene	<0.0011	mg/l		0.00701	
			Hexachloroethane	<0.0020	mg/l		0.00399	
			Indeno(1,2,3-cd)pyrene	<0.00028	mg/l	US	0.0000765	
			Isophorone	<0.00072	mg/l		0.0588	
			Naphthalene	**0.036**	mg/l		0.209	0.102
			Nitrobenzene	<0.0016	mg/l		0.00521	
			n-Nitrosodimethylamine	<0.0020	mg/l	US	0.0000011	
			n-Nitrosodiphenylamine	<0.00079	mg/l		0.0114	
			n-Nitrosodi-n-propylamine	<0.0014	mg/l	US	0.00000798	
			Phenanthrene	**0.0021**	mg/l		0.313	
			Benzylbutyl phthalate	<0.00027	mg/l		2.09	
			Bis(2-ethylhexyl)phthalate	<0.00036	mg/l		0.006	

Table 9: Groundwater Monitoring Well SVOC Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**	**RUSL**
MW-4 Cont.	MW-4	8270C	Di-n-butyl phthalate	<0.00021	mg/l		1.04	
			Diethyl phthalate	<0.00019	mg/l		8.34	
			Dimethyl phthalate	<0.00021	mg/l		104	
			Di-n-octyl phthalate	<0.00040	mg/l		0.417	
			Pyrene	<0.00035	mg/l		0.313	0.313
			1,2,4-Trichlorobenzene	<0.0015	mg/l		0.07	
			4-Chloro-3-methylphenol	<0.0011	mg/l			
			2-Chlorophenol	<0.0017	mg/l		0.0521	
			2,4-Dichlorophenol	<0.0011	mg/l		0.0313	
			2,4-Dimethylphenol	<0.0046	mg/l		0.209	
			4,6-Dinitro-2-methylphenol	<0.0027	mg/l			
			2,4-Dinitrophenol	<0.0028	mg/l		0.0209	
			2-Nitrophenol	<0.0016	mg/l			
			4-Nitrophenol	<0.0023	mg/l		0.0834	
			Pentachlorophenol	<0.00086	mg/l		0.001	
			Phenol	<0.00052	mg/l		3.13	
			2,4,6-Trichlorophenol	<0.0021	mg/l	US	0.00104	

Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.

Table 10: Groundwater Monitoring Well PAH Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
MW-1	MW-1	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l	US		0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	<0.000012	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	<0.00098	mg/l		0.102	0.209
			Phenanthrene	<0.000018	mg/l			0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	<0.000014	mg/l			
			2-Methylnaphthalene	<0.000014	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
MW-2	MW-2	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13

Table 10: Groundwater Monitoring Well PAH Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
MW-2 Cont.	MW-2	8270C-SIM	Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l	US		0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	<0.000012	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	<0.00098	mg/l		0.102	0.209
			Phenanthrene	<0.000018	mg/l			0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	<0.000014	mg/l			
			2-Methylnaphthalene	<0.000014	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
MW-3	MW-3	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l	US		0.00000765
			Fluoranthene	**0.000026**	mg/l	J	0.417	0.417
			Fluorene	<0.000012	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	<0.00098	mg/l		0.102	0.209
			Phenanthrene	<0.000018	mg/l			0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	<0.000014	mg/l			
			2-Methylnaphthalene	<0.000014	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
	MW-3-D	8270C-SIM	Anthracene	<0.000012	mg/l		3.13	3.13
			Acenaphthene	<0.000013	mg/l		0.626	0.626
			Acenaphthylene	<0.000017	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765

Table 10: Groundwater Monitoring Well PAH Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
MW-3 Cont.	MW-3-D	8270C-SIM	Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l	US		0.00000765
			Fluoranthene	<0.000020	mg/l		0.417	0.417
			Fluorene	<0.000012	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	<0.00098	mg/l		0.102	0.209
			Phenanthrene	<0.000018	mg/l			0.313
			Pyrene	<0.000022	mg/l		0.313	0.313
			1-Methylnaphthalene	<0.000014	mg/l			
			2-Methylnaphthalene	<0.000014	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834
MW-4	MW-4	8270C-SIM	Anthracene	**0.00026**	mg/l		3.13	3.13
			Acenaphthene	**0.0016**	mg/l		0.626	0.626
			Acenaphthylene	**0.00031**	mg/l			0.626
			Benzo(a)anthracene	<0.000023	mg/l		0.0000765	0.0000765
			Benzo(a)pyrene	<0.000013	mg/l		0.0002	0.0002
			Benzo(b)fluoranthene	<0.000024	mg/l		0.0000765	0.0000765
			Benzo(g,h,i)perylene	<0.000018	mg/l			0.313
			Benzo(k)fluoranthene	<0.000020	mg/l		0.000765	0.000765
			Chrysene	<0.000018	mg/l		0.00765	0.00765
			Dibenz(a,h)anthracene	<0.000013	mg/l	US		0.00000765
			Fluoranthene	**0.000086**	mg/l		0.417	0.417
			Fluorene	**0.0024**	mg/l		0.417	0.417
			Indeno(1,2,3-cd)pyrene	<0.000015	mg/l			0.0000765
			Naphthalene	**0.035**	mg/l		0.102	0.209
			Phenanthrene	**0.0029**	mg/l			0.313
			Pyrene	**0.00018**	mg/l		0.313	0.313
			1-Methylnaphthalene	**0.044**	mg/l			
			2-Methylnaphthalene	**0.027**	mg/l			0.0417
			2-Chloronaphthalene	<0.000014	mg/l			0.834

Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.

Table 11: Groundwater Monitoring Well EDB Sample Results								
Well	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**RUSL**	**IDTL**
MW-1	MW-1	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l	US		0.0002
MW-2	MW-2	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l	US		0.0002
MW-3	MW-3	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l	US		0.0002

MW-3 Cont.	MW-3-D	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l	US		0.0002
MW-4	MW-4	8011	Ethylene Dibromide	<0.0000068	mg/l		0.00005	0.00005
			1,2-Dibromo-3-Chloropropane	<0.0000030	mg/l	US		0.0002

US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.

Table 12: Groundwater Monitoring Well RCRA Metals Sample Results

Well	Sample ID	Method	Parameter	Value	Units	Qualifier	IDTL
MW-1	MW-1	7470A	Mercury	**0.00003**	mg/l	J	0.002
	MW-1	6010B	Arsenic	<0.0065	mg/l		0.01
			Barium	**0.13**	mg/l		2
			Cadmium	<0.00080	mg/l		0.005
			Chromium	<0.0017	mg/l		0.1
			Lead	<0.0018	mg/l		0.015
			Selenium	<0.0063	mg/l		0.05
			Silver	<0.0033	mg/l		0.052
MW-2	MW-2	7470A	Mercury	**0.00004**	mg/l	J, J^{QC}	0.002
	MW-2	6010B	Arsenic	<0.0065	mg/l		0.01
			Barium	**0.028**	mg/l		2
			Cadmium	<0.00080	mg/l		0.005
			Chromium	<0.0017	mg/l		0.1
			Lead	<0.0018	mg/l		0.015
			Selenium	<0.0063	mg/l		0.05
			Silver	<0.0033	mg/l		0.052
MW-3	MW-3	7470A	Mercury	**0.00004**	mg/l	J	0.002
	MW-3	6010B	Arsenic	<0.0065	mg/l		0.01
			Barium	**0.029**	mg/l		2
			Cadmium	<0.00080	mg/l		0.005
			Chromium	<0.0017	mg/l		0.1
			Lead	<0.0018	mg/l		0.015
			Selenium	<0.0063	mg/l		0.05
			Silver	<0.0033	mg/l	UJ^{QC}	0.052
	MW-3-D	7470A	Mercury	**0.00004**	mg/l	J	0.002
	MW-3-D	6010B	Arsenic	<0.0065	mg/l		0.01
			Barium	**0.028**	mg/l		2
			Cadmium	<0.00080	mg/l		0.005
			Chromium	<0.0017	mg/l		0.1
			Lead	<0.0018	mg/l		0.015
			Selenium	<0.0063	mg/l		0.05
			Silver	<0.0033	mg/l		0.052
MW-4	MW-4	7470A	Mercury	**0.00005**	mg/l	J	0.002
		6010B	Arsenic	<0.0065	mg/l		0.01
			Barium	**0.058**	mg/l		2
			Cadmium	<0.00080	mg/l		0.005
			Chromium	<0.0017	mg/l		0.1

MW-4	MW-4	6010B	Lead	**0.0027**	mg/l	J	0.015
			Selenium	<0.0063	mg/l		0.05
			Silver	<0.0033	mg/l		0.052

Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
J^{QC} qualifier: Estimated value based on QC evaluation.
UJ^{QC} qualifier: Not detected value estimated based on QC evaluation.

Table 13: Surficial Soil RCRA Metals Sample Results

Sample Location	Sample ID	Method	Parameter	Value	Units	Qualifier	IDTL
SS-01	SS-01	7471	Mercury	**0.011**	mg/kg	J	0.0051
		6010B	Arsenic	**1.6**	mg/kg		0.391
			Barium	**52**	mg/kg		896
			Cadmium	**0.28**	mg/kg		1.35
			Chromium	**14**	mg/kg		
			Lead	**100**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.61**	mg/kg		0.189
SS-02	SS-02	7471	Mercury	**0.045**	mg/kg		0.0051
		6010B	Arsenic	**9.4**	mg/kg		0.391
			Barium	**130**	mg/kg		896
			Cadmium	**0.99**	mg/kg		1.35
			Chromium	**17**	mg/kg		
			Lead	**100**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**1.2**	mg/kg		0.189
SS-03	SS-03	7471	Mercury	**0.018**	mg/kg	J	0.0051
		6010B	Arsenic	**2.6**	mg/kg		0.391
			Barium	**160**	mg/kg		896
			Cadmium	**2.7**	mg/kg		1.35
			Chromium	**70**	mg/kg		
			Lead	**230**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.67**	mg/kg		0.189
SS-04	SS-04	7471	Mercury	**0.019**	mg/kg	J	0.0051
		6010B	Arsenic	**14**	mg/kg		0.391
			Barium	**88**	mg/kg		896
			Cadmium	**1.8**	mg/kg		1.35
			Chromium	**12**	mg/kg		
			Lead	**220**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**1.1**	mg/kg		0.189
SS-05	SS-05	7471	Mercury	**0.24**	mg/kg		0.0051
		6010B	Arsenic	**7.4**	mg/kg		0.391
			Barium	**350**	mg/kg		896
			Cadmium	**2**	mg/kg		1.35
			Chromium	**70**	mg/kg		

Table 13: Surficial Soil RCRA Metals Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-05 Cont.	SS-05	6010B	Lead	**930**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.61**	mg/kg		0.189
SS-06	SS-06	7471	Mercury	**0.091**	mg/kg		0.0051
		6010B	Arsenic	**7.6**	mg/kg		0.391
			Barium	**64**	mg/kg		896
			Cadmium	**1.8**	mg/kg		1.35
SS-06	SS-06	6010B	Chromium	**28**	mg/kg		
			Lead	**640**	mg/kg		49.6
			Selenium	<3.2	mg/kg	D, US	2.03
			Silver	**1.5**	mg/kg		0.189
	SS-06D	7471	Mercury	**0.89**	mg/kg		0.0051
		6010B	Arsenic	**6.2**	mg/kg		0.391
			Barium	**69**	mg/kg		896
			Cadmium	**1.3**	mg/kg		1.35
			Chromium	**20**	mg/kg		
			Lead	**520**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**0.99**	mg/kg		0.189
SS-07	SS-07	7471	Mercury	<0.010	mg/kg	US	0.0051
		6010B	Arsenic	**3.5**	mg/kg		0.391
			Barium	**24**	mg/kg		896
			Cadmium	<0.040	mg/kg		1.35
			Chromium	**4.6**	mg/kg		
			Lead	**210**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.41**	mg/kg	J	0.189
SS-08	SS-08	7471	Mercury	**0.22**	mg/kg		0.0051
		6010B	Arsenic	**3**	mg/kg		0.391
			Barium	**68**	mg/kg		896
			Cadmium	**1.4**	mg/kg		1.35
			Chromium	**11**	mg/kg		
			Lead	**130**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**0.81**	mg/kg		0.189
SS-09	SS-09	7471	Mercury	**0.31**	mg/kg		0.0051
		6010B	Arsenic	**3.9**	mg/kg		0.391
			Barium	**96**	mg/kg		896
			Cadmium	**2.4**	mg/kg		1.35
			Chromium	**10**	mg/kg		
			Lead	**120**	mg/kg		49.6
			Selenium	**3**	mg/kg		2.03
			Silver	**0.53**	mg/kg		0.189
SS-10	SS-10	7471	Mercury	**0.83**	mg/kg	J^{QC}	0.0051
		6010B	Arsenic	**13**	mg/kg		0.391

Table 13: Surficial Soil RCRA Metals Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-10 Cont.	SS-10	6010B	Barium	**840**	mg/kg		896
			Cadmium	**5.4**	mg/kg		1.35
			Chromium	**15**	mg/kg		
			Lead	**6,600**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**1.3**	mg/kg		0.189
SS-11	SS-11	7471	Mercury	**1.6**	mg/kg		0.0051
		6010B	Arsenic	**14**	mg/kg		0.391
			Barium	**2,800**	mg/kg		896
			Cadmium	**4.8**	mg/kg		1.35
SS-11	SS-11	6010B	Chromium	**21**	mg/kg		
			Lead	**18,000**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**2.2**	mg/kg		0.189
SS-12	SS-12	7471	Mercury	**0.54**	mg/kg		0.0051
		6010B	Arsenic	**15**	mg/kg		0.391
			Barium	**540**	mg/kg		896
			Cadmium	**2.7**	mg/kg		1.35
			Chromium	**13**	mg/kg		
			Lead	**2,000**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**1.2**	mg/kg		0.189
SS-13	SS-13	7471	Mercury	**0.18**	mg/kg		0.0051
		6010B	Arsenic	**6.3**	mg/kg		0.391
			Barium	**82**	mg/kg		896
			Cadmium	**1**	mg/kg		1.35
			Chromium	**10**	mg/kg		
			Lead	**180**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.89**	mg/kg		0.189
SS-14	SS-14	7471	Mercury	**0.1**	mg/kg		0.0051
		6010B	Arsenic	**3**	mg/kg		0.391
			Barium	**110**	mg/kg		896
			Cadmium	**0.96**	mg/kg		1.35
			Chromium	**12**	mg/kg		
			Lead	**220**	mg/kg		49.6
			Selenium	<3.2	mg/kg	D, US	2.03
			Silver	**0.8**	mg/kg		0.189
SS-15	SS-15	7471	Mercury	**0.053**	mg/kg		0.0051
		6010B	Arsenic	**7.1**	mg/kg		0.391
			Barium	**110**	mg/kg		896
			Cadmium	**0.17**	mg/kg	J	1.35
			Chromium	**11**	mg/kg		
			Lead	**41**	mg/kg	J^{QC}	49.6
			Selenium	<0.32	mg/kg		2.03

Table 13: Surficial Soil RCRA Metals Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-10 Cont.	SS-10	6010B	Silver	**0.94**	mg/kg		0.189
SS-16	SS-16	7471	Mercury	**0.88**	mg/kg		0.0051
		6010B	Arsenic	**9.2**	mg/kg		0.391
			Barium	**230**	mg/kg		896
			Cadmium	**1.3**	mg/kg		1.35
			Chromium	**13**	mg/kg		
			Lead	**280**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.96**	mg/kg		0.189
	SS-16D	7471	Mercury	**1.4**	mg/kg		0.0051
		6010B	Arsenic	**10**	mg/kg		0.391
			Barium	**180**	mg/kg		896
			Cadmium	**1.4**	mg/kg		1.35
SS-16	SS-16D	6010B	Chromium	**16**	mg/kg		
			Lead	**300**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**1**	mg/kg		0.189
SS-17	SS-17	7471	Mercury	**1.9**	mg/kg		0.0051
		6010B	Arsenic	**21**	mg/kg		0.391
			Barium	**380**	mg/kg		896
			Cadmium	**2.6**	mg/kg		1.35
			Chromium	**21**	mg/kg		
			Lead	**870**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**2.2**	mg/kg		0.189
SS-18	SS-18	7471	Mercury	**0.46**	mg/kg		0.0051
		6010B	Arsenic	**6.4**	mg/kg		0.391
			Barium	**170**	mg/kg		896
			Cadmium	**0.65**	mg/kg		1.35
			Chromium	**14**	mg/kg		
			Lead	**180**	mg/kg		49.6
			Selenium	<0.32	mg/kg		2.03
			Silver	**0.92**	mg/kg		0.189
SS-19	SS-19	7471	Mercury	**3.6**	mg/kg		0.0051
		6010B	Arsenic	**19**	mg/kg		0.391
			Barium	**310**	mg/kg		896
			Cadmium	**3.1**	mg/kg		1.35
			Chromium	**22**	mg/kg		
			Lead	**1,600**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**4**	mg/kg		0.189
SS-20	SS-20	7471	Mercury	**0.025**	mg/kg		0.0051
		6010B	Arsenic	**3.4**	mg/kg		0.391
			Barium	**130**	mg/kg		896
			Cadmium	**2**	mg/kg		1.35

Table 13: Surficial Soil RCRA Metals Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-20 Cont.	SS-20	6010B	Chromium	**25**	mg/kg		
			Lead	**410**	mg/kg		49.6
			Selenium	<1.6	mg/kg	D	2.03
			Silver	**0.9**	mg/kg		0.189

Bold and highlighted: Detected value exceeds regulatory standard.
Highlighted: Not detected at reporting limit that exceeds regulatory standard
Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.
J^{QC} qualifier: Estimated value based on QC evaluation.
D: Sample dilution.

Table 14: Surficial Soil PCB Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-01	SS-01	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.012**	mg/kg	J	0.147
SS-03	SS-03	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.016**	mg/kg	J	0.147
SS-04	SS-04	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.089**	mg/kg		0.147
SS-5	SS-05	8082	PCB 1016	<0.070	mg/kg	D	2.33
			PCB 1221	<0.12	mg/kg	D, US	0.00294
			PCB 1232	<0.10	mg/kg	D	
			PCB 1242	<0.12	mg/kg	D, US	0.00318
			PCB 1248	<0.11	mg/kg	D	0.137
			PCB 1254	<0.075	mg/kg	D	0.74
			PCB 1260	<0.094	mg/kg	D	0.147

Table 14: Surficial Soil PCB Sample Results							
Sample Location	**Sample ID**	**Method**	**Parameter**	**Value**	**Units**	**Qualifier**	**IDTL**
SS-07	SS-07	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	<0.0047	mg/kg		0.147
SS-12	SS-12	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.0077**	mg/kg	J	0.147
SS-13	SS-13 0-6 IN	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.013**	mg/kg	J	0.147
SS-15	SS-15	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
SS-15	SS-15	8082	PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	<0.0047	mg/kg		0.147
SS-19	SS-19	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	<0.0047	mg/kg		0.147
SS-20	SS-20	8082	PCB 1016	<0.0035	mg/kg		2.33
			PCB 1221	<0.0061	mg/kg	US	0.00294
			PCB 1232	<0.0051	mg/kg		
			PCB 1242	<0.0061	mg/kg	US	0.00318
			PCB 1248	<0.0053	mg/kg		0.137
			PCB 1254	<0.0038	mg/kg		0.74
			PCB 1260	**0.16**	mg/kg		0.147

Bold and highlighted: Detected value exceeds regulatory standard.
Highlighted: Not detected at reporting limit that exceeds regulatory standard

Bold: Detected value below regulatory standard
J qualifier: Estimated value: detected above the method detection limit but below the reporting limit.
US qualifier: Sensitivity issue: not detected at reporting limit above regulatory standard.
D: Sample dilution.

Table 15: Investigation Derived Waste Sample Results

Sample ID	Method	Parameter	Value	Units	Qualifier	TCLP
IDW-SOIL	7470A	Mercury	<0.00033	mg/l		0.2
IDW-SOIL	6010B	Arsenic	<0.017	mg/l		5
IDW-SOIL	6010B	**Barium**	**0.45**	mg/l		100
IDW-SOIL	6010B	Cadmium	<0.017	mg/l		1
IDW-SOIL	6010B	Chromium	<0.017	mg/l		5
IDW-SOIL	6010B	**Lead**	**0.32**	mg/l		5
IDW-SOIL	6010B	Selenium	<0.017	mg/l		1
IDW-SOIL	6010B	Silver	<0.017	mg/l		5
IDW-SOIL	8260B	Benzene	<0.00023	mg/l		0.5
IDW-SOIL	8260B	Carbon tetrachloride	<0.00020	mg/l		0.5
IDW-SOIL	8260B	Chlorobenzene	<0.00030	mg/l		100
IDW-SOIL	8260B	Chloroform	<0.00027	mg/l		6
IDW-SOIL	8260B	1,2-Dichloroethane	<0.00025	mg/l		0.5
IDW-SOIL	8260B	1,1-Dichloroethene	<0.00041	mg/l		0.7
IDW-SOIL	8260B	2-Butanone (MEK)	<0.0034	mg/l		200
IDW-SOIL	8260B	Tetrachloroethene	<0.00032	mg/l		0.7
IDW-SOIL	8260B	Trichloroethene	<0.00031	mg/l		0.5
IDW-SOIL	8260B	Vinyl chloride	<0.00034	mg/l		0.2
IDW-SOIL	8270C	1,4-Dichlorobenzene	<0.033	mg/l		7.5
IDW-SOIL	8270C	2,4-Dinitrotoluene	<0.033	mg/l		0.13
IDW-SOIL	8270C	Hexachlorobenzene	<0.033	mg/l		0.13
IDW-SOIL	8270C	Hexachloro-1,3-butadiene	<0.033	mg/l		0.5
IDW-SOIL	8270C	Hexachloroethane	<0.033	mg/l		3
IDW-SOIL	8270C	Nitrobenzene	<0.033	mg/l		2
IDW-SOIL	8270C	Pyridine	<0.033	mg/l		5
IDW-SOIL	8270C	3&4-Methyl Phenol	<0.033	mg/l		200
IDW-SOIL	8270C	2-Methylphenol	<0.033	mg/l		200
IDW-SOIL	8270C	Pentachlorophenol	<0.033	mg/l		100
IDW-SOIL	8270C	2,4,5-Trichlorophenol	<0.033	mg/l		400
IDW-SOIL	8270C	2,4,6-Trichlorophenol	<0.033	mg/l		2
IDW-SOIL	NW/DRO	Residual Range Organics	160	mg/kg		NS
IDW-SOIL	NW/DRO	Diesel Range Organics	210	mg/kg		NS
IDW-SOIL	NW/GRO	Gasoline Range Organics	4.0	mg/kg		NS

NS = no TCLP regulatory standard

Table 16: Summary of Sampling Point Location Data					
Description	**Survey Point Type**	**Northing (Ft)**	**Easting (Ft)**	**Ground Elevation (Ft)**	**Top Of Casing Elevation (Ft)**
MW-1	Monitoring Well	712130.89	2498800.58	2675.88	2675.68
MW-2	Monitoring Well	711915.99	2498467.25	2672.05	2671.74
MW-3	Monitoring Well	712015.54	2498369.92	2672.10	2671.79
MW-4	Monitoring Well	712054.17	2498212.13	2673.02	2672.52
DP-1	Direct Push Boring	711951.54	2498430.16	2672.26	
DP-2	Direct Push Boring	711916.85	2498372.44	2672.34	
DP-3	Direct Push Boring	711962.62	2498347.87	2672.32	
DP-4	Direct Push Boring	711946.50	2498309.97	2671.99	
DP-5	Direct Push Boring	712015.24	2498373.17	2672.10	
DP-6	Direct Push Boring	712054.84	2498214.24	2672.56	
DP-7	Direct Push Boring	712006.36	2498261.92	2671.16	
DP-8	Direct Push Boring	712028.02	2498296.31	2671.87	
DP-9	Direct Push Boring	712042.87	2498194.17	2672.44	
DP-10	Direct Push Boring	711971.35	2498303.83	2671.98	
DP-11	Direct Push Boring	712035.37	2498389.93	2671.91	
DP-12	Direct Push Boring	711992.36	2498178.00	2671.80	
DP-13	Direct Push Boring	711924.46	2498232.72	2671.50	
DP-14	Direct Push Boring	711901.40	2498265.57	2670.79	
DP-15	Direct Push Boring	711871.31	2498290.32	2670.39	
DP-16	Direct Push Boring	712009.87	2498597.73	2672.89	
DP-17	Direct Push Boring	712212.30	2498892.68	2675.52	
DP-18	Direct Push Boring	711924.98	2498290.80	2676.04	
DP-19	Direct Push Boring	711936.58	2498267.99	2675.92	
DP-20	Direct Push Boring	711943.55	2498247.40	2675.71	
DP-21	Direct Push Boring	712021.55	2498140.89	2671.49	
SS-1	Surface Sample Site	711893.36	2498358.04	2671.95	
SS-2	Surface Sample Site	711915.06	2498355.94	2672.40	
SS-3	Surface Sample Site	711960.52	2498347.41	2672.47	
SS-4	Surface Sample Site	711944.40	2498309.37	2672.16	
SS-5	Surface Sample Site	711881.11	2498279.30	2670.55	
SS-6	Surface Sample Site	711998.05	2498224.84	2671.54	
SS-7	Surface Sample Site	712051.12	2498219.46	2672.69	
SS-8	Surface Sample Site	711989.26	2498395.77	2672.07	
SS-9	Surface Sample Site	711973.21	2498425.24	2672.33	
SS-10	Surface Sample Site	712009.55	2498502.67	2672.08	
SS-11	Surface Sample Site	712015.19	2498524.63	2671.99	
SS-12	Surface Sample Site	712025.82	2498481.28	2672.12	
SS-13	Surface Sample Site	712007.89	2498598.65	2672.85	
SS-14	Surface Sample Site	712013.68	2498646.13	2675.38	
SS-15	Surface Sample Site	712079.22	2498658.84	2674.77	
SS-16	Surface Sample Site	712092.51	2498563.14	2672.24	
SS-17	Surface Sample Site	712085.76	2498601.21	2672.52	
SS-18	Surface Sample Site	712110.94	2498620.03	2672.50	
SS-19	Surface Sample Site	712161.52	2498583.34	2672.66	

Table 16: Summary of Sampling Point Location Data					
Description	**Survey Point Type**	**Northing (Ft)**	**Easting (Ft)**	**Ground Elevation (Ft)**	**Top Of Casing Elevation (Ft)**
SS-20	Surface Sample Site	712200.77	2498897.03	2675.31	

Appendix C
2012 Soil Sampling Results

Former Shop Building
Centra 2012 Soil Sampling
Former Goodman Oil Site
Voluntary Remediation Work Plan

Lab Sample ID			L590483-01		L590483-04		L590483-03		L590483-02		L590483-06		L590483-05					
Client Sample ID			CB-01-01 1FT		CB-01-05 5FT		CB-02-02 2FT		CB-02-05 5FT		CB-03-01 5FT		CB-03-05 5FT					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	Acetone	mg/kg	0.056		0.012	J	0.035	J	0.08		0.018	J	0.011	J		17.4	61000	630000
8260B	Acrylonitrile	mg/kg	<0.010		<0.011		<0.014		<0.011		<0.016		<0.010			0.000194	0.24	1.2
8260B	Benzene	mg/kg	0.00082	J	0.00048	J	0.00057	J	0.00042	J	<0.0016		<0.0010		0.0178	0.0178	1.1	5.4
8260B	Bromobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				300	1800
8260B	Bromodichloromethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.00268	0.27	1.4
8260B	Bromoform	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0292	62	220
8260B	Bromomethane	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051				7.3	32
8260B	n-Butylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				3900	51000
8260B	sec-Butylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	tert-Butylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Carbon tetrachloride	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0114	0.61	3
8260B	Chlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.618	290	1400
8260B	Chlorodibromomethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Chloroethane	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			0.0533		
8260B	2-Chloroethyl vinyl ether	mg/kg	<0.053		<0.056		<0.071		<0.054		<0.078		<0.051					
8260B	Chloroform	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			0.00564	0.29	1.5
8260B	Chloromethane	mg/kg	<0.0026		<0.0028		<0.0035		<0.0027		<0.0039		<0.0026			0.0231	120	500
8260B	2-Chlorotoluene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	4-Chlorotoluene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	1,2-Dibromo-3-Chloropropane	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			0.000975	0.0054	0.069
8260B	1,2-Dibromoethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				0.034	0.17
8260B	Dibromomethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				25	110
8260B	1,2-Dichlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			5.25	1900	9800
8260B	1,3-Dichlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.229		
8260B	1,4-Dichlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0755	2.4	12
8260B	Dichlorodifluoromethane	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			2.96	94	400
8260B	1,1-Dichloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			3.48	3.3	17
8260B	1,2-Dichloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010		0.00771	0.00767	0.43	2.2
8260B	1,1-Dichloroethene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0388		
8260B	cis-1,2-Dichloroethene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.193		
8260B	trans-1,2-Dichloroethene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.365		
8260B	1,2-Dichloropropane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0089	0.94	4.7
8260B	1,1-Dichloropropene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	1,3-Dichloropropane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				1600	20000
8260B	cis-1,3-Dichloropropene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	trans-1,3-Dichloropropene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	2,2-Dichloropropane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Di-isopropyl ether	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Ethylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010		0.071	10.2	5.4	27
8260B	Hexachloro-1,3-butadiene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Isopropylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			3.46		
8260B	p-Isopropyltoluene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	2-Butanone (MEK)	mg/kg	0.0077	J	<0.011		<0.014		0.017		<0.016		<0.010			11.8		
8260B	Methylene Chloride	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			0.0169	56	960
8260B	4-Methyl-2-pentanone (MIBK)	mg/kg	<0.010		<0.011		<0.014		<0.011		<0.016		<0.010			17.6	5300	53000
8260B	Methyl tert-butyl ether	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010		0.067		43	220
8260B	Naphthalene	mg/kg	0.0039	J	<0.0056		<0.0071		0.00076	J	<0.0078		<0.0051		0.078	1.14		
8260B	n-Propylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010					
8260B	Styrene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			1.83	6300	36000
8260B	1,1,1,2-Tetrachloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0409	1.9	9.3
8260B	1,1,2,2-Tetrachloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.000915	0.56	2.8
8260B	1,1,2-Trichlorotrifluoroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				43000	180000
8260B	Tetrachloroethene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0288		
8260B	Toluene	mg/kg	0.00097	J	0.0008	J	0.0012	J	0.00053	J	0.00093	J	<0.0051		4.89	4.89	5000	45000

Former Shop Building
Centra 2012 Soil Sampling
Former Goodman Oil Site
Voluntary Remediation Work Plan

Lab Sample ID			L590483-01		L590483-04		L590483-03		L590483-02		L590483-06		L590483-05					
Client Sample ID			CB-01-01 1FT		CB-01-05 5FT		CB-02-02 2FT		CB-02-05 5FT		CB-03-01 5FT		CB-03-05 5FT					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	1,2,3-Trichlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				49	490
8260B	1,2,4-Trichlorobenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				22	99
8260B	1,1,1-Trichloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			2	8700	38000
8260B	1,1,2-Trichloroethane	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.0141	1.1	5.3
8260B	Trichloroethene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.00288		
8260B	Trichlorofluoromethane	mg/kg	<0.0053		<0.0056		<0.0071		<0.0054		<0.0078		<0.0051			10.4	790	3400
8260B	1,2,3-Trichloropropane	mg/kg	<0.0026		<0.0028		<0.0035		<0.0027		<0.0039		<0.0026			0.000245	0.005	0.095
8260B	1,2,4-Trimethylbenzene	mg/kg	<0.0012		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.692	62	260
8260B	1,2,3-Trimethylbenzene	mg/kg	0.00039	J	<0.0011		<0.0014		<0.0011		<0.0016		<0.0010				53	220
8260B	1,3,5-Trimethylbenzene	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.145	780	10000
8260B	Vinyl chloride	mg/kg	<0.0010		<0.0011		<0.0014		<0.0011		<0.0016		<0.0010			0.00963	0.06	1.7
8260B	Xylenes, Total	mg/kg	0.00098	J	<0.0034		<0.0042		<0.0032		<0.0047		<0.0031		1.68		630	2700
SIM	Anthracene	mg/kg	0.098		0.0087		0.01	J	0.018	J, J6, J3	0.001	J	<0.0062		1040	1040	17000	170000
SIM	Acenaphthene	mg/kg	0.025	J	0.0016	J	<0.076		<0.075	J6	<0.0062		<0.0062		52.3	52.3	3400	33000
SIM	Acenaphthylene	mg/kg	0.17		0.01		0.012	J	0.03	J, J6, J3	0.0014	J	<0.0062			78		
SIM	Benzo(a)anthracene	mg/kg	0.3		0.035		0.031	J	0.057	J, J6, J3	0.0047	J	<0.0062		0.422	0.422	0.15	2.1
SIM	Benzo(a)pyrene	mg/kg	0.35		0.053		0.035	J	0.07	J, J6, J3	0.0066		0.0015	J	0.0422	0.0422	0.015	0.21
SIM	Benzo(b)fluoranthene	mg/kg	0.44		0.077		0.045	J	0.096	J6, J3	0.01		0.0027	J	0.422	0.422	0.15	2.1
SIM	Benzo(g,h,i)perylene	mg/kg	0.18		0.03		0.022	J	0.044	J, J6, J3	0.0029	J	<0.0062			1180		
SIM	Benzo(k)fluoranthene	mg/kg	0.17		0.026		0.019	J	0.034	J, J6, J3	0.0033	J	<0.0062		4.22	4.22	1.5	21
SIM	Chrysene	mg/kg	0.48		0.058		0.039	J	0.1	J6, J3	0.0077		0.0018	J	33.4	33.4	15	210
SIM	Dibenz(a,h)anthracene	mg/kg	0.068	J	0.0094		<0.076		<0.075	J6, J3	<0.0062		<0.0062			0.0422	0.015	0.21
SIM	Fluoranthene	mg/kg	0.8		0.087		0.059	J	0.14	J6, J3	0.01		0.002	J	364	364	2300	22000
SIM	Fluorene	mg/kg	0.077		0.0039	J	<0.076		0.012	J, J6, J3	<0.0062		<0.0062		54.8	54.8	2300	22000
SIM	Indeno(1,2,3-cd)pyrene	mg/kg	0.19		0.028		0.02	J	0.042	J, J6, J3	0.0029	J	<0.0062			0.422	0.15	2.1
SIM	Naphthalene	mg/kg	0.2		0.048		<0.076		0.012	J, J6, J3	0.0018	J	<0.0062		0.078	1.14	3.6	18
SIM	Phenanthrene	mg/kg	0.89		0.064		0.029	J	0.12	J6, J3	0.0045	J	0.00099	J		79		
SIM	Pyrene	mg/kg	0.8		0.11		0.063	J	0.16	J6, J3	0.0097		0.002	J	359	359	1700	17000
SIM	1-Methylnaphthalene	mg/kg	0.26		0.052		<0.076		0.011	J, J6, J3	0.0013	J	<0.0062				16	53
SIM	2-Methylnaphthalene	mg/kg	0.36		0.085		<0.076		0.014	J, J6, J3	0.0021	J	<0.0062			3.1	230	2200
SIM	2-Chloronaphthalene	mg/kg	<0.076		<0.0062		<0.076		<0.075	J6	<0.0062		<0.0062			128		
8082	PCB 1016	mg/kg														2.33		
8082	PCB 1221	mg/kg														0.00294		
8082	PCB 1232	mg/kg																
8082	PCB 1242	mg/kg														0.00318		
8082	PCB 1248	mg/kg														0.137		
8082	PCB 1254	mg/kg														0.74		
8082	PCB 1260	mg/kg														0.147		
8270C	Acenaphthene	mg/kg	<0.17		<0.034		<0.35		<0.034		<0.034		<0.034		52.3	52.3	3400	33000
8270C	Acenaphthylene	mg/kg	0.06	J	0.0075	J	<0.35		<0.034		<0.034		<0.034			78		
8270C	Anthracene	mg/kg	0.071	J	<0.034		<0.35		<0.034		<0.034		<0.034		1040	1040	17000	170000
8270C	Benzidine	mg/kg	<1.8	J4	<0.34	J4	<3.5	J4	<0.34	J4	<0.34	J4	<0.34	J4		5.37E-05	0.0005	0.0075
8270C	Benzo(a)anthracene	mg/kg	0.2		0.02	J	0.12	J	0.013	J	0.005	J	<0.034		0.422	0.422	0.15	2.1
8270C	Benzo(b)fluoranthene	mg/kg	0.26		0.035		0.17	J	0.027	J	0.0074	J	<0.034		0.422	0.422	0.015	0.21
8270C	Benzo(k)fluoranthene	mg/kg	0.096	J	0.011	J	0.061	J	0.012	J	<0.034		<0.034		4.22	4.22	1.5	21
8270C	Benzo(g,h,i)perylene	mg/kg	0.072	J	0.0098	J	<0.35		0.0077	J	<0.034		<0.034			1180		
8270C	Benzo(a)pyrene	mg/kg	0.24		0.022	J	0.12	J	0.02	J	<0.034		<0.034		359	0.0422	0.015	0.21
8270C	Bis(2-chlorethoxy)methane	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	Bis(2-chloroethyl)ether	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.000108		
8270C	Bis(2-chloroisopropyl)ether	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			3.11		
8270C	4-Bromophenyl-phenylether	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.00545		
8270C	2-Chloronaphthalene	mg/kg	<0.17		<0.034		<0.35		<0.034		<0.034		<0.034			128		
8270C	4-Chlorophenyl-phenylether	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	Chrysene	mg/kg	0.24		0.034	J	0.16	J	0.019	J	0.0061	J	<0.034		33.4	33.4	15	210

Former Shop Building
Centra 2012 Soil Sampling
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Voluntary Remediation Work Plan

Lab Sample ID			L590483-01		L590483-04		L590483-03		L590483-02		L590483-06		L590483-05					
Client Sample ID			CB-01-01 1FT		CB-01-05 5FT		CB-02-02 2FT		CB-02-05 5FT		CB-03-01 5FT		CB-03-05 5FT					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8270C	Dibenz(a,h)anthracene	mg/kg	<0.17		<0.034		<0.35		<0.034		<0.034		<0.034			0.0422	0.015	0.21
8270C	3,3-Dichlorobenzidine	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.00183	1.1	3.8
8270C	2,4-Dinitrotoluene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.00029	1.6	5.5
8270C	2,6-Dinitrotoluene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.000212	61	620
8270C	Fluoranthene	mg/kg	0.33		0.047		0.29	J	0.021	J	0.0089	J	<0.034		364	364	2300	22000
8270C	Fluorene	mg/kg	0.042	J	<0.034		<0.35		<0.034		<0.034		<0.034		54.8	54.8	2300	22000
8270C	Hexachlorobenzene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.0427	0.3	1.1
8270C	Hexachloro-1,3-butadiene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	Hexachlorocyclopentadiene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.0116	370	3700
8270C	Hexachloroethane	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.138	12	43
8270C	Indeno(1,2,3-cd)pyrene	mg/kg	0.088	J	0.0098	J	<0.35		0.0087	J	<0.034		<0.034			0.422	0.15	2.1
8270C	Isophorone	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.14	510	1800
8270C	Naphthalene	mg/kg	0.066	J	0.049		<0.35		<0.034		<0.034		<0.034		0.078	1.14	3.6	18
8270C	Nitrobenzene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.0218	4.8	24
8270C	n-Nitrosodimethylamine	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			2.09E-06	0.0023	0.034
8270C	n-Nitrosodiphenylamine	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.088	99	350
8270C	n-Nitrosodi-n-propylamine	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			1.81E-05	0.069	0.25
8270C	Phenanthrene	mg/kg	0.16	J	0.054		0.31	J	0.01	J	<0.034		<0.034			79		
8270C	Benzylbutyl phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	Bis(2-ethylhexyl)phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		0.026	J		11.8	35	120
8270C	Di-n-butyl phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			31	6100	62000
8270C	Diethyl phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			27.5	49000	490000
8270C	Dimethyl phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			271		
8270C	Di-n-octyl phthalate	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			1830		
8270C	Pyrene	mg/kg	0.35		0.047		0.28	J	0.022	J	<0.034		<0.034		359	359	1700	17000
8270C	1,2,4-Trichlorobenzene	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.692	22	99
8270C	4-Chloro-3-methylphenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	2-Chlorophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.365	390	5100
8270C	2,4-Dichlorophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.0978	180	1800
8270C	2,4-Dimethylphenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.819	1200	12000
8270C	4,6-Dinitro-2-methylphenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	2,4-Dinitrophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.0384	120	1200
8270C	2-Nitrophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34					
8270C	4-Nitrophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.226		
8270C	Pentachlorophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.00907	0.89	2.7
8270C	Phenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			7.36	18000	180000
8270C	2,4,6-Trichlorophenol	mg/kg	<1.8		<0.34		<3.5		<0.34		<0.34		<0.34			0.00436	44	160

Notes

Report generated on: 22-Aug-12 at: 05:16 PM

Qualifiers:

J4	The associated batch QC was outside the established quality control range for accuracy.
J3	The associated batch QC was outside the established quality control range for precision.

Former Warehouse
Centra 2012 Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Lab Sample ID			L590483-07		L590632-02		L590632-04		L590632-08		L590632-03		L590632-01		L590632-05					
Client Sample ID			CB-04-02 2FT		CB-04-05		CB-04-05D		CB-05-01		CB-05-05		CB-06-01		CB-06-05					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	Acetone	mg/kg	0.02	J	0.017	J	0.018	J	0.015	J	0.011	J	0.18		0.015	J		17.4	61000	630000
8260B	Acrylonitrile	mg/kg	<0.010		<0.013		<0.010		<0.014		<0.014		<0.012		<0.010			0.000194	0.24	1.2
8260B	Benzene	mg/kg	0.00099	J	<0.0013		<0.0010		<0.0014		<0.0014		0.0049		<0.0010		0.0178	0.0178	1.1	5.4
8260B	Bromobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				300	1800
8260B	Bromodichloromethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.00268	0.27	1.4
8260B	Bromoform	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0292	62	220
8260B	Bromomethane	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051				7.3	32
8260B	n-Butylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				3900	51000
8260B	sec-Butylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	tert-Butylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Carbon tetrachloride	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0114	0.61	3
8260B	Chlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.618	290	1400
8260B	Chlorodibromomethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Chloroethane	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			0.0533		
8260B	2-Chloroethyl vinyl ether	mg/kg	<0.053		<0.067		<0.051		<0.072		<0.071		<0.059		<0.051					
8260B	Chloroform	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			0.00564	0.29	1.5
8260B	Chloromethane	mg/kg	<0.0026		<0.0034		0.0035		<0.0036		<0.0036		<0.0030		<0.0026			0.0231	120	500
8260B	2-Chlorotoluene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	4-Chlorotoluene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	1,2-Dibromo-3-Chloropropane	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			0.000975	0.0054	0.069
8260B	1,2-Dibromoethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				0.034	0.17
8260B	Dibromomethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				25	110
8260B	1,2-Dichlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			5.25	1900	9800
8260B	1,3-Dichlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.229		
8260B	1,4-Dichlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0755	2.4	12
8260B	Dichlorodifluoromethane	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			2.96	94	400
8260B	1,1-Dichloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			3.48	3.3	17
8260B	1,2-Dichloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010		0.00771	0.00767	0.43	2.2
8260B	1,1-Dichloroethene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0388		
8260B	cis-1,2-Dichloroethene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.193		
8260B	trans-1,2-Dichloroethene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.365		
8260B	1,2-Dichloropropane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0089	0.94	4.7
8260B	1,1-Dichloropropene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	1,3-Dichloropropane	mg/kg	<0.0010		<0.0013	J3	<0.0010	J3	<0.0014	J3	<0.0014	J3	<0.0012	J3	<0.0010	J3			1600	20000
8260B	cis-1,3-Dichloropropene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	trans-1,3-Dichloropropene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	2,2-Dichloropropane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Di-isopropyl ether	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Ethylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010		0.071	10.2	5.4	27
8260B	Hexachloro-1,3-butadiene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Isopropylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			3.46		
8260B	p-Isopropyltoluene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	2-Butanone (MEK)	mg/kg	<0.010		<0.013		<0.010		<0.014		<0.014		0.035		<0.010			11.8		
8260B	Methylene Chloride	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			0.0169	56	960
8260B	4-Methyl-2-pentanone (MIBK)	mg/kg	<0.010		<0.013		<0.010		<0.014		<0.014		<0.012		<0.010			17.6	5300	53000
8260B	Methyl tert-butyl ether	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010		0.067		43	220
8260B	Naphthalene	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051		0.078	1.14		
8260B	n-Propylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010					
8260B	Styrene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			1.83	6300	36000
8260B	1,1,1,2-Tetrachloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0409	1.9	9.3
8260B	1,1,2,2-Tetrachloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.000915	0.56	2.8
8260B	1,1,2-Trichlorotrifluoroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				43000	180000
8260B	Tetrachloroethene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0288		
8260B	Toluene	mg/kg	0.00056	J	<0.0067		<0.0051		<0.0072		<0.0071		0.002	J	<0.0051		4.89	4.89	5000	45000
8260B	1,2,3-Trichlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				49	490
8260B	1,2,4-Trichlorobenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010				22	99
8260B	1,1,1-Trichloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			2	8700	38000
8260B	1,1,2-Trichloroethane	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.0141	1.1	5.3
8260B	Trichloroethene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.00288		

Former Warehouse
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Lab Sample ID			L590483-07		L590632-02		L590632-04		L590632-08		L590632-03		L590632-01		L590632-05					
Client Sample ID			CB-04-02 2FT		CB-04-05		CB-04-05D		CB-05-01		CB-05-05		CB-06-01		CB-06-05					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	Trichlorofluoromethane	mg/kg	<0.0053		<0.0067		<0.0051		<0.0072		<0.0071		<0.0059		<0.0051			10.4	790	3400
8260B	1,2,3-Trichloropropane	mg/kg	<0.0026		<0.0034		<0.0026		<0.0036		<0.0036		<0.0030		<0.0026			0.000245	0.005	0.095
8260B	1,2,4-Trimethylbenzene	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.692	62	260
8260B	1,2,3-Trimethylbenzene	mg/kg	<0.0010		0.00059	J	0.00057	J	<0.0014		<0.0014		<0.0012		<0.0010				53	220
8260B	1,3,5-Trimethylbenzene	mg/kg	<0.0010		<0.0013		0.00036	J	<0.0014		<0.0014		<0.0012		<0.0010			0.145	780	10000
8260B	Vinyl chloride	mg/kg	<0.0010		<0.0013		<0.0010		<0.0014		<0.0014		<0.0012		<0.0010			0.00963	0.06	1.7
8260B	Xylenes, Total	mg/kg	<0.0032		<0.0040		<0.0031		<0.0043		<0.0043		<0.0036		<0.0031		1.68		630	2700
8270C-SIM	Anthracene	mg/kg	0.027	J	0.0014	J	0.0018	J	0.0023	J	<0.0062		0.062	J	0.003	J	1040	1040	17000	170000
8270C-SIM	Acenaphthene	mg/kg	<0.076		<0.0061		<0.0061		<0.0062		<0.0062		<0.073		<0.0062		52.3	52.3	3400	33000
8270C-SIM	Acenaphthylene	mg/kg	0.022	J	0.001	J	0.0015	J	0.0031	J	<0.0062		0.056	J	0.0047	J		78		
8270C-SIM	Benzo(a)anthracene	mg/kg	0.07	J	0.0017	J	0.0043	J	0.012		<0.0062		0.041	J	0.0038	J	0.422	0.422	0.15	2.1
8270C-SIM	Benzo(a)pyrene	mg/kg	0.087		0.0052	J	0.0081		0.015		<0.0062		0.039	J	0.0089		0.0422	0.0422	0.015	0.21
8270C-SIM	Benzo(b)fluoranthene	mg/kg	0.097		0.0083		0.01		0.021		0.00085	J	0.052	J	0.01		0.422	0.422	0.15	2.1
8270C-SIM	Benzo(g,h,i)perylene	mg/kg	0.052	J	0.0034	J	0.0053	J	0.0072		<0.0062		0.1		0.0086			1180		
8270C-SIM	Benzo(k)fluoranthene	mg/kg	0.046	J	0.0016	J	0.003	J	0.0049	J	<0.0062		<0.073		0.0037	J	4.22	4.22	1.5	21
8270C-SIM	Chrysene	mg/kg	0.095		0.0055	J	0.0078		0.012		<0.0062		0.036	J	0.0068		33.4	33.4	15	210
8270C-SIM	Dibenz(a,h)anthracene	mg/kg	0.014	J	0.0014	J	0.0011	J	0.0022	J	<0.0062		<0.073		0.0018	J		0.0422	0.015	0.21
8270C-SIM	Fluoranthene	mg/kg	0.1		0.0035	J	0.0083		0.023		<0.0062		0.048	J	0.0051	J	364	364	2300	22000
8270C-SIM	Fluorene	mg/kg	0.017	J	<0.0061		0.0014	J	0.0012	J	<0.0062		<0.073		0.0011	J	54.8	54.8	2300	22000
8270C-SIM	Indeno(1,2,3-cd)pyrene	mg/kg	0.04	J	0.0022	J	0.0041	J	0.0069		<0.0062		0.045	J	0.0064			0.422	0.15	2.1
8270C-SIM	Naphthalene	mg/kg	0.023	J	0.001	J	0.0017	J	0.0012	J	<0.0062		0.026	J	0.0031	J	0.078	1.14	3.6	18
8270C-SIM	Phenanthrene	mg/kg	0.057	J	0.0018	J	0.0049	J	0.011		<0.0062		0.036	J	0.0027	J		79		
8270C-SIM	Pyrene	mg/kg	0.13		0.0057	J	0.013		0.027		0.0007	J	0.058	J	0.0092		359	359	1700	17000
8270C-SIM	1-Methylnaphthalene	mg/kg	0.019	J	0.00085	J	0.0029	J	0.001	J	<0.0062		0.028	J	0.0022	J			16	53
8270C-SIM	2-Methylnaphthalene	mg/kg	0.03	J	0.001	J	0.0033	J	0.0011	J	<0.0062		0.05	J	0.0037	J		3.1	230	2200
8270C-SIM	2-Chloronaphthalene	mg/kg	<0.076		<0.0061		<0.0061		<0.0062		<0.0062		<0.073		<0.0062			128		
8082	PCB 1016	mg/kg			<0.017													2.33		
8082	PCB 1221	mg/kg			<0.017													0.00294		
8082	PCB 1232	mg/kg			<0.017															
8082	PCB 1242	mg/kg			<0.017													0.00318		
8082	PCB 1248	mg/kg			<0.017													0.137		
8082	PCB 1254	mg/kg			<0.017													0.74		
8082	PCB 1260	mg/kg			0.037													0.147		
8270C	Acenaphthene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		52.3	52.3	3400	33000
8270C	Acenaphthylene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			78		
8270C	Anthracene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		1040	1040	17000	170000
8270C	Benzidine	mg/kg	<1.8	J4	<0.34	J4	<0.34	J4	<0.34	J4	<0.34	J4	<1.7	O, J4	<0.34	J4		5.37E-05	0.0005	0.0075
8270C	Benzo(a)anthracene	mg/kg	0.032	J	<0.034		0.009	J	0.0063	J	<0.034		<0.17	O	0.005	J	0.422	0.422	0.15	2.1
8270C	Benzo(b)fluoranthene	mg/kg	<0.17		<0.034		<0.034		0.0079	J	<0.034		<0.17	O	0.0079	J	0.422	0.422	0.015	0.21
8270C	Benzo(k)fluoranthene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		4.22	4.22	1.5	21
8270C	Benzo(g,h,i)perylene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			1180		
8270C	Benzo(a)pyrene	mg/kg	0.031	J	<0.034		0.0059	J	0.0066	J	<0.034		<0.17	O	0.0064	J	359	0.0422	0.015	0.21
8270C	Bis(2-chlorethoxy)methane	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	Bis(2-chloroethyl)ether	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.000108		
8270C	Bis(2-chloroisopropyl)ether	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			3.11		
8270C	4-Bromophenyl-phenylether	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.00545		
8270C	2-Chloronaphthalene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			128		
8270C	4-Chlorophenyl-phenylether	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	Chrysene	mg/kg	0.04	J	<0.034		0.0066	J	0.0077	J	<0.034		<0.17	O	0.0084	J	33.4	33.4	15	210
8270C	Dibenz(a,h)anthracene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			0.0422	0.015	0.21
8270C	3,3-Dichlorobenzidine	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.00183	1.1	3.8
8270C	2,4-Dinitrotoluene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.00029	1.6	5.5
8270C	2,6-Dinitrotoluene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.000212	61	620
8270C	Fluoranthene	mg/kg	0.034	J	<0.034		<0.034		0.012	J	<0.034		<0.17	O	<0.034		364	364	2300	22000
8270C	Fluorene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		54.8	54.8	2300	22000
8270C	Hexachlorobenzene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.0427	0.3	1.1
8270C	Hexachloro-1,3-butadiene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	Hexachlorocyclopentadiene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.0116	370	3700
8270C	Hexachloroethane	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.138	12	43

Former Warehouse
Centra 2012 Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Lab Sample ID			L590483-07		L590632-02		L590632-04		L590632-08		L590632-03		L590632-01		L590632-05					
Client Sample ID			CB-04-02 2FT		CB-04-05		CB-04-05D		CB-05-01		CB-05-05		CB-06-01		CB-06-05					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8270C	Indeno(1,2,3-cd)pyrene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			0.422	0.15	2.1
8270C	Isophorone	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.14	510	1800
8270C	Naphthalene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		0.078	1.14	3.6	18
8270C	Nitrobenzene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.0218	4.8	24
8270C	n-Nitrosodimethylamine	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			2.09E-06	0.0023	0.034
8270C	n-Nitrosodiphenylamine	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.088	99	350
8270C	n-Nitrosodi-n-propylamine	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			1.81E-05	0.069	0.25
8270C	Phenanthrene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034			79		
8270C	Benzylbutyl phthalate	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	Bis(2-ethylhexyl)phthalate	mg/kg	0.16	J	<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			11.8	35	120
8270C	Di-n-butyl phthalate	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			31	6100	62000
8270C	Diethyl phthalate	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			27.5	49000	490000
8270C	Dimethyl phthalate	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			271		
8270C	Di-n-octyl phthalate	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			1830		
8270C	Pyrene	mg/kg	<0.17		<0.034		<0.034		<0.034		<0.034		<0.17	O	<0.034		359	359	1700	17000
8270C	1,2,4-Trichlorobenzene	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.692	22	99
8270C	4-Chloro-3-methylphenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	2-Chlorophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.365	390	5100
8270C	2,4-Dichlorophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.0978	180	1800
8270C	2,4-Dimethylphenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.819	1200	12000
8270C	4,6-Dinitro-2-methylphenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	2,4-Dinitrophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.0384	120	1200
8270C	2-Nitrophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34					
8270C	4-Nitrophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.226		
8270C	Pentachlorophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.00907	0.89	2.7
8270C	Phenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			7.36	18000	180000
8270C	2,4,6-Trichlorophenol	mg/kg	<1.8		<0.34		<0.34		<0.34		<0.34		<1.7	O	<0.34			0.00436	44	160

Notes

Report generated on: 22-Aug-12 at: 05:16 PM

Qualifiers:

J4	The associated batch QC was
J3	The associated batch QC was
O	(ESC) Sample diluted due to matrix
J	(EPA) - Estimated value below the

Former 100,000 Gallon Capacity AST
Centra 2012 Soil Sampling Results
Former Goodman Oil Site
Voluntary Remediation Work Plan

Lab Sample ID			L590632-06		L590632-07		L590632-09		L590632-10					
Client Sample ID			CB-07-01		CB-07-05		CB-08-01		CB-08-04					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	Acetone	mg/kg	0.02	J	0.013	J	0.015	J	0.013	J		17.4	61000	630000
8260B	Acrylonitrile	mg/kg	<0.012		<0.010		<0.010		<0.010			0.000194	0.24	1.2
8260B	Benzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010		0.0178	0.0178	1.1	5.4
8260B	Bromobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				300	1800
8260B	Bromodichloromethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.00268	0.27	1.4
8260B	Bromoform	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0292	62	220
8260B	Bromomethane	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053				7.3	32
8260B	n-Butylbenzene	mg/kg	0.0071		0.00041	J	<0.0010		<0.0010				3900	51000
8260B	sec-Butylbenzene	mg/kg	0.0024		<0.0010		<0.0010		<0.0010					
8260B	tert-Butylbenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	Carbon tetrachloride	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0114	0.61	3
8260B	Chlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.618	290	1400
8260B	Chlorodibromomethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	Chloroethane	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			0.0533		
8260B	2-Chloroethyl vinyl ether	mg/kg	<0.060		<0.051		<0.050		<0.053					
8260B	Chloroform	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			0.00564	0.29	1.5
8260B	Chloromethane	mg/kg	<0.0030		<0.0026		<0.0025		<0.0026			0.0231	120	500
8260B	2-Chlorotoluene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	4-Chlorotoluene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	1,2-Dibromo-3-Chloropropane	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			0.000975	0.0054	0.069
8260B	1,2-Dibromoethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				0.034	0.17
8260B	Dibromomethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				25	110
8260B	1,2-Dichlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			5.25	1900	9800
8260B	1,3-Dichlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.229		
8260B	1,4-Dichlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0755	2.4	12
8260B	Dichlorodifluoromethane	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			2.96	94	400
8260B	1,1-Dichloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			3.48	3.3	17
8260B	1,2-Dichloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010		0.00771	0.00767	0.43	2.2
8260B	1,1-Dichloroethene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0388		
8260B	cis-1,2-Dichloroethene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.193		
8260B	trans-1,2-Dichloroethene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.365		
8260B	1,2-Dichloropropane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0089	0.94	4.7
8260B	1,1-Dichloropropene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	1,3-Dichloropropane	mg/kg	<0.0012	J3	<0.0010	J3	<0.0010	J3	<0.0010	J3			1600	20000
8260B	cis-1,3-Dichloropropene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	trans-1,3-Dichloropropene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	2,2-Dichloropropane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	Di-isopropyl ether	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	Ethylbenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010		0.071	10.2	5.4	27

Former 100,000 Gallon Capacity AST
Centra 2012 Soil Sampling Results
Former Goodman Oil Site
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Lab Sample ID			L590632-06		L590632-07		L590632-09		L590632-10					
Client Sample ID			CB-07-01		CB-07-05		CB-08-01		CB-08-04					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8260B	Hexachloro-1,3-butadiene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010					
8260B	Isopropylbenzene	mg/kg	0.001	J	<0.0010		<0.0010		<0.0010			3.46		
8260B	p-Isopropyltoluene	mg/kg	0.007		0.00039	J	<0.0010		<0.0010					
8260B	2-Butanone (MEK)	mg/kg	<0.012		<0.010		<0.010		<0.010			11.8		
8260B	Methylene Chloride	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			0.0169	56	960
8260B	4-Methyl-2-pentanone (MIBK)	mg/kg	<0.012		<0.010		<0.010		<0.010			17.6	5300	53000
8260B	Methyl tert-butyl ether	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010		0.067		43	220
8260B	Naphthalene	mg/kg	0.022		0.0023	J	<0.0050		<0.0053		0.078	1.14		
8260B	n-Propylbenzene	mg/kg	0.0061		0.00033	J	<0.0010		<0.0010					
8260B	Styrene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			1.83	6300	36000
8260B	1,1,1,2-Tetrachloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0409	1.9	9.3
8260B	1,1,2,2-Tetrachloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.000915	0.56	2.8
8260B	1,1,2-Trichlorotrifluoroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				43000	180000
8260B	Tetrachloroethene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0288		
8260B	Toluene	mg/kg	0.00085	J	<0.0051		<0.0050		<0.0053		4.89	4.89	5000	45000
8260B	1,2,3-Trichlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				49	490
8260B	1,2,4-Trichlorobenzene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010				22	99
8260B	1,1,1-Trichloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			2	8700	38000
8260B	1,1,2-Trichloroethane	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.0141	1.1	5.3
8260B	Trichloroethene	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.00288		
8260B	Trichlorofluoromethane	mg/kg	<0.0060		<0.0051		<0.0050		<0.0053			10.4	790	3400
8260B	1,2,3-Trichloropropane	mg/kg	<0.0030		<0.0026		<0.0025		<0.0026			0.000245	0.005	0.095
8260B	1,2,4-Trimethylbenzene	mg/kg	0.14		0.007		<0.0010		<0.0010			0.692	62	260
8260B	1,2,3-Trimethylbenzene	mg/kg	0.05		0.0026		<0.0010		<0.0010				53	220
8260B	1,3,5-Trimethylbenzene	mg/kg	0.061		0.0032		<0.0010		<0.0010			0.145	780	10000
8260B	Vinyl chloride	mg/kg	<0.0012		<0.0010		<0.0010		<0.0010			0.00963	0.06	1.7
8260B	Xylenes, Total	mg/kg	0.019		0.0014	J	<0.0030		<0.0032		1.68		630	2700
8270C-SIM	Anthracene	mg/kg	0.52		0.55				0.092		1040	1040	17000	170000
8270C-SIM	Acenaphthene	mg/kg	0.055	J	0.031	J			0.01		52.3	52.3	3400	33000
8270C-SIM	Acenaphthylene	mg/kg	0.35		0.38				0.091			78		
8270C-SIM	Benzo(a)anthracene	mg/kg	1.2		2				0.14		0.422	0.422	0.15	2.1
8270C-SIM	Benzo(a)pyrene	mg/kg	1.2		2				0.12		0.0422	0.0422	0.015	0.21
8270C-SIM	Benzo(b)fluoranthene	mg/kg	1.4		2.4				0.14		0.422	0.422	0.15	2.1
8270C-SIM	Benzo(g,h,i)perylene	mg/kg	0.57		0.88				0.027			1180		
8270C-SIM	Benzo(k)fluoranthene	mg/kg	0.48		0.71				0.064		4.22	4.22	1.5	21
8270C-SIM	Chrysene	mg/kg	1.3		2				0.14		33.4	33.4	15	210
8270C-SIM	Dibenz(a,h)anthracene	mg/kg	0.24		0.39				0.011			0.0422	0.015	0.21
8270C-SIM	Fluoranthene	mg/kg	2.6		3.2				0.31		364	364	2300	22000
8270C-SIM	Fluorene	mg/kg	0.26		0.2				0.071		54.8	54.8	2300	22000

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Lab Sample ID			L590632-06		L590632-07		L590632-09		L590632-10					
Client Sample ID			CB-07-01		CB-07-05		CB-08-01		CB-08-04					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8270C-SIM	Indeno(1,2,3-cd)pyrene	mg/kg	0.6		0.94				0.031			0.422	0.15	2.1
8270C-SIM	Naphthalene	mg/kg	0.16		0.067	J			0.0046	J	0.078	1.14	3.6	18
8270C-SIM	Phenanthrene	mg/kg	2		2.2				0.4			79		
8270C-SIM	Pyrene	mg/kg	2.6		3.5				0.26		359	359	1700	17000
8270C-SIM	1-Methylnaphthalene	mg/kg	0.35		0.083				0.016				16	53
8270C-SIM	2-Methylnaphthalene	mg/kg	0.44		0.079				0.0094			3.1	230	2200
8270C-SIM	2-Chloronaphthalene	mg/kg	<0.074		<0.074				<0.0061			128		
8082	PCB 1016	mg/kg										2.33		
8082	PCB 1221	mg/kg										0.00294		
8082	PCB 1232	mg/kg												
8082	PCB 1242	mg/kg										0.00318		
8082	PCB 1248	mg/kg										0.137		
8082	PCB 1254	mg/kg										0.74		
8082	PCB 1260	mg/kg										0.147		
8270C	Acenaphthene	mg/kg	<0.68		<0.17						52.3	52.3	3400	33000
8270C	Acenaphthylene	mg/kg	0.31	J	0.13	J						78		
8270C	Anthracene	mg/kg	0.36	J	0.23						1040	1040	17000	170000
8270C	Benzidine	mg/kg	<6.8	J4	<1.7	J4						5.37E-05	0.0005	0.0075
8270C	Benzo(a)anthracene	mg/kg	0.93		0.56						0.422	0.422	0.15	2.1
8270C	Benzo(b)fluoranthene	mg/kg	1.4		0.72						0.422	0.422	0.015	0.21
8270C	Benzo(k)fluoranthene	mg/kg	0.5	J	0.26						4.22	4.22	1.5	21
8270C	Benzo(g,h,i)perylene	mg/kg	0.29	J	0.14	J						1180		
8270C	Benzo(a)pyrene	mg/kg	1.1		0.55						359	0.0422	0.015	0.21
8270C	Bis(2-chlorethoxy)methane	mg/kg	<6.8		<1.7									
8270C	Bis(2-chloroethyl)ether	mg/kg	<6.8		<1.7							0.000108		
8270C	Bis(2-chloroisopropyl)ether	mg/kg	<6.8		<1.7							3.11		
8270C	4-Bromophenyl-phenylether	mg/kg	<6.8		<1.7							0.00545		
8270C	2-Chloronaphthalene	mg/kg	<0.68		<0.17							128		
8270C	4-Chlorophenyl-phenylether	mg/kg	<6.8		<1.7									
8270C	Chrysene	mg/kg	1.3		0.65						33.4	33.4	15	210
8270C	Dibenz(a,h)anthracene	mg/kg	<0.68		0.06	J						0.0422	0.015	0.21
8270C	3,3-Dichlorobenzidine	mg/kg	<6.8		<1.7							0.00183	1.1	3.8
8270C	2,4-Dinitrotoluene	mg/kg	<6.8		<1.7							0.00029	1.6	5.5
8270C	2,6-Dinitrotoluene	mg/kg	<6.8		<1.7							0.000212	61	620
8270C	Fluoranthene	mg/kg	2.6		1.1						364	364	2300	22000
8270C	Fluorene	mg/kg	0.3	J	0.096	J					54.8	54.8	2300	22000
8270C	Hexachlorobenzene	mg/kg	<6.8		<1.7							0.0427	0.3	1.1
8270C	Hexachloro-1,3-butadiene	mg/kg	<6.8		<1.7									
8270C	Hexachlorocyclopentadiene	mg/kg	<6.8		<1.7							0.0116	370	3700

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Client Sample ID			CB-07-01		CB-07-05		CB-08-01		CB-08-04					
Collect Date			8/16/2012		8/16/2012		8/16/2012		8/16/2012					
Method	**Parameter**	**Units**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**Value**	**Qual**	**RUSL**	**IDTL**	**EPA Residential RSL**	**EPA Industrial RSL**
8270C	Hexachloroethane	mg/kg	<6.8		<1.7							0.138	12	43
8270C	Indeno(1,2,3-cd)pyrene	mg/kg	0.34	J	0.17							0.422	0.15	2.1
8270C	Isophorone	mg/kg	<6.8		<1.7							0.14	510	1800
8270C	Naphthalene	mg/kg	0.2	J	<0.17						0.078	1.14	3.6	18
8270C	Nitrobenzene	mg/kg	<6.8		<1.7							0.0218	4.8	24
8270C	n-Nitrosodimethylamine	mg/kg	<6.8		<1.7							2.09E-06	0.0023	0.034
8270C	n-Nitrosodiphenylamine	mg/kg	<6.8		<1.7							0.088	99	350
8270C	n-Nitrosodi-n-propylamine	mg/kg	<6.8		<1.7							1.81E-05	0.069	0.25
8270C	Phenanthrene	mg/kg	2.2		0.8							79		
8270C	Benzylbutyl phthalate	mg/kg	<6.8		<1.7									
8270C	Bis(2-ethylhexyl)phthalate	mg/kg	<6.8		<1.7							11.8	35	120
8270C	Di-n-butyl phthalate	mg/kg	<6.8		<1.7							31	6100	62000
8270C	Diethyl phthalate	mg/kg	<6.8		<1.7							27.5	49000	490000
8270C	Dimethyl phthalate	mg/kg	<6.8		<1.7							271		
8270C	Di-n-octyl phthalate	mg/kg	<6.8		<1.7							1830		
8270C	Pyrene	mg/kg	2.6		1.1						359	359	1700	17000
8270C	1,2,4-Trichlorobenzene	mg/kg	<6.8		<1.7							0.692	22	99
8270C	4-Chloro-3-methylphenol	mg/kg	<6.8		<1.7									
8270C	2-Chlorophenol	mg/kg	<6.8		<1.7							0.365	390	5100
8270C	2,4-Dichlorophenol	mg/kg	<6.8		<1.7							0.0978	180	1800
8270C	2,4-Dimethylphenol	mg/kg	<6.8		<1.7							0.819	1200	12000
8270C	4,6-Dinitro-2-methylphenol	mg/kg	<6.8		<1.7									
8270C	2,4-Dinitrophenol	mg/kg	<6.8		<1.7							0.0384	120	1200
8270C	2-Nitrophenol	mg/kg	<6.8		<1.7									
8270C	4-Nitrophenol	mg/kg	<6.8		<1.7							0.226		
8270C	Pentachlorophenol	mg/kg	<6.8		<1.7							0.00907	0.89	2.7
8270C	Phenol	mg/kg	<6.8		<1.7							7.36	18000	180000
8270C	2,4,6-Trichlorophenol	mg/kg	<6.8		<1.7							0.00436	44	160

Notes

Report generated on: 22-Aug-12 at: 05:16 PM
Qualifiers:
J4 The associated batch QC was
J3 The associated batch QC was
O (ESC) Sample diluted due to
J (EPA) - Estimated value below the

Appendix D
Quality Assurance Project Plan

APPENDIX D

QUALITY ASSURANCE PROJECT PLAN

REVISION 1- 12/5/2012

Former Goodman Oil Property

Voluntary Remediation Work Plan

D.Y. Boise River, LLC

Boise, Idaho

1.0 QAPP APPROVAL SHEET

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Ryan Eldridge, P.E. Centra Consulting Inc. Project Manager	Date
Kit Clark D.Y. Boise River, LLC. Project Manager	Date
Eric Traynor Idaho Department of Environmental Quality Project Manager	Date

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v. Kit Clark; D.Y. Boise River, LLC. (208) 342-8901

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Table 1 – Constituents of Concern

Table 2 – Remediation Action Target Levels for COCs

Table 3 –Excavation Floor Samples

Table 4 – Excavation Sidewall Samples

Table 5 – Excavation Area Size and Number of Confirmation Samples

Table 6 – EPA Test Method for Excavation Areas

Table 7 – Analytical Methods and Handling

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APPENDICES

Appendix D1 – ESC Lab Sciences Quality Assurance Manuals for Metals

Appendix D2 – ESC Lab Sciences Quality Assurance Manuals for VOCs

Appendix D3 – ESC Lab Sciences Quality Assurance Manuals for SVOCs and PCBs

1.0 INTRODUCTION

D.Y. Boise River, LLC (DYBR) has entered into a Voluntary Remediation Agreement with the Idaho Department of Environmental Quality (IDEQ) as a part of IDEQ's Voluntary Cleanup Program to conduct remediation activities on the property in order to facilitate future residential and/or commercial development of the site. Centra Consulting, Inc. (Centra) on behalf of DYBR has prepared a Voluntary Remediation Workplan to outline remediation procedures. The approved Workplan describes soil excavation activities that will be undertaken to remove contaminants at the site. Once remediation activities are completed and sampling has shown that the remediation goals have been met, DYBR will prepare a work plan completion report for IDEQ approval. Upon approval of the completion report , IDEQ will issue a certificate of completion at the request of DYBR negotiate a covenant not to sue.

Soil remediation activities at the Former Goodman Oil Property located immediately southwest of the intersection of Fairview Avenue and South 27th Street in Boise, Idaho include excavation and removal of soil from the site and placement of clean fill back to original grade. Confirmation sampling and analysis will be conducted by DYBR to document that contaminated soil has been removed and residual concentrations of target parameters do not exceed the cleanup goals established for soil at the Site. This Quality Assurance Project Plan (QAPP) presents the objectives, target parameters, cleanup goals, approach, sampling methods, laboratory analyses, and quality assurance/quality control (QA/QC) for the anticipated work at the Former Goodman Oil Site.

1.1 Objectives

The objectives of the confirmation QAPP are to:

- Present a statistically based approach for identifying quantity and location of samples;
- Describe specific requirements for collecting and analyzing samples;
- Confirm that contaminated soil is removed and residual concentrations of target parameters are below the cleanup goals established for the Site; and
- Provide an iterative procedure to excavate and sample specific areas to achieve final closure certification.

1.2 Constituents of Concern

The Voluntary Remediation Work Plan (VRWP) describes the various activities that have been conducted at the site to characterize the extent of soil contamination and established the constituents of concerns (COCs) for remediation of the site. The following COCs presented in Table 1 will be evaluated during remediation activities at the site:

Table 1 – Constituents of Concern

Surficial Soil COCs	Subsurface Soil COCs
Arsenic	Benzene
Barium	Benzo(a)pyrene
Cadmium	Benzo(b)fluoranthene
Lead	Dibenz(a,h)anthracene
Mercury	Ethylbenzene
Selenium	Naphthalene
Silver	Total xylenes
	Aroclor 1260

1.3 Remediation Action Target Levels

The remediation action target levels (RATLs) were established in the VRWP and will be used as the primary criteria for determining that impacted soil has been successfully removed. If sample concentrations exceed the RATLs, further excavation will be conducted in specific areas until the concentrations are below the RATLs. However, DYBR reserves the right to adjust the RATLs in coordination with IDEQ to industrial use levels in excavation areas that are larger than originally planned. Any adjusted RATLs will be modified and described in a workplan modification request. The RATLs that were established in the VRWP are listed in Table 2.

Table 2 – Remediation Action Target Levels for COCs

Chemicals of Concern	Screening Concentration	Units	Source
Arsenic	Background	mg/kg	EPA Residential RSL
Barium	15000	mg/kg	EPA Residential RSL
Cadmium	7	mg/kg	EPA Residential RSL
Lead	400	mg/kg	EPA Residential RSL
Mercury	4.3	mg/kg	EPA Residential RSL
Selenium	390	mg/kg	EPA Residential RSL
Silver	390	mg/kg	EPA Residential RSL
Aroclor 1260	0.147	mg/kg	IDEQ IDTL
Benzene	0.025	mg/kg	IDAPA RUSL
Benzo(a)pyrene	0.02	mg/kg	IDAPA RUSL
Benzo(b)fluoranthene	0.2	mg/kg	IDAPA RUSL
Dibenz(a,h)anthracene	0.0422	mg/kg	IDEQ IDTL
Ethylbenzene	0.25	mg/kg	IDAPA RUSL
Napthalene	0.12	mg/kg	IDAPA RUSL
Total xylenes	27	mg/kg	IDAPA RUSL
Benzo(a)anthracene	0.09	mg/kg	IDAPA RUSL

2.0 CONFIRMATION SAMPLING APPROACH

The confirmation sampling approach is based on the Wyoming Department of Environmental Quality's (WDEQ) "Fact Sheet #10: Guidelines for Soil Confirmation Sampling." The fact sheet establishes soil confirmation sampling approaches for the WDEQ's Voluntary Remediation Program.

The soil confirmation sampling approach classifies excavation sampling sites into small or large areas. Small sites in general have excavation areas of 10,000 square feet or less, and large sites are generally 10,000 square feet or larger. Since each of the individual excavation areas shown in Figure D-1 are smaller than 10,000 square feet the criteria for small excavation areas will be used for this QAPP.

2.1 Sample Quantity and Locations

The WDEQ fact sheet establishes the number of samples for each excavation based on the excavation size and sidewall length (Tables 3 and 4). The guidelines suggest that biased sampling techniques be used when collecting samples for small excavations. In particular, confirmation samples should be collected where the highest concentration would be expected based on prior investigations. As shown in Table 5 the minimum number of samples per excavation area is 5, with at least 1 sample (Table 3) in the floor area and 4 per sidewall (Table 4).

Table 3 – Excavation Floor Samples

Area of Floor (Sq-ft)	Minimum Number of Samples
<500	1
501 – 1,000	2
1001 – 1500	3
1,501 – 2500	4
2,501 – 4,000	5
4,001 – 6,000	6
6,001 – 8,500	7
8,501 – 10,000	8

Table 4 – Excavation Sidewall Samples

Total Length of Sidewall (Feet)	Minimum Number of Samples
<100	4
101 – 200	5
201 – 300	6
301 – 500	7
>500	8

Table 5 – Excavation Area Size and Number of Confirmation Samples

Excavation Area	Bottom Area (ft^2)	Sidewall Length (ft)	Floor Samples	Sidewall Samples	Sample Total
100,000-gal AST Excavation	650	90	2	4	6
SS-6 Excavation	200	51	1	4	5
DP-19 Excavation	200	51	1	4	5
Berm Excavation	300	74	1	4	5
Warehouse Excavation	3,000	213	5	6	11
Shop Excavation	770	122	2	5	7
House Excavation	4,880	293	6	6	12
SS-19 Excavation	320	71	1	4	5
SS-17 Excavation	200	51	1	4	5
SS-20 Excavation	80	31	1	4	5

The anticipated confirmation sampling locations are shown in Figure D-1. The locations may be adjusted in the field by DYBR's field technician depending on observations and field screening.

2.2 Field Screening Procedures

Once the limits of each excavation has been reached as shown in Figure D-1, field screening procedures will be used to determine if confirmation samples should be collected or if additional excavation should occur. The following field screening techniques will be used:

- X-Ray Fluorescence (XRF) Spectrometer: An XRF Spectrometer can be used to characterize a broad range of materials in the field. In particular with this project, the XRF spectrometer will be used to qualitatively determine if the metal or PCB COCs are present at elevated levels once the initial extents of the excavations have been reached.
- Flame Ionization Detector (FID): A portable FID will be used to field screen the excavation extents in areas with VOC and SVOC contaminates. The FID will provide a total concentration of VOCs present within the screened sample. This reading will be used to determine if additional excavation should occur before collecting confirmation samples. Confirmation sample analytical results will be compared to the cleanup goals. If all confirmation sample results are at or below cleanups in a specific area, the remediation (i.e., excavation) for that specific area will be considered complete. Once a specific area has achieved cleanup goals, the necessary precautions will be taken to protect that area from recontamination during remediation in adjacent areas.

If the field screening techniques described above show elevated readings for the COCs at the excavation extents, additional excavation area will be delineated using the field screening tools. The additional areas will be delineated. The delineation will occur using the process described below:

- If elevated readings occur on the floor of the excavation the additional excavation area will be delineated by stepping out laterally in a 1 foot radius from the area of elevated readings, once readings decreased to an acceptable level this boundary will be used as the lateral extent of the additional excavation. From this point the excavation will be advanced an additional 1 foot in depth and screened. This step will be repeated until the results from the field screening are

considered acceptable then confirmation samples will be collected. A minimum of 1 floor sample will be collected from each additional excavation area.

- If elevated readings occur on the sidewalls of the excavation, the additional excavation area will be delineated by stepping out in 1 foot intervals above, below and to each side of the point of elevated reading. Once the field screening results decrease to acceptable levels this boundary will be used as the lateral extent of the additional excavation. The excavation will be advanced an additional 1 foot into the sidewall, and equal to the total depth of the sidewall. This step will be repeated until results from the field screening are considered acceptable. A minimum of 1 sidewall sample will be collected in each additional sidewall excavation area.

During field screening if DYBR determines that the excavation extents in a particular area are becoming too large the IDEQ will be contacted to discuss remediation in this area and determine if a modification to the VRWP is needed to address the changed conditions.

2.3 Sampling of Fill Material

DYBR will bring clean fill material onsite to bring the excavated areas back to original grade. Potential material sources will be sampled prior to selection of a source area. Initial sampling of the source area will consist of collecting three composite samples from the planned source area. The samples will be analyzed for the constituents of concern, as well as the full the range of metals in EPA Method 6010A, the full range of SVOCs in EPA Method 8270C, PCBs in EPA Method 8082, and VOCs in EPA Method 8260B. Idaho IDTLs, RUSLs, and the residential EPA RSLs will be used for as the standards for acceptance of fill material to be brought onsite.

Once the fill material is chosen and is starts to be brought onsite records will be kept of where the quantity of material brought on site and where the material is placed. Composite sampling of the material will continue at the rate of 1 sample for the above listed methods per 250 cubic yards of material up to 1,000 cubic yards of material. After 1,000 cubic yards of material has been brought onsite composite sampling will change to the rate of 1 sample per 500 cubic yards of material. Results from the sampling of the fill material will be presented in the work plan completion report.

3.0 SAMPLING METHODS

This section summarizes field methods DYBR will follow for establishment of the initial excavation extents, sample collection and handling, equipment decontamination, and documentation.

3.1 Establishment of Excavation Extents

Prior to excavation activities, DYBR will establish the initial lateral extents at each planned excavation location as shown on Figure A-1. A licensed land surveyor will establish extents and provide a monument that will be used for measuring the depth of each excavation.. Horizontal positions will be measured to the nearest 0.1 foot. Vertical positions (after initial excavation) will be measured to the nearest 0.1 foot..

DYBR will collect samples as described in the previous section. At each sample location a soil sample from the excavated surface to approximately 4 inches below ground surface (bgs) will be collected. For the purposes of this sampling plan, a soil sample refers to solid media at the base of the excavation. Sidewall samples will be collected from midway down the sidewall, and advanced approximately 4 inches laterally.

3.2 Sample Collection

Detailed guidance of the following standard operating procedures (SOPs) is provided in Section 7.0 of the QAPP:

- Soil Sampling

- TerraCore Sampling
- Sample Handling and Preservation;
- Equipment Decontamination;
- Field Notes and Documentation; and
- Investigation Derived Waste Handling Procedures.

These SOPs are generally consistent with the following state and federal guidance documents for soil sampling and sample handling.

- Department of Toxic Substances Control, California Environmental Protection Agency, 1999. Preliminary Endangerment Assessment Guidance Manual. June 1999.
- U.S. Environmental Protection Agency, 1988. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. Interim Final, October 1988.
- U.S. Environmental Protection Agency, 1990. Preparation of a U.S. EPA Region 9 Field Sampling Plan for Private and State-Lead Superfund Projects. Document Control No. 9QA-06-89, 1990.

DYBR's representatives will be responsible for performing all sampling and related activities described in this plan in accordance with the SOPs. In addition to primary samples, QA/QC samples consisting of field replicate samples and matrix spikes/matrix spike duplicates (MS/MSD) samples will be collected.

One MS/MSD sample will be collected for every 20 primary samples, or a fraction thereof. Note that if step-out and re-confirmations samples are required, QA/QC samples will be collected at the same frequency. The field replicate and MS/MSD samples will be analyzed for the same target parameters as the primary samples. The field replicate and MS/MSD samples will be collected from the same depth interval and within 1 foot of the primary sample. If a sufficient sample volume cannot be collected for the field replicate or MS/MSD sample, another node location will be selected for field replicate or MS/MSD sample collection.

Decontamination procedures will be followed between each sample collection location. Sampling equipment such as shovels that are reused will be cleaned with soap and water in a triple-rinse wash. The first wash will consist of scrubbing the equipment with a non-phosphate detergent and water. The water will be changed regularly to minimize carrying residue into the next wash. For the second wash, equipment will be rinsed in clear, tap or de-ionized water. Again, the water will be changed frequently to minimize carrying residue into the next wash. For the third wash, equipment will be rinsed in de-ionized or distilled water only. After cleaning, equipment will be stored on a clean surface such as plastic sheeting.

Volatile Organic Compound (VOCs) sampling will be collected to determine if remediation goals as described in the VRWP have been met. Soil samples will be field screened by placing a sample in a clean plastic bag and sealed. The bag will be placed in the sun or to help with volatizing contaminate within the soil sample. After a minimum of 5 minutes in the sun a FID will be used to determine initial VOCs levels in the headspace around the samples. If elevated VOCs do not exist from field screening a confirmation sample will be collected using a TerraCore sampler from the same area where the field screening sample was collected. The sample will be placed in a clean, laboratory supplied glass jars with screw-on covers. The sample containers will be labeled with the sample identification, sample date and time, and the sampler's initials and placed in an iced cooler for transport under chain-of-custody to an analytical laboratory. The sample identification will consist of the excavation location and floor or sidewall number (e.g., a sample collected from the floor in AST Excavation will be identified as "AST Excavation F01").

As samples are collected, sample information will be recorded in the field logbook and on a chain-of-custody form. The chain-of-custody form will include the sample identification as described previously, date and time of sampling, quantity and type of containers, and list of analyses to be performed. These

documents will be completed onsite and will accompany the samples through transportation and laboratory analysis.

4.0 LABORATORY ANALYSES

Areas of the site were deemed necessary for excavation after field sampling and laboratory analysis. Samples will be collected from locations around each excavation area and tested again to confirm the presence or absence of COCs. The EPA test methods that will be used to determine the presence of COC's in each area are shown in Table 6.

Table 6 - EPA Test Method for Excavation Areas

	Excavation Areas									
EPA Test Method	**Warehouse**	**Shop**	**House**	**Berm**	**AST**	**SS-6**	**DP-19**	**SS-17**	**SS-19**	**SS-20**
Metals (6010B)	x		x	x		x		x	x	x
PCBs (8082)										x
SVOCs (8270C-SIM)	x	x			x				x	
VOCs (5035/8260B)	x									

The samples will be sent to ESC Lab Sciences located in Nashville, Tennessee for sample analysis. The laboratory will crush and homogenize each sample prior to analysis. To assess its analytical performance, the laboratory will implement QA/QC procedures. For each batch of samples (i.e., samples that are prepared and analyzed together), the laboratory will conduct the following activities:

- Review the chain-of-custody documentation; check holding time compliance;
- Determine whether adequate or required batch QC samples were analyzed and reported according to method specifications (i.e., method blanks, laboratory control samples [LCS], and MS/MSD samples);
- Assess LCS and laboratory control sample duplicate (LCSD) sample recoveries and relative percent differences (RPDs);
- Evaluate method blank contamination; and
- Assess MS/MSD recoveries and RPDs.

Data will be reviewed for precision, completeness and accuracy following the *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, National Functional Guidelines for Inorganic Data Review (SW-846), Clean Water Act (CWA)* methods and according to the laboratory's quality assurance manuals as shown in Appendices D1, D2, and D3. The laboratory will document the results of the activities listed above in the laboratory narrative portion of the report. The lab will present a Level II data package for review by DYBR, the data will be reviewed against the data quality indicators described in the next section. DYBR will submit the Level II data package to IDEQ with the remediation closeout report. The analytical method and handling for each of the COCs is presented in Table 7.

Table 7 – Analytical Methods and Handling

COC	EPA Method Number	Sample Size/Container	Preservation	Extraction Holding Time	Analysis Holding Time
Arsenic	EPA 6010B	2oz/Glass	Cool to 4°C	NA	14 Days
Barium	EPA 6010B				
Cadmium	EPA 6010B				
Lead	EPA 6010B				
Selenium	EPA 6010B				
Silver	EPA 6010B				
Mercury	EPA 7471A	2oz/Glass	Cool to 4°C	NA	28 Days
Aroclor 1260	EPA 8082	4oz/Glass	Cool to 4°C	14 Days	40 Days
Benzo(a)pyrene	8270C-SIM	4oz/glass	Cool to 4°C	14 Days	40 Days
Benzo(a)anthracene	8270C-SIM				
Benzo(b)fluoranthene	8270C-SIM				
Dibenz(a,h)anthracene	8270C-SIM				
Naphthalene	8270C-SIM				
Benzene	5035/8260B	2 oz,/glass jar 4 oz/glass jar 3 – 40 ml glass VOA vials with 5 grams soil each	Cool to 4°C Cool to 4°C methanol, and sodium bisulfate	NA	14 Days
Ethylbenzene	5035/8260B				
Total Xylenes	5035/8260B				

5.0 QA/QC CRITERIA

The QA/QC criteria in this Confirmation Sampling Plan are specified for the analytical methods, replicate samples, and split samples.

- Analytical Methods: The acceptable QA/QC criteria are provided in Table 8 for each analytical method and target parameter and the laboratory quality assurance manuals presented in Appendices D1-D3.
- Field Replicate Samples: If either the primary sample or the field replicate sample contains concentrations of target parameters that exceed cleanup goals, then that sample location will require additional remediation according to the procedures previously specified.

Table 8 – QA/QC Criteria for Analytical Methods

COC	EPA Method Number	Screening Concentration (mg/kg)	Reporting Data Limit (mg/kg)	Method Detection Limit (mg/kg)
Arsenic	EPA 6010B	-	1	0.3950
Barium	EPA 6010B	15000	0.25	0.05
Cadmium	EPA 6010B	7	0.25	0.0350
Lead	EPA 6010B	400	0.25	0.12
Mercury	EPA 7471A	4.3	0.02	0.0015
Selenium	EPA 6010B	390	1	0.46
Silver	EPA 6010B	390	0.5	0.1250
Aroclor 1260	EPA 8082	0.147	0.017	0.0049
Benzene	5035/8260B	0.025	0.0010	0.000325
Benzo(a)pyrene	8270C-SIM	0.02	0.0060	0.000830
Benzo(b)fluoranthene	8270C-SIM	0.2	0.0060	0.000470
Dibenz(a,h)anthracene	8270C-SIM	0.0422	0.0060	0.000930
Ethylbenzene	5035/8260B	0.25	0.0010	0.000226
Naphthalene	8270C-SIM	0.12	0.0060	0.000880
Total Xylenes	5035/8260B	27	0.0030	0.000460
Benzo(a)anthracene	8270C-SIM	0.09	0.0060	0.001110

5.1 Data Quality Review

The following data quality indicators will be evaluated during assessment of the data collected for this project. Laboratory supplied data quality indicators are provided in Appendices D1, D2, and D3 .

5.2 Precision

Precision is a measure of the reproducibility of measurements under a given set of conditions. Precision is usually stated in terms of relative standard deviation (RSD) or relative percent difference (RPD). Results of quality control (QC) samples can be used to calculate the precision of the analytical or sampling process. Field duplicate samples will be used to determine the precision of the sampling process. Laboratory duplicates will be used by the laboratory to determine the precision of the analytical process. Any laboratory duplicate precision values outside the lab's QC limits will be identified in the lab's case narrative for the data. Field duplicates will be evaluated at a frequency of 10 percent. Precision for duplicate chemical analyses (replicates) will be calculated as the RPD:

$$RPD = \frac{abs(D1 - D2) \times 100}{\frac{D1 + D2}{2}}$$

Where:
RPD = relative percent difference

D1 = sample value
D2 = duplicate sample value
For three or more measurements, the RSD will be calculated:

$$RSD = \frac{Standard\ Deviation \times 100}{mean}$$

5.3 Accuracy

Accuracy is a measure of the bias in a measurement system, and defined as the closeness of the reported value to the true value. Potential sources of error include the sampling process, field contamination, preservation, handling, sample matrix, sample preparation and analytical techniques. The accuracy of a measurement system will be assessed by evaluating the results of laboratory quality control samples such as matrix spikes and field quality control samples such as trip blanks and equipment rinsate blanks. Any laboratory accuracy values outside the lab's QC limits will be identified in the lab's case narrative with the reported data.

Accuracy of these measurements will be determined by using spiked samples and calculated as the ratio of the observed value to the known spiked quantity:

$$Percent\ Recovery = \frac{(spike\ sample\ result - sample\ result) \times 100}{spike\ added}$$

5.4 Representativeness

Representativeness expresses the degree to which the sample data accurately and precisely represent a characteristic of the environmental condition. Representativeness is a qualitative parameter, which is controlled by the proper design of the sampling program. Representativeness is addressed by describing sampling techniques and the rationale used to select sampling locations. It will be assessed using samples that are collected in a manner that ensures they are equally representative of a given point in space or time. Representativeness will be evaluated using field duplicate samples and rinsate blanks.

5.5 Completeness

Completeness is defined as the percentage of measurements made that are judged to be valid measurements. The completeness goal for this project is 80 percent, which is considered to be attainable using EPA-approved analytical methods. Completeness will be measured for each set of data received by dividing the number of valid measurements (all measurements except rejected data) actually obtained by the number of valid measurements that were planned:

$$Completeness = \frac{valid\ data\ points\ obtained \times 100}{total\ data\ points\ obtained}$$

5.6 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared with another. The comparability goal is achieved by using standard techniques to collect and

analyze representative samples and reporting analytical data in appropriate units. Comparability is ensured by using established and approved analytical methods and protocols. The laboratory's quality control program is designed to establish consistency in the performance of the analytical process. The program includes traceability of measurements to standardized reference materials to establish comparability with other laboratory results, and internal controls to verify consistency of the contract laboratory's performance.

5.7 Sensitivity

Sensitivity is evaluated by comparing the reporting limits – also referred to as practical quantitation limits (PQLs) and method detection limits (MDLs) – to the regulatory standards being used for the project. Laboratory reporting limits must be below the Idaho Petroleum Rule Residential Use Screening Levels (RUSLs) and EPA Regional Screening Levels (RSLs), if possible. During data assessment, the Environmental Scientist will ensure reporting limits are below the RUSLs and RSLs, if possible, to support the project's environmental data decisions.

6.0 QUALITY CONTROL REQUIREMENTS

The following subsections describe the various quality control requirements of the voluntary remediation effort at the Former Goodman Oil Property.

6.1 Field QC Checks

Field Duplicates: Field duplicate samples (QC samples) indicate the precision of the sampling and analysis program for detectable analytes. For solids, the field duplicate sample is one portion of a double volume solid sample that is homogenized before filling the sample containers. The other portion is used for the primary sample. The QC sample along with the original sample will be sent to the analytical laboratory. QC samples will be collected at a frequency of one sample per excavation area, or a minimum of 1 QC sample per 10 primary samples.

Equipment Blanks: Equipment blanks will not be collected during field sampling as all samples will be collected using new disposable tooling and tubing.

6.2 Laboratory QC Checks

Laboratory QC samples will be analyzed to confirm acceptable laboratory practices and procedures. Laboratory QC samples analyzed will include method blanks, MS/MSD, and LCS/LCSD, as applicable. These will be run concurrently with the analytical batch to which they are assigned.

6.3 Method Blanks

The laboratory method blank is carried through each step of the analytical method to examine the potential for cross-contamination. The laboratory method blank will be analyzed at a rate of 1 per 20 samples or one per analytical batch, whichever is the greater frequency.

6.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)

The laboratory designated MS is a sample spiked with known concentrations of target analytes which are taken through the entire analytical procedure and the recovery of the analytes calculated. The laboratory MSD is also spiked with the same concentrations of selected analytes of interest as the laboratory designated MS, at the same frequency. The two spiked aliquots are processed separately and the results compared to evaluate the effects of the matrix on the precision of the method. The laboratory matrix spike sample will be analyzed at a rate of 1 per 20 samples or one per analytical batch, whichever is the greater frequency.

6.5 Laboratory Control Sample

The laboratory designated LCS is a blank spiked with known concentrations of target analytes which are taken through the entire analytical procedure and the recovery of the analytes is calculated. The LCSD is also spiked with the same concentrations of selected analytes of interest as the laboratory designated LCS, at the same frequency. The two spiked aliquots are processed separately and the results compared to evaluate the effects of the preparation procedure on the precision of the method. LCS/LCSDs will be analyzed at a rate of 1 in 20 samples or one per analytical batch, whichever is the greater frequency.

6.6 Surrogate

Surrogates are organic compounds which are similar to analytes of interest in chemical composition, extraction, and chromatography, but which are not normally found in environmental samples. These compounds are spiked into all blanks, standards, samples and spiked samples prior to analysis. Percent recoveries are calculated for each surrogate. Surrogates will be analyzed with each sample.

6.7 Corrective Action

In the event that the analytical laboratory has a nonconformance when analyzing the samples corrective action will be taken. Appendices D1, D2, and D3 present ESC Lab Sciences Quality Assurance Manuals for metals, VOC's, SVOCs, and PCB's.

7.0 STANDARD OPERATING PROCEDURES

7.1 Soil Sampling

Materials:

- Hand trowels (stainless steel)
- Nitrile or surgical gloves
- Tray, mixing pans, or Ziploc plastic bags
- Stainless steel spoons
- Aluminum foil
- Sample containers
- Sample labels and indelible marker
- Photoionization detector (PID)

Procedure:

1. Wear vinyl disposable gloves and other personal protective equipment as necessary. Nitrile gloves may only be used for hazardous sampling.

2. Remove the sealed Ziploc® bag or aluminum foil from the trowel and grasp the trowel by the handle.

3. Remove all surface vegetation with the trowel or another decontaminated tool (i.e., shovel) before digging hole.

4. Place blade tip of trowel into soil and push firmly until the desired sampling depth is reached. If sampling a loose gravelly or sandy soil, carefully remove the trowel so that the blade approaches a horizontal position to prevent soil from falling off the blade. If sampling a stiff, silty, or clayey soil, it will probably be necessary to remove the trowel

and reinsert it to further loosen the soil. When the soil has been sufficiently loosened, lift a portion of the soil out with the blade and place in a clean sampling tray.

5. The recovered soil should be screened with the PID and the resultant readings should be recorded in the field log book.

6. Shallow subsurface soil samples can be collected by digging a hole or trench (i.e., using a shovel, backhoe, etc.), then removing the loose soil and collecting a soil sample at the desired depth. If a trowel is used to dig the initial hole, properly decontaminate the trowel before collecting the soil sample or use a separate decontaminated trowel for sample collection. Place soil from the trowel into a clean sampling tray.

7. If more soil is needed to provide sufficient sample volume, reinsert trowel at sample location and retrieve as before.

8. Examine contents of tray and remove rock, cobble, and organic debris, such as roots, grass, and woody material, with a clean decontaminated stainless steel spoon.
9. For volatile organic samples, transfer soil directly into sample container with spoon, choosing your sample from various portions of the tray to ensure homogeneity. At this point, do not mix the soil sample in the tray.

10. Before filling other sample containers, use the spoon or the blade tip of the trowel to chop apart clumps of dirt and mix the contents of the tray to a homogeneous particle size and soil texture.

11. Transfer the tray contents to the sample containers using the sampling trowel or a spoon.

12. The sample container should be sealed, labeled, and placed in a cooler with ice or freezer packs for shipment to the analytical laboratory.

13. Complete chain-of-custody form with appropriate sampling information.

7.2 TerraCore Sampling

1. Sampling personnel should use disposable vinyl or latex gloves during sampling t avoid direct contact with potentially contaminated media and preservatives. If using the preserved vial option, safety glass or goggles should be worn during sampling due to the possibility of splashing preservatives into the eyes when extruding sample aliquots into the preserved vials. Site-specific conditions may necessitate the use of additional personal protective equipment.

2. Using a disposable TerraCore sampler (or equivalent sampler), collect 5 g (+/- 0.5 g) of the solid to be analyzed as soon as possible after the surface of the solid has been exposed to the atmosphere.

3. Place the solid in laboratory supplied vial containing the preservative. It is advised to pre-label the vials.

4. Quickly brush any solid off the vial's sealing surfaces and threads to ensure an airtight seal. Immediately seal the vial.

5. Record the weight of the vial, preservative, and added solid to the nearest tenth of a gram on the vial with an indelible marker capable of writing on glassware.

6. Using an appropriate collection device, place enough solid in a 4 ounce wide-mouth jar to eliminate any headspace. Quickly brush any solid off the seal in surfaces and threads and seal immediately. This aliquot will be used for laboratory screening.

7. Place the containers in a plastic bag and seal.

8. Store samples on ice at approximately 4°C and deliver to laboratory. If samples were collected in water, place vials on dry ice at an angle to prevent the water from shattering the vial due to expansion during freezing.

7.3 Sample Handling and Preservation

Scope:
This operating procedure describes the ways and means of selecting the appropriate sampling containers for environmental sampling.

Application:
The purpose of this procedure is to assure that sample volumes and preservatives are sufficient for analytical services required under EPA-approved protocols.

Materials:

- Sample containers
- Sample container labels
- Indelible (waterproof) markers or pens
- Clear tape

Procedures:

1. Refer to Table 1 for minimum sample volume and glassware types required for sampling a particular matrix and compound class.

2. Select the appropriate glassware (i.e., bottles or jars) from those provided by the analytical laboratory. Verify that the analytical laboratory has provided the correct number of sample containers and the correct preservatives for the project per the sampling plan requirements.

3. The analytical laboratory should always provide extra sample containers for all analytical parameters in case of breakage or other problems encountered in the field. This is particularly true for VOC sample containers (i.e., 40-ml vials).

4. Report any discrepancies or non-receipt of specific types of sample containers to the Quality Assurance Officer immediately. Arrangements should be made with the

laboratory to immediately ship the missing or additional sampling containers to the project site.

5. Apply Centra sample labels to the sample containers.

6. Information on the sample labels should contain the following data:
   - Site/Project name
   - Project/Task number
   - Unique sample identification number
   - Sample date
   - Time of sample collection (military system, e.g., 0000 to 2400 hours) Analytical parameters
   - Preservative
   - Sampling personnel

7. Once sample containers are properly labeled, the sample labels should be wrapped with clear tape to prevent deterioration of sample label.

8. Proceed with the sample collection per the sampling plan requirements.

9. Collected samples should be immediately placed in an iced cooler to maintain as close as possible a 4°C atmosphere for shipment to the analytical laboratory. Follow sample shipping procedures detailed in Sample Shipping Standard Operating Procedures.

10. Recommended order of sample collection:
    - *In-situ* measurements (e.g., temperature, pH, specific conductance) Volatile organic analytes (VOA)
    - Purgeable organic carbon (POC)
    - Purgeable organic halogens (POX) Total organic halogens (TOX) Total organic carbon (TOC) Extractable organics
    - Total petroleum hydrocarbons (TPH) Total metals
    - Dissolved metals
    - Microbiologicals
    - Phenols
    - Cyanide
    - Sulfate and chloride
    - Turbidity
    - Nitrate and ammonia
    - Radionuclides

7.4 Equipment Decontamination

Materials:

- Tap water
- Deionized or distilled water
- 10% nitric acid solution (mixed in squirt bottle) Scrub brushes (short- and long-handled)
- Buckets or trash cans
- Nouphosphate detergent (Liquinox or Alquinox)

- Pesticide-grade solvent (isopropanol, acetone, or hexane in spray bottle) Aluminum foil
- Polyethylene plastic sheeting, plastic garbage bags, and Ziploc® plastic bags
- Paper towels or Kimwipes Nalgene squirt bottles Wire brush
- Duct tape
- Personal protective equipment (e.g., nitrile gloves, eye protection, skin protection)

Note: All sampling equipment must be decontaminated before shipment to the office.

Laboratory Decontamination Procedure:

Equipment Used for Sampling Environmental Media Containing Organic or Inorganic Compounds and Metals.

1. Place polyethylene sheeting on firm, flat surface to collect spillage during decontamination. Mix solution of nonphosphate detergent and tap water in bucket.

2. Wear appropriate personal protective equipment to prevent exposure to skin, eyes, and respiratory system.

3. Wipe contaminated sampling equipment with paper towels to remove residual soils or gross contamination. Heavy oils or grease may be removed with paper towels soaked with solvent (acetone or methanol).

4. Disassemble sampling equipment (e.g., split-spoon samplers, and bailers). Wash equipment thoroughly with nonphosphate soap and hot tap water solution. Teflon bailers must be disassembled and the inside washed with long-handled bottle brush or short-handled brush pulled through the bailer with rope.

5. Rinse the equipment with hot tap water.

6. If the equipment will be used to collect samples for metals analysis, follow tap water rinse with a 10% nitric acid solution rinse. Metal equipment (e.g., bucket augers) should not be rinsed with nitric acid solution because of problems with oxidizing the metal surfaces. Collect the nitric acid rinse in a separate bucket. Rinse the equipment with tap water.

7. Thoroughly rinse the equipment with deionized water.

8. Spray the equipment with solvents (acetone or methanol followed by hexane) and allow to completely air dry. The solvent equipment rinse must be collected in a separate bucket.

9. Rinse the equipment with analyte-free water using at least five times the volume of solvent used in the previous step.

10. After the equipment has been allowed to completely air dry, each piece must be individually wrapped with aluminum foil (shiny side out), and then wrapped in

plastic. **Note: Decontamination solvents may introduce contaminants to environmental samples. It** is very important to ensure that the equipment has completely dried before wrapping the equipment for storage.

11. Label each piece of equipment with the date of decontamination, the initials of decontamination personnel, and the type of decontamination solutions used. This will allow other personnel to select the correct piece of sampling equipment for future use.

Field Decontamination:

1. Place polyethylene sheeting on firm, flat surface to collect spillage during decontamination. Mix solution of nonphosphate detergent and hot tap water (if available) in bucket.

2. Wear appropriate personal protective equipment to prevent exposure to skin, eyes, and respiratory system.

3. Wipe contaminated sampling equipment with paper towels to remove residual soils or gross contamination. Heavy oils or grease may be removed with paper towels soaked with solvent (acetone or methanol).

4. Disassemble sampling equipment (e.g., split-spoon samplers and bailers. Wash equipment thoroughly with nonphosphate soap and hot tap water solution. Teflon bailers must be disassembled and the inside washed with long-handled bottle brush or short-handled brush pulled through the bailer with rope.

5. Rinse the equipment with hot tap water (if available).

6. Thoroughly rinse the equipment with deionized water.

7. Spray the equipment with solvent (acetone of methanol) and allow to completely air dry. The solvent equipment rinse must be conducted over a separate bucket. Allow the equipment to completely air dry. Note: decontamination solvents may introduce contaminants to environmental samples. It is very important to ensure that the equipment has completely dried before continuing with decontamination.

8. Rinse the equipment with analyte-free water using at least five times the volume of solvent used in the previous step.

9. Wrap the equipment for storage or transport with aluminum foil (shiny side out) and plastic. Each piece of equipment must be labeled with the date of decontamination, initials of decontamination personnel, and the type of decontamination solutions used. Store each piece of equipment in an area free from external sources of contamination.

10. Note any discrepancies from standard decontamination procedures in the project field notebook

Disposal of Decontamination Solutions:

Laboratory Solutions

Decontamination solutions (e.g., washwater, nitric acid rinsewater, and solvent rinsewater) must be handled appropriately. Nonphosphate wash water can be disposed of directly to the municipal sanitary sewer. Nitric acid rinsewater solution must be neutralized with baking soda, diluted to normal pH (i.e., 6.0 to 8.0) and disposed of in the sanitary sewer. Solvent rinsewater should be negligible because of the use of small amounts. Solvents should be allowed to evaporate in a well-ventilated area or under a laboratory hood. Paper towels soaked with solvent should be allowed to dry and be disposed of in a general waste container.

Field Solutions

Field decontamination presents unique problems in disposal of decontamination solutions.

Nonphosphate wash water must be disposed of in the facility wastewater treatment system or otherwise in accordance with state and federal laws. If no wastewater treatment system is available, the wash water can be poured onto an impermeable surface (i.e., concrete) and allowed to evaporate. The generation of solvent rinsewaters should be minimal in field decontamination. Solvents should be collected in separate buckets and allowed to evaporate.

Paper towels soaked with cleaning solvent should be allowed to air dry and be disposed of with solid waste. Under no circumstances should any decontamination solution be disposed of by pouring it on soil surfaces.

7.5 Field Notes and Documentation

Materials:

- Permanently bound log book (no spiral-bound log books)
- Black or blue ballpoint pen (waterproof ink)

Procedure:

1. Use black or blue ballpoint pen with waterproof ink. Felt-tip pens should not be used.

2. Reserve the inside front cover for business cards from key personnel who visit the site (including the person in charge of the log book).

3. On the first page of the log book, place a return for reward notice, Centra's phone number, and the project manager's name.

4. Enter the following on the second page of the log book: project name, project number, project manager's name, onsite contacts, onsite telephone number and address, telephone numbers for all key personnel, and emergency fire and medical telephone numbers.

5. Number each page, initial each page, and put the date at the top of each page. Start a new page for each day. At the end of a day, summarize the day's activities, sign the page, and put a slash through the rest of the blank lines. Start the next day on a new page.

6. Enter the time (in military time, e.g., 0830) in the left column of each page when an entry is recorded in the field notebook.

7. If a mistake is made in an entry, cross out the mistake with one line and initial the end of the line.

8. At all times maintain the chain of custody on the field log book.

Content:

1. Be sure that log book entries are LEGIBLE and contain accurate and inclusive documentation of project field activities.

2. Provide sufficient detail to enable others to reconstruct the activities observed.

3. Thoroughly describe all field activities while onsite. Language should be free of personal feelings or other terminology that might inappropriate. Be objective, factual, and thorough.

4. Describe problems, delays, and any unusual occurrences such as wrong equipment or breakdowns along with the resolutions and recommendations that resulted.

5. Fully document any deviations from or changes in the work plan.

6. Describe the weather and changes in the weather, particularly during sampling events.

7. Sketch a map of the facility or areas onsite where activities are occurring, especially the location of sampling points.

8. During sampling activities, record all information pertaining to the sampling event. Include descriptive locations and diagrams of the sample locations, time, sample media, analysis, sampling procedure, equipment used, sizes and types of containers, preservation and any resulting reactions, sampling identification (especially for duplicate samples), shipping procedures (record airbill numbers), and addresses.

9. Note decontamination or disposal procedures for all equipment, samples, and protective clothing and how effectively each is performed.

10. If possible, photograph all sample locations and areas of interest. Maintain a photographic log in the field log book and include:

    Date, time, photographer, name of site, general direction faced, description of the subject taken, and sequential number of the photograph and the roll number.

11. Record the names and affiliations of key personnel onsite each day.

12. List all field equipment used and record field measurements, including distances, monitoring and testing instrument readings (e.g., photoionization detector (PID), organic vapor analyzer (OVA), pH, conductivity, model numbers, etc.), and calibration activities.

13. Record proposed work schedules and changes in current schedules in the log book.

14. Describe site security measures.

15. Include drum inventory for all investigation-derived waste (IDW) materials generated during site activities. Provide information on how IDW material was labeled.

7.6 Investigation Derived Waste Handling Procedures

Application:

The purpose of this SOP is to provide instructions for handling, storing, and sampling Investigation Derived Waste (IDW) pending disposal. *All IDW should be handled as hazardous waste unless information exists which would allow it to be classified as non-hazardous waste.* IDW generated during a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response action must be managed in compliance with applicable or relevant and appropriate requirements (ARARs) to the extent practicable and with applicable requirements of the CERCLA offsite policy. (EPA Guidance Document OERR Directive 9345.3-02)

IDW includes soil cuttings, development water, purge water, drilling fluids, decontamination fluids, personal protective equipment, and sampling equipment.

Materials:

- Non-Hazardous and Hazardous Waste Labels Investigation Derived Waste Log (Figure 1) Permanent Ink Marking Pen Paint Stick/Pen Sampling Equipment (Refer to Sampling SOPs) Sample Jars
- Chain of Custody Forms
- Cooler

Procedure: Hazardous IDW

1. All IDW should be handled as hazardous waste unless information exists which would allow it to classified as non-hazardous waste. New or existing site data (i.e., soil and groundwater results) and generator knowledge can be used to classify the IDW.

   If site data or generator knowledge indicates that the IDW is determined to be hazardous the following procedures will apply:

   - The IDW must be placed in DOT approved containers (55-gallon drum, roll-off container, or temporary storage tank).
   - The containers must remain closed except when adding, sampling, or inspecting the material.
   - All containers must be labeled with the words "Hazardous Waste".

- An accumulation start date and the contents of the container must be included on the label.
- Investigation Derived Waste Logs (Figure 1) must be completed before leaving the site. One copy of the log should be presented to the site contact and the original provided to the project manager. Once the material has been removed from the site, the IDW log should be stamped "Removed" and placed in the project file.
- The IDW containers must be stored in a secure onsite location (facility hazardous waste storage area if one exists).
- Disposal of the IDW must be completed within **90 days** of the date the waste was generated. If the facility is a small quantity generator, 180 days is allowed for shipment of the waste offsite.
- Onsite disposal may be allowed or appropriate under certain conditions. Refer to OERR Directive 9345.3-02 for guidance, especially for CERCLA sites.
- Centra personnel should notify the site contact that weekly inspections of the IDW must be conducted and documented.
- Centra personnel should also instruct the site contact that this waste must be included in the facilities annual or biannual reports.

2. If the IDW is presumed to be hazardous and sampling is required to confirm its classification, it should be labeled Hazardous Waste-Pending Analysis. The waste should be sampled before leaving the site (See sampling SOPs). **It** should be noted that EPA methods 8260 and 8270 may be more cost effective than running the full Toxicity Characteristic Leaching Procedure (TCLP) scan. TSD Facilities will usually specify the required analysis for their waste profiles.

Non-Hazardous IDW

1. If information exists to classify the IDW as non-hazardous waste, the following procedures can be implemented:

   Soil Cuttings
   - Spread around the borehole or other onsite location with the approval of facility personnel
   - Place back in the boring
   - Containerize and dispose offsite

   Groundwater
   - Pour onto ground next to well to allow infiltration
   - Containerize and dispose offsite
   - Discharge to POTW with approval of facility personnel
   - Discharge to onsite wastewater treatment plant with approval of facility personnel

   Decontamination Fluids
   - Pour onto ground (from containers) to allow infiltration
   - Containerize and dispose offsite
   - Discharge to POTW with approval of facility personnel
   - Discharge to onsite wastewater treatment plant with approval of facility personnel

   PPE
   - Double bag and deposit in site dumpster

- Containerize and dispose offsite

If the IDW is containerized and is non-hazardous, the following procedures will apply:

- The non-hazardous IDW must be placed in DOT approved containers (55-gallon drum, roll-off container, or temporary storage tank).
- The containers should remain closed except when adding, sampling, or inspecting the material.
- All containers must be labeled with the words "Non-Hazardous Waste".
- An accumulation date and the contents of the container should be included on the label.
- Complete the IDW log (Figure 1). One copy of the log should be presented to your site contact and the original should be given to the project manager.
- The IDW containers must be stored in a secure onsite location.
- Arrangements for disposal *should* be completed within 90 days of the accumulation start date.

8.0 REFERENCES

Centra Consulting Inc. November 2012. Voluntary Remediation Work Plan for the Former Goodman oil Site in Boise, Idaho. Prepared for the Idaho Department of Environmental Quality.

Environmental Protection Agency. February 2007. "Field Portable X-Ray Fluorescence Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment". Available online at http://www.epa.gov/osw/hazard/testmethods/sw846/pdfs/6200.pdf

Environmental Protection Agency. August 2009. "Summary of Method Performance Capabilities Using Gas Chromatography (Portable and Transportable)". Available online at http://www.epa.gov/superfund/programs/dfa/download/meth_gc.pdf

Idaho Department of Environmental Quality. March "IDAPA 58 Title 01 Chapter 24. 58.01.24 – Standards and Procedures for Application of Risk Based Corrective Action at Petroleum Release Sites". Available online at http://www.adminrules.idaho.gov/rules/current/58/0124

STRATA Corporation (STRATA). September 15, 2010. Quality Assurance Project Plan (QAPP) Amendment 2. Prepared for the Idaho Department of Environmental Quality.

Wyoming Department of Environmental Quality. March 2007. "Fact Sheet #10: Soil Confirmation Sampling Guidelines". Available online at http://deq.state.wy.us/volremedi/downloads/Current%20Fact%20Sheets/FS_24.pdf

Figure 1
Confirmation Sampling Area and Site Factor

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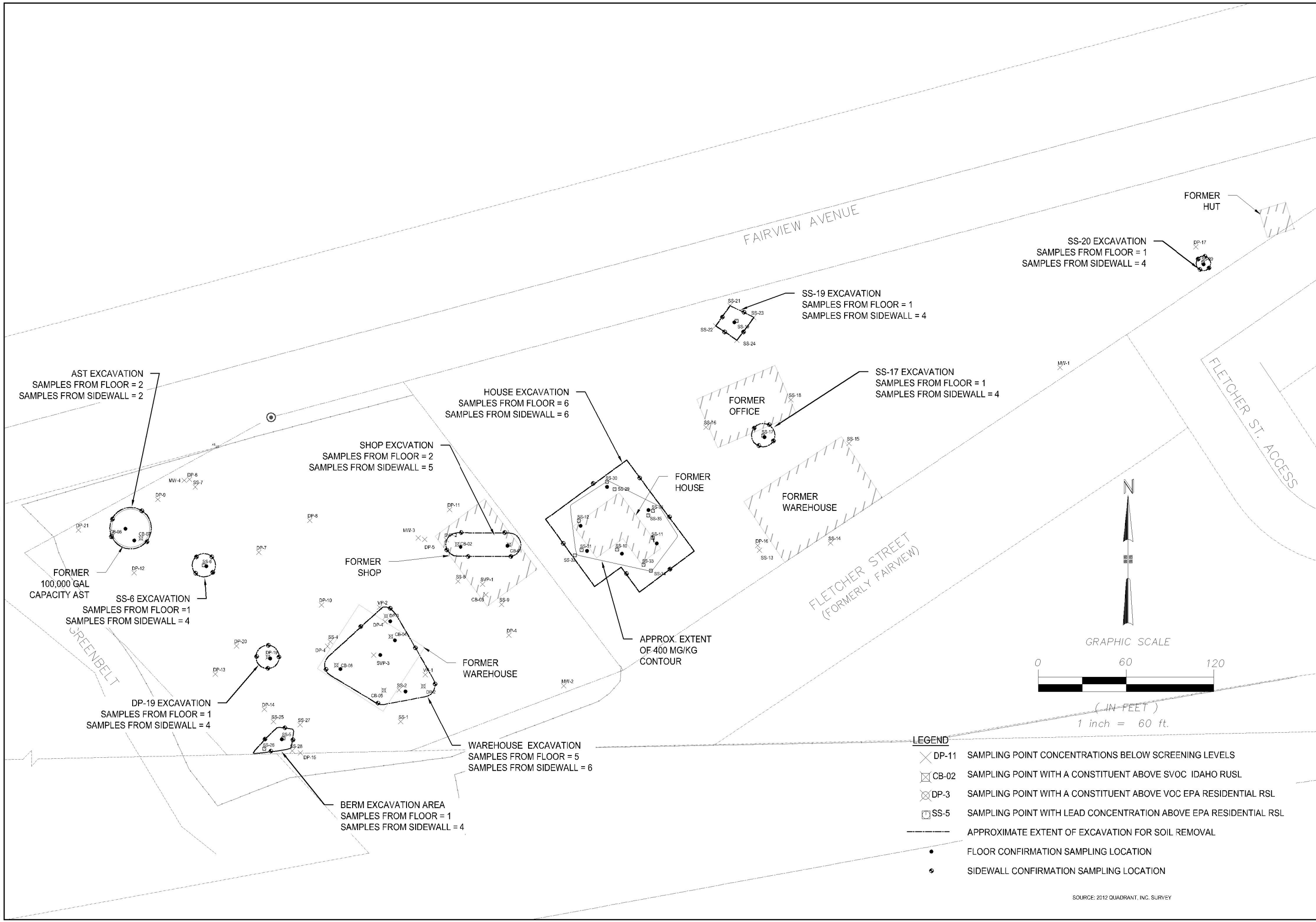

No.	BY	DATE	DESCRIPTION
1			

REVISIONS

DRAFT

PROJECT LOCATION: ADA COUNTY

PROJECT CONTACT: RYAN A. ELDRIDGE

OWNER/DEVELOPER: D.Y. BOISE RIVER, LLC

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TITLE: FIGURE D-1 CONFIRMATION SAMPLING LOCATIONS

DATE	DESIGNED BY: RAE	DRAWN BY: RAE	CHECKED BY: SW
SHEET	FIGURE E-1	DRAWING #	

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Appendix D1

ESC Lab Sciences Quality Assurance Manual for Metals

SOP #	Title
340384A	Mercury in Liquid Waste (Cold-Vapor Technique) 7470A/245.1
340384B	Mercury in Solid Waste (Cold-Vapor Technique) 7471A
Metals Prep SOPs	
340389	Acid Digestion of Aqueous Samples and Extracts Method 3005A/3010A/3015/3030C
340380	Digestion of Metals and Trace Elements in DW and Wastes Method 200.2
340388	Acid Digestion of Sediments, Sludge, Soils and Oils Method 3050B/3051
340701	Metals Digestion of personal cassettes Method 7300, 3051
340702	Metals Digestion for Sediments, Soils, and Sludge NIOSH 7300, Method 3051 for ELLAP Paint chips and ELLAP soils
340703	Metals Digestion of Hi-Vol filters and Environmental Lead Wipes 3050B and 3051
340391	Silver (Photographic Waste) Method 7760 and 272.1
340392	Sodium Adsorption Ratio
Metals Analysis SOPs	
340386	Metals by ICP Method 6010, 200.7
340390	Metals by ICP-MS Method 6020, 200.8

11.0 QUALITY CONTROL CHECKS

NOTE: For specific guidance on each determinative method, including required quality control and specific state requirements/modifications, refer to the relevant laboratory standard operating procedure(s).

11.1 ESC participates in proficiency testing (PTs) in support of various laboratory accreditations/recognitions. Environmental samples are purchased from Environmental Resource Associates (ERA). The WS, WP and solid matrix studies are completed every 6 months. For industrial hygiene and environmental lead accreditation, PTs are administered by AIHA. IHPAT samples for metals analysis, including lead in air, by NIOSH 7300 is completed every quarter. Soil, wipes and paint PTs are also completed in conjunction with the AIHA Environmental Lead Laboratory Accreditation Program (ELLAP). AIHA PT samples are received and analyzed by method according to the vendor's instructions and according to ESC SOP.

11.2 Initial Demonstrations of Capability (IDOCs) are performed during new analyst training and/or prior to acceptance and use of any new method/instrumentation. Continuing Demonstration of Capability (CDOCs) must be updated at least annually. The associated data is filed within the department and available for review.

11.3 Sample Duplicates, Matrix Spike and Matrix Spike Duplicates are performed on 5–10% of samples analyzed depending on analytical method requested. For methods 6010, 6020, 7470A and 7471A duplicates, matrix spikes and matrix spike duplicates are performed on 5% of samples. For methods 200.7, 200.8 and 245.1, the same QC is performed on 10% of samples. The RPD must not exceed 20%.

11.4 A laboratory control sample (LCS) is analyzed one per batch of samples. The acceptance criteria for all water samples is ±15%. See certificate of analysis for soil true values. For Industrial Hygiene samples, the LCS is analyzed in duplicate per batch.

11.5 A method preparation blank is performed per batch of samples processed. If one-half the reporting limit [RL] is exceeded, the laboratory evaluates whether reprocessing of the samples is necessary, based on the following criteria:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated preparation batch or
- The blank contamination is greater than 1/10 of the specified regulatory limit.

The concentrations of common laboratory contaminants must not exceed the reporting limit. Any samples associated with a blank that fail these criteria is re-processed in a subsequent preparation batch, except when the sample analysis resulted in non-detected results for the failing analytes.

12.0 DATA REDUCTION, VALIDATION, AND REPORTING

12.1 DATA REDUCTION

The analyst performs the data calculation and is responsible for the initial examination of the finished data. Data reduction steps applied to the raw data are outlined in ESC SOP #030201, *Data Handling and Reporting.* The Quality Control Department performs the secondary review of the data package using the ESC SOP #030227, *Data Review*. The QC Reviewer verifies that the analysis has performed as required and meets method criteria, all associate data is present and complete, and also ensures that any additional documentation is completed as required (i.e. Ohio VAP checklists, required flags on test reports, etc.)

12.2 VALIDATION

The validation process consists of data generation, reduction review, and reporting results. Once data reduction is complete, validation is conducted by verification that the QC samples are within acceptable QC limits and that all documentation is complete, including the analytical report and associated QC. See Table 12.1 for current QC targets and controls and current reporting limits.

12.3 REPORTING

Reporting procedures are documented in SOP #030201, *Data Handling and Reporting.*

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
(ICP-AES)	Aluminum	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Aluminum	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Aluminum	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	100
(ICP-AES)	Aluminum	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	100
(ICP-MS)	Antimony	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Antimony	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Antimony	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-MS)	Antimony	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Antimony	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Antimony	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Antimony	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-MS)	Arsenic	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Arsenic	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Arsenic	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Arsenic	1311, 1312	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Arsenic	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Arsenic	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Arsenic	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Arsenic	NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-MS)	Barium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	100
(ICP-AES)	Barium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Barium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Barium	1311-12	6010B/C	Leachate	85 - 115	<20	150
(ICP-AES)	Barium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	5
(ICP-MS)	Barium	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	2
(ICP-MS)	Barium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Barium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	5
(ICP-MS)	Beryllium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-MS)	Beryllium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Beryllium	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Beryllium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	100

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
(ICP-AES)	Beryllium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	100
(ICP-AES)	Beryllium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Beryllium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Boron	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	10000
(ICP-AES)	Boron	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	10000
(ICP-AES)	Boron	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	200
(ICP-AES	Boron	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	200
(ICP-MS)	Cadmium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	25
(ICP-AES)	Cadmium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Cadmium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Cadmium	1311-1312	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Cadmium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	0.5
(ICP-MS)	Cadmium	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	0.5
(ICP-AES)	Cadmium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	5
(ICP-AES)	Cadmium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	5
(ICP-AES)	Calcium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Calcium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Calcium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	500
(ICP-AES)	Calcium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	500
(ICP-MS)	Chromium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Chromium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Chromium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Chromium	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Chromium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Chromium	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Chromium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Chromium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-MS)	Cobalt	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Cobalt	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Cobalt	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-MS)	Cobalt	200.2 (mod.),	200.8	Liquid/Aqueous	85 - 115	<20	1

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
		NPDES					
(ICP-MS)	Cobalt	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Cobalt	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Cobalt	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-MS)	Copper	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Copper	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Copper	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Copper	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Copper	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Copper	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Copper	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Copper	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Iron	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Iron	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Iron	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	100
(ICP-AES)	Iron	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	100
(ICP-MS)	Lead	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Lead	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Lead	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Lead	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Lead	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Lead	200.2 (mod.)	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Lead	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	5
(ICP-AES)	Lead	NPDES	200.7	Liquid/Aqueous	85 - 115	<20	5
(ICP-AES)	Lithium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	750
(ICP-AES)	Lithium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	750
(ICP-AES)	Lithium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	15
(ICP-AES)	Lithium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	15
(ICP-AES)	Magnesium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Magnesium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	5000
(ICP-AES)	Magnesium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	100

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
(ICP-AES)	Magnesium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	100
(ICP-MS)	Manganese	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	100
(ICP-AES)	Manganese	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Manganese	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-MS)	Manganese	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	2
(ICP-MS)	Manganese	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Manganese	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Manganese	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(CVAA)	Mercury	7471 (mod.)	7471	Solid	Certified Standard Values	<20	20
(CVAA)	Mercury	1311-12	7470A	Leachate	85 - 115	<20	1
(CVAA)	Mercury	245.1 (mod.)/7470A	245.1/7470A	Liquid/Aqueous	85 - 115	<20	0.2
(ICP-MS)	Molybdenum	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	100
(ICP-AES)	Molybdenum	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-AES)	Molybdenum	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	250
(ICP-MS)	Molybdenum	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	2
(ICP-MS)	Molybdenum	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Molybdenum	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	5
(ICP-AES)	Molybdenum	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	5
(ICP-MS)	Nickel	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Nickel	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Nickel	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Nickel	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-AES)	Nickel	3015/3010 (mod)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Nickel	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Nickel	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Nickel	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Potassium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Potassium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Potassium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	500
(ICP-AES)	Potassium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	500
(ICP-MS)	Selenium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard	<20	50

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
					Values		
(ICP-AES)	Selenium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Selenium	3051 (mod.),	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Selenium	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Selenium	3015/3010 (mod.)	6020/A	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Selenium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Selenium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Selenium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Silicon	3050B (mod.)	6010B/C	Solid	85-115	<20	10000
(ICP-AES)	Silicon	3051 (mod.)	6010B/C	Solid	85-115	<20	10000
(ICP-AES)	Silicon	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	200
(ICP-AES)	Silicon	200.2 (mod.) NPDES	200.7	Liquid/Aqueous	85 - 115	<20	200
(ICP-MS)	Silver	3050B (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	25
(ICP-AES)	Silver	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Silver	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Silver	3015/3010 (mod.)	6020/A	Liquid/Aqueous	85 - 115	<20	0.5
(ICP-MS)	Silver	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	0.5
(ICP-AES)	Silver	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Silver	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Sodium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Sodium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	25000
(ICP-AES)	Sodium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	500
(ICP-AES)	Sodium	200.2 (mod.) NPDES	200.7	Liquid/Aqueous	85 - 115	<20	500
(ICP-AES)	Strontium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Strontium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Strontium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Strontium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Sulfur	3050B (mod.)	6010B/C	Solid	85-115	<20	50000
(ICP-AES)	Sulfur	3051 (mod.)	6010B/C	Solid	85-115	<20	50000
(ICP-AES)	Sulfur	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	1000
(ICP-AES)	Sulfur	200.2 (mod.) NPDES	200.7	Liquid/Aqueous	85 - 115	<20	1000
(ICP-MS)	Thallium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard	<20	50

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
					Values		
(ICP-AES)	Thallium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Thallium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Thallium	3015/3010 (mod.)	6020/A	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Thallium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Thallium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Thallium	NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-MS)	Tin	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	50
(ICP-AES)	Tin	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-AES)	Tin	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1000
(ICP-MS)	Tin	3015/3010 (mod.)	6020/A	Liquid/Aqueous	85 - 115	<20	1
(ICP-MS)	Tin	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	1
(ICP-AES)	Tin	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Tin	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	20
(ICP-AES)	Titanium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Titanium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Titanium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Titanium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-MS)	Vanadium	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	100
(ICP-AES)	Vanadium	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-AES)	Vanadium	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	500
(ICP-MS)	Vanadium	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	2
(ICP-MS)	Vanadium	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	2
(ICP-AES)	Vanadium	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	10
(ICP-AES)	Vanadium	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	10
(ICP-MS)	Zinc	3051 (mod.)	6020/A (mod.)	Solid	Certified Standard Values	<20	500
(ICP-AES)	Zinc	3050B (mod.)	6010B/C	Solid	Certified Standard Values	<20	1500
(ICP-AES)	Zinc	3051 (mod.)	6010B/C	Solid	Certified Standard Values	<20	1500
(ICP-AES)	Zinc	1311-12	6010B/C	Leachate	85 - 115	<20	50
(ICP-MS)	Zinc	3015/3010 (mod.)	6020/A (mod.)	Liquid/Aqueous	85 - 115	<20	10
(ICP-MS)	Zinc	200.2 (mod.), NPDES	200.8	Liquid/Aqueous	85 - 115	<20	10

Table 12.3A: QC Targets for Environmental Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (RPD)	RL (ppb)
(ICP-AES)	Zinc	3015/3010 (mod.)	6010B/C	Liquid/Aqueous	85 - 115	<20	30
(ICP-AES)	Zinc	200.2 (mod.), NPDES	200.7	Liquid/Aqueous	85 - 115	<20	30

Table 12.3B: QC Targets for IH Metals Accuracy (LCS), Precision and RLs
(subject to revision without notice)

Class	Analyte	Prep Method	Analysis Method	Matrix	Accuracy Range (%)	Precision (% RPD)	RL
(ICP-AES)	Lead	3050B (mod.)	6010B/C	Filters	85-115	<20	2.5 ug/sample
(ICP-AES)	Lead	3050B (mod.)	6010B/C	Paint Chips	80-120	<20	50. mg/kg
(ICP-AES)	Lead	3050B (mod.)	6010B/C	Wipes	80-120	<20	2.0 ug/sample

13.0 CORRECTIVE ACTIONS

13.1 In the event that a nonconformance occurs in conjunction with the analytical batch, a corrective action response (CAR) form must be completed. The reason for the nonconformance is stated on the form and the measures taken to correct the nonconformance clearly defined. The effectiveness of the corrective action must be assessed and noted. The CAR is kept on file by the QA department. Corrective action procedures are documented in SOP #030208, *Corrective and Preventive Action*

13.2 Required Corrective Action

Control limits have been established for each type of analysis. When these control limits are exceeded, corrective action must be taken. Calculated sample spike control limits are also used.

All samples and procedures are governed by ESC's quality assurance program. General corrective actions are as follows; however additional and more specific direction is provided in the specific determinative procedure. For more information, see the appropriate determinative SOP

13.2.1 Laboratory QC Criteria and Appropriate Corrective Actions

If the analytical method contains acceptance/rejection criteria and it is more stringent than those controls generated by the laboratory the method criteria takes precedence.

13.2.2 Calibration Verification Criteria Are Not Met: Inorganic Analysis

<u>Rejection Criteria</u> - See Table 8.5.

Corrective Action - If a standard curve linearity is not acceptable and/or the absorbance for specific standard(s) is not analogous to historic data, the instrument settings, nebulizer, etc. are examined to ensure that nothing has been altered, clogged, etc. The working standards are made fresh, intermediate dilutions are re-checked and the instrument is re-calibrated. If a problem persists, the Department Manager or QA department is notified for further action.

If the initial reference check sample is out of control, the instrument is re-calibrated and the check sample is rerun. If the problem continues the check sample is re-prepared. If the problem still exists then the standards and reagent blank are re-prepared. If the problem persists, the Department Manager or QA department is notified for further action.

13.2.3 Out Of Control Blanks: Applies to Method, Trip, Rinsate & Instrument Blanks

Rejection Criteria - Blank reading is more than ½ the RL for Method Blanks and/or Instrument Blanks.

Corrective Action - Standard curves and samples are evaluated for any obvious contamination that may be isolated or uniform throughout the sequence. If necessary, reagents, QC samples and field samples are re-prepared and re-analyzed. Re-analyses are not initiated until the cause of the contamination is identified and resolved. If samples have already been partially prepared or analyzed, the group leader or QA department is consulted to determine if data needs to be rejected or if samples need to be reprepped.

13.2.4 Out Of Control Laboratory Control Standards (LCS)

Rejection Criteria - If the performance is outside of lab-generated control (Listed in Table 12.3).

Corrective Action - Instrument settings are checked. The LCS standard is re-analyzed. If the LCS is still out of control, re-calibration is performed, and samples affected since the last in control reference standard are re-analyzed. If the LCS fails again after re-calibration, the entire workgroup must be re-prepped. The group leader, Department Manager, or QA department is consulted for further action.

13.2.5 Out Of Control Matrix Spike Samples

Rejection Criteria - If spike recovery is outside of lab-generated control limits determined from accuracy charts on matrix spike samples from a similar matrix (i.e., water, solid, etc).

Corrective Action - Spiking technique is assessed to ascertain if the sample has been spiked correctly. The spiked sample should be 1 – 5 times the client sample concentration; otherwise, the percent recovery (%R) or relative percent difference (%RPD) of the MS/MSD is flagged as not meaningful or usable per the EPA method. The sample is re-analyzed. If an out of control situation persists, sample matrix interference is suspected and flagged.

13.2.6 Out Of Control Duplicate Samples

Rejection Criteria - Lab-generated maximum RPD limit (as listed under precision in Table 12.3)

Corrective Action - Instrument and samples checked to see if precision variance is likely (i.e., high suspended solids content, high viscosity, etc.). The duplicates are re-analyzed along with the parent sample. If problem persists, matrix interference is suspected and flagged

13.2.7 Out Of Control Matrix Spike Duplicates

These QC samples can be out of control for either accuracy, precision, or both. The appropriate corrective actions listed for either matrix spikes, duplicate samples, or both are followed.

NOTE: Some samples cannot be duplicated. This is the case for wipe samples, filters, and some water samples. When possible, sampling personnel should collect duplicate samples.

Analysis-specific corrective action lists are available for each type of analysis performed by ESC.

13.2.8 Out Of Control Calibration Standards: ICV, CCV, SSCV

Rejection Criteria - If the performance is outside of method requirements.

Corrective Action - Instrument settings are checked, calibration verification standard is rerun. If the standard is still out of control, re-calibration is performed, and samples affected since the last in control reference standard are rerun. The group leader, Department Manager, or QA department is consulted for further action.

13.3 Responsibility - It is the Department Manager's responsibility to evaluate the validity of the corrective action response and submit it to QA department for processing. In addition, the manager is responsible for appointing the appropriate person within the department to be responsible for correcting the nonconformance. When a corrective action warrants a cessation of analysis, the following personnel are responsible for executing the "stop work" order:

- Laboratory Manager
- QA Department
- Department Manager
- Technical Service Representative

14.0 RECORD KEEPING

Appendix D2
ESC Lab Sciences Quality Assurance Manual for VOCs

11.0 QUALITY CONTROL CHECKS

NOTE: For specific guidance on each determinative method, including required quality control and specific state requirements/modifications, refer to the relevant laboratory standard operating procedure(s).

11.1 ESC participates in proficiency testing (PTs) in support of various laboratory accreditations/recognitions. Environmental samples are purchased from Environmental Resource Associates (ERA). The WS, WP and solid matrix studies are completed every 6 months. PT samples are received and analyzed by method according to the vendor's instructions and according to ESC SOP.

11.2 Initial Demonstrations of Capability (IDOCs) are performed during new analyst training and/or prior to acceptance and use of any new method/instrumentation. Continuing Demonstration of Capability (CDOCs) must be updated at least annually. The associated data is filed within the department and available for review.

11.3 Matrix Spike and Matrix Spike Duplicates are performed on each batch of samples analyzed depending on analytical method requested.

11.4 A Laboratory Control Sample (LCS) and LCS Duplicate (LCSD) are analyzed one per batch of samples.

11.5 A method preparation blank is performed per batch of samples processed. If one-half the reporting limit [RL] is exceeded, the laboratory shall evaluate whether reprocessing of the samples is necessary, based on the following criteria:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated preparation batch or
- The blank contamination is greater than 1/10 of the specified regulatory limit. The concentrations of common laboratory contaminants shall not exceed the reporting limit. Any samples associated with a blank that fail these criteria shall be reprocessed in a subsequent preparation batch, except where the sample analysis resulted in non-detected results for the failing analytes.

12.0 DATA REDUCTION, VALIDATION AND REPORTING

12.1 DATA REDUCTION

The analyst performs the data calculation functions and is responsible for the initial examination of the finished data. Data reduction steps applied to the raw data are outlined in SOP #030201, *Data Handling and Reporting.* The Quality Control Department performs the secondary review of the data package using the ESC SOP #030227, *Data Review*. The QC Reviewer verifies that the analysis has performed as required and meets method criteria, all associate data is present and complete, and also ensures that any additional documentation is completed as required (i.e. Ohio VAP checklists, required flags on test reports, etc.)

TABLE 12.1 Data Reduction Formulas

PARAMETER	FORMULA
GC	response of sample analyte {*area*} x final extract volume {*mL*} x dilution response factor {*area/(mg/L)*} x initial extract volume-mass {*mL or g*} *Calculations performed by HP Enviroquant Software*
GC/MS	response of analyte {*area*} x extract volume {*mL*} x dilution x int. std amt. {*area*} response factor {*area/(mg/mL)*} x initial volume-mass {*mL or g*} x int. std cal. {area} *Calculations performed by HP Enviroquant Software*

12.2 VALIDATION

The validation process consists of data generation, reduction review, and reporting results. Once data reduction is complete, validation is conducted by verification that the QC samples are within acceptable QC limits and that all documentation is complete, including the analytical report and associated QC. See Table 12.3 by method for current QC targets and controls and current reporting limits.

Marginal Excedence – When a large number of analytes exist in the LCS, it is statistically possible for a few analytes to be outside established control limits while the analytical system remains in control. These excursions must be random in nature and, if not, a review of the control limits or analytical process is necessary.

Upper and lower marginal excedence (ME) limits are established as the mean of at least 20 data points ± four times their standard deviations. The number of allowable marginal excedences per event is based on the number of analytes spiked in the LCS.

Allowable Marginal Excedence per Event	
Analytes in LCS:	**ME Allowable**
>90	5
71-90	4
51-70	3
31-50	2
11-30	1
<11	0

Organic Control Limits - The organic QC targets are statutory in nature; warning and control limits for organic analyses are initially set for groups of compounds based on preliminary method validation data. When additional data becomes available, the QC targets are reviewed. All QC targets are routinely re-evaluated at least annually (and updated, if necessary) against laboratory historical data to insure that the limits continue to reflect realistic, method achievable goals.

12.3 REPORTING

Reporting procedures are documented in SOP #030201, *Data Handling and Reporting.*

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Propene	8260B/C, 624, 6200B	GW, WW			0.0025	mg/L
Volatiles	1,3-Butadiene	8260B/C, 624, 6200B	GW, WW			0.001	mg/L
Volatiles	4-Ethyltoluene	8260B/C, 624, 6200B	GW, WW			0.001	mg/L
Volatiles	Dicyclopentadiene	8260B/C, 624, 6200B	GW, WW			0.001	mg/L
Volatiles	Dichlorodifluoromethane	8260B/C, 624, 6200B	GW, WW	39-189	24	0.001	mg/L
Volatiles	Chloromethane	8260B/C, 624, 6200B	GW, WW	45-152	20	0.001	mg/L
Volatiles	Vinyl Chloride	8260B/C, 624, 6200B	GW, WW	55-153	20	0.001	mg/L
Volatiles	Bromomethane	8260B/C, 624, 6200B	GW, WW	45-175	20	0.001	mg/L
Volatiles	Chloroethane	8260B/C, 624, 6200B	GW, WW	49-155	20	0.001	mg/L
Volatiles	Trichlorofluoromethane	8260B/C, 624, 6200B	GW, WW	54-156	20	0.001	mg/L
Volatiles	Ethyl Ether	8260B/C, 624, 6200B	GW, WW	60-142	20	0.001	mg/L
Volatiles	Acrolein	8260B/C, 624, 6200B	GW, WW	6-182	39	0.050	mg/L
Volatiles	1,1-Dichloroethene	8260B/C, 624, 6200B	GW, WW	60-130	20	0.001	mg/L
Volatiles	1,1,2-Trichloro-1,2,2-trifluoroethane	8260B/C, 624, 6200B	GW, WW	51-149	20	0.001	mg/L
Volatiles	Acetone	8260B/C, 624, 6200B	GW, WW	48-134	20	0.050	mg/L
Volatiles	Iodomethane	8260B/C, 624, 6200B	GW, WW	61-148	20	0.050	mg/L
Volatiles	Carbon Disulfide	8260B/C, 624, 6200B	GW, WW	41-148	20	0.001	mg/L
Volatiles	Methylene Chloride	8260B/C, 624, 6200B	GW, WW	64-125	20	0.005	mg/L

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Acrylonitrile	8260B/C, 624, 6200B	GW, WW	60-140	20	0.050	mg/L
Volatiles	trans-1,2-Dichloroethene	8260B/C, 624, 6200B	GW, WW	67-129	20	0.001	mg/L
Volatiles	Methyl Tert Butyl Ether	8260B/C, 624, 6200B	GW, WW	51-142	20	0.001	mg/L
Volatiles	1,1-Dichloroethane	8260B/C, 624, 6200B	GW, WW	67-133	20	0.001	mg/L
Volatiles	Vinyl Acetate	8260B/C, 624, 6200B	GW, WW	34-178	26	0.050	mg/L
Volatiles	Di Isopropyl Ether	8260B/C, 624, 6200B	GW, WW	63-139	20	0.001	mg/L
Volatiles	2,2-Dichloropropane	8260B/C, 624, 6200B	GW, WW	46-151	20	0.001	mg/L
Volatiles	cis-1,2-Dichloroethene	8260B/C, 624, 6200B	GW, WW	72-128	20	0.001	mg/L
Volatiles	2-Butanone (MEK)	8260B/C, 624, 6200B	GW, WW	53-132	20	0.050	mg/L
Volatiles	Bromochloromethane	8260B/C, 624, 6200B	GW, WW	75-128	20	0.001	mg/L
Volatiles	Tetrahydrofuran	8260B/C, 624, 6200B	GW, WW	50-140	20	0.001	mg/L
Volatiles	Chloroform	8260B/C, 624, 6200B	GW, WW	66-126	20	0.005	mg/L
Volatiles	1,1,1-Trichloroethane	8260B/C, 624, 6200B	GW, WW	67-137	20	0.001	mg/kg
Volatiles	Carbon Tetrachloride	8260B/C, 624, 6200B	GW, WW	64-141	20	0.001	mg/kg
Volatiles	1,1-Dichloropropene	8260B/C, 624, 6200B	GW, WW	68-132	20	0.001	mg/kg
Volatiles	Benzene	8260B/C, 624, 6200B	GW, WW	67-126	20	0.001	mg/kg
Volatiles	1,2-Dichloroethane	8260B/C, 624, 6200B	GW, WW	67-133	20	0.001	mg/kg
Volatiles	Trichloroethene	8260B/C, 624, 6200B	GW, WW	74-126	20	0.001	mg/kg
Volatiles	1,2-Dichloropropane	8260B/C, 624, 6200B	GW, WW	74-122	20	0.001	mg/kg
Volatiles	Dibromomethane	8260B/C, 624, 6200B	GW, WW	73-125	20	0.001	mg/kg
Volatiles	Bromodichloromethane	8260B/C, 624, 6200B	GW, WW	68-133	20	0.001	mg/kg
Volatiles	2-Chloroethylvinyl Ether	8260B/C, 624, 6200B	GW, WW	0-171	27	0.050	mg/kg
Volatiles	cis-1,3-Dichloropropene	8260B/C, 624, 6200B	GW, WW	73-131	20	0.001	mg/kg
Volatiles	4-Methyl-2-Pentanone (MIBK)	8260B/C, 624, 6200B	GW, WW	60-142	20	0.050	mg/kg
Volatiles	Toluene	8260B/C, 624, 6200B	GW, WW	72-122	20	0.005	mg/kg
Volatiles	trans-1,3-Dichloropropene	8260B/C, 624, 6200B	GW, WW	66-137	20	0.001	mg/kg
Volatiles	1,1,2-Trichloroethane	8260B/C, 624, 6200B	GW, WW	79-123	20	0.001	mg/kg
Volatiles	Tetrachloroethene	8260B/C, 624, 6200B	GW, WW	67-135	20	0.001	mg/kg
Volatiles	1,3-Dichloropropane	8260B/C, 624, 6200B	GW, WW	77-119	20	0.001	mg/kg
Volatiles	2-Hexanone	8260B/C, 624, 6200B	GW, WW	56-147	20	0.050	mg/kg
Volatiles	Chlorodibromomethane	8260B/C, 624, 6200B	GW, WW	73-138	20	0.001	mg/kg
Volatiles	1,2-Dibromoethane	8260B/C, 624, 6200B	GW, WW	75-126	20	0.001	mg/kg
Volatiles	Chlorobenzene	8260B/C, 624, 6200B	GW, WW	77-125	20	0.001	mg/kg
Volatiles	1,1,1,2-Tetrachloroethane	8260B/C, 624, 6200B	GW, WW	75-134	20	0.001	mg/kg
Volatiles	Ethylbenzene	8260B/C, 624, 6200B	GW, WW	76-129	20	0.001	mg/kg
Volatiles	Total-Xylene	8260B/C, 624, 6200B	GW, WW	75-128	20	0.003	mg/kg

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Styrene	8260B/C, 624, 6200B	GW, WW	78-130	20	0.001	mg/kg
Volatiles	Bromoform	8260B/C, 624, 6200B	GW, WW	60-139	20	0.001	mg/L
Volatiles	Isopropylbenzene	8260B/C, 624, 6200B	GW, WW	73-132	20	0.001	mg/L
Volatiles	Bromobenzene	8260B/C, 624, 6200B	GW, WW	76-123	20	0.001	mg/L
Volatiles	1,1,2,2-Tetrachloroethane	8260B/C, 624, 6200B	GW, WW	72-128	20	0.001	mg/L
Volatiles	1,2,3-Trichloropropane	8260B/C, 624, 6200B	GW, WW	68-130	20	0.001	mg/L
Volatiles	trans-1,4-Dichloro-2-Butene	8260B/C, 624, 6200B	GW, WW	48-139	20	0.001	mg/L
Volatiles	n-Propylbenzene	8260B/C, 624, 6200B	GW, WW	71-132	20	0.001	mg/L
Volatiles	2-Chlorotoluene	8260B/C, 624, 6200B	GW, WW	74-128	20	0.001	mg/L
Volatiles	4-Chlorotoluene	8260B/C, 624, 6200B	GW, WW	74-130	20	0.001	mg/L
Volatiles	1,3,5-Trimethylbenzene	8260B/C, 624, 6200B	GW, WW	73-134	20	0.001	mg/L
Volatiles	tert-Butylbenzene	8260B/C, 624, 6200B	GW, WW	72-134	20	0.001	mg/L
Volatiles	1,2,4-Trimethylbenzene	8260B/C, 624, 6200B	GW, WW	72-135	20	0.001	mg/L
Volatiles	sec-Butylbenzene	8260B/C, 624, 6200B	GW, WW	70-135	20	0.001	mg/L
Volatiles	1,3-Dichlorobenzene	8260B/C, 624, 6200B	GW, WW	70-121	20	0.001	mg/L
Volatiles	p-Isopropyltoluene	8260B/C, 624, 6200B	GW, WW	68-138	20	0.001	mg/L
Volatiles	1,4-Dichlorobenzene	8260B/C, 624, 6200B	GW, WW	70-121	20	0.001	mg/L
Volatiles	1,2,3-Trimethylbenzene	8260B/C, 624, 6200B	GW, WW	70-127	20	0.001	mg/L
Volatiles	1,2-Dichlorobenzene	8260B/C, 624, 6200B	GW, WW	75-122	20	0.001	mg/L
Volatiles	n-Butylbenzene	8260B/C, 624, 6200B	GW, WW	63-142	20	0.001	mg/L
Volatiles	1,2-Dibromo-3-Chloropropane	8260B/C, 624, 6200B	GW, WW	55-134	20	0.001	mg/L
Volatiles	1,2,4-Trichlorobenzene	8260B/C, 624, 6200B	GW, WW	65-137	20	0.001	mg/L
Volatiles	Hexachlorobutadiene	8260B/C, 624, 6200B	GW, WW	67-135	20	0.001	mg/L
Volatiles	Naphthalene	8260B/C, 624, 6200B	GW, WW	56-145	20	0.005	mg/L
Volatiles	1,2,3-Trichlorobenzene	8260B/C, 624, 6200B	GW, WW	63-138	20	0.001	mg/L
Volatiles	Hexane	8260B/C, 624, 6200B	GW, WW	33-167	20	0.010	mg/L
Volatiles	Acetonitrile	8260B/C, 624, 6200B	GW, WW	61.3-134-.7	25	0.050	mg/L
Volatiles	Allyl Chloride	8260B/C, 624, 6200B	GW, WW	77.9-127-.7	25	0.005	mg/L
Volatiles	Chloroprene	8260B/C, 624, 6200B	GW, WW	49.4-142.3	25	0.050	mg/L
Volatiles	Isobutanol	8260B/C, 624, 6200B	GW, WW	59.3-137.6	25	0.100	mg/L
Volatiles	1,4-Dioxane	8260B/C, 624, 6200B	GW, WW	76.2-132.3	25	0.100	mg/L
Volatiles	Methacrylonitrile	8260B/C, 624, 6200B	GW, WW	74.7-126.1	25	0.050	mg/L
Volatiles	Methyl Methacrylate	8260B/C, 624, 6200B	GW, WW	62-142.2	25	0.005	mg/L
Volatiles	Ethyl methacrylate	8260B/C, 624, 6200B	GW, WW	55.4-126.3	25	0.005	mg/L
Volatiles	Propionitrile	8260B/C, 624, 6200B	GW, WW	53.7-143.7	25	0.050	mg/L

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Pentachloroethane	8260B/C, 624, 6200B	GW, WW	10-200	25	0.005	mg/L
Volatiles	Cyclohexanone	8260B/C, 624, 6200B	GW, WW	36.5-138.1	25	0.010	mg/L
Volatiles	Bromoethane	8260B/C, 624, 6200B	GW, WW	74.3-136.2	25	0.001	mg/L
Volatiles	2Butanol	8260B/C, 624, 6200B	GW, WW	64.8-140.6	25	0.050	mg/L
Volatiles	Ethanol	8260B/C, 624, 6200B	GW, WW	51.8-153.6	25	0.050	mg/L
Volatiles	Di-isopropyl ether	8260B/C, 624, 6200B	GW, WW	63-139	20	0.001	mg/L
Volatiles	Ethyl tert-butyl ether	8260B/C, 624, 6200B	GW, WW	63.5-131.4	25	0.001	mg/L
Volatiles	Methyl-tert-butyl ether	8260B/C, 624, 6200B	GW, WW	51-142	20	0.001	mg/L
Volatiles	Tert-Butyl alcohol	8260B/C, 624, 6200B	GW, WW	44.2-173.9	25	0.050	mg/L
Volatiles	Tert-Amyl Methyl Ether	8260B/C, 624, 6200B	GW, WW	69.3-125.1	25	0.001	mg/L
Volatiles	Propene	8260B/C, 624, 6200B	solid			0.0025	Mg/l
Volatiles	1,3-Butadiene	8260B/C, 624, 6200B	solid			0.001	Mg/L
Volatiles	4-Ethyltoluene	8260B/C, 624, 6200B	solid			0.001	Mg/L
Volatiles	Dicyclopentadiene	8260B/C, 624, 6200B	solid			0.001	Mg/L
Volatiles	Dichlorodifluoromethane	8260B/C	Solid	26-186	22	0.001	mg/kg
Volatiles	Chloromethane	8260B/C	Solid	42-149	20	0.001	mg/kg
Volatiles	Vinyl Chloride	8260B/C	Solid	50-151	20	0.001	mg/kg
Volatiles	Bromomethane	8260B/C	Solid	41-175	20	0.001	mg/kg
Volatiles	Chloroethane	8260B/C	Solid	44-159	20	0.001	mg/kg
Volatiles	Trichlorofluoromethane	8260B/C	Solid	52-147	20	0.001	mg/kg
Volatiles	Ethyl Ether	8260B/C	Solid	56-147	20	0.001	mg/kg
Volatiles	Acrolein	8260B/C	Solid	3-181	31	0.050	mg/kg
Volatiles	1,1-Dichloroethene	8260B/C	Solid	53-136	20	0.001	mg/kg
Volatiles	1,1,2-Trichloro-1,2,2-trifluoroethane	8260B/C	Solid	49-155	20	0.001	mg/kg
Volatiles	Acetone	8260B/C	Solid	44-140	25	0.050	mg/kg
Volatiles	Iodomethane	8260B/C	Solid	55-156	20	0.050	mg/kg
Volatiles	Carbon Disulfide	8260B/C	Solid	36-161	20	0.001	mg/kg
Volatiles	Methylene Chloride	8260B/C	Solid	57-129	20	0.005	mg/kg
Volatiles	Acrylonitrile	8260B/C	Solid	55-143	20	0.050	mg/kg
Volatiles	trans-1,2-Dichloroethene	8260B/C	Solid	61-133	20	0.001	mg/kg
Volatiles	Methyl Tert Butyl Ether	8260B/C	Solid	44-148	20	0.001	mg/kg
Volatiles	1,1-Dichloroethane	8260B/C	Solid	61-134	20	0.001	mg/kg
Volatiles	Vinyl Acetate	8260B/C	Solid	45-163	20	0.050	mg/kg
Volatiles	Di Isopropyl Ether	8260B/C	Solid	59-143	20	0.001	mg/kg
Volatiles	2,2-Dichloropropane	8260B/C	Solid	50-147	20	0.001	mg/kg
Volatiles	cis-1,2-Dichloroethene	8260B/C	Solid	71-129	20	0.001	mg/kg

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	2-Butanone (MEK)	8260B/C	Solid	51-131	25	0.050	mg/kg
Volatiles	Bromochloromethane	8260B/C	Solid	73-130	20	0.001	mg/kg
Volatiles	Tetrahydrofuran	8260B/C	Solid	44-144	25	0.001	mg/kg
Volatiles	Chloroform	8260B/C	Solid	63-123	20	0.005	mg/kg
Volatiles	1,1,1-Trichloroethane	8260B/C	Solid	62-135	20	0.001	mg/kg
Volatiles	Carbon Tetrachloride	8260B/C	Solid	60-140	20	0.001	mg/kg
Volatiles	1,1-Dichloropropene	8260B/C	Solid	63-132	20	0.001	mg/kg
Volatiles	Benzene	8260B/C	Solid	65-128	20	0.001	mg/kg
Volatiles	1,2-Dichloroethane	8260B/C	Solid	58-141	20	0.001	mg/kg
Volatiles	Trichloroethene	8260B/C	Solid	71-126	20	0.001	mg/kg
Volatiles	1,2-Dichloropropane	8260B/C	Solid	71-128	20	0.001	mg/kg
Volatiles	Dibromomethane	8260B/C	Solid	70-130	20	0.001	mg/kg
Volatiles	Bromodichloromethane	8260B/C	Solid	66-126	20	0.001	mg/kg
Volatiles	2-Chloroethylvinyl Ether	8260B/C	Solid	0-188	39	0.050	mg/kg
Volatiles	cis-1,3-Dichloropropene	8260B/C	Solid	73-132	20	0.001	mg/kg
Volatiles	4-Methyl-2-Pentanone (MIBK)	8260B/C	Solid	61-143	23	0.050	mg/kg
Volatiles	Toluene	8260B/C	Solid	70-120	20	0.005	mg/kg
Volatiles	trans-1,3-Dichloropropene	8260B/C	Solid	70-135	20	0.001	mg/kg
Volatiles	1,1,2-Trichloroethane	8260B/C	Solid	77-124	20	0.001	mg/kg
Volatiles	Tetrachloroethene	8260B/C	Solid	65-135	20	0.001	mg/kg
Volatiles	1,3-Dichloropropane	8260B/C	Solid	76-120	20	0.001	mg/kg
Volatiles	2-Hexanone	8260B/C	Solid	62-145	23	0.050	mg/kg
Volatiles	Chlorodibromomethane	8260B/C	Solid	72-137	20	0.001	mg/kg
Volatiles	1,2-Dibromoethane	8260B/C	Solid	76-127	20	0.001	mg/kg
Volatiles	Chlorobenzene	8260B/C	Solid	75-125	20	0.001	mg/kg
Volatiles	1,1,1,2-Tetrachloroethane	8260B/C	Solid	73-134	20	0.001	mg/kg
Volatiles	Ethylbenzene	8260B/C	Solid	74-128	20	0.001	mg/kg
Volatiles	Total-Xylene	8260B/C	Solid	74-127	20	0.003	mg/kg
Volatiles	Styrene	8260B/C	Solid	76-133	20	0.001	mg/kg
Volatiles	Bromoform	8260B/C	Solid	64-139	20	0.001	mg/kg
Volatiles	Isopropylbenzene	8260B/C	Solid	73-130	20	0.001	mg/kg
Volatiles	Bromobenzene	8260B/C	Solid	75-123	20	0.001	mg/kg
Volatiles	1,1,2,2-Tetrachloroethane	8260B/C	Solid	74-129	20	0.001	mg/kg
Volatiles	1,2,3-Trichloropropane	8260B/C	Solid	70-133	20	0.001	mg/kg
Volatiles	trans-1,4-Dichloro-2-Butene	8260B/C	Solid	52-143	20	0.001	mg/kg
Volatiles	n-Propylbenzene	8260B/C	Solid	71-132	20	0.001	mg/kg

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	2-Chlorotoluene	8260B/C	Solid	73-128	20	0.001	mg/kg
Volatiles	4-Chlorotoluene	8260B/C	Solid	72-129	20	0.001	mg/kg
Volatiles	1,3,5-Trimethylbenzene	8260B/C	Solid	71-133	20	0.001	mg/kg
Volatiles	tert-Butylbenzene	8260B/C	Solid	72-132	20	0.001	mg/kg
Volatiles	1,2,4-Trimethylbenzene	8260B/C	Solid	68-135	20	0.001	mg/kg
Volatiles	sec-Butylbenzene	8260B/C	Solid	71-134	20	0.001	mg/kg
Volatiles	1,3-Dichlorobenzene	8260B/C	Solid	71-132	20	0.001	mg/kg
Volatiles	p-Isopropyltoluene	8260B/C	Solid	67-138	20	0.001	mg/kg
Volatiles	1,4-Dichlorobenzene	8260B/C	Solid	72-123	20	0.001	mg/kg
Volatiles	1,2,3-Trimethylbenzene	8260B/C	Solid	73-126	20	0.001	mg/kg
Volatiles	1,2-Dichlorobenzene	8260B/C	Solid	77-123	20	0.001	mg/kg
Volatiles	n-Butylbenzene	8260B/C	Solid	60-145	20	0.001	mg/kg
Volatiles	1,2-Dibromo-3-Chloropropane	8260B/C	Solid	61-134	21	0.001	mg/kg
Volatiles	1,2,4-Trichlorobenzene	8260B/C	Solid	61-148	20	0.001	mg/kg
Volatiles	Hexachlorobutadiene	8260B/C	Solid	65-137	20	0.001	mg/kg
Volatiles	Naphthalene	8260B/C	Solid	61-142	20	0.005	mg/kg
Volatiles	1,2,3-Trichlorobenzene	8260B/C	Solid	62-146	20	0.001	mg/kg
Volatiles	Hexane	8260B/C	Solid	28-169	20	0.010	mg/kg
Volatiles	Acetonitrile	8260B/C	Solid	59.6-170.4	25	0.050	mg/kg
Volatiles	Allyl Chloride	8260B/C	Solid	66.7-106.4	25	0.005	mg/kg
Volatiles	Chloroprene	8260B/C	Solid	61-114.3	25	0.050	mg/kg
Volatiles	Isobutanol	8260B/C	Solid	80.4-130.2	25	0.100	mg/kg
Volatiles	1,4-Dioxane	8260B/C	Solid	78.4-148.5	25	0.100	mg/kg
Volatiles	Methacrylonitrile	8260B/C	Solid	87.1-108.6	25	0.050	mg/kg
Volatiles	Methyl Methacrylate	8260B/C	Solid	90.4-141.9	25	0.005	mg/kg
Volatiles	Ethyl methacrylate	8260B/C	Solid	41.6-159	25	0.005	mg/kg
Volatiles	Propionitrile	8260B/C	Solid	77.8-136	25	0.050	mg/kg
Volatiles	Pentachloroethane	8260B/C	Solid	63.5-179.2	25	0.005	mg/kg
Volatiles	Cyclohexanone	8260B/C	Solid	21.3-170	25	0.010	mg/kg
Volatiles	Bromoethane	8260B/C	Solid	61.7-123.8	25	0.001	mg/kg
Volatiles	2Butanol	8260B/C	Solid	82.5-138.5	25	0.050	mg/kg
Volatiles	Ethanol	8260B/C	Solid	65.6-136.3	25	0.050	mg/kg
Volatiles	Di-isopropyl ether	8260B/C	Solid	59-143	20	0.001	mg/kg
Volatiles	Ethyl tert-butyl ether	8260B/C	Solid	81.4-110.9	25	0.001	mg/kg
Volatiles	Methyl-tert-butyl ether	8260B/C	Solid	44-148	20	0.001	mg/kg

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Tert-Butyl alcohol	8260B/C	Solid	59.5-170.4	25	0.050	mg/kg
Volatiles	Tert-Amyl Methyl Ether	8260B/C	Solid	82-115.5	25	0.001	mg/kg
Volatiles	GRO	8015B/C/D	GW, WW	70-124	20	0.100	mg/L
Volatiles	Benzene	8021B, 602, 6200C	GW, WW	79 - 131	20	0.0005	mg/L
Volatiles	Toluene	8021B, 602, 6200C	GW, WW	68 - 114	20	0.005	mg/L
Volatiles	Ethylbenzene	8021B, 602, 6200C	GW, WW	68 - 125	20	0.0005	mg/L
Volatiles	m&p-Xylene	8021B, 602, 6200C	GW, WW	67 - 113	20	0.001	mg/L
Volatiles	o-Xylene	8021B, 602, 6200C	GW, WW	72 - 114	20	0.0005	mg/L
Volatiles	MTBE	8021B, 602, 6200C	GW, WW	60 - 133	20	0.001	mg/L
Volatiles	Benzene	502.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Toluene	502.2	DW	70 - 130	25	0.005	mg/L
Volatiles	Ethylbenzene	502.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	m&p-Xylene	502.2	DW	70 - 130	25	0.001	mg/L
Volatiles	o-Xylene	502.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	MTBE	502.2	DW	70 - 130	25	0.001	mg/L
Volatiles	GRO	8015B	Solid	67 - 135	20	0.500	mg/kg
Volatiles	Benzene	8021B	Solid	78 - 141	20	0.0025	mg/kg
Volatiles	Toluene	8021B	Solid	65 - 117	20	0.025	mg/kg
Volatiles	Ethylbenzene	8021B	Solid	69 - 133	20	0.0025	mg/kg
Volatiles	m&p-Xylene	8021B	Solid	61 - 121	20	0.005	mg/kg
Volatiles	o-Xylene	8021B	Solid	71 - 121	20	0.0025	mg/kg
Volatiles	MTBE	8021B	Solid	54 - 129	20	0.005	mg/kg
Volatiles	1,1,1,2-Tetrachloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1,1-Trichloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1,2,2-Tetrachloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1,2-Trichloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1-Dichloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1-Dichloroethene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,1-Dichloropropanone	524.2	DW	70 - 130	25		mg/L
Volatiles	1,1-Dichloropropene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2,3-Trichlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2,3-Trichloropropane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2,4-Trichlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2,4-Trimethylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2-Dibromo-3-chloropropane	524.2	DW	70 - 130	25	0.0010	mg/L

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	1,2-Dibromoethane	524.2	DW	70 - 130	25	0.0010	mg/L
Volatiles	1,2-Dichlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2-Dichloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,2-Dichloropropane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,3,5-Trimethylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,3-Dichlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,3-Dichloropropane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1,4-Dichlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	1-Chlorobutane	524.2	DW	70 - 130	25		mg/L
Volatiles	2,2-Dichloropropane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	2-Butanone	524.2	DW	70 - 130	25		mg/L
Volatiles	2-Chlorotoluene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	2-Hexanone	524.2	DW	70 - 130	25		mg/L
Volatiles	2-Nitropropane	524.2	DW	70 - 130	25		mg/L
Volatiles	4-Chlorotoluene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	4-Isopropyltoluene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	4-Methyl-2-pentanone	524.2	DW	70 - 130	25		mg/L
Volatiles	Acetone	524.2	DW	70 - 130	25	0.01	mg/L
Volatiles	Acrylonitrile	524.2	DW	70 - 130	25		mg/L
Volatiles	Allyl Chloride	524.2	DW	70 - 130	25		mg/L
Volatiles	Benzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Bromobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Bromochloromethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Bromodichloromethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Bromoform	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Bromomethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Carbon Disulfide	524.2	DW	70 - 130	25		mg/L
Volatiles	Carbon Tetrachloride	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Chloroacetonitrile	524.2	DW	70 - 130	25		mg/L
Volatiles	THMs	524.2	DW	70 - 130	25		mg/L
Volatiles	Chlorobenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Chloroethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Chloroform	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Chloromethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Cis-1,2-dichloroethene	524.2	DW	70 - 130	25	0.0005	mg/L

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Cis-1,3-dichloropropene	524.2	DW	70 - 130	25	0.0010	mg/L
Volatiles	Dibromochloromethane	524.2	DW	70 - 130	25		mg/L
Volatiles	Dibromomethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Dichlorodifluoromethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Diethyl ether	524.2	DW	70 - 130	25		mg/L
Volatiles	Ethyl Methacrylate	524.2	DW	70 - 130	25		mg/L
Volatiles	Ethylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Hexachlorobutadiene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Hexachloroethane	524.2	DW	70 - 130	25		mg/L
Volatiles	Isopropylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Meta-xylene	524.2	DW	70 - 130	25		mg/L
Volatiles	Methacrylonitrile	524.2	DW	70 - 130	25		mg/L
Volatiles	Methyl Iodide	524.2	DW	70 - 130	25		mg/L
Volatiles	Methylacrylate	524.2	DW	70 - 130	25		mg/L
Volatiles	Methylene Chloride	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Methylmethacrylate	524.2	DW	70 - 130	25		mg/L
Volatiles	Methyl-t-butyl ether	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Naphthalene	524.2	DW	70 - 130	25	0.0050	mg/L
Volatiles	N-butylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Nitrobenzene	524.2	DW	70 - 130	25		mg/L
Volatiles	N-propylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Ortho-xylene	524.2	DW	70 - 130	25		mg/L
Volatiles	Para-xylene	524.2	DW	70 - 130	25		mg/L
Volatiles	Pentachloroethane	524.2	DW	70 - 130	25		mg/L
Volatiles	Propionitrile	524.2	DW	70 - 130	25		mg/L
Volatiles	Sec-butylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Styrene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Tert-butylbenzene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Tetrachloroethene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Tetrahydrofuran	524.2	DW	70 - 130	25		mg/L
Volatiles	Toluene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Trans-1,2-dichloroethene	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Trans-1,3-dichloropropene	524.2	DW	70 - 130	25	0.0010	mg/L
Volatiles	Trans-1,4-dichloro-2-butene	524.2	DW	70 - 130	25		mg/L
Volatiles	Trichloroethene	524.2	DW	70 - 130	25	0.0005	mg/L

Table 12.3: QC Targets for Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)**	Prec.** (RPD)	RL	Unit
Volatiles	Trichlorofluoromethane	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Vinyl Chloride	524.2	DW	70 - 130	25	0.0005	mg/L
Volatiles	Xylenes – total	524.2	DW	70 - 130	25		mg/L

*** Specific organizations may require limits that supersede values listed.*

13.0 CORRECTIVE ACTION

13.1 In the event that a nonconformance occurs in conjunction with the analytical batch, a corrective action response (CAR) form must be completed. The cause of the event is stated on the form and the measures taken to correct the nonconformance clearly defined. The effectiveness of the corrective action must be assessed and noted. The CAR are kept on file by the QA Department. Corrective action procedures are documented in SOP #030208, *Corrective and Preventive Action*

13.2 Required Corrective Action

Control limits have been established for each type of analysis. When these limits are exceeded, corrective action must be taken. Calculated sample spike control limits are also used.

All samples and procedures are governed by ESC's quality assurance program. General corrective actions are as follows; however additional and more specific direction is provided in the specific determinative procedure. For more information, see the appropriate determinative SOP.

13.2.1 Laboratory QC Criteria and Appropriate Corrective Actions

If the analytical method contains acceptance/rejection criteria and it is more stringent than those controls generated by the laboratory the method criteria take precedence.

13.2.2 Out Of Control Blanks: Applies to Method, Trip, Rinsate & Instrument Blanks

Rejection Criteria - Blank reading is more than twice the background absorbance or more than 1/2 RL.

Corrective Action - Blanks are reanalyzed and the response is assessed. Standard curves and samples are evaluated for any obvious contamination that is isolated or uniform throughout the run. If necessary, reagents are re-prepared. Analyses are not initiated until the problem is identified and solved. If samples have already been prepared or analyzed, the

Department Manager or QA Department is consulted to determine if data needs to be rejected or if samples need to be re-prepared.

13.2.3 Out Of Control Laboratory Control Standards (LCS & LCSD)

Rejection Criteria - If the performance is outside of lab-generated control limits which are calculated as the mean of at least 20 data points +/- 3 times the standard deviation of those points (Listed in Section 12) and the marginal excedence allowance is surpassed (see section 12.2).

Corrective Action - Instrument settings are checked and the LCS standard is re-analyzed. If the LCS is still out of control, instrumentation is checked for systemic problems and repaired (if necessary). Re-calibration is performed and the samples affected since the last in control reference standard are rerun. The group leader, Department Manager, or QA Department is consulted for further action.

13.2.4 Out Of Control Matrix Spike Samples

Rejection Criteria - If sample is outside of lab-generated control limits from accuracy charts on matrix spike samples from a similar matrix (i.e., water, solid, etc). Limits are calculated as the mean of at least 20 data points +/- 3 times the standard deviation of those points.

Corrective Action - Spiking technique is assessed to ascertain if the sample has been spiked correctly. The spiked sample should be 1 – 5 times the client sample concentration; otherwise, the percent recovery (%R) or relative percent difference (%RPD) of the MS/MSD is flagged as not meaningful or usable. The sample is re-spiked and re-analyzed, along with several other similar samples in subset. If an out of control situation persists, sample matrix interference is indicated. Samples to be analyzed by standard additions are prepared (where appropriate), and the group leader, Department Manager, or QA Department is notified.

13.2.5 Out Of Control Duplicate Samples

Rejection Criteria - Lab-generated maximum RPD limit (as listed under precision in Section 12)

Corrective Action - Instrument and samples are checked to see if precision variance is likely (i.e., high suspended solids content, high viscosity, etc.). They are re-analyzed in duplicate and samples just before and just after the duplicated sample are re-checked. If problem still exists, Department Manager, or QA Department is notified to review the analytical techniques.

13.2.6 Out Of Control Matrix Spike Duplicates

Rejection Criteria - These QC samples can be out of control for accuracy, precision, or both.

Corrective Action - The appropriate corrective actions listed for either matrix spikes, duplicate samples, or both are followed.

NOTE: Some samples cannot be duplicated. This is the case for wipe samples, filters, and some water samples. When possible, sampling personnel should collect duplicate samples.

13.2.7 Out Of Control Calibration Standards: ICV, CCV, SSCV

Rejection Criteria - If the performance is outside of method requirements.

Corrective Action - Instrument settings are checked, calibration verification standard is re-analyzed. If the standard is still out of control, re-calibration is performed, and samples affected since the last in control reference standard are rerun. The group leader, Department Manager, or QA Department is consulted for further action.

14.0 RECORD KEEPING

Record keeping is outlined in SOP #010103*, Document Control and Distribution,* SOP #030203, *Reagent Logs and Records* and SOP #030201, *Data Handling and Reporting.* Volatile organics calibration data are recorded and integrated using HP Enviroquant software. Calibration data from the volatile analyses, in addition to the initial and daily calibration, includes GC/MS autotunes, DFTPP reports and surrogate recovery reports. Hard copy records of initial calibration and daily calibration are stored with chromatograms and integrated with sample data by date analyzed.

15.0 QUALITY AUDITS

System and data quality audits are outlined in the ESC Quality Assurance Manual Version 8.0.

Appendix D3

ESC Lab Sciences Quality Assurance Manual for SVOCs and PCBs

11.0 QUALITY CONTROL CHECKS

NOTE: For specific guidance on each determinative method, including required quality control and specific state requirements/modifications, refer to the relevant laboratory standard operating procedure(s).

11.1 ESC participates in proficiency testing (PT's) in support of various laboratory accreditations/recognitions. Environmental samples are purchased from Environmental Resource Associates (ERA). The WS, WP and solid matrix studies are completed every 6 months. For industrial hygiene accreditation, PTs are administered by AIHA. PT samples are received and analyzed by method according to the vendor's instructions and according to ESC SOP.

11.2 Initial Demonstrations of Capability (IDOCs) are performed during new analyst training and/or prior to acceptance and use of any new method/instrumentation. Continuing Demonstration of Capability (CDOCs) must be updated at least annually. The associated data is filed within the department and available for review.

11.3 Matrix Spike and Matrix Spike Duplicates are performed on each batch of samples analyzed depending on analytical method requested.

11.4 A Laboratory Control Sample (LCS) and LCS Duplicate are analyzed one per batch of samples.

11.5 A method preparation blank is performed per batch of samples processed. If one-half the reporting limit [RL] is exceeded, the laboratory shall evaluate whether re-processing of the samples is necessary, based on the following criteria:

- The blank contamination exceeds a concentration greater than 1/10 of the measured concentration of any sample in the associated preparation batch or
- The blank contamination is greater than 1/10 of the specified regulatory limit.

The concentrations of common laboratory contaminants shall not exceed the reporting limit. Any samples associated with a blank that fail these criteria shall be reprocessed in a subsequent preparation batch, except when the sample analysis resulted in non-detected results for the failing analytes.

11.6 For Industrial Hygiene analyses (sorbent tubes and badges), a media blank will be prepared with each batch of samples. In addition, a media reporting limit verification will be prepared with each batch of samples. For accuracy and precision determinations, a LCS/LCSD pair will be spiked on media then desorbed and analyzed concurrently with every batch of field samples.

12.0 DATA REDUCTION, VALIDATION AND REPORTING

12.1 DATA REDUCTION

The analyst performs the data calculation functions and is responsible for the initial examination of the finished data. Data reduction steps applied to the raw data are outlined in *SOP 030201 Data Handling and Reporting.* The Quality Control Department performs the secondary review of the data package using the ESC SOP #030227, *Data Review.* The QC Reviewer verifies that the analysis has performed as required and meets method criteria, all associate data is present and complete, and also ensures that any additional documentation is completed as required (i.e. Ohio VAP checklists, required flags on test reports, etc.)

TABLE 12.1 Data Reduction Formulas

PARAMETER	FORMULA
GC and HPLC	response of sample analyte {*area*} x final extract volume {*mL*} x dilution response factor {*area/(mg/mL)*} x initial extract volume-mass {*mL or g*} *Calculations performed by HP Enviroquant Software*
GC/MS	response of analyte {*area*} x extract volume {*mL*} x dilution x int. std amt. {*area*} response factor {*area/(mg/mL)*} x initial volume-mass {*mL or g*} x int. std cal. {area} *Calculations performed by HP Enviroquant Software*
GC - IH	Sample conc. (front tube + back tube) (*ug*) – blank conc. (front tube + back tube) (*ug*) Volume of air sampled (*L*)

12.2 VALIDATION

The validation process consists of data generation, reduction review, and reporting results. Once data reduction is complete, validation is conducted by verification that the QC samples are within acceptable QC limits and that all documentation is complete, including the analytical report and associated QC. See Table 12.3 by method for current QC targets and controls and current reporting limits.

Marginal Excedence – When a large number of analytes exist in the LCS, it is statistically possible for a few analytes to be outside established control limits while the analytical system remains in control. These excursions must be random in nature and, if not, a review of the control limits or analytical process is necessary.

Upper and lower marginal excedence (ME) limits are established as the mean of at least 20 data points ± four times their standard deviations. The number of allowable marginal excedences per event is based on the number of analytes spiked in the LCS.

Allowable Marginal Excedence per Event	
Analytes in LCS:	**ME Allowable**
>90	5
71-90	4
51-70	3
31-50	2
11-30	1
<11	0

Organic Control Limits - The organic QC targets are statutory in nature; warning and control limits for organic analyses are initially set for groups of compounds based on preliminary method validation data. When additional data becomes available, the QC targets are reviewed. All QC targets are routinely re-evaluated at least annually (and updated, if necessary) against laboratory historical data to insure that the limits continue to reflect realistic, method achievable goals.

12.3 REPORTING

Reporting procedures are documented in *SOP 030201 Data Handling and Reporting.*

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Pesticides	Azinphos-Methyl	8141A, 1657A	GW	49-126	27	0.001	mg/L
Pesticides	Bolstar (Sulprofos)	8141A, 1657A	GW	49-122	25	0.001	mg/L
Pesticides	Chlorpyrifos	8141A, 1657A	GW	46-124	25	0.001	mg/L
Pesticides	Coumaphos	8141A, 1657A	GW	49-126	26	0.001	mg/L
Pesticides	Demeton,-O And -S	8141A, 1657A	GW	10-105	23	0.002	mg/L
Pesticides	Diazinon	8141A, 1657A	GW	43-143	23	0.001	mg/L
Pesticides	Dichlorvos	8141A, 1657A	GW	41-113	21	0.002	mg/L
Pesticides	Dimethoate	8141A, 1657A	GW	18-104	34	0.001	mg/L
Pesticides	Disulfoton	8141A, 1657A	GW	45-123	23	0.001	mg/L
Pesticides	Epn	8141A, 1657A	GW	51-130	27	0.001	mg/L
Pesticides	Ethoprop	8141A, 1657A	GW	42-125	21	0.001	mg/L
Pesticides	Ethyl Parathion	8141A, 1657A	GW	55-122	24	0.001	mg/L
Pesticides	Fensulfothion	8141A, 1657A	GW	23-133	35	0.001	mg/L
Pesticides	Fenthion	8141A, 1657A	GW	42-128	24	0.001	mg/L
Pesticides	Malathion	8141A, 1657A	GW	53-120	24	0.001	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Pesticides	Merphos	8141A, 1657A	GW	10-177	34	0.001	mg/L
Pesticides	Methyl Parathion	8141A, 1657A	GW	47-126	25	0.001	mg/L
Pesticides	Mevinphos	8141A, 1657A	GW	41-134	23	0.001	mg/L
Pesticides	Naled	8141A, 1657A	GW	17-155	25	0.001	mg/L
Pesticides	Phorate	8141A, 1657A	GW	30-139	22	0.001	mg/L
Pesticides	Ronnel	8141A, 1657A	GW	45-120	23	0.001	mg/L
Pesticides	Stirophos	8141A, 1657A	GW	47-127	26	0.001	mg/L
Pesticides	Sulfotep	8141A, 1657A	GW	51-122	23	0.001	mg/L
Pesticides	Tepp	8141A, 1657A	GW	10-137	40	0.0083	mg/L
Pesticides	Tokuthion (Prothiofos)	8141A, 1657A	GW	47-122	24	0.001	mg/L
Pesticides	Trichloronate	8141A, 1657A	GW	41-122	24	0.001	mg/L
Pesticides	Azinphos-Methyl	8141A	SS	50-127	37	0.1	mg/Kg
Pesticides	Bolstar (Sulprofos)	8141A	SS	55-120	33	0.1	mg/Kg
Pesticides	Chlorpyrifos	8141A	SS	56-117	28	0.1	mg/Kg
Pesticides	Coumaphos	8141A	SS	50-126	36	0.1	mg/Kg
Pesticides	Demeton,-O And -S	8141A	SS	19-153	25	0.1	mg/Kg
Pesticides	Diazinon	8141A	SS	43-133	28	0.1	mg/Kg
Pesticides	Dichlorvos	8141A	SS	22-116	32	0.1	mg/Kg
Pesticides	Dimethoate	8141A	SS	10-142	36	0.1	mg/Kg
Pesticides	Disulfoton	8141A	SS	52-115	24	0.1	mg/Kg
Pesticides	Epn	8141A	SS	48-139	35	0.1	mg/Kg
Pesticides	Ethoprop	8141A	SS	53-112	25	0.1	mg/Kg
Pesticides	Ethyl Parathion	8141A	SS	52-133	29	0.1	mg/Kg
Pesticides	Fensulfothion	8141A	SS	26-120	40	0.1	mg/Kg
Pesticides	Fenthion	8141A	SS	54-121	29	0.1	mg/Kg
Pesticides	Malathion	8141A	SS	52-123	29	0.1	mg/Kg
Pesticides	Merphos	8141A	SS	10-193	33	0.1	mg/Kg
Pesticides	Methyl Parathion	8141A	SS	55-119	29	0.1	mg/Kg
Pesticides	Mevinphos	8141A	SS	34-114	29	0.1	mg/Kg
Pesticides	Naled	8141A	SS	10-132	40	0.1	mg/Kg
Pesticides	Phorate	8141A	SS	54-115	24	0.1	mg/Kg
Pesticides	Ronnel	8141A	SS	53-112	27	0.1	mg/Kg
Pesticides	Stirophos	8141A	SS	51-120	35	0.1	mg/Kg
Pesticides	Sulfotep	8141A	SS	52-124	23	0.1	mg/Kg
Pesticides	Tepp	8141A	SS	10-85	40	0.1	mg/Kg
Pesticides	Tokuthion (Prothiofos)	8141A	SS	52-124	31	0.1	mg/Kg
Pesticides	Trichloronate	8141A	SS	50-118	33	0.1	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Pesticides	Alachlor	507	DW	70-130	25	0.0002	mg/L
Pesticides	Atrazine	507	DW	70-130	25	0.0001	mg/L
Pesticides	Butachlor	507	DW	70-130	25	0.0001	mg/L
Pesticides	Metolachlor	507	DW	70-130	25	0.0002	mg/L
Pesticides	Metribuzin	507	DW	70-130	25	0.0002	mg/L
Pesticides	Simazine	507	DW	70-130	25	7.00E-05	mg/L
Pesticides	Aldrin	508	DW	70-130	25	0.0005	mg/L
Pesticides	Dieldrin	508	DW	70-130	25	0.0005	mg/L
Pesticides	Endrin	508	DW	70-130	25	0.0005	mg/L
Pesticides	Gamma BHC	508	DW	70-130	25	0.0005	mg/L
Pesticides	Heptachlor	508	DW	70-130	25	0.0005	mg/L
Pesticides	Heptachlor Epoxide	508	DW	70-130	25	0.0005	mg/L
Pesticides	Hexachlorobenzene	508	DW	70-130	25	0.0005	mg/L
Pesticides	Methoxychlor	508	DW	70-130	25	0.0005	mg/L
Pesticides	4,4-DDD	608/8081A/B, 6630C	GW, WW	60-123	20	0.00005	mg/L
Pesticides	4,4-DDE	608/8081A/B, 6630C	GW, WW	50-120	22	0.00005	mg/L
Pesticides	4,4-DDT	608/8081A/B, 6630C	GW, WW	61-121	20	0.00005	mg/L
Pesticides	Aldrin	608/8081A/B, 6630C	GW, WW	10-136	33	0.00005	mg/L
Pesticides	Alpha BHC	608/8081A/B, 6630C	GW, WW	58-114	21	0.00005	mg/L
Pesticides	Beta BHC	608/8081A/B, 6630C	GW, WW	61-120	20	0.00005	mg/L
Pesticides	Alpha Chlordane	608/8081A/B, 6630C	GW, WW	51-117	21	0.005	mg/L
Pesticides	Delta BHC	608/8081A/B, 6630C	GW, WW	57-120	21	0.00005	mg/L
Pesticides	Dieldrin	608/8081A/B, 6630C	GW, WW	62-123	20	0.00005	mg/L
Pesticides	Endosulfan I	608/8081A/B, 6630C	GW, WW	63-123	20	0.00005	mg/L
Pesticides	Endosulfan II	608/8081A/B, 6630C	GW, WW	63-124	20	0.00005	mg/L
Pesticides	Endosulfan Sulfate	608/8081A/B, 6630C	GW, WW	59-125	21	0.00005	mg/L
Pesticides	Endrin	608/8081A/B, 6630C	GW, WW	60-123	20	0.00005	mg/L
Pesticides	Endrin Aldehyde	608/8081A/B, 6630C	GW, WW	42-92	21	0.00005	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Pesticides	Endrin Ketone	608/8081A/B, 6630C	GW, WW	60-117	20	0.00005	mg/L
Pesticides	Gamma BHC	608/8081A/B, 6630C	GW, WW	59-116	20	0.00005	mg/L
Pesticides	Heptachlor	608/8081A/B, 6630C	GW, WW	10-131	28	0.00005	mg/L
Pesticides	Heptachlor Epoxide	608/8081A/B, 6630C	GW, WW	61-118	20	0.00005	mg/L
Pesticides	Hexachlorobenzene	608/8081A/B, 6630C	GW, WW	28-116	27	0.00005	mg/L
Pesticides	Methoxychlor	608/8081A/B, 6630C	GW, WW	66-122	20	0.00005	mg/L
Pesticides	Toxaphene	608/8081A/B, 6630C	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1016	608, 6431B, 8082/A	GW, WW	32-126	22	0.0005	mg/L
PCBs	PCB 1221	608, 6431B, 8082/A	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1232	608, 6431B, 8082/A	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1242	608, 6431B, 8082/A	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1248	608, 6431B, 8082/A	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1254	608, 6431B, 8082/A	GW, WW	-	-	0.0005	mg/L
PCBs	PCB 1260	608, 6431B, 8082/A	GW, WW	58-128	20	0.0005	mg/L
PCBs	PCB 1016	8082/A	SS	64-120	20	0.017	mg/Kg
PCBs	PCB 1221	8082/A	SS	-	-	0.017	mg/Kg
PCBs	PCB 1232	8082/A	SS	-	-	0.017	mg/Kg
PCBs	PCB 1242	8082/A	SS	-	-	0.017	mg/Kg
PCBs	PCB 1248	8082/A	SS	-	-	0.017	mg/Kg
PCBs	PCB 1254	8082/A	SS	-	-	0.017	mg/Kg
PCBs	PCB 1260	8082/A	SS	72-130	20	0.017	mg/Kg
Pesticides	4,4-DDD	8081A/B	SS	74-114	20	0.02	mg/Kg
Pesticides	4,4-DDE	8081A/B	SS	74-115	20	0.02	mg/Kg
Pesticides	4,4-DDT	8081A/B	SS	62-124	20	0.02	mg/Kg
Pesticides	Aldrin	8081A/B	SS	69-110	20	0.02	mg/Kg
Pesticides	Alpha BHC	8081A/B	SS	68-111	20	0.02	mg/Kg
Pesticides	Beta BHC	8081A/B	SS	74-112	20	0.02	mg/Kg
Pesticides	Delta BHC	8081A/B	SS	71-110	20	0.02	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Pesticides	Dieldrin	8081A/B	SS	76-115	20	0.02	mg/Kg
Pesticides	Endosulfan I	8081A/B	SS	76-119	20	0.02	mg/Kg
Pesticides	Endosulfan II	8081A/B	SS	75-116	20	0.02	mg/Kg
Pesticides	Endosulfan Sulfate	8081A/B	SS	70-118	20	0.02	mg/Kg
Pesticides	Endrin	8081A/B	SS	68-115	20	0.02	mg/Kg
Pesticides	Endrin Aldehyde	8081A/B	SS	48-92	20	0.02	mg/Kg
Pesticides	Endrin Ketone	8081A/B	SS	71-112	20	0.02	mg/Kg
Pesticides	Gamma BHC	8081A/B	SS	70-112	20	0.02	mg/Kg
Pesticides	Heptachlor	8081A/B	SS	69-111	20	0.02	mg/Kg
Pesticides	Heptachlor Epoxide	8081A/B	SS	72-115	20	0.02	mg/Kg
Pesticides	Hexachlorobenzene	8081A/B	SS	64-111	20	0.02	mg/Kg
Pesticides	Methoxychlor	8081A/B	SS	65-123	20	0.02	mg/Kg
Pesticides	Chlordane	8081A/B	SS	-	-	0.2	mg/Kg
Pesticides	Toxaphene	8081A/B	SS	-	-	0.4	mg/Kg
Herbicides	2,4,5-TP (SILVEX)	515.1	DW	70-130	25	0.0001	mg/L
Herbicides	2,4-D	515.1	DW	70-130	25	0.0001	mg/L
Herbicides	Dalapon	515.1	DW	70-130	25	0.001	mg/L
Herbicides	Dicamba	515.1	DW	70-130	25	0.0001	mg/L
Herbicides	Dinoseb	515.1	DW	70-130	25	0.0001	mg/L
Herbicides	Pentachlorophenol	515.1	DW	70-130	25	0.00004	mg/L
Herbicides	Picloram	515.1	DW	70-130	25	0.0001	mg/L
Herbicides	2,4,5-T	1658, 8151A, 6640C	GW, WW	47-120	22	0.002	mg/L
Herbicides	2,4,5-TP (SILVEX)	1658, 8151A, 6640C	GW, WW	46-125	25	0.002	mg/L
Herbicides	2,4-D	1658, 8151A, 6640C	GW, WW	39-112	23	0.002	mg/L
Herbicides	2,4-DB	1658, 8151A, 6640C	GW, WW	29-133	34	0.002	mg/L
Herbicides	Dalapon	1658, 8151A, 6640C	GW, WW	34-97	35	0.002	mg/L
Herbicides	Dicamba	1658, 8151A, 6640C	GW, WW	47-119	22	0.002	mg/L
Herbicides	Dichloroprop	1658, 8151A, 6640C	GW, WW	35-110	23	0.002	mg/L
Herbicides	Dinoseb	1658, 8151A, 6640C	GW, WW	29-111	27	0.002	mg/L
Herbicides	MCPA	1658, 8151A, 6640C	GW, WW	34-120	31	0.1	mg/L
Herbicides	MCPP	1658, 8151A,	GW, WW	16-189	31	0.1	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
		6640C					
Herbicides	2,4,5-T	8151A	SS	34-103	22	0.07	mg/Kg
Herbicides	2,4,5-TP (SILVEX)	8151A	SS	30-123	28	0.07	mg/Kg
Herbicides	2,4-D	8151A	SS	28/-98	24	0.07	mg/Kg
Herbicides	2,4-DB	8151A	SS	26-109	32	0.07	mg/Kg
Herbicides	Dalapon	8151A	SS	28-92	23	0.07	mg/Kg
Herbicides	Dicamba	8151A	SS	38-109	20	0.07	mg/Kg
Herbicides	Dichloroprop	8151A	SS	28-91	24	0.07	mg/Kg
Herbicides	Dinoseb	8151A	SS	10-61	40	0.07	mg/Kg
Herbicides	MCPA	8151A	SS	22-101	37	6.5	mg/Kg
Herbicides	MCPP	8151A	SS	13-181	31	6.5	mg/Kg
PAH	1-Methylnaphthalene	8310, 610, 6440B	GW, WW	37-89	27	0.0001	mg/L
PAH	2-Methylnaphthalene	8310, 610, 6440B	GW, WW	34-88	28	0.0001	mg/L
PAH	Acenaphthene	8310, 610, 6440B	GW, WW	45-90	24	0.0001	mg/L
PAH	Acenaphthylene	8310, 610, 6440B	GW, WW	49-93	24	0.0001	mg/L
PAH	Anthracene	8310, 610, 6440B	GW, WW	55-101	20	0.0001	mg/L
PAH	Benzo(a)Anthracene	8310, 610, 6440B	GW, WW	65-112	20	0.0001	mg/L
PAH	Benzo(a)Pyrene	8310, 610, 6440B	GW, WW	58-105	20	0.0001	mg/L
PAH	Benzo(b)Fluoranthene	8310, 610, 6440B	GW, WW	63-103	20	0.0001	mg/L
PAH	Benzo(g,h,i)Perylene	8310, 610, 6440B	GW, WW	47-116	20	0.0001	mg/L
PAH	Benzo(k)Fluoranthene	8310, 610, 6440B	GW, WW	61-102	20	0.0001	mg/L
PAH	Chrysene	8310, 610, 6440B	GW, WW	67-106	20	0.0001	mg/L
PAH	Dibenz(a,h)Anthracene	8310, 610, 6440B	GW, WW	39-115	23	0.0001	mg/L
PAH	Fluoranthene	8310, 610, 6440B	GW, WW	69-107	20	0.0001	mg/L
PAH	Fluorene	8310, 610, 6440B	GW, WW	48-95	21	0.0001	mg/L
PAH	Indeno(1,2,3-cd)Pyrene	8310, 610, 6440B	GW, WW	59-103	20	0.0001	mg/L
PAH	Naphthalene	8310, 610, 6440B	GW, WW	33-84	29	0.0001	mg/L
PAH	Phenanthrene	8310, 610, 6440B	GW, WW	58-95	20	0.0001	mg/L
PAH	Pyrene	8310, 610, 6440B	GW, WW	62-108	20	0.0001	mg/L
PAH	1-Methylnaphthalene	8310	SS	33-102	25	0.02	mg/Kg
PAH	2-Methylnaphthalene	8310	SS	32-101	26	0.02	mg/Kg
PAH	Acenaphthene	8310	SS	39-102	22	0.02	mg/Kg
PAH	Acenaphthylene	8310	SS	40-104	23	0.02	mg/Kg
PAH	Anthracene	8310	SS	64-102	20	0.02	mg/Kg
PAH	Benzo(a)Anthracene	8310	SS	79-100	20	0.02	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
PAH	Benzo(a)Pyrene	8310	SS	66-109	20	0.02	mg/Kg
PAH	Benzo(b)Fluoranthene	8310	SS	79-109	20	0.02	mg/Kg
PAH	Benzo(g,h,i)Perylene	8310	SS	75-113	20	0.02	mg/Kg
PAH	Benzo(k)Fluoranthene	8310	SS	75-103	20	0.02	mg/Kg
PAH	Chrysene	8310	SS	79-109	20	0.02	mg/Kg
PAH	Dibenz(a,h)Anthracene	8310	SS	75-105	20	0.02	mg/Kg
PAH	Fluoranthene	8310	SS	80-110	20	0.02	mg/Kg
PAH	Fluorene	8310	SS	48-109	20	0.02	mg/Kg
PAH	Indeno(1,2,3-cd)Pyrene	8310	SS	75-104	20	0.02	mg/Kg
PAH	Naphthalene	8310	SS	28-99	28	0.02	mg/Kg
PAH	Phenanthrene	8310	SS	61-101	20	0.02	mg/Kg
PAH	Pyrene	8310	SS	75-104	20	0.02	mg/Kg
BNA	PYRIDINE	8270C/D 625	GW,WW	11-52	36	0.01	mg/L
BNA	PYRENE	8270C/D 625	GW,WW	65-116	*20*	0.001	mg/L
BNA	PHENOL	8270C/D 625	GW,WW	10-53	*20*	0.01	mg/L
BNA	PHENANTHRENE	8270C/D 625	GW,WW	61-110	*20*	0.001	mg/L
BNA	PENTACHLOROPHENOL	8270C/D 625	GW,WW	10-101	*40*	0.01	mg/L
BNA	N-OCTADECANE	8270C/D 625	GW,WW	27-136	*20*	0.01	mg/L
BNA	N-NITROSODIPHENYLAMINE	8270C/D 625	GW,WW	55-98	*20*	0.01	mg/L
BNA	N-NITRODIPHENYLAMINE	8270C/D 625	GW,WW	10-186	*20*	0.01	mg/L
BNA	N-NITROSODI-N-PROPYLAMINE	8270C/D 625	GW,WW	50-115	*20*	0.01	mg/L
BNA	N-NITROSODIMETHYLAMINE	8270C/D 625	GW,WW	12-68	31	0.01	mg/L
BNA	NITROBENZENE	8270C/D 625	GW,WW	39-102	*20*	0.01	mg/L
BNA	N-DECANE	8270C/D 625	GW,WW	10-96	27	0.01	mg/L
BNA	NAPHTHALENE	8270C/D 625	GW,WW	42-103	*20*	0.001	mg/L
BNA	ISOPHORONE	8270C/D 625	GW,WW	55-108	*20*	0.01	mg/L
BNA	INDENO(1,2,3-CD)PYRENE	8270C/D 625	GW,WW	56-129	*20*	0.01	mg/L
BNA	HEXACHLOROETHANE	8270C/D 625	GW,WW	24-93	25	0.01	mg/L
BNA	HEXACHLOROCYCLOPENTADIENE	8270C/D 625	GW,WW	20-121	27	0.00	mg/L
BNA	HEXACHLOROBENZENE	8270C/D 625	GW,WW	55-117	*20*	0.001	mg/L
BNA	HEXACHLORO-1,3-BUTADIENE	8270C/D 625	GW,WW	34-115	*22*	0.01	mg/L
BNA	FLUORENE	8270C/D 625	GW,WW	58-110	*20*	0.001	mg/L
BNA	FLUORANTHENE	8270C/D 625	GW,WW	66-120	*20*	0.001	mg/L
BNA	DI-N-OCTYL PHTHALATE	8270C/D 625	GW,WW	59-143	*20*	0.001	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
BNA	DI-N-BUTYL PHTHALATE	8270C/D 625	GW,WW	56-133	*20*	0.001	mg/L
BNA	DIMETHYL PHTHALATE	8270C/D 625	GW,WW	10-152	22	0.001	mg/L
BNA	DIETHYL PHTHALATE	8270C/D 625	GW,WW	33-136	*20*	0.001	mg/L
BNA	DIBENZOFURAN	8270C/D 625	GW,WW	53-109	*20*	0.01	mg/L
BNA	DIBENZ(A,H)ANTHRACENE	8270C/D 625	GW,WW	54-130	*20*	0.001	mg/L
BNA	CHRYSENE	8270C/D 625	GW,WW	65-114	*20*	0.001	mg/L
BNA	CARBAZOLE	8270C/D 625	GW,WW	62-114	*20*	0.01	mg/L
BNA	CAPROLACTAM	8270C/D 625	GW,WW	10-30	24	0.01	mg/L
BNA	BIS(2-ETHYLHEXYL)PHTHALATE	8270C/D 625	GW,WW	61-147	*20*	0.001	mg/L
BNA	BIS(2-CHLOROISOPROPYL)ETHER	8270C/D 625	GW,WW	43-108	*20*	0.01	mg/L
BNA	BIS(2-CHLOROETHYL)ETHER	8270C/D 625	GW,WW	39-109	23	0.01	mg/L
BNA	BIS(2-CHLORETHOXY)METHANE	8270C/D 625	GW,WW	56-116	*20*	0.01	mg/L
BNA	BIPHENYL	8270C/D 625	GW,WW	48-105	*20*	0.01	mg/L
BNA	BENZYLBUTYL PHTHALATE	8270C/D 625	GW,WW	12-166	*20*	0.001	mg/L
BNA	BENZYL ALCOHOL	8270C/D 625	GW,WW	32-91	*20*	0.01	mg/L
BNA	BENZOIC ACID	8270C/D 625	GW,WW	10-62	37	0.01	mg/L
BNA	BENZO(K)FLUORANTHENE	8270C/D 625	GW,WW	62-116	*20*	0.001	mg/L
BNA	BENZO(G,H,I)PERYLENE	8270C/D 625	GW,WW	52-132	*20*	0.001	mg/L
BNA	BENZO(B)FLUORANTHENE	8270C/D 625	GW,WW	67-114	*20*	0.001	mg/L
BNA	BENZO(A)PYRENE	8270C/D 625	GW,WW	68-115	*20*	0.001	mg/L
BNA	BENZO(A)ANTHRACENE	8270C/D 625	GW,WW	68-113	*20*	0.001	mg/L
BNA	BENZIDINE	8270C/D 625	GW,WW	*10-31*	*40*	0.01	mg/L
BNA	BENZALDEHYDE	8270C/D 625	GW,WW	*10-56*	26	0.01	mg/L
BNA	AZOBENZENE	8270C/D 625	GW,WW	52-113	*20*	0.01	mg/L
BNA	ATRAZINE	8270C/D 625	GW,WW	61-116	*20*	0.01	mg/L
BNA	ANTHRACENE	8270C/D 625	GW,WW	65-114	*20*	0.001	mg/L
BNA	ANILINE	8270C/D 625	GW,WW	30-78	24	0.01	mg/L
BNA	ACETOPHENONE	8270C/D 625	GW,WW	44-98	*20*	0.01	mg/L
BNA	ACENAPHTHYLENE	8270C/D 625	GW,WW	55-119	*20*	0.001	mg/L
BNA	ACENAPHTHENE	8270C/D 625	GW,WW	52-107	*20*	0.001	mg/L
BNA	4-NITROPHENOL	8270C/D 625	GW,WW	*10-53*	*40*	0.01	mg/L
BNA	4-NITROANILINE	8270C/D 625	GW,WW	53-135	*20*	0.01	mg/L
BNA	4-CHLOROPHENYL-PHENYLETHER	8270C/D 625	GW,WW	58-115	*20*	0.01	mg/L
BNA	4-CHLOROANILINE	8270C/D 625	GW,WW	43-104	*20*	0.01	mg/L
BNA	4-CHLORO-3-	8270C/D 625	GW,WW	50-105	*20*	0.01	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
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Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
	METHYLPHENOL						
BNA	4-BROMOPHENYL-PHENYLETHER	8270C/D 625	GW,WW	63-120	*20*	0.01	mg/L
BNA	4,6-DINITRO-2-METHYLPHENOL	8270C/D 625	GW,WW	21-119	*40*	0.01	mg/L
BNA	3-NITROANILINE	8270C/D 625	GW,WW	49-116	*20*	0.01	mg/L
BNA	3,3-DICHLOROBENZIDINE	8270C/D 625	GW,WW	58-116	*20*	0.01	mg/L
BNA	3&4-METHYLPHENOL	8270C/D 625	GW,WW	33-94	*20*	0.01	mg/L
BNA	2-NITROPHENOL	8270C/D 625	GW,WW	40-112	22	0.01	mg/L
BNA	2-NITROANILINE	8270C/D 625	GW,WW	56-122	*20*	0.01	mg/L
BNA	2-METHYLPHENOL	8270C/D 625	GW,WW	35-84	*20*	0.01	mg/L
BNA	2-METHYLNAPHTHALENE	8270C/D 625	GW,WW	46-105	*20*	0.001	mg/L
BNA	2-CHLOROPHENOL	8270C/D 625	GW,WW	37-90	21	0.01	mg/L
BNA	2-CHLORONAPHTHALENE	8270C/D 625	GW,WW	47-106	*20*	0.001	mg/L
BNA	2,6-DINITROTOLUENE	8270C/D 625	GW,WW	57-110	*20*	0.01	mg/L
BNA	2,4-DINITROTOLUENE	8270C/D 625	GW,WW	59-117	*20*	0.01	mg/L
BNA	2,4-DINITROPHENOL	8270C/D 625	GW,WW	10-121	*40*	0.01	mg/L
BNA	2,4-DIMETHYLPHENOL	8270C/D 625	GW,WW	47-108	*20*	0.01	mg/L
BNA	2,4-DICHLOROPHENOL	8270C/D 625	GW,WW	46-105	*20*	0.01	mg/L
BNA	2,4,6-TRICHLOROPHENOL	8270C/D 625	GW,WW	38-113	29	0.01	mg/L
BNA	2,4,5-TRICHLOROPHENOL	8270C/D 625	GW,WW	41-125	27	0.01	mg/L
BNA	1-METHYLNAPHTHALENE	8270C/D 625	GW,WW	45-100	*20*	0.001	mg/L
BNA	1,4-DICHLOROBENZENE	8270C/D 625	GW,WW	28-94	25	0.01	mg/L
BNA	1,3-DICHLOROBENZENE	8270C/D 625	GW,WW	27-94	25	0.01	mg/L
BNA	1,2-DICHLOROBENZENE	8270C/D 625	GW,WW	30-96	24	0.01	mg/L
BNA	1,2,4-TRICHLOROBENZENE	8270C/D 625	GW,WW	34-97	21	0.01	mg/L
BNA	1,2,4,5-TETRACHLOROBENZENE	8270C/D 625	GW,WW	40-109	*20*	0.01	mg/L
BNA	PYRIDINE	8270C/D	SS	17-79	27	0.33	mg/Kg
BNA	PYRENE	8270C/D	SS	54-104	*20*	0.33	mg/Kg
BNA	PHENOL	8270C/D	SS	49-99	*20*	0.33	mg/Kg
BNA	PHENANTHRENE	8270C/D	SS	55-103	*20*	0.33	mg/Kg
BNA	PENTACHLOROPHENOL	8270C/D	SS	*10-89*	28	0.33	mg/Kg
BNA	N-OCTADECANE	8270C/D	SS	33-122	20	0.33	mg/Kg
BNA	N-NITROSODIPHENYLAMINE	8270C/D	SS	48-90	*20*	0.33	mg/Kg
BNA	N-NITRODIPHENYLAMINE	8270C/D	SS	57-121	*20*	0.33	mg/Kg
BNA	N-NITROSODI-N-PROPYLAMINE	8270C/D	SS	52-103	*20*	0.33	mg/Kg
BNA	N-	8270C/D	SS	31-107	23	0.33	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
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Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
	NITROSODIMETHYLAMINE						
BNA	NITROBENZENE	8270C/D	SS	47-92	*20*	0.33	mg/Kg
BNA	N-DECANE	8270C/D	SS	31-93	21	0.33	mg/Kg
BNA	NAPHTHALENE	8270C/D	SS	55-91	*20*	0.33	mg/Kg
BNA	3&4-METHYLPHENOL	8270C/D	SS	60-104	*20*	0.33	mg/Kg
BNA	ISOPHORONE	8270C/D	SS	51-99-110	*20*	0.033	mg/Kg
BNA	INDENO(1,2,3-CD)PYRENE	8270C/D	SS	50-83	*20*	0.33	mg/Kg
BNA	HEXACHLOROETHANE	8270C/D	SS	45-117	*20*	0.033	mg/Kg
BNA	HEXACHLOROCYCLOPENTADIENE	8270C/D	SS	36-108	20	0.33	mg/Kg
BNA	HEXACHLOROBENZENE	8270C/D	SS	50-106	*20*	0.33	mg/Kg
BNA	HEXACHLORO-1,3-BUTADIENE	8270C/D	SS	53-100	*20*	0.33	mg/Kg
BNA	FLUORENE	8270C/D	SS	59-108	*20*	0.33	mg/Kg
BNA	FLUORANTHENE	8270C/D	SS	59-119	*20*	0.33	mg/Kg
BNA	DI-N-OCTYL PHTHALATE	8270C/D	SS	51-114	22	0.33	mg/Kg
BNA	DI-N-BUTYL PHTHALATE	8270C/D	SS	59-106	*20*	0.33	mg/Kg
BNA	DIMETHYL PHTHALATE	8270C/D	SS	60-105	*20*	0.33	mg/Kg
BNA	DIETHYL PHTHALATE	8270C/D	SS	61-105	*20*	0.33	mg/Kg
BNA	DIBENZOFURAN	8270C/D	SS	56-98	*20*	0.33	mg/Kg
BNA	DIBENZ(A,H)ANTHRACENE	8270C/D	SS	49-111	*20*	0.33	mg/Kg
BNA	CHRYSENE	8270C/D	SS	55-102	*20*	0.33	mg/Kg
BNA	CARBAZOLE	8270C/D	SS	51-103	*20*	0.33	mg/Kg
BNA	CAPROLACTAM	8270C/D	SS	43-104	*20*	0.33	mg/Kg
BNA	BIS(2-ETHYLHEXYL)PHTHALATE	8270C/D	SS	56-120	*20*	0.33	mg/Kg
BNA	BIS(2-CHLOROISOPROPYL)ETHER	8270C/D	SS	56-95	*20*	0.33	mg/Kg
BNA	BIS(2-CHLOROETHYL)ETHER	8270C/D	SS	51-103	20	0.33	mg/Kg
BNA	BIS(2-CHLORETHOXY)METHANE	8270C/D	SS	58-104	*20*	0.33	mg/Kg
BNA	BIPHENYL	8270C/D	SS	55-93	*20*	0.33	mg/Kg
BNA	BENZYLBUTYL PHTHALATE	8270C/D	SS	61-118	*20*	0.33	mg/Kg
BNA	BENZYL ALCOHOL	8270C/D	SS	48-96	*20*	0.033	mg/Kg
BNA	BENZOIC ACID	8270C/D	SS	*10-110*	41	0.033	mg/Kg
BNA	BENZO(K)FLUORANTHENE	8270C/D	SS	53-104	*20*	0.33	mg/Kg
BNA	BENZO(G,H,I)PERYLENE	8270C/D	SS	47-112	*20*	0.33	mg/Kg
BNA	BENZO(B)FLUORANTHENE	8270C/D	SS	52-106	*20*	0.33	mg/Kg
BNA	BENZO(A)PYRENE	8270C/D	SS	57-103	*20*	0.33	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
BNA	BENZO(A)ANTHRACENE	8270C/D	SS	56-103	*20*	0.33	mg/Kg
BNA	BENZIDINE	8270C/D	SS			0.033	mg/Kg
BNA	BENZALDEHYDE	8270C/D	SS	*10-30*	23	0.33	mg/Kg
BNA	AZOBENZENE	8270C/D	SS	49-105	*20*	0.33	mg/Kg
BNA	ATRAZINE	8270C/D	SS	55-101	*20*	0.33	mg/Kg
BNA	ANTHRACENE	8270C/D	SS	58-105	*20*	0.33	mg/Kg
BNA	ANILINE	8270C/D	SS	32-79	23	0.33	mg/Kg
BNA	ACETOPHENONE	8270C/D	SS	49-88	*20*	0.33	mg/Kg
BNA	ACENAPHTHYLENE	8270C/D	SS	61-107	*20*	0.033	mg/Kg
BNA	ACENAPHTHENE	8270C/D	SS	55-96	*20*	0.033	mg/Kg
BNA	4-NITROPHENOL	8270C/D	SS	34-101	26	0.033	mg/Kg
BNA	4-NITROANILINE	8270C/D	SS	41-105	20	0.033	mg/Kg
BNA	4-CHLOROPHENYL-PHENYLETHER	8270C/D	SS	59-103	*20*	0.033	mg/Kg
BNA	4-CHLOROANILINE	8270C/D	SS	38-89	20	0.33	mg/Kg
BNA	4-CHLORO-3-METHYLPHENOL	8270C/D	SS	58-98	*20*	0.33	mg/Kg
BNA	4-BROMOPHENYL-PHENYLETHER	8270C/D	SS	58-111	*20*	0.33	mg/Kg
BNA	4,6-DINITRO-2-METHYLPHENOL	8270C/D	SS	24-98	32	0.33	mg/Kg
BNA	3-NITROANILINE	8270C/D	SS	42-91	*20*	0.33	mg/Kg
BNA	3,3-DICHLOROBENZIDINE	8270C/D	SS	36-84	20	0.33	mg/Kg
BNA	2-NITROPHENOL	8270C/D	SS	55-106	*20*	0.33	mg/Kg
BNA	2-NITROANILINE	8270C/D	SS	55-110	*20*	0.33	mg/Kg
BNA	2-METHYLPHENOL	8270C/D	SS	52-90	*20*	0.33	mg/Kg
BNA	2-METHYLNAPHTHALENE	8270C/D	SS	57-94	*20*	0.033	mg/Kg
BNA	2-CHLOROPHENOL	8270C/D	SS	52-88	*20*	0.33	mg/Kg
BNA	2-CHLORONAPHTHALENE	8270C/D	SS	55-96	*20*	0.33	mg/Kg
BNA	2,6-DINITROTOLUENE	8270C/D	SS	53-99	*20*	0.33	mg/Kg
BNA	2,4-DINITROTOLUENE	8270C/D	SS	54-103	*20*	0.033	mg/Kg
BNA	2,4-DINITROPHENOL	8270C/D	SS	*10-109*	39	0.33	mg/Kg
BNA	2,4-DIMETHYLPHENOL	8270C/D	SS	52-101	*20*	0.33	mg/Kg
BNA	2,4-DICHLOROPHENOL	8270C/D	SS	56-96	*20*	0.33	mg/Kg
BNA	2,4,6-TRICHLOROPHENOL	8270C/D	SS	50-98	*20*	0.33	mg/Kg
BNA	2,4,5-TRICHLOROPHENOL	8270C/D	SS	48-103	*20*	0.33	mg/Kg
BNA	1-METHYLNAPHTHALENE	8270C/D	SS	54-90	*20*	0.33	mg/Kg
BNA	1,4-DICHLOROBENZENE	8270C/D	SS	47-84	*20*	0.33	mg/Kg
BNA	1,3-DICHLOROBENZENE	8270C/D	SS	47-84	*20*	0.33	mg/Kg
BNA	1,2-DICHLOROBENZENE	8270C/D	SS	48-86	*20*	0.33	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
BNA	1,2,4-TRICHLOROBENZENE	8270C/D	SS	48-87	*20*	0.33	mg/Kg
BNA	1,2,4,5-TETRACHLOROBENZENE	8270C/D	SS	52-99	*20*	0.33	mg/Kg
BNA	PYRIDINE	8270C/D RV	GW,WW	*10-74*	*40*	0.01	mg/L
BNA	PYRENE	8270C/D RV	GW,WW	45-176	28	0.001	mg/L
BNA	PHENOL	8270C/D RV	GW,WW	*10-69*	*40*	0.01	mg/L
BNA	PHENANTHRENE	8270C/D RV	GW,WW	46-163	29	0.001	mg/L
BNA	PENTACHLOROPHENOL	8270C/D RV	GW,WW	*10-128*	*40*	0.01	mg/L
BNA	N-OCTADECANE	8270C/D RV	GW,WW	37-183	39	0.01	mg/L
BNA	N-NITROSODIPHENYLAMINE	8270C/D RV	GW,WW	41-168	37	0.01	mg/L
BNA	2-NITRODIPHENYLAMINE	8270C/D RV	GW,WW	39-156	38	0.01	mg/L
BNA	N-NITROSODI-N-PROPYLAMINE	8270C/D RV	GW,WW	27-157	31	0.01	mg/L
BNA	N-NITROSODIMETHYLAMINE	8270C/D RV	GW,WW	*10-96*	36	0.01	mg/L
BNA	NITROBENZENE	8270C/D RV	GW,WW	22-154	37	0.01	mg/L
BNA	N-DECANE	8270C/D RV	GW,WW	*10-141*	36	0.01	mg/L
BNA	NAPHTHALENE	8270C/D RV	GW,WW	26-147	31	0.001	mg/L
BNA	ISOPHORONE	8270C/D RV	GW,WW	36-166	35	0.01	mg/L
BNA	INDENO(1,2,3-CD)PYRENE	8270C/D RV	GW,WW	42-184	32	0.01	mg/L
BNA	HEXACHLOROETHANE	8270C/D RV	GW,WW	*10-130*	39	0.01	mg/L
BNA	HEXACHLOROCYCLOPENTADIENE	8270C/D RV	GW,WW	*10-142*	*40*	0.00	mg/L
BNA	HEXACHLOROBENZENE	8270C/D RV	GW,WW	38-163	35	0.001	mg/L
BNA	HEXACHLORO-1,3-BUTADIENE	8270C/D RV	GW,WW	18-136	30	0.01	mg/L
BNA	FLUORENE	8270C/D RV	GW,WW	39-163	36	0.001	mg/L
BNA	FLUORANTHENE	8270C/D RV	GW,WW	46-171	37	0.001	mg/L
BNA	DI-N-OCTYL PHTHALATE	8270C/D RV	GW,WW	40-170	28	0.001	mg/L
BNA	DI-N-BUTYL PHTHALATE	8270C/D RV	GW,WW	33-175	39	0.001	mg/L
BNA	DIMETHYL PHTHALATE	8270C/D RV	GW,WW	*10-165*	37	0.001	mg/L
BNA	DIETHYL PHTHALATE	8270C/D RV	GW,WW	*10-182*	35	0.001	mg/L
BNA	DIBENZOFURAN	8270C/D RV	GW,WW	35-149	34	0.01	mg/L
BNA	DIBENZ(A,H)ANTHRACENE	8270C/D RV	GW,WW	43-187	31	0.001	mg/L
BNA	CHRYSENE	8270C/D RV	GW,WW	46-170	30	0.001	mg/L
BNA	CARBAZOLE	8270C/D RV	GW,WW	49-165	35	0.01	mg/L
BNA	CAPROLACTAM	8270C/D RV	GW,WW	*10-39*	37	0.01	mg/L
BNA	BIS(2-ETHYLHEXYL)PHTHALATE	8270C/D RV	GW,WW	42-191	33	0.001	mg/L
BNA	BIS(2-	8270C/D RV	GW,WW	26-149	34	0.01	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
	CHLOROISOPROPYL)ETHER						
BNA	BIS(2-CHLOROETHYL)ETHER	8270C/D RV	GW,WW	22-149	38	0.01	mg/L
BNA	BIS(2-CHLORETHOXY)METHANE	8270C/D RV	GW,WW	34-155	31	0.01	mg/L
BNA	BIPHENYL	8270C/D RV	GW,WW	33-151	32	0.01	mg/L
BNA	BENZYLBUTYL PHTHALATE	8270C/D RV	GW,WW	*10-178*	*40*	0.001	mg/L
BNA	BENZYL ALCOHOL	8270C/D RV	GW,WW	22-140	34	0.01	mg/L
BNA	BENZOIC ACID	8270C/D RV	GW,WW	10-75	20	0.01	mg/L
BNA	BENZO(K)FLUORANTHENE	8270C/D RV	GW,WW	42-178	33	0.001	mg/L
BNA	BENZO(G,H,I)PERYLENE	8270C/D RV	GW,WW	42-181	30	0.001	mg/L
BNA	BENZO(B)FLUORANTHENE	8270C/D RV	GW,WW	39-173	32	0.001	mg/L
BNA	BENZO(A)PYRENE	8270C/D RV	GW,WW	39-167	29	0.001	mg/L
BNA	BENZO(A)ANTHRACENE	8270C/D RV	GW,WW	46-167	29	0.001	mg/L
BNA	BENZIDINE	8270C/D RV	GW,WW	*10-86*	*40*	0.01	mg/L
BNA	BENZALDEHYDE	8270C/D RV	GW,WW	24-115	34	0.01	mg/L
BNA	AZOBENZENE	8270C/D RV	GW,WW	39-156	31	0.01	mg/L
BNA	ATRAZINE	8270C/D RV	GW,WW	50-149	38	0.01	mg/L
BNA	ANTHRACENE	8270C/D RV	GW,WW	48-167	26	0.001	mg/L
BNA	ANILINE	8270C/D RV	GW,WW	24-120	30	0.01	mg/L
BNA	ACETOPHENONE	8270C/D RV	GW,WW	35-130	32	0.01	mg/L
BNA	ACENAPHTHYLENE	8270C/D RV	GW,WW	34-162	31	0.001	mg/L
BNA	ACENAPHTHENE	8270C/D RV	GW,WW	37-159	30	0.001	mg/L
BNA	4-NITROPHENOL	8270C/D RV	GW,WW	*10-61*	*40*	0.01	mg/L
BNA	4-NITROANILINE	8270C/D RV	GW,WW	41-174	36	0.01	mg/L
BNA	4-CHLOROPHENYL-PHENYLETHER	8270C/D RV	GW,WW	39-155	33	0.01	mg/L
BNA	4-CHLOROANILINE	8270C/D RV	GW,WW	37-158	28	0.01	mg/L
BNA	4-CHLORO-3-METHYLPHENOL	8270C/D RV	GW,WW	14-158	*40*	0.01	mg/L
BNA	4-BROMOPHENYL-PHENYLETHER	8270C/D RV	GW,WW	40-166	36	0.01	mg/L
BNA	4,6-DINITRO-2-METHYLPHENOL	8270C/D RV	GW,WW	*10-164*	*40*	0.01	mg/L
BNA	3-NITROANILINE	8270C/D RV	GW,WW	38-153	33	0.01	mg/L
BNA	3,3-DICHLOROBENZIDINE	8270C/D RV	GW,WW	42-150	29	0.01	mg/L
BNA	3&4-METHYLPHENOL	8270C/D RV	GW,WW	11-132	*40*	0.01	mg/L
BNA	2-NITROPHENOL	8270C/D RV	GW,WW	14-158	*40*	0.01	mg/L
BNA	2-NITROANILINE	8270C/D RV	GW,WW	38-169	31	0.01	mg/L
BNA	2-METHYLPHENOL	8270C/D RV	GW,WW	19-122	36	0.01	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
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Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
BNA	2-METHYLNAPHTHALENE	8270C/D RV	GW,WW	27-151	32	0.001	mg/L
BNA	2-CHLOROPHENOL	8270C/D RV	GW,WW	16-129	*40*	0.01	mg/L
BNA	2-CHLORONAPHTHALENE	8270C/D RV	GW,WW	29-149	34	0.001	mg/L
BNA	2,6-DINITROTOLUENE	8270C/D RV	GW,WW	32-163	30	0.01	mg/L
BNA	2,4-DINITROTOLUENE	8270C/D RV	GW,WW	30-168	32	0.01	mg/L
BNA	2,4-DINITROPHENOL	8270C/D RV	GW,WW	*10-135*	*40*	0.01	mg/L
BNA	2,4-DIMETHYLPHENOL	8270C/D RV	GW,WW	19-160	*40*	0.01	mg/L
BNA	2,4-DICHLOROPHENOL	8270C/D RV	GW,WW	*10-157*	*40*	0.01	mg/L
BNA	2,4,6-TRICHLOROPHENOL	8270C/D RV	GW,WW	12-147	*40*	0.01	mg/L
BNA	2,4,5-TRICHLOROPHENOL	8270C/D RV	GW,WW	12-154	*40*	0.01	mg/L
BNA	2,3,4,6-TETRACHLOROPHENOL	8270C/D RV	GW,WW	10-152	*40*	0.001	mg/L
BNA	1-METHYLNAPHTHALENE	8270C/D RV	GW,WW	29-144	31	0.01	mg/L
BNA	1,4-DICHLOROBENZENE	8270C/D RV	GW,WW	15-129	34	0.01	mg/L
BNA	1,3-DICHLOROBENZENE	8270C/D RV	GW,WW	14-127	34	0.01	mg/L
BNA	1,2-DICHLOROBENZENE	8270C/D RV	GW,WW	16-134	33	0.01	mg/L
BNA	1,2,4-TRICHLOROBENZENE	8270C/D RV	GW,WW	18-130	32	0.01	mg/L
BNA	1,2,4,5-TETRACHLOROBENZENE	8270C/D RV	GW,WW	29-121	31	0.01	mg/L
Explosives	1,3,5-Trinitrobenzene	8330A/B	SS	82-105	20	0.5	mg/Kg
Explosives	1,3-Dinitrobenzene	8330A/B	SS		20	0.5	mg/Kg
Explosives	2,4,6-Trinitrotoluene	8330A/B	SS	75-90	20	0.5	mg/Kg
Explosives	2,4-Dinitrotoluene	8330A/B	SS	77-101	20	0.5	mg/Kg
Explosives	2,6-Dinitrotoluene	8330A/B	SS	84-101	20	0.5	mg/Kg
Explosives	2-Nitrotoluene	8330A/B	SS	83-99	20	0.5	mg/Kg
Explosives	3-Nitrotoluene	8330A/B	SS	79-103	20	0.5	mg/Kg
Explosives	4-Nitrotoluene (4-NT)	8330A/B	SS	83-104	20	0.5	mg/Kg
Explosives	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine	8330A/B	SS	81-101	20	0.5	mg/Kg
Explosives	Methyl-2,4,6-Trinitrophenylnitramine	8330A/B	SS	74-101	20	0.5	mg/Kg
Explosives	Nitrobenzene	8330A/B	SS	79-103	20	0.5	mg/Kg
Explosives	Octahydro - 1,3,5,7 -tetranitro-1,3,5,7-tetrazocine (HMX)	8330A/B	SS	86-108	20	0.0005	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
Explosives	Pentaerythritol Tetranitrate (PETN)	8330A/B	SS	72-121	21	2	mg/Kg
Explosives	Nitroglycerine	8330A/B	SS	63-127	20	2	mg/Kg
Explosives	Nitroguanidine	8330A/B	SS		20	8	mg/Kg
Explosives	1,3,5-Trinitrobenzene	8330A/B	GW	82-105	20	0.0005	mg/L
Explosives	1,3-Dinitrobenzene	8330A/B	GW		20	0.0005	mg/L
Explosives	2,4,6-Trinitrotoluene	8330A/B	GW	75-90	20	0.0005	mg/L
Explosives	2,4-Dinitrotoluene	8330A/B	GW	77-101	20	0.0005	mg/L
Explosives	2,6-Dinitrotoluene	8330A/B	GW	84-101	20	0.0005	mg/L
Explosives	2-Nitrotoluene	8330A/B	GW	83-99	20	0.0005	mg/L
Explosives	3-Nitrotoluene	8330A/B	GW	79-103	20	0.0005	mg/L
Explosives	4-Nitrotoluene (4-NT)	8330A/B	GW	46-87	20	0.0005	mg/L
Explosives	Hexahydro-1,3,5-Trinitro-1,3,5-Triazine	8330A/B	GW	81-101	20	0.0005	mg/L
Explosives	Methyl-2,4,6-Trinitrophenylnitramine	8330A/B	GW	74-101	20	0.0005	mg/L
Explosives	Nitrobenzene	8330A/B	GW	79-103	20	0.0005	mg/L
Explosives	Octahydro - 1,3,5,7 -tetranitro-1,3,5,7-tetrazocine (HMX)	8330A/B	GW	86-108	20	0.0005	mg/L
Explosives	Pentaerythritol Tetranitrate (PETN)	8330A/B	GW	72-121	20	0.0005	mg/L
Explosives	Nitroglycerine	8330A/B	GW	67-123	20	0.0005	mg/L
GC	1, 2 Dibromoethane (EDB)	504/8011	DW,GW, WW	70 - 130	<30	0.00002	mg/L
GC	1, 2 Dibromo-3-chloropropane	504/8011	DW,GW, WW	70 - 130	<30	0.00002	mg/L
GC	1,2,3-Trichloropropane	504/8011	DW,GW, WW	70 - 130	<30	0.0005	mg/L
THAA	Bromoacetic Acid	552.2	DW	70 - 130	<30	0.001	mg/L
THAA	Chloroacetic Acid	552.2	DW	70 - 130	<30	0.002	mg/L
THAA	Dibromoacetic Acid	552.2	DW	70 - 130	<30	0.001	mg/L
THAA	Dichloroacetic Acid	552.2	DW	70 - 130	<30	0.001	mg/L
THAA	Trichloroacetic Acid	552.2	DW	70 - 130	<30	0.001	mg/L
TPH	Petroleum Range Organics (TRPH)	FL-PRO	GW,	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH)	FL-PRO	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics (TRPH)	EPH TN	GW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH)	EPH TN	SS	50 - 150	<20	4.0	mg/Kg

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
This table is subject to revision without notice

Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
TPH	Petroleum Range Organics (TRPH) - C9-C18, C19-C36, C11-C22	MADEP EPH	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH) - C9-C18, C19-C36, C11-C22	MADEP EPH	SS	50 - 150	<20	5.5	mg/Kg
TPH	Petroleum Range Organics (TRPH) - C10-C28	DRO, 8015Mod	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH) - C10-C28	DRO, 8015Mod	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics (TRPH) – C10-C20, C20-C34	OHIO DRO	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH) – C10-C20, C20-C34	OHIO DRO	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics (TRPH) – gas, diesel, motor oil, etc.	OA2	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics (TRPH) – gas, diesel, motor oil, etc.	OA2	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics - C10-C28, C28-C40	DRORLA	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics - C10-C28, C28-C40	DRORLA	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics – C10-C32	DROWY	GW, WW	50 - 150	<20	0.1	mg/L
TPH	Petroleum Range Organics – C10-C32	DROWY	SS	50 - 150	<20	4.0	mg/Kg
TPH	Petroleum Range Organics – gas, diesel, motor oil, etc.	NWTPH-Dx	GW, WW	50 - 150	<20	0.25	mg/L
TPH	Petroleum Range Organics – gas, diesel, motor oil, etc.	NWTPH-Dx	SS	50 - 150	<20	25	mg/Kg
TPH	Petroleum Range Organics – C10-C28	DROWM	GW, WW	75 - 115	<20	0.1	mg/L
TPH	Petroleum Range Organics – C10-C28	DROWM	SS	70 - 120	<20	10	mg/Kg
TPH	Petroleum Range Organics – C10-C22	TPHAZ	SS	70-130	<20	30	mg/Kg
TPH	Petroleum Range Organics – C22-C32	TPHAZ	SS	70-130	<20	100.	mg/Kg
TPH	Petroleum Range Organics – C10-C32	TPHAZ	SS	70-130	<20	130.	mg/Kg
TPH	Petroleum Range Organics - C6-C12, C12-C28, C28-C35, C6-C35	TX TPH	SS	75 - 125	<20	50	mg/Kg
TPH	Petroleum Range Organics - C10-C21, C21-C35	DROMO	GW, WW	75 - 125	<20	1.0	mg/L

Table 12.3: QC Targets for Semi-Volatiles Accuracy (LCS), Precision and RLs
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Class	Analyte	Method	Matrix	Accuracy (%)	Prec. (RPD)	RL	Unit
TPH	Petroleum Range Organics - C10-C21, C21-C35	DROMO	SS	75 - 125	<20	20	mg/Kg
IH	Aromatic Hydrocarbons	NIOSH 1501	Air	85-115	<20	10	ug/sample

13.0 CORRECTIVE ACTION

13.1 In the event that a nonconformance occurs in conjunction with the analytical batch, a corrective action response (CAR) form must be completed. The cause of the event is stated on the form and the measures taken to correct the nonconformance clearly defined. The effectiveness of the corrective action must be assessed and noted. The CAR is kept on file by the QA Department. Corrective action procedures are documented in SOP #030208, *Corrective and Preventive Action*

13.2 Required Corrective Action

Control limits have been established for each type of analysis. When these limits are exceeded, corrective action must be taken. Calculated sample spike control limits are also used.

All samples and procedures are governed by ESCs quality assurance program. General corrective actions are as follows; however additional and more specific direction is provided in the specific determinative procedure. For more information, see the appropriate determinative SOP.

13.2.1 Laboratory QC Criteria and Appropriate Corrective Actions

If the analytical method contains acceptance/rejection criteria and it is more stringent than those controls generated by the laboratory the method criteria will take precedence.

13.2.2 Out Of Control Blanks: Applies to Method, Trip, Rinsate & Instrument Blanks

<u>Rejection Criteria</u> - Blank reading is more than twice the background absorbance or more than 1/2 RL.

<u>Corrective Action</u> - Blanks are re-analyzed and the response is assessed. Standard curves and samples are evaluated for any obvious contamination that is isolated or uniform throughout the run. If necessary, reagents are re-prepared. Analyses are not initiated until the problem is identified and solved. If samples have already been prepared or analyzed, the Department Manager or QA Department is consulted to determine if data needs to be rejected or if samples need to be re-prepared.

13.2.3 Out Of Control Laboratory Control Standards (LCS & LCSD)

Rejection Criteria - If the performance is outside of lab-generated control limits which are calculated as the mean of at least 20 data points ±3 times the standard deviation of those points (Listed in Section 12) and the marginal excedence allowance is surpassed (see section 12.2).

Corrective Action - Instrument settings are checked and the LCS standard is reanalyzed. If the LCS is still out of control, instrumentation is checked for systemic problems and repaired (if necessary). Re-calibration is performed and the samples affected since the last in control reference standard are rerun. The group leader, Department Manager, or QA Department is consulted for further action.

13.2.4 Out Of Control Matrix Spike Samples

Rejection Criteria - If sample is outside of lab-generated control limits from accuracy charts on matrix spike samples from a similar matrix (i.e., water, solid, etc). Limits are calculated as the mean of at least 20 data points ±3 times the standard deviation of those points.

Corrective Action - Spiking technique is assessed to ascertain if the sample has been spiked correctly. The spiked sample should be 1 – 5 times the client sample concentration; otherwise, the percent recovery (%R) or relative percent difference (%RPD) of the MS/MSD is flagged as not meaningful or usable. The sample is re-spiked and re-analyzed, along with several other similar samples in subset. If an out of control situation persists, sample matrix interference is indicated. Samples to be analyzed by standard additions are prepared (where appropriate), and the group leader, Department Manager, or QA Department is notified.

13.2.5 Out Of Control Duplicate Samples

Rejection Criteria - Lab-generated maximum RPD limit (as listed under precision in Section 12)

Corrective Action - Instrument and samples are checked to see if precision variance is likely (i.e., high suspended solids content, high viscosity, etc.). They are re-analyzed in duplicate and samples just before and just after the duplicated sample are re-checked. If problem still exists, Department Manager, or QA Department is notified to review the analytical techniques.

13.2.6 Out Of Control Matrix Spike Duplicates

Rejection Criteria - These QC samples can be out of control for accuracy, precision, or both.

Corrective Action - The appropriate corrective actions listed for either matrix spikes, duplicate samples, or both are followed.

NOTE: Some samples cannot be duplicated. This is the case for wipe samples, filters, and some water samples. When possible, sampling personnel should collect duplicate samples.

13.2.7 Out Of Control Calibration Standards: ICV, CCV, SSCV

Rejection Criteria - If the performance is outside of method requirements.

Corrective Action - Instrument settings are checked, calibration verification standard is reanalyzed. If the standard is still out of control, recalibration is performed, and samples affected since the last in control reference standard are rerun. The group leader, Department Manager, or QA Department will be consulted for further action.

14.0 RECORD KEEPING

Record keeping is outlined in SOP #010103, *Document Control and Distribution*, SOP #030203, *Reagent Logs and Records* and SOP #030201, *Data Handling and Reporting*. Semi-Volatile organics calibration data are recorded and integrated using HP Enviroquant software. Calibration data from the semi-volatile analyses, in addition to the initial and daily calibration, includes GC/MS autotunes, DFTPP reports and surrogate recovery reports. Hard copy records of initial calibration and daily calibration are stored with chromatograms and integrated with sample data by date analyzed.

15.0 QUALITY AUDITS

System and data quality audits are outlined in the ESC Quality Assurance Manual Version 8.0.