

**APPENDIX D**

**ATTACHMENT D-3**

**DATA QUALITY, VALIDATION AND LABORATORY REPORTS  
(Electronic Copy)**

**APPENDIX D, ATTACHMENT D-3**  
**FORMER SODIUM DISPOSAL FACILITY (SWMU 7.3)**  
**Electronic Copy of Validation Reports, COCs, and Case Narratives**  
**Readme File**

This Readme file contains information and instructions regarding the electronic copies of the Data Quality Report, validation reports, chain-of-custody forms, case narratives, and data tables Attachment D-3 of the *Group 8-Western Portion of Area IV RCRA Facility Investigation (RFI) Report Santa Susana Field Laboratory* (MWH 2007), and is provided electronically on the compact disc (CD) that comprises this attachment.

This read-only CD contains a summary data table and electronic copies of validation reports, chain-of-custody (COC) forms, and case narratives for samples collected at the FSDF RFI (SWMU 7.3). All data in the tables and documents included in this section were used for the RFI characterization and/or risk assessment of FSDF of the Group 8 – Western Portion of Area IV RFI Report.

There are five main components to this attachment (the Laboratory Data Quality Report, three folders and one summary data table):

**1. Data Quality Report**

This report was prepared to describe data quality of samples collected for the FSDF Group 8 Reporting Area.

**2. “Soil” Folder**

This folder contains sampling and analytical information for soil samples collected at the FSDF RFI Site. The folder is divided into four subfolders:

- **COC – Case Narratives:** This subfolder contains COCs, analytical request change forms (where applicable), and analytical report case narratives. The electronic files are scanned images of hard copy documents presented in Portable Document Format (PDF) files, which can be viewed using Adobe Acrobat software. The electronic files are grouped and organized in this subfolder by the sample delivery group (SDG) number, a tracking and reporting number used by the laboratory to group up to 20 samples upon receipt.

The COCs were generated in the field at the time of sample collection to document the handling and chain of custody for the samples.

The case narrative is text typically found at the beginning of the laboratory report. Laboratories use the case narrative to describe any deviation from standard handling or analytical procedures for a sample or SDG.

Change Forms are generated for samples subsequent to shipment to the laboratory. Generally, change forms were generated when changes or corrections to a COC were needed (e.g., when additional analyses were requested for a sample).

- **Validation Reports:** Validation reports include laboratory results and a data assessment form completed by AMEC Earth and Environmental, Inc. (AMEC) or MEC<sup>X</sup>, LLC (MEC<sup>X</sup>) data validators. The validation report summaries identify the analytical method and target compounds for each sample. Additionally, the report indicates whether each compound was detected, the concentration (or detection limit if not detected), and applicable laboratory and data validation qualifiers. With the exception of field QC samples (field blanks, equipment rinsates), all analytical data generated from background field samples were validated by AMEC or MEC<sup>X</sup>. Data validation report PDFs are sorted by their validation report numbers, which can be associated with results of interest in the FSDF Data Table (see description in section 5 below).
- **Not Validated:** This folder contains Lab reports (with copy of COC when available) or copies of Results Table from previous site investigations that were not covered by this program. Asbestos results contained in this folder are not included in the FSDF Data table.
- **DTSC Samples:** This folder contains laboratory result sheets for samples collected independently by DTSC (not splits of RFI samples). Additionally included is a DTSC supplied summary data table for sample results with no available laboratory result forms.

### **3. “Soil Vapor” Folder**

The Soil Vapor folder contains sampling and analytical information for soil vapor samples collected at FSDF RFI Site. The folder contains two subfolders:

- **COC – Case Narrative:** See the analogous description for this subfolder in the Soil Matrix section above.
- **Validation Reports:** See the analogous description for this subfolder in the Soil Matrix section

### **4. “Surface Water” Folder**

The Surface Water folder contains sampling and analytical information for surface water samples collected at FSDF RFI Site. The folder contains three subfolders:

- **COC – Case Narrative:** See the analogous description for this subfolder in the Soil Matrix section above.

- **Validation Reports:** See the analogous description for this subfolder in the Soil Matrix section
- **Not Validated:** See the analogous description for this subfolder in the Soil Matrix section

## **5. FSDF Data Table**

This table is a sampling and analytical results table for FSDF samples included in the FSDF RFI site characterization. The table is provided in PDF format. The data was queried from the SSFL database, which has been maintained throughout the history of the RFI program.

Results included in the FSDF RFI risk assessment are populated with a “yes” in the “Included in Risk Assessment” column of the table.

This table can be used as a correlation look-up table to make documents in this appendix easier to access.

The FSDF RFI Site Data Table is sorted (in order) by:

Matrix Type  
Collection Date  
Object Name  
Sample Identification  
Analytical Method  
Analyte

The structure and directions for use of this table is described below.

### **A. Table Structure**

- **Object Name** –Identifier assigned to a unique location point. Samples collected at various depths at a single location will carry the same Object Name.
- **Sample Name** – Prior to June 15, 2006 this represented a unique 5 character identifier assigned in the field to samples to identify analytical laboratory and facilitate database management. For samples collected after June 15, 2006, a single unique ID was applied which substituted for both ‘Sample Name’ and “Sample Identification”. This new identifier is presented in both columns as it is more consistent with ‘Sample Identification’ conventions but also replaces the ‘Sample Name’ as the unique identifier.
- **Sample Identification** –Identification assigned to sample to denote RFI site, sample collection method and sample matrix type, sample location, and sample number. Naming conventions are described in Table 4-1 of the RCRA Facility Investigation Program Report (MWH 2004). For samples collected after June 15, 2006, this column is populated with the “Sample Name”.

- **Collection Date** – Date of sample collection.
- **Matrix** – Surficial sample matrix. See Sample Collection and Matrix Type section of Table 4-1 of the RFI Program Report (MWH, 2004).
- **Sample Type** – Sample type indicates whether the samples is a primary, field duplicate, or split sample. A more detailed description of the different sample types can be found in the Quality Assurance Project Plan (QAPP) contained in the RCRA Facility Investigation Work Plan Addendum Amendment (Ogden. 2000a).
- **Result Type** – Result type indicates whether the results is a primary, a lab repeat analysis or a tentatively identified compound
- **Analytical Method** – Analytical method use to analyze sample.
- **Analyte** – Chemical for which the sample is analyzed.
- **Concentration** – The concentration of a detected analyte or, if the analyte was not detected, the appropriate detection limit for that analytical method.
- **Units** – Unit of measurement for analyte (e.g., milligrams per kilogram [mg/kg]).
- **Validated** – Indicates the validation status of the individual result (see "Project Qualifier").
- **Project Qualifier** – If "Validated" column is populated with "Yes". Project Qualifier represents a validation qualifier code assigned by data reviewer at AMEC or MEC<sup>X</sup> during the validation process. These codes are defined in Table 1.2 of Appendix A of the RFI Program Report (MWH, 2004).  
If "Validated" column is populated with "No" then Project Qualifier represents a Laboratory qualifier code assigned by the analytical laboratory who performed the analysis.
- **PQL** – The Practical Quantitation Limit (PQL) is the concentration that can be reliably measured within specified limits during routine laboratory operating conditions using approved methods. Under the SSFL RFI program organics and perchlorate are validated and reported to the PQL.
- **MDL** – The Method Detection Limit (MDL) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. Under the SSFL RFI program metals are validated and reported to the MDL.
- **Sample Delivery Group** – Sample Delivery Group (SDG) number is assigned by the laboratory upon receipt of samples. A single SDG number is assigned to all samples on one COC form (up to 20 samples), and each laboratory report includes one SDG.
- **Excavated** – Indicates whether the soil from which the sample was collected has been excavated. If the sample was excavated, this column is populated with "yes". Samples that have not been excavated are designated with "no" in this column.
- **Analytical Laboratory** – Analytical laboratory where the sample was analyzed.
- **Validation Report Number** – Tracking number assigned by AMEC or MEC<sup>X</sup>. The validation report number provides a system to associate the data in the RFI database with the hard copy version of the validation report. Validation report number

assignments and method associations are defined in Table B-1-2 of Appendix B-1 in the RFI Program Report (MWH, 2004).

- **Northings and Eastings** – Map Coordinates (State Plane, NAD 27 Zone V).
- **Included in Risk Assessment** – Populated with either a “yes” or a “no”. A “yes” in this column indicates the result was included in the risk assessment for FSDF. See Appendix F of the Group 8 Bundle Report for more information regarding risk assessments.
- **Rationale for Risk Exclusion** – provides justification for not including a result in the risk assessment for FSDF. This applies only to samples that were not included in the risk assessment. Results with no value in this column were included in the risk assessment. See Appendix F of the Group 8 Bundle Report for more information regarding risk assessments.

#### B. Instructions for use as look-up tables

These tables are configured to facilitate the search for a document in any of the folders described above. To locate documents for samples associated with a particular result:

1. Using the table’s sorting priority described earlier in this section, locate the sample identification and laboratory method.
2. Scroll right to the SDG and validation report number columns.
3. Note the appropriate SDG and validation report number.

Locate the document of interest under the appropriate folder as described above. Validation reports are organized by the validation report numbers.

## **DATA QUALITY REPORT**

**GROUP 8 – WESTERN PORTION OF AREA IV  
RCRA FACILITY INVESTIGATION REPORT  
SANTA SUSANA FIELD LABORATORY  
VENTURA COUNTY, CALIFORNIA**

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***VOLUME III – RFI SITE REPORTS***

***APPENDIX D, ATTACHMENT D-3***

***FORMER SODIUM DISPOSAL FACILITY (SWMU 7.3)***

***LABORATORY DATA QUALITY REPORT***

**Prepared For:**

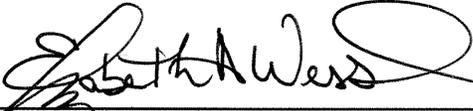
**THE BOEING COMPANY  
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## LIST OF ACRONYMS AND ABBREVIATIONS

CAS	Columbia Analytical Services
CEL	Calscience Environmental Laboratory
EAS	Environmental Analytical Service
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
FSDF	Former Sodium Disposal Facility
GC/MS	Gas Chromatography/Mass Spectroscopy
GEL	General Engineering Laboratories
ICSA	Interference Check Sample A
LCS	Laboratory Control Sample
MDL	Method Detection Limit
MEC <sup>x</sup>	MEC <sup>x</sup> , LLC
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MWH	Montgomery Watson Harza, Inc.
OCDD	Octachlorodibenzo-p-dioxin
PAH	Polynuclear Aromatic Hydrocarbon
PARCC	Precision, Accuracy, Representativeness, Completeness and Comparability
PCB	Polychlorinated Biphenyl
PE	Performance Evaluation
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
RL	Reporting Limit
RPD	Relative Percent Difference
SIM	Selective Ion Monitoring
SOP	Standard Operating Procedure
SSFL	Santa Susana Field Laboratory
SVOC	Semivolatile Organic Compound
TCDF	Tetrachlorodibenzofuran
TIC	Tentatively Identified Compound
TPH	Total Petroleum Hydrocarbons
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

### **D3.1 OVERALL QUALITY ASSURANCE PROGRAM**

The Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at the Santa Susana Field Laboratory (SSFL) includes soil, groundwater, surface water, and biota sampling and analysis, as well as passive and active soil gas sampling and analysis following agency-approved work plans (Ogden 1996, 2000). Group 8 Former Sodium Disposal Facility (FSDF) samples were analyzed by one or more of the following methods:

- Volatile organic compounds (VOCs) by United States Environmental Protection Agency (USEPA) SW-846 Method 8260B, and USEPA Method TO-15 selective ion monitoring (SIM),
- Polynuclear aromatic hydrocarbons (PAHs) by USEPA SW-846 Methods 8270C and 8270C SIM,
- Semivolatile organic compounds (SVOCs) by USEPA SW-846 Method 8270C,
- Polychlorinated biphenyls (PCBs) by USEPA SW-846 Method 8082,
- Total petroleum hydrocarbons (TPH) by USEPA SW-846 Method 8015B, modified,
- Metals by USEPA SW-846 Methods 6010B and 6020,
- Mercury by USEPA SW-846 Methods 7471A (soil) and 7470A (water),
- Dioxins and furans by USEPA Method 1613B,
- General minerals, including perchlorate by USEPA Method 314.0 modified for soils and USEPA SW-846 Method 8321A, fluoride by USEPA Method 300.0, and pH by USEPA SW-846 Method 9045C.

The resulting data was validated by qualified chemists following USEPA guidelines as described in the RFI Quality Assurance Project Plans (QAPPs) (Ogden 1996 and 2000) and data validation standard operating procedures (SOPs). These data validation procedures are based on USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (February 1994) and National Functional Guidelines for Inorganic Data Review (February 1994).

The Group 8 FSDF sampling effort collected and analyzed soil samples following RFI protocols. Field Quality Control (QC) samples provide a means of evaluating the quality of field sampling

procedures, the effectiveness of equipment decontamination procedures, and the potential for introduction of contaminants unrelated to the project. Field QC samples collected during the project included field blanks, equipment rinsates, trip blanks, field duplicates, and split samples. Unless otherwise noted, field QC samples were collected according to the SSFL RFI QAPPs.

Data from all samples collected in support of the Group 8 FSDF sampling effort were subsequently validated at either USEPA Level IV or V by MEC<sup>x</sup>, except for samples analyzed for VOCs by Method TO-15. Samples analyzed by TO-15 were validated at either USEPA Level IV or a blend of USEPA Level IV and V. The associated data validation reports, annotated laboratory result forms, and data tables are included in folders located in Attachment D-3.

According to the established data validation protocols, analytical results were annotated following validation with the following qualifications: “U” (nondetected), “J” (estimated), “UJ” (estimated nondetect), “N” (tentative identification), “NJ” (estimated and tentatively identified), and “R” (rejected). Data with “U,” “J,” “UJ,” “NJ,” or “N” qualifiers are usable; data with an “R” qualifier are unusable for any purpose. The data are additionally annotated with codes indicating the reason for the qualification. The following items were reviewed during the Level V validation process: sample management (collection techniques, sample containers, preservation, handling, transport, chain-of-custody, holding times); method blank sample results; blank spike and laboratory control sample (LCS) results; surrogate recoveries, if applicable; matrix spike/matrix duplicate (MS/MSD) recoveries and precision; laboratory duplicate precision, if applicable; serial dilution precision, if applicable; field quality assurance / quality control (QA/QC) sample results; and other QC indicators as applicable. Level IV validation included review of the following: sample management, gas chromatography/mass spectroscopy (GC/MS) instrument performance, initial and continuing calibration, method blank results, continuing calibration blank results, matrix spike sample results, surrogate results, laboratory and field QC sample results, internal standard performance, target compound identification, compound quantification, reported detection limits, and a definitive review of the raw data. Blended Level IV/V validation included review of sample management; initial and continuing calibration, method blank sample results; blank spike and LCS results; surrogate recoveries, MS/MSD recoveries and precision; laboratory duplicate precision, if applicable; internal standard performance; and field quality assurance / quality control (QA/QC) sample results.

As the Group 8 FSDF sampling effort was not a complete field project, but an action intended to eliminate gaps in the FSDF data set, a precision, accuracy, representativeness, completeness, and comparability (PARCC) parameter assessment was not performed.

As discussed below in Sections 2 and 3, the Group 8 FSDF data quality is acceptable for the purposes of the RFI, with qualifications as needed based on review by MEC<sup>x</sup>.

### **D3.2 QUALITY ASSURANCE FINDINGS FOR HISTORIC AND PRIMARY DATA**

The quality of historic and primary data collected from the FSDF RFI Site was reviewed as part of the overall data quality assessment in the RFI Program Report (MWH 2004) and details regarding specific samples and analyses are found therein. The RFI Program Report was not site specific, but a programmatic data review. As such, the quality concerns listed below may or may not affect the FSDF site samples. In general, however, the quality of the historic and primary data was acceptable, except as summarized in the sections below.

#### **D3.2.1 HISTORIC DATA**

Historic data validated for the RFI consist of samples collected by ICF Kaiser, McLaren/Hart, and Groundwater Resource Consultants, Inc. from 1987 to 1995. These soil samples were analyzed for dioxins, general minerals, metals, SVOCs, TPH, PCBs, and VOCs. As the samples comprising the historic data were collected by other consulting firms, not all QC data were available; however, validation was performed to the extent possible. In no instance did the lack of QC data invalidate the use of the historic data for the RFI. Historic data that was not validated is not addressed in this report.

#### **D3.2.2 PRIMARY DATA**

Primary samples were collected for the RFI from 1995 to June 2007. These soil samples were analyzed for dioxins, general minerals, metals, PAHs, TPH, PCBs, SVOCs, and VOCs. The quality of the primary data was acceptable with the exceptions noted in the sections below.

### **D3.2.2.1 INTERFERENCE IN SOIL METAL ANALYSES**

While not all laboratories exhibited soil matrix interference in their metals analyses, most soil analyses were affected by high concentrations of the interfering analytes, specifically iron, aluminum, and vanadium. Antimony was the most consistently affected analyte; however, some other elements were affected.

To account for these interferences, the corrective actions taken resulted in the reporting limits (RLs) of the affected analytes being raised to a concentration equivalent to or greater than the interference in the sample. Detects reported below these levels were qualified as nondetected or as estimated nondetects. Detects reported above these levels were reviewed and their validity were determined on a case-by-case basis. Some detects reported above the raised reporting limits were found to have been affected by interference and were qualified as estimated nondetects.

### **D3.2.2.2 Columbia Analytical Services Semivolatile Organic Compounds**

Samples were analyzed by Columbia Analytical Services (CAS) for SVOCs by EPA SW-846 Method 8270. CAS also analyzed one performance evaluation (PE) sample at a dilution. Of the 21 spiked compounds, CAS reported nine compounds as nondetected and five other results were recovered outside the PE sample performance acceptance limits provided by the sample supplier. Additionally, CAS reported eight compounds as detected that were not spiked in the PE sample. Although CAS reanalyzed the samples to determine the source of the discrepancies, the reanalysis results were inconclusive. Level IV review of any CAS semivolatile data was recommended where critical decisions were made.

### **D3.2.2.3 COLUMBIA ANALYTICAL SERVICES TOTAL PETROLEUM HYDROCARBONS**

Samples were analyzed for TPH by CAS by modified EPA SW-846 Method 8015B. TPH was reported in four hydrocarbon ranges; gasoline (C8-C11), kerosene (C11-C14), diesel (C14-C20), and lubricant oil (C20-C30). Due to the inadequate integration and overlapping target compound hydrocarbon range retention time windows, all results were qualified as estimated detects or nondetects.

#### **D3.2.2.4 DIOXIN ANALYSES BY EPA METHOD SW-846 8290**

Dioxin data quality was affected by practices at three different laboratories; Alta Analytical (Alta) (El Dorado Hills, CA), Pace Analytical (Pace) (Minneapolis, MN) and Triangle Laboratory (Triangle) (Durham, NC). Alta data with octachlorodibenzo-p-dioxin (OCDD) concentrations that exceeded the linear range of the calibration were qualified as estimated. Alta and Pace detects for 2,3,7,8-tetrachlorodibenzo-p-furan (TCDF) detected below the calibration range were qualified as estimated. Triangle's estimated detection limits (EDLs) were not compound-specific for each sample and are not comparable to EDLs generated according to the method and reported by other laboratories.

#### **D3.2.2.5 SOIL VAPOR INCOMPLETE BULB DECONTAMINATION AND INSTRUMENT CARRYOVER**

Early in the soil vapor sampling effort, detects in some samples were traced back to incomplete decontamination of bulbs used for sample collection. Additional decontamination procedures were therefore added for sample bulbs containing concentrations of VOCs greater than 1,000 micrograms per liter ( $\mu\text{g/L}$ ). Results for 46 site samples through the SSFL site were rejected due to incomplete bulb decontamination.

Due to very high concentrations of target compounds in some of the samples, effective dilutions were difficult to determine. The laboratory, Centrum (Riverside, CA), reported a few target compounds above the linear range of the calibration, even from dilution analyses. Further dilutions were not performed, resulting in instrument carryover. As a result, 16 compound results were qualified as estimated detects.

### **D3.3 QUALITY ASSURANCE FINDINGS FOR GROUP 8 FSDF SAMPLES**

Samples were collected for the Group 8 FSDF in five events, one each in July 2006, February 2007, April 2007, May 2007, and June 2007. Soil samples collected as part of the Group 8 sampling effort at the FSDF RFI Site consist of 11 samples for dioxins, 82 samples for general minerals (perchlorate, fluoride, and pH), 44 samples for metals (including mercury), 7 samples for PAHs, 14 samples for PCBs, 11 samples for SVOCs, 16 samples for TPH, 4 soil samples for VOCs, and 10 samples for VOC soil vapor constituents.

Equipment rinsate samples, field blank samples, and trip blank samples were collected in association with all applicable analyses performed for Group 8. (As equipment rinsate and field blank samples may apply to more than one Group 8 site, the equipment rinsate or field blank sample may be presented in another Appendix.) Nine field duplicate and seven laboratory split samples were collected specific to the FSDF RFI Site.

### **D3.3.1 DIOXINS**

SGS (formerly Paradigm), located in Wilmington, North Carolina, analyzed 11 soil samples, 1 field duplicate samples, 1 equipment rinsate sample, and 1 field blank sample for 19 dioxin and furan compounds by USEPA Method 1613B. All data are usable as no results were rejected. No results were reported with elevated reporting limits (RLs). Several compounds were detected in most of the samples. A couple compounds detected in some of the samples were qualified as nondetected due to method blank contamination. One compound in one sample was qualified as an estimated detect due to a detect in a field QC sample. A couple detects for 2,3,7,8-TCDF were qualified as estimated as the laboratory did not perform a confirmation analysis and one result for OCDD was qualified as estimated as it was reported above the linear range of the calibration. All results identified as Estimated Maximum Possible Concentration (EMPCs) were qualified as estimated non detects.

Two field duplicate samples were collected and analyzed by SGS for dioxin and furan compounds. In both field duplicate pair, there were a number of common target compound detects however, most relative percent differences (RPDs) were greater than 100%. The pairs were not considered to be in agreement.

One laboratory split sample was collected and analyzed for dioxin and furan samples by TestAmerica-Knoxville (formerly Severn Trent Laboratories), located in Knoxville, Tennessee. There were two common target compound detects with RPDs less than 100% and one target compound detected in the primary sample that was reported as an EMPC and qualified as an estimated nondetect in the split sample. The pair was considered to be in good agreement.

### **D3.3.2 GENERAL MINERALS AND OTHER ANALYTES**

TestAmerica-Irvine, located in Irvine, California, analyzed 43 samples, 2 field duplicate samples, 1 equipment rinsate, and 1 field blank for perchlorate by EPA Method 314.0 modified for soil,

and 33 soil samples and 2 field duplicate samples for pH by SW-846 Method 9045C. All results are usable as no data were rejected, except in cases where a sample had multiple analytical results. In cases where a sample had multiple analytical results, the most technically sound result was accepted by the data validator. The factors used to determine the most technically sound result included the lowest achievable reporting limit, the use of pretreatment cartridges to remove matrix interference, and the chemists' professional evaluation of the quality of the chromatography. Two perchlorate results were reported with elevated method detection limits (MDLs) and RLs as they were analyzed at dilution in order to report perchlorate within the linear range of the calibration. The largest dilution factor was 500x.

Perchlorate was detected in a couple samples. A few perchlorate results were qualified as estimated detects due to confirmation spike recoveries outside of the QC limits. A few perchlorate results were qualified as estimated detects and nondetects for calibration verification recoveries outside of the QC limits. No pH results were qualified.

Two field duplicate samples were collected and analyzed for perchlorate and pH by TestAmerica-Irvine. Perchlorate was not detected in any of the field duplicate samples and the RPDs for pH were both less than 100%. The pairs were considered to be in good agreement.

TestAmerica-Denver (Formerly Severn Trent Laboratories), located in Denver, Colorado performed a perchlorate confirmation analysis on one soil sample by USEPA SW-846 Method 8321A. The result was qualified as an estimated detect as perchlorate was reported below the RL.

Three laboratory split samples were collected and analyzed for perchlorate and one laboratory split sample was collected and analyzed for pH by General Engineering Laboratory (GEL), located in Charleston, South Carolina. The pH RPD was less than 100% and the pH split pair was considered to be in good agreement. Perchlorate was not detected in any of the samples in two split pairs and these pairs were considered to be in good agreement. Perchlorate was detected below the RL in the third laboratory split sample but was not detected in the primary sample. This pair was considered to be in reasonable agreement.

GEL analyzed 15 soil samples, 2 field duplicate samples, 1 equipment rinsate, and 1 field blank sample for fluoride by EPA Method 300.0, 13 soil samples, 1 field duplicate sample, 1 equipment rinsate, and 1 field blank for perchlorate by USEPA Method 314.0 modified for soil,

and 9 soil samples and 1 field duplicate for pH by USEPA SW-846 Method 9045C. All results are usable as no results were rejected. No results were reported at elevated MDLs or RLs.

Fluoride was detected in all samples. All fluoride results were qualified as estimated detects due to matrix spike recoveries outside of the QC limits. Perchlorate was detected in a couple samples. A couple perchlorate results were qualified as estimated detects due to a confirmation spike recovery or because no confirmation spike was performed. One perchlorate result was qualified as an estimated detect because the RPD between the original analysis and the confirmation analysis exceeded QC limits. A couple perchlorate results were qualified as estimated detects and nondetects for calibration verification recoveries outside of the QC limits. No pH results were qualified.

One field duplicate pair was collected for perchlorate, one field duplicate pair was collected for pH, and three field duplicates were collected and analyzed for fluoride by GEL. Perchlorate was not detected in either field duplicate sample and the pH and fluoride RPDs were less than 100%. The pairs were considered to be in good agreement.

### **D3.3.3 METALS**

TestAmerica-Irvine analyzed 1 soil sample for aluminum, 3 soil samples for sodium, 1 sample for aluminum and sodium, 1 soil sample for sodium and lead, and 9 soil samples, 1 field duplicate sample, 1 equipment rinsate, and 1 field blank for 19 metals by SW-846 Methods 6010B, 6020, 7470A, and 7471A. All data are usable as no results were rejected. No results were reported with elevated method detection limits MDLs or RLs. Most metals were detected in most of the samples. A couple analytes initially detected in a few samples were qualified as estimated nondetects due to blank contamination. There were no field QC sample qualifications although there were analytes detected in the field QC samples. A couple results for boron and sodium were qualified as estimated detects and nondetects due to MS/MSD recoveries outside of the QC limits. A couple results for boron were qualified as estimated detects due to boron detected in the Interference Check Sample A (ICSA). One mercury result was qualified as an estimated detect due to an exceeded analytical holding time.

Two field duplicate samples were collected and analyzed for metals by TestAmerica-Irvine. In one pair, silver was detected just above the MDL in the duplicate sample but was not detected in the primary sample. In the other pair, boron was detected below the RL in the duplicate samples

but was not detected in the primary sample. The pairs were considered to be in reasonable agreement.

One laboratory split sample was collected and analyzed for metals by GEL. Zirconium was detected and silver was detected just above the MDL in the split sample but were not detected in the primary sample. Boron in was detected in the split sample but was qualified as an estimated nondetect in the primary sample due to method blank contamination. Selenium and antimony were detected just above the MDLs in the primary sample but were not detected in the split sample. The pair was considered to be in reasonable agreement.

GEL analyzed 8 soil samples for arsenic, 7 soil samples and 1 field duplicate sample for zirconium, 3 soil samples and 1 field duplicate sample for sodium, 3 soil samples for sodium and zirconium, and three soil samples and one field duplicate for mercury and zirconium by SW-846 Methods 6010B, 6020, 7470A, and 7471A. One zirconium result was rejected due to low MS/MSD recoveries. All other data are usable as no other results were rejected. Most 6020 analytes were reported from 2× dilutions.

Most metals were detected in most samples. One mercury result was qualified as an estimated detect due to negative blank results. Most zirconium results were qualified as estimated detects or nondetects due to MS/MSD recoveries outside of the QC limits and MS/MSD RPDs that exceeded QC limits.

Three field duplicate pairs were collected and analyzed for metals by GEL. All detects were in common and all RPDs were less than or equal to 100 percent. The duplicate pairs were considered to be in good agreement.

Three laboratory split samples were collected and analyzed for metals by TestAmerica-Denver. The results for one split pair were not evaluated as the zirconium result was rejected in the primary sample due to low MS/MSD recoveries. All detects were in common in the remaining pairs with one RPD slightly above 100%. The two evaluated pairs were considered to be in reasonable agreement.

#### **D3.3.4 PAHS**

TestAmerica-Irvine subcontracted the PAH analyses to Calscience Environmental Laboratories (CEL), located in Garden Grove, California. CEL analyzed 2 soil samples, 1 field duplicate samples, 1 field blank, and 1 equipment rinsate for 18 PAH compounds, n-nitrosodimethylamine, and added phthalates by SW-846 Method 8270C SIM. All data are useable as no data were rejected. No results were reported at elevated MDLs or RLs. A couple target compounds were detected in a all of the samples. There were no method blank or field QC sample qualifications although there were a target compounds detected in the method blanks and field QC samples. No results were qualified.

One field duplicate sample was collected and analyzed for PAHs by CEL. All detects were in common and the RPDs were less than 100%. The pair was considered to be in good agreement.

GEL analyzed 5 soil samples, 1 field duplicate sample, 1 one field blank, and 1 equipment rinsate for 18 PAH compounds, n-nitrosodimethylamine, and added phthalates by SW-846 Method 8270C. The analyses were not performed using SW-846 8270C SIM as GEL was able to achieve the necessary reporting limits by 8270C in the full scan mode. All data are useable as no results were rejected. No results were reported at elevated MDLs or RLs. A phthalate compound was detected in most of the samples. One compound was qualified as nondetected due to method blank contamination.

One field duplicate samples was collected and analyzed for PAHs by GEL. One phthalate compound was detected below the RL on the primary sample but was not detected in the duplicate sample. The pair was considered to be in reasonable agreement.

#### **D3.3.5 PCBS**

TestAmerica-Irvine analyzed 11 soil samples, 2 field duplicate, 1 field blank, and 1 equipment rinsate sample for seven Aroclors by SW-846 Method 8082. All data are usable as no results were rejected. All results for three samples were reported from 2× dilutions due to matrix interference. A couple of target compounds were detected in a few of the samples. There were no method blank or field QC sample qualifications as there were no detects in the associated method blanks or field QC samples. Detected results for a couple of target compounds were qualified as estimated due to coelution.

One field duplicate pair was collected and analyzed for PCBs by TestAmerica-Irvine. There were two common detects and both RPDs were less than 100%. The pair was considered to be in good agreement.

GEL analyzed one laboratory split sample for PCBs. There were no target compounds detected in either of the samples and the pair was considered to be in good agreement.

GEL analyzed 3 soil samples, 1 field duplicate, 1 equipment rinsate, and 1 field blank for seven Aroclors by SW-846 Method 8082. All data are usable as no data were rejected. No results were reported at elevated RLs or MDLs. A couple of target compounds were detected in most of the samples. No results were qualified.

One field duplicate pair was collected and analyzed for PCBs by GEL. There were two common detects with RPDs less than 100%. The primary sample had one other target compound detected above the RL. The pair was considered to be in reasonable agreement.

Two laboratory split samples were collected for PCBs; one analyzed by TestAmerica-Denver and the other analyzed by GEL. Neither pair contained target compound detects; therefore, the pairs were considered to be in good agreement.

### **D3.3.6 SVOCS**

GEL analyzed 11 soil samples, 2 field duplicates, 1 equipment rinsate, and 1 field blank for 69 SVOC compounds and tentatively identified compounds (TICs) by SW-846 Method 8270C. All results are usable as no data were rejected, except in cases where a sample had multiple analytical results. In cases where a sample had multiple analytical results, the most technically sound result was accepted by the data validator. The factors used to determine the most technically sound result included the lowest achievable reporting limit and the chemists' professional evaluation of the quality of the analysis. No results were reported at elevated MDLs or RLs.

There were no target compounds detected. A few TICs were reported in most of the samples. Some TICs were rejected due to method blank contamination, or because they were indicative of chromatography column breakdown, or extraction contamination. The remaining TIC

compounds were qualified as estimated and tentatively identified. GEL analysts and MECX data validators reviewed TIC data for specific semivolatile compounds and classes of compounds, such as glycols, and none were detected.

### **D3.3.7 TPH**

TestAmerica-Irvine analyzed 2 soil samples, 1 field duplicate, 1 field blank, and 1 equipment rinsate sample for four hydrocarbon ranges by SW-846 Method 8015B, modified. TestAmerica-Irvine also reported total TPH (C8-C30). Total TPH (C8-C30) was rejected as duplicate data. All data are acceptable as no primary data were rejected. No results were reported at elevated MDLs or RLs. No target compounds were detected and no results were qualified.

One field duplicate sample was collected and analyzed by TestAmerica-Irvine for TPH. There were no target compounds detected in either sample and the pair was considered to be in good agreement.

GEL analyzed 8 soil samples and 2 field duplicate samples for terphenyl compounds, 5 soil samples, 1 field duplicate sample, 1 equipment rinsate, and one field blank for terphenyl compounds and four hydrocarbon ranges by SW-846 Method 8015B, modified. All data are acceptable as no data were rejected. No data were reported at elevated MDLs or RLs.

A couple target compounds/ranges were detected in a few of the samples. A few results were qualified as nondetected due to method blank contamination. There were no field QC sample qualifications as there were no detects in the associated field QC samples.

Two field duplicate pairs were collected and analyzed for terphenyl compounds and one field duplicate pair was collected and analyzed for terphenyl compounds and TPH by GEL. There were no target compounds/ranges detected in any of the field duplicate samples and the pairs were considered to be in good agreement.

### **D3.3.8 VOCS**

TestAmerica-Irvine analyzed 2 soil, 1 equipment rinsate, and 1 trip blank for trichloroethene only, 2 soil samples, 1 field duplicate, 1 field blank, and 1 equipment rinsate for 67 VOC compounds by SW-846 Method 8260B. All results are usable as no results were rejected. No

results were reported at elevated MDLs or RLs. Trichloroethene was detected in one sample. No further target compounds were detected in the samples. All results for 2-chloro-1,1,1-trifluoroethane and chlorotrifluoroethene were qualified as estimated nondetects as TestAmerica-Irvine did not calibrate for these compounds but searched for them as TICs.

One field duplicate pair was collected and analyzed for VOCs. There were no target compounds detected in either sample and the pair was considered to be in agreement.

### **D3.3.9 VOCS IN SOIL VAPOR SAMPLES**

Centrum Analytical, located in Riverside, California, used a mobile lab to analyze 6 soil vapor samples, 1 field duplicate sample, and 1 field blank for 24 VOC compounds by SW-846 Method 8260B modified for soil vapor constituents. For one sample, the sample flow dropped to zero after only four minutes of collection. The data were not considered to be representative of the site and were rejected. All other data are usable as no other data were rejected. No results were reported at elevated MDLs or RLs. No target compounds were detected in the samples. A couple results in most of the samples were qualified as estimated nondetects due to low LCS recoveries or calibration verification recoveries.

One field duplicate sample was collected and analyzed for soil vapor constituents by Centrum. There were no target compounds detected in either sample and the pair was considered to be in good agreement.

Environmental Analytical Service (EAS), located in San Luis Obispo, California, analyzed 2 soil vapor samples for trichloroethene and 2 soil vapor samples, 1 field duplicate sample, and 1 equipment blank for six VOC compounds by USEPA Method TO-15 SIM. All data are usable as no results were rejected. No results were reported at elevated MDLs or RLs.

Several target compounds were detected in all of the samples. Most results were qualified as estimated detects and nondetects due to internal standard recoveries outside of the QC limits. A couple of results were qualified as estimated due to equipment blank contamination. All detects in one sample were qualified as estimated as the leak detection compound was detected in the sample.

One field duplicate sample was collected and analyzed for 6 VOC compounds by EAS. There were four common target compounds detected above the reporting limit and one common target compound detected below the reporting limit. All RPDs were less than 100%. Vinyl chloride was detected below the reporting limit in the primary sample only. The pair was considered to be in good agreement.

### **D3.4 REFERENCES**

MWH. 2004. RCRA Facility Investigation Program Report, Santa Susana Field Laboratory, Ventura County. July.

Ogden Environmental and Energy Services, Company, Inc. (Ogden). 1996. RCRA Facility Investigation Work Plan Addendum, Santa Susana Field Laboratory, Ventura County, California. September.

Ogden Environmental and Energy Services, Company, Inc. (Ogden). 2000. RCRA Facility Investigation Work Plan Addendum Amendment, Santa Susana Field Laboratory, Ventura County, California. June.

United States Environmental Protection Plan (USEPA). 1994. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review. February.

United States Environmental Protection Plan (USEPA). 1994. Contract Laboratory Program National Functional Guidelines for Organic Data Review. February.

**SOIL**

## **SOIL CASE NARRATIVES AND COCS**



March 08, 2007

Ms. Elizabeth Wessling  
MECX  
12269 East Vassar Drive  
Aurora, Colorado 80014

Re: SSFL  
Project Number: 1891264  
Project Name: Group 8 Data Gaps-Soil  
Work Order: 180809

Dear Ms. Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 15, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,



Martha Harrison  
Project Manager

Purchase Order: Task Order 001  
Chain of Custody: MWHSV20070213\_05  
Enclosures

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# Case Narrative

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 180809**

**March 08, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The sample arrived at GEL Laboratories LLC, Charleston, South Carolina on February 15, 2007 for analysis. The sample was delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following sample:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
180809001	FSBS0067S01SP

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, and PCB.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

A handwritten signature in cursive script that reads "Martha Harrison".

Martha Harrison

Project Manager

**Subject:** RE: GEL Lab Task Order Form  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Wed, 14 Feb 2007 16:46:57 -0600  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>  
**CC:** "Nancy Mattern" <nancy.mattern@gel.com>

Thank you for sending these.  
The Arsenic and Vanadium will get us low enough with the MDL values.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Wednesday, February 14, 2007 12:59 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern  
Subject: Re: GEL Lab Task Order Form

Elizabeth,

GEL did not receive the soil sample today. I've also attached our lab's MDLs and PQLs for 6010 and 6020.

Thanks,  
Martha

Elizabeth Wessling wrote:

First, they may not have gotten access far enough down the drainage to collect the soil split sample. I did not have final word from the field. Please do let me know if it does arrive tomorrow as scheduled. If you do not receive it on Wednesday, you will get it on Thursday.

The perchlorate leachate samples will arrive next week to make shipping and receiving easier on both labs. They will ship to you from TestAmerica

Irvine and should be invoiced to me.

We should be able to accommodate the Area IV metals by 6020 but I need to check with CH2MHill for how to handle that from an EDD standpoint.

I will let you know in the California morning, about noon your time.

The other metals should be okay but I would like to look at your MDLs in the morning. We know most arsenic reporting levels are above some of our risk screening levels, but your vanadium reporting limit is above the eco-screening level.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Tuesday, February 13, 2007 4:52 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern  
Subject: Re: GEL Lab Task Order Form

Elizabeth,

Please let me know if the following exceptions are acceptable for the requested metals analysis.

- 1) GEL can analyze the sample for Area IV metals by 6020 in order to meet the CRDLs.
- 2) GEL's PQL for Aluminum is 20 mg/kg by 6010.
- 3) GEL's PQL for Arsenic is 1 mg/kg by 6020.
- 4) GEL's PQL for Vanadium is 6 mg/kg by 6020.

Thanks,  
Martha

Elizabeth Wessling wrote:

These should be the following:

6010B_A1B	Aluminum
	Boron
6010B_AreaIV	Potassium
	Sodium
	Lithium
	Zirconium
6020_Full Metals	Antimony
	Arsenic
	Barium

Beryllium  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead  
Molybdenum  
Nickel  
Selenium  
Silver  
Thallium  
Vanadium  
Zinc

Hope that helps. Again we are constrained by the sample collection format and the current COC forms; so are struggling with how we name things at this point.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Tuesday, February 13, 2007 10:44 AM  
To: Elizabeth Wessling  
Cc: Nancy Mattern  
Subject: Re: GEL Lab Task Order Form

Hi Elizabeth,

Under Special Instructions/LTO Notes, Item 2. states "Group 8 full metals list includes CCR Title 22 metals + Aluminum, Boron + Area IV Metals (Lithium, Potassium, Sodium, and Zirconium)". Does the Group 8

full metals list correspond to the 6010 full metals list or the 6020

full metals list?

On another note, should GEL provide pricing specific to the requested

analyses in the LTO?

Should the invoice be sent to your address or to another contact address?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

Anna White wrote:

Elizabeth,

Attached is the task order form with our acknowledgement.

Thanks and have a good weekend!

Anna K. White  
Contract Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 556-8171 phone  
(843) 766-1178 fax  
=

=

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**Subject:** RE: SSFL 180809  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Thu, 15 Feb 2007 13:36:50 -0600  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>  
**CC:** "Ben Finley" <ben01223@gel.com>, "Nancy Mattern" <nancy.mattern@gel.com>

The percent moisture should be performed by D2216.  
The project manager is not required as part of the project information;  
however, the sampling event and project number will be helpful.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Thursday, February 15, 2007 12:23 PM  
To: Elizabeth Wessling  
Cc: Ben Finley; Nancy Mattern  
Subject: SSFL 180809

Hi Elizabeth,

GEL received the soil sample today. Should % Solids be performed by method D2216? In regards to the chain of custody, should we enter the Project Manager's name as part of the project information? Should the Sampling Event and Project Number also be included?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

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**Subject:** RE: SSFL 180809, FSBS0067S01SP, Metals  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Tue, 6 Mar 2007 13:50:35 -0600  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>  
**CC:** "Nancy Mattern" <nancy.mattern@gel.com>, "Ben Finley" <ben01223@gel.com>

Please remove the non-SSFL qualifiers from the QC data in both the hardcopy and the EDD for the 6010 metals.  
Thank you for asking.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Tuesday, March 06, 2007 1:07 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: SSFL 180809, FSBS0067S01SP, Metals

Elizabeth,

Due to the limited sample volume received for analysis, sample FSBS0067S01SP was batched with another client's sample for the 6010 metals analysis. The client sample selected for batch QC has client specific qualifiers which are different than those required by SSFL. Should the lab remove these qualifiers from the QC data results in the data package and EDD?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

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# **Chain of Custody and Supporting Documentation**

## LABORATORY TASK ORDER (LTO) FORM

*INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingdms@ch2m.com) & the Data Validator at Least 48 hrs prior to need for sample containers. Project Analytical Laboratory will confirm receipt via E-Mail.*

Event Name: Boeing Group 8

Start: 2/12/2007 End: \_\_\_\_\_

LTO DATE: 9-Feb-07

LTO NUMBER:  

Consultant Name: MEC<sup>x</sup>  
 Address: 12269 East Vassar Drive  
Aurora, Colorado 80014  
 Contact Name: Elizabeth Wessling  
 Phone Number: 720-535-5502  
 Fax Number: 720-535-7555  
 E-mail Address: elizabeth.wessling@mecx.net

Contract Laboratory: GEL Laboratories, LLC  
 Address: P.O. Box 30712  
2040 Savage Road  
Charlestown, SC 29407  
 Lab Contact Name: Martha Harrison  
 Phone Number: 843-556-8171  
 Fax Number: \_\_\_\_\_  
 E-mail Address: Martha.harrison@gel.com

### SAMPLE CONTAINER ORDER FORM

Date Required: 02/12/07

Requested Analyses: (Specify # of Samples)

Date Sample Pickup: 02/12 -

Ship Containers To:  
 Project Site  (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments) \_\_\_\_\_ (enter "X")

|                                 | Water | Soil | Contingent |
|---------------------------------|-------|------|------------|
| EPA 8015M (GRO)                 |       |      |            |
| EPA 8015M (DRO)                 |       |      |            |
| EPA 8015M (JET FUEL)            |       |      |            |
| EPA 8015M (CC)                  |       |      |            |
| EPA 8260B (VOC)                 |       |      |            |
| EPA 625/8270C (SVOC)            |       |      |            |
| EPA 8310 (PAH)                  |       |      |            |
| EPA 8082 (PCB)                  |       | 1    |            |
| EPA TO-15 VOCs (Scan)           |       |      |            |
| EPA TO-15 VOCs (SIM)            |       |      |            |
| CCR Title 22 Metals             |       |      |            |
| Total Chromium                  |       |      |            |
| EPA 7196A (Hexavalent Chromium) |       |      |            |
| Total Lead                      |       |      |            |
| Wet Chemistry (pH, etc.)        |       | 1    |            |
| General Minerals                |       |      |            |
| Fish Bioassay                   |       |      |            |
| EPA TO-14 (VOCs)                |       |      |            |

Container Information:  
 Trip Blank (VOA only)  No (Yes/No)  
 Temp Blank (VOA Only)  No (Yes/No)  
 DI Water Required?  No (Yes/No)  
 MS/MSD Extra Bottles?  No (Yes/No)

Sample Matrix:  
 Soil  (select all applicable)  
 Water  (select all applicable)  
 Vapor \_\_\_\_\_ (select all applicable)

Est. Total # of Samples: 3 Est. Total # of EDDs 2

### LABORATORY REPORTING REQUIREMENTS

Project TAT:  
 Normal:  (10 Business days)  
 RUSH: \_\_\_\_\_ (Specify- 24 / 48 / 72HRS)  
 Other : \_\_\_\_\_ (Specify # of Days)  
 Report Due Date: 28 day hardcopy & EDD

Laboratory Results/Reports Deliverables:  
 Draft Results Fax?: \_\_\_\_\_ (Yes/No)  
 Draft Results E-mail?:  Yes (Yes/No)  
 Specify Fax/E-mail Contact Name, #, E-mail Address: \_\_\_\_\_  
 Send Original Reports To:  
 Project Site \_\_\_\_\_ (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments)  X (enter "X")  
 # of Copies Reports Req.: 1

Special Reporting Requirements:  
 Contingent Analysis?  No (Yes/No)  
 TIC (VOC) Required?  no (Yes/No)  
 TIC (SVOC) Required?  No (Yes/No)  
 Data Validation Pckge.: Tier III ( Boeing Tier I, II or III)

### SPECIAL INSTRUCTIONS/LTO NOTES

1. Hardcopy data will be sent to Elizabeth Wessling at MEC<sup>x</sup>.
2. Group 8 full metals list includes CCR Title 22 metals + Aluminum, Boron + Area IV Metals (Lithium, Potassium, Sodium, and Zirconium).

### CONFIRMATION OF TRANSMITTAL & RECEIPT

LTO Sent By:  
 Name: Elizabeth Wessling  
 Date: 02/08/07

LTO Received By-  
 Name: Anna White  
 Date: 02/09/07

15



# SAMPLE RECEIPT & REVIEW FORM

PM use only

|                               |                                                                           |
|-------------------------------|---------------------------------------------------------------------------|
| Client: <u>Boeing SSFL</u>    | SDG/ARCO/Work Order: <u>180809</u>                                        |
| Date Received: <u>2-15-07</u> | PM(A) Review (ensure non-conforming items are resolved prior to signing): |
| Received By: <u>MK</u>        |                                                                           |

| Sample Receipt Criteria                                                                  | Yes                                 | NA                                  | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)                              |
|------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------|
| 1 Shipping containers received intact and sealed?                                        | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable: seals broken damaged container leaking container other (describe) |
| 2 Samples requiring cold preservation within (4 +/- 2 C)?<br>Record preservation method. | <input checked="" type="checkbox"/> |                                     |                                     | Circle Coolant # ice bags <u>blue ice</u> dry ice none other describe)<br><u>3C</u>  |
| 3 Chain of custody documents included with shipment?                                     | <input checked="" type="checkbox"/> |                                     |                                     |                                                                                      |
| 4 Sample containers intact and sealed?                                                   | <input checked="" type="checkbox"/> |                                     |                                     | Circle Applicable: seals broken damaged container leaking container other (describe) |
| 5 Samples requiring chemical preservation at proper pH?                                  |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's, containers affected and observed pH:<br><u>soil</u>                     |
| 6 VOA vials free of headspace (defined as < 6mm bubble)?                                 |                                     | <input checked="" type="checkbox"/> |                                     | Sample ID's and containers affected:                                                 |
| 7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)         |                                     |                                     | <input checked="" type="checkbox"/> |                                                                                      |
| 8 Samples received within holding time?                                                  | <input checked="" type="checkbox"/> |                                     |                                     | Id's and tests affected:                                                             |
| 9 Sample ID's on COC match ID's on bottles?                                              | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's and containers affected:                                                 |
| 10 Date & time on COC match date & time on bottles?                                      | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:                                                                |
| 11 Number of containers received match number indicated on COC?                          | <input checked="" type="checkbox"/> |                                     |                                     | Sample ID's affected:                                                                |
| 12 COC form is properly signed in relinquished/received sections?                        | <input checked="" type="checkbox"/> |                                     |                                     |                                                                                      |
| 14 Air Bill ,Tracking #'s, & Additional Comments                                         | <u>FED EX # 6610 3787 3573</u>      |                                     |                                     |                                                                                      |

| Suspected Hazard Information                                                       | Non-Regulated                       | Regulated | High Level | RSO RAD Receipt # _____<br>*If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation. |
|------------------------------------------------------------------------------------|-------------------------------------|-----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A Radiological Classification?                                                     | <input checked="" type="checkbox"/> |           |            | Maximum Counts Observed*: <u>CPM 30</u>                                                                                                                                                 |
| B PCB Regulated?                                                                   | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                         |
| C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager. | <input checked="" type="checkbox"/> |           |            | Hazard Class Shipped:<br>UN#:                                                                                                                                                           |
| D Regulated as a Foreign Soil?                                                     | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                         |

PM (or PMA) review of Hazard classification: MJH Initials 02/15/07 Date:

16

# **Data Package Qualifier Definitions**

## Data Review Qualifier Definitions

| Qualifier | Explanation                                                                                                                                                                                     |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *         | A quality control analyte recovery is outside of specified acceptance criteria                                                                                                                  |
| **        | Analyte is a surrogate compound                                                                                                                                                                 |
| <         | Result is less than value reported                                                                                                                                                              |
| >         | Result is greater than value reported                                                                                                                                                           |
| ^         | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL                                                                                                                |
| A         | The TIC is a suspected aldol-condensation product                                                                                                                                               |
| B         | Target analyte was detected in the associated blank                                                                                                                                             |
| B         | Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL                                                                                             |
| BD        | Results are either below the MDC or tracer recovery is low                                                                                                                                      |
| C         | Analyte has been confirmed by GC/MS analysis                                                                                                                                                    |
| D         | Results are reported from a diluted aliquot of the sample                                                                                                                                       |
| d         | 5-day BOD-The 2:1 depletion requirement was not met for this sample                                                                                                                             |
| E         | Organics-Concentration of the target analyte exceeds the instrument calibration range                                                                                                           |
| E         | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria                                                                                                   |
| H         | Analytical holding time was exceeded                                                                                                                                                            |
| h         | Preparation or preservation holding time was exceeded                                                                                                                                           |
| J         | Value is estimated                                                                                                                                                                              |
| N         | Metals-The Matrix spike sample recovery is not within specified control limits                                                                                                                  |
| N         | Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor |
| N/A       | Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more                                                                                              |
| ND        | Analyte concentration is not detected above the reporting limit                                                                                                                                 |
| UI        | Gamma Spectroscopy-Uncertain identification                                                                                                                                                     |
| X         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier                                                                                                      |
| Y         | QC Samples were not spiked with this compound                                                                                                                                                   |
| Z         | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.                                                                                                |

# **Laboratory Certifications**

**List of current GEL Certifications as of 08 March 2007**

| <b>State</b>              | <b>Certification</b>       |
|---------------------------|----------------------------|
| Alaska                    | UST-062                    |
| Arizona                   | AZ0668                     |
| Arkansas                  | 88-0651                    |
| CLIA                      | 42D0904046                 |
| California                | 01151CA                    |
| Colorado                  | GenEngLabs                 |
| Connecticut               | PH-0169                    |
| Dept. of Navy             | NFESC 413                  |
| EPA                       | WG-15J                     |
| Florida/NELAP             | E87156                     |
| Georgia                   | E87156 (FL/NELAP)          |
| Hawaii                    | N/A                        |
| Idaho                     | N/A                        |
| Illinois                  | 200029                     |
| Indiana                   | C-SC-01                    |
| Kansas                    | E-10332                    |
| Kentucky                  | 90129                      |
| Louisiana                 | 03046                      |
| Maryland                  | 270                        |
| Massachusetts             | M-SC012                    |
| Michigan                  | 9903                       |
| Nevada                    | SC12                       |
| New Jersey                | SC002                      |
| New Mexico                | FL NELAP E87156            |
| New York                  | 11501                      |
| North Carolina            | 233                        |
| North Carolina Drinking W | 45709                      |
| North Dakota              | R-158                      |
| Oklahoma                  | 9904                       |
| Pennsylvania              | 68-00485                   |
| South Carolina            | 10120001/10585001/10120002 |
| Tennessee                 | 02934                      |
| Texas                     | TX213-2006A                |
| Texas NELAP               | T104704235-06-TX           |
| U.S. Dept. of Agriculture | S-52597                    |
| US Army Corps of Engineer | N/A                        |
| Utah                      | 8037697376 GEL             |
| Vermont                   | VT87156                    |
| Virginia                  | 00151                      |
| Washington                | C1641                      |

# **Chain of Custody and Supporting Documentation**



1QB1504

| Customer Information |                           | Project Information |                                |                                                                                   |                   |
|----------------------|---------------------------|---------------------|--------------------------------|-----------------------------------------------------------------------------------|-------------------|
| Site:                | SSFL                      | Client Name:        | DOE                            | Collector:                                                                        | Shelby Valenzuela |
| Company:             | MWH                       | Sampling Event:     | Group 8 Data Gaps-Soil         | Contact #:                                                                        |                   |
| Report to:           | Lisa Tucker               | Project Number:     | 1891264                        | Requested Analyses                                                                |                   |
| Address:             | 9444 Farnham Street       | Project Manager:    | Diana Buchanan                 | Instructions/TAT                                                                  |                   |
|                      | Suite 300                 | PM Phone #:         | (626) 568-6897                 | Legend:<br>Numerical values for<br>analyses equate to turn<br>around time in days |                   |
|                      | San Diego                 | Field Contact:      |                                | H - Hold                                                                          |                   |
|                      | CA                        | Field Contact #:    |                                | EH - Extract_Hold                                                                 |                   |
|                      | 92123                     | Lab Name:           | Test America, Inc.             |                                                                                   |                   |
| Email:               | boingeds@ch2m.com         | Lab Contact:        | Michele Chamberlin             |                                                                                   |                   |
|                      | Lisa.Tucker@mwhglobal.com | Lab Address:        | 17461 Derian Ave, Suite 100    |                                                                                   |                   |
|                      |                           |                     | Irvine, CA 92606               |                                                                                   |                   |
|                      |                           | Lab Phone:          | (949) 261-1022                 |                                                                                   |                   |
| Sample Name          |                           | Matrix              |                                |                                                                                   |                   |
| FSBS0018S01SP        | Soil                      | Date                | 2/13/2007                      |                                                                                   |                   |
|                      |                           | Time                | 13:21                          |                                                                                   |                   |
|                      |                           | No. of Containers   | 1                              |                                                                                   |                   |
|                      |                           |                     | Perchlorate 314 Soil DI-WET    |                                                                                   |                   |
|                      |                           |                     | 10                             |                                                                                   |                   |
|                      |                           |                     | Leaching only, see notes below |                                                                                   |                   |
|                      |                           |                     | Comments                       |                                                                                   |                   |

22

|                                                                                      |           |                 |         |                                                                      |         |                 |         |
|--------------------------------------------------------------------------------------|-----------|-----------------|---------|----------------------------------------------------------------------|---------|-----------------|---------|
| 1. Relinquished by:                                                                  | Date:     | 2. Received by: | Date:   | 3. Relinquished by:                                                  | Date:   | 4. Received by: | Date:   |
| <i>al Senao</i>                                                                      | 2/14/2007 | <i>Jordan</i>   | 2/14/07 | <i>Jordan</i>                                                        | 2/14/07 | <i>Hampson</i>  | 2-14-07 |
| Company:                                                                             | Time:     | Company:        | Time:   | Company:                                                             | Time:   | Company:        | Time:   |
| MWH                                                                                  | 1000      | TAE             | 1000    | TAE                                                                  | 1945    |                 | 1945    |
| Comments: Leaching only. Send leachate to GEL Laboratories for perchlorate analysis. |           |                 |         |                                                                      |         |                 |         |
|                                                                                      |           |                 |         | Geotracker EDF <input type="checkbox"/>                              |         |                 |         |
|                                                                                      |           |                 |         | Data Validation Package <input checked="" type="checkbox"/> Level IV |         |                 |         |

HE 2-15-07  
1705

496

IOB1862

COC #:

CHAIN OF CUSTODY RECORD

| Customer Information           |                                                              | Project Information |                                                                   | Project Information                                                         |                   |
|--------------------------------|--------------------------------------------------------------|---------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------|
| Site:                          | SSFL                                                         | Client Name:        | DOE                                                               | Collector:                                                                  | Shelby Valenzuela |
| Company:                       | MWH                                                          | Sampling Event:     | Group 8 Data Gaps-Soil                                            | Contact #:                                                                  |                   |
| Report to:                     | Lisa Tucker                                                  | Project Number:     | 1891264                                                           | Requested Analyses                                                          |                   |
| Address:                       | 9444 Farnham Street<br>Suite 300<br>San Diego<br>CA<br>92123 | Project Manager:    | Diana Buchanan<br>(626) 568-6897                                  | Instructions/TAT                                                            |                   |
| Email:                         | boeingdms@ch2m.com                                           | Field Contact #:    |                                                                   | Legend:<br>Numerical values for analyses equate to turn around time in days |                   |
|                                | Lisa.Tucker@mwhglobal.com                                    | Field Contact #:    |                                                                   | H - Hold                                                                    |                   |
|                                |                                                              | Lab Name:           | Test America, Inc.                                                | EH - Extract Hold                                                           |                   |
|                                |                                                              | Lab Contact:        | Michele Chamberlin                                                |                                                                             |                   |
|                                |                                                              | Lab Address:        | 17461 Derian Ave, Suite 100<br>Irvine, CA 92606<br>(949) 261-1022 |                                                                             |                   |
| Sample Name                    | Soil                                                         | Matrix              |                                                                   | Date                                                                        |                   |
| FSBS0036S01SP                  |                                                              |                     |                                                                   | 2/15/2007                                                                   | 13:59             |
|                                |                                                              | No. of Containers   | 1                                                                 |                                                                             |                   |
| Perchlorate 314 Soil DI-WET    |                                                              |                     |                                                                   |                                                                             |                   |
| 10                             |                                                              |                     |                                                                   |                                                                             |                   |
| Comments                       |                                                              |                     |                                                                   |                                                                             |                   |
| Leaching only, see notes below |                                                              |                     |                                                                   |                                                                             |                   |

| 1. Relinquished by:                                                                  | Date:      | 2. Received by:       | Date:      | 3. Relinquished by:   | Date:      | 4. Received by:  | Date:      |
|--------------------------------------------------------------------------------------|------------|-----------------------|------------|-----------------------|------------|------------------|------------|
| <i>Ch Savao</i>                                                                      | 2/16/2007  | <i>DD Kagan</i>       | 2/16/2007  | <i>DD Kagan</i>       | 2/16/2007  | <i>Edmund R.</i> | 2/16/2007  |
| Company: MWH                                                                         | Time: 0945 | Company: TEST AMERICA | Time: 0945 | Company: TEST AMERICA | Time: 0945 | Company: TAI     | Time: 1925 |
| Comments: Leaching only. Send leachate to GEL Laboratories for perchlorate analysis. |            |                       |            |                       |            |                  |            |
| Geotracker EDF <input type="checkbox"/>                                              |            |                       |            |                       |            |                  |            |
| Data Validation Package <input checked="" type="checkbox"/> Level IV                 |            |                       |            |                       |            |                  |            |

417  
1.0.91-2.341  
0212  
2720  
5.5/50



# CHAIN OF CUSTODY RECORD

JOB 2556

160

MWHSV20070222\_01

COC #:

Page: 1 of 1

| Customer Information |                           | Project Information |                             |                             | Requested Analyses |            | Instructions/TAT | Comments                                                                                                      |   |
|----------------------|---------------------------|---------------------|-----------------------------|-----------------------------|--------------------|------------|------------------|---------------------------------------------------------------------------------------------------------------|---|
| Site:                | SSFL                      | Client Name:        | DOE                         | Collector:                  | Shelby Valenzuela  | Boeing PM: |                  |                                                                                                               |   |
| Company:             | MWH                       | Sampling Event:     | Group 8 Data Gaps-Soil      | Contact #:                  |                    |            |                  |                                                                                                               |   |
| Report to:           | Lisa Tucker               | Project Number:     | 1991264                     | Perchlorate 314 Soil DI-WET |                    |            |                  | Legend:<br>Numerical values for analyses equate to turn around time in days<br>H - Hold<br>EH - Extract, Hold |   |
| Address:             | 9444 Farnham Street       | Project Manager:    | Diana Buchanan              |                             |                    |            |                  |                                                                                                               |   |
|                      | Suite 300                 | PM Phone #:         | (626) 568-6897              |                             |                    |            |                  |                                                                                                               |   |
|                      | San Diego                 | Field Contact:      |                             |                             |                    |            |                  |                                                                                                               |   |
|                      | CA                        | Field Contact #:    |                             |                             |                    |            |                  |                                                                                                               |   |
|                      | 92123                     | Lab Name:           | Test America, Inc.          |                             |                    |            |                  |                                                                                                               |   |
| Email:               | boeingdms@ch2m.com        | Lab Contact:        | Michele Chamberlin          |                             |                    |            |                  |                                                                                                               |   |
|                      | Lisa.Tucker@mwhglobal.com | Lab Address:        | 17461 Derian Ave, Suite 100 |                             |                    |            |                  |                                                                                                               |   |
|                      |                           |                     | Irvine, CA 92606            |                             |                    |            |                  |                                                                                                               |   |
|                      |                           | Lab Phone:          | (949) 261-1022              |                             |                    |            |                  |                                                                                                               |   |
| Sample Name          | Soil                      | Matrix              |                             | Date                        | 2/22/2007          | Time       | 12:37            | No. of Containers                                                                                             | 1 |
| FSBS009S01SP         |                           |                     |                             |                             |                    |            |                  |                                                                                                               |   |

HE 2-23-07  
1545

| 1. Relinquished by:                                                                                          |     | Date:     | 2. Received by:    |       | Date:   | 3. Relinquished by: |       | Date: | 4. Received by: |       | Date: |
|--------------------------------------------------------------------------------------------------------------|-----|-----------|--------------------|-------|---------|---------------------|-------|-------|-----------------|-------|-------|
| <i>[Signature]</i>                                                                                           |     | 2/23/2007 | <i>[Signature]</i> |       | 2/23/07 |                     |       |       |                 |       |       |
| Company:                                                                                                     | MWH | Time:     | Company:           | Time: | 12:55   | Company:            | Time: | 12:55 | Company:        | Time: |       |
| Comments: Leaching only. Send leachate to GEL Laboratories for perchlorate analysis.                         |     |           |                    |       |         |                     |       |       |                 |       |       |
| GeoTracker EDF <input type="checkbox"/> Data Validation Package <input checked="" type="checkbox"/> Level IV |     |           |                    |       |         |                     |       |       |                 |       |       |

2-512



**RECEIVED**  
MAR 21 2007  
BY: \_\_\_\_\_

www.gel.com

March 15, 2007

Ms. Elizabeth Wessling  
MECX  
12269 East Vassar Drive  
Aurora, Colorado 80014

Re: Task Order 001 - DOE SSFL Sample Split - Group 8  
Work Order: 181517

Dear Ms. Wessling:

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on February 28, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,  
  
Martha Harrison  
Project Manager

Purchase Order: Task Order 001  
Chain of Custody: MWHSV20070213\_04, MWHSV20070215\_03, MWHSV20070222\_01 and  
Enclosures

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# Case Narrative

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 181517**

**March 15, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on February 28, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

| <b><u>Laboratory Identification</u></b> | <b><u>Sample Description</u></b> |
|-----------------------------------------|----------------------------------|
| 181517001                               | FSBS0018S01SP                    |
| 181517002                               | FSBS0036S01SP                    |
| 181517003                               | FSBS0009S01SP                    |
| 181517004                               | Blank                            |

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

A handwritten signature in black ink that reads "Martha Harrison". The signature is written in a cursive style with a large initial 'M' and a long, sweeping tail.

Martha Harrison

Project Manager

**Subject:** RE: SSFL Sample Splits - Leachate  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Wed, 28 Feb 2007 10:40:18 -0600  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>  
**CC:** "Ben Finley" <ben01223@gel.com>

Yes, please disregard the pH determination for the perchlorate leachate samples.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Wednesday, February 28, 2007 10:26 AM  
To: Elizabeth Wessling  
Cc: Ben Finley  
Subject: Re: SSFL Sample Splits - Leachate

Elizabeth,

We received the leachate samples from Test America. According to the Group 8 - Bldg 56 LF Field Form Spreadsheet, pH is selected for analysis

on the leachate samples. Should I disregard the pH specified in the spreadsheet? The chains received today specify Perchlorate only.

Thanks!  
Martha

Elizabeth Wessling wrote:

The perchlorate leachate samples were sent via FedEx by TestAmerica last evening. You should receive them this morning.

FedEx Tracking number: 7906 8185 9972

There are three samples and a leachate blank. Please take all 4 samples

through your standard perchlorate 314.0 procedure.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

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Aurora, Colorado 80014

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any

attachments from your system without reading the content and notify

the

sender immediately of the inadvertent transmission.

-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]

Sent: Tuesday, February 27, 2007 9:10 AM

To: Elizabeth Wessling

Subject: Re: SSFL Sample Splits - Leachate

Thanks Elizabeth.

Elizabeth Wessling wrote:

The last of the three split samples was collected on Thursday. TestAmerica will be performing the leachate of all three samples on Monday and the samples should ship to GEL on Tuesday for Wednesday delivery.

I will confirm when the samples actual ship to you.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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sender immediately of the inadvertent transmission.

-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Thursday, February 22, 2007 7:23 AM  
To: Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: SSFL Sample Splits - Leachate

Hi Elizabeth,

GEL Laboratories has not received the two leachate samples for Perchlorate and pH analysis. Do you know when they may be shipped?

Thanks!!  
Martha

~~~~~

Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

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# **Chain of Custody and Supporting Documentation**

1836275

**CHAIN OF CUSTODY RECORD**

COC #: MWHSV20070402\_01  
Page: 1 of 1



Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:	
Company:	MWH	Sampling Event:	Group 8 Step-out	Contact #:			
Report to:	Lisa Tucker	Project Number:	1891264	Requested Analyses			
Address:	9444 Farnham Street Suite 300 San Diego CA 92123	Project Manager:	Diana Buchanan (626) 568-6897				
Email:	boeingdms@ch2m.com	Field Contact:		Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract_Hold			
	Lisa.Tucker@mwhglobal.com	Field Contact #:					
		Lab Name:	GEL Laboratories, LLC				
		Lab Contact:	Martha Harrison				
		Lab Address:	PO Box 30712 Charleston, SC 29407	Comments Dioxin to be subbed-out. Dioxin to be subbed-out. Dioxin to be subbed-out. Dioxin to be subbed-out.			
		Lab Phone:	(843) 556-8171				
Sample Name	Matrix	Date	Time	No. of Containers			
BHBS0007D01	Soil	4/2/2007	9:40	1	Dioxin by 1613B - Soil	10	10
BHBS0007S01	Soil	4/2/2007	9:40	1	Metals 6010B Soil Sodium	10	10
BHBS0008S01	Soil	4/2/2007	10:10	1	pH by SW9045C - Soil	10	10
BHBS0006S01	Soil	4/2/2007	11:00	1		10	10
BLBS0040S01	Soil	4/2/2007	12:35	1		10	10
BLBS0046S01	Soil	4/2/2007	13:20	1		10	10
BLBS0047S01	Soil	4/2/2007	13:30	1		10	10
BLBS0041S01	Soil	4/2/2007	14:25	1		10	10
BLBS0039S01	Soil	4/2/2007	14:45	1		10	10

1. Relinquished by:	Date: 4-3-07	2. Received by:	Date: 4-4-07	3. Relinquished by:	Date:	4. Received by:	Date:
Company: MWH	Time: 0900	Company: GEL	Time: 10:00	Company:	Time:	Company:	Time:

Comments: All requested Dioxin are to be analyzed at SGS Environmental Services, Inc.  Geotracker EDF  Data Validation Package  Level IV

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1836275  
183627W  
MWH SV20070402\_00  
Page: 1 of 2

COC #:

**CHAIN OF CUSTODY RECORD**



Customer Information			Project Information			Project Information		
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:		
Company:	MWH	Sampling Event:	Group 8 Step-out	Contact #:				
Report to:	Lisa Tucker	Project Number:	1891264	Requested Analyses				
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan	Metals 6010B Water Sodium				Instructions/TAT Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract, Hold
	Suite 300	PM Phone #:	(626) 568-6897	Metals 6010B Water Aluminum				
	San Diego	Field Contact:		Metals 6010B Soil Sodium				
	CA	Field Contact #:		Metals 6010B Soil Aluminum				
Email:	92123	Lab Name:	GEL Laboratories, LLC	Dioxin by 1613B - Water				Comments Dioxin to be subbed-out. Hold all analysis. Dioxin to be subbed-out.
	boeingdms@ch2m.com	Lab Contact:	Martha Harrison	Dioxin by 1613B - Soil	10	10		
	Lisa.Tucker@mwhglobal.com	Lab Address:	PO Box 30712	% Solids - Soil	H	H		
		Lab Phone:	Charleston, SC 29407					
			(843) 556-8171					
Sample Name	Matrix	Date	Time	No. of Containers				
FSBS0079S01	Soil	4/2/2007	10:18	1				
FSBS0079S02	Soil	4/2/2007	10:58	1				
FSBS0081S01	Soil	4/2/2007	12:06	1	10			
FSBS0080S01	Soil	4/2/2007	12:21	1	10			
FSBS0072D01	Soil	4/2/2007	13:16	1	10			
FSBS0072S01	Soil	4/2/2007	13:16	1	10			
FSBS0021AS01	Soil	4/2/2007	14:03	1	10			
FSBS0026AD01	Soil	4/2/2007	14:12	1	10			
FSBS0026AS01	Soil	4/2/2007	14:12	1	10			
FSQW0003F01	Water	4/2/2007	15:02	4	10	10	10	Dioxin to be subbed-out.
1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:		Date:
By <i>Jarao</i>		Tom <i>Stok</i>						
Date: 4-03-07		Date: 4-4-07						
Time: 0900		Time: 10:00						
Company: MWH		Company: GEL						
Comments: All requested Dioxin are to be analyzed at SGS Environmental Services, Inc. <input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package         Level IV								

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183627W



**CHAIN OF CUSTODY RECORD**

COC #:

MWHSV20070402\_00

Page: 2 of 2

Customer Information		Project Information				Project Information	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:	
Company:	MWH	Sampling Event:	Group 8 Step-out	Contact #:			
Report to:	Lisa Tucker	Project Number:	1891264	<b>Requested Analyses</b>			
Address:	9444 Farnham Street Suite 300 San Diego CA 92123	Project Manager:	Diana Buchanan (626) 568-6897				
Email:	boeingdms@ch2m.com	Field Contact:					
	Lisa.Tucker@mwglobal.com	Field Contact #:					
		Lab Name:	GEL Laboratories, LLC				
		Lab Contact:	Martha Harrison				
		Lab Address:	PO Box 30712 Charleston, SC 29407 (843) 556-8171				
		Lab Phone:					
Sample Name		Matrix	Water	Date	4/2/2007	Time	15:09
FSCM0003E01				No. of Containers			4
				<b>Requested Analyses</b>			
				% Solids - Soil			
				Dioxin by 1613B - Soil			
				Dioxin by 1613B - Water	10		
				Metals 6010B Soil Aluminum			
				Metals 6010B Soil Sodium			
				Metals 6010B Water Aluminum	10		
				Metals 6010B Water Sodium	10		
				Metals 6020 Water Arsenic	10		
				Perchlorate 314 Soil DI-WET			
				Perchlorate 314 Water	10		
				pH by SW9045C - Soil			
						<b>Instructions/TAT</b>	
						Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract_Hold	
						<b>Comments</b>	
						Dioxin to be subbed-out.	

1. Relinquished by:		Date:	2. Received by:		Date:	3. Relinquished by:		Date:	4. Received by:		Date:
C. J. Jones		4-13-07	T. J. Smith		4-4-07						
Company:	MWH	Time:	Company: GEL		Time:	Company:		Time:	Company:		Time:
		0900			10:00						
Comments: All requested Dioxin are to be analyzed at SGS Environmental Services, Inc. <input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package <input type="checkbox"/> Level I <input checked="" type="checkbox"/> Level IV											

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# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 183627 and 183629**

**April 13, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 04, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
183627001	BHBS0007D01
183627002	BHBS0007S01
183627003	BHBS0008S01
183627004	BHBS0006S01
183627005	BLBS0040S01
183627006	BLBS0048S01
183627007	BLBS0047S01
183627008	BLBS0041S01
183627009	BLBS0039S01
183627010	FSBS0079S01
183627011	FSBS0079S02
183627012	FSBS0081S01
183627013	FSBS0080S01
183627014	FSBS0072D01
183627015	FSBS0072S01
183629001	FSQW0003F01
183629002	FSQW0003E01
183629003	FSBS0021AS01
183629004	FSBS0026AD01
183629005	FSBS0026AS01

**Items of Note**

There are no items to note.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, Metals, and Project Management.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison

Project Manager

**Subject:** RE: [Fwd: MWH samples for Dioxin analysis]  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Tue, 3 Apr 2007 13:58:16 -0500  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>  
**CC:** "Nancy Mattern" <nancy.mattern@gel.com>, "Ben Finley" <ben01223@gel.com>

The Group 8 samples can be performed under the Group 8 Supplemental SOW. The organics, for which we originally looked to GEL for support has been delayed a bit. That is the Group 4 Step-outs. The LTO accurately reflects the scoped work except for the contingency samples which are unlikely to be sampled.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Tuesday, April 03, 2007 12:59 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: [Fwd: MWH samples for Dioxin analysis]

Elizabeth,

I noticed on the LTO and the attached chain of custody forms that the requested Organics tests are missing. Should we expect samples to be collected for PCBs, PAHs, and DRO?

Also, is the supplemental SOW for Group 8 applicable to these samples or is there a separate SOW?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

----- Original Message -----

Subject: MWH samples for Dioxin analysis  
Date: Tue, 3 Apr 2007 08:59:53 -0800  
From: Edmund M Sarao <Edmund.M.Sarao@us.mwhglobal.com>  
To: Chris.Cornwell@egs.com  
CC: Marina.harrison@gel.com, Lisa.Tucker@mwhglobal.com,  
elisabeth.wessling@mecc.net

Hi Chris,

I have attached pdf copy of the "Chain of Custody" (COC) for our samples that are enroute to your lab via Fedex (Tracking # 853162486632). The packaged coolers shipped today, 04/03/07, contained only the samples in the COC with requested dioxin analysis.

Please let me know if there are any questions.

Thanks,  
--ed

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**Subject:** SSFL Sample Receipt  
**From:** Martha Harrison <Martha.Harrison@gel.com>  
**Date:** Wed, 04 Apr 2007 15:00:56 -0400  
**To:** Elizabeth Wessling <elizabeth.wessling@mecx.net>  
**CC:** Ben Finley <ben01223@gel.com>, Nancy Mattern <nancy.mattern@gel.com>

Elizabeth,

The Dioxin samples were shipped directly to SGS/Paradigm. The number of containers on COC# MWHSV20070402\_01 and MWHSV20070402\_00 have not been updated to show the bottles that were sent to the subcontract lab. The lab did not receive containers for the following soil sample IDs:  
BHBS0007D01 (% Solids, Dioxin)  
BHBS0007S01 (% Solids, Dioxin)  
BHBS0008S01 (% Solids, Dioxin)  
BHBS0006S01 (% Solids, Dioxin)  
FSBS0079S01 (% Solids, Dioxin)  
FSBS0079S02 (% Solids, Dioxin; Comment states "Hold all analysis. Dioxin to be subbed out.")

The lab received two containers for the following water sample IDs:  
FSQW0003F01  
FSQW0003E01

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)



# Case Narrative

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 183763**

**April 18, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 06, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
183763001	BBBS0001S01
183763002	BBBS0006S01
183763003	BBBS0002S01
183763004	BBBS0003S01
183763005	BBBS0004S01
183763006	BBBS0005S01

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, and Metals

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison

Martha Harrison

Project Manager

**Subject:** RE: Boeing SSFL samples received at GEL Labs  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Fri, 6 Apr 2007 13:39:41 -0500  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>

Please go ahead and analyze the samples per the requests on the COC.  
Thanks for apprising us of the situation.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Friday, April 06, 2007 1:10 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: Boeing SSFL samples received at GEL Labs

Elizabeth,

GEL Labs received two shipments of samples today. The samples in the cooler with COC# MWHSV20070405\_00 were received at 7 degrees Celsius. The samples for pH are outside of the temperature specifications for the method. These samples have been logged in under work order 183763. One sample is designated on hold per the COC.

The second set of coolers, with COC# MWHSV20070403\_01 and MWHSV20070403\_00, contained samples received at 9 degrees Celsius. The samples for pH and Perchlorate are outside of the temperature specifications for the method.

Please advise.

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

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**Subject:** Re: Turn on sample for As

**From:** Martha Harrison <Martha.Harrison@gel.com>

**Date:** Thu, 12 Apr 2007 08:24:11 -0400

**To:** Elizabeth Wessling <elizabeth.wessling@mecx.net>

**CC:** Ben Finley <ben01223@gel.com>, Nancy Mattern <nancy.mattern@gel.com>

Elizabeth,

I added the tests to the sample last night. We should be able to report this sample with the other data in the SDG and on time.

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

Elizabeth Wessling wrote:

Martha:

I just got the okay to turn on the sample collected on 4/5/07 for arsenic, pH, and % moisture. It is sample BBBS0006S01.

It is okay to mark it up to include it in the same SDG as the other samples.

Please confirm in the morning that this will still make it with the rest of the SDG.

Thanks

**\*\*Elizabeth A. Wessling\*\***

Senior Environmental Chemist

\*Phone: 720.535.5502\*

\*Cell: 303. 881.6816\*

\*Fax: 720.535.7555\*

\*elizabeth.wessling@mecx.net <<mailto:elizabeth.wessling@mecx.net>>\*

**\*MECX, LLC\***

\*/12269 East Vassar Drive/\*

\*/Aurora, Colorado 80014/\*

\*/[www.mecx.net](http://www.mecx.net) <<http://www.mecx.net/>>/\*

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# **Chain of Custody and Supporting Documentation**

183796

**CHAIN OF CUSTODY RECORD**

COC #:

MWHSV20070403\_01  
Page: 1 of 2

Customer Information			Project Information			Requested Analyses			Instructions/TAT							
Site:	SSFL	Client Name:	Boeing	Collector:	Shelby Valenzuela	Boeing PM:										
Company:	MWH	Sampling Event:	Group 8 Step-out	Contact #:												
Report to:	Lisa Tucker	Project Number:	1891263													
Address:	9444 Farnham Street Suite 300 San Diego CA 92123	Project Manager:	Diana Buchanan (626) 569-6897													
Email:	boeingdms@ch2m.com	Field Contact:														
	Lisa.Tucker@mwhglobal.com	Field Contact #:														
		Lab Name:	GEL Laboratories, LLC													
		Lab Contact:	Martha Harrison													
		Lab Address:	2040 Savage Road Charleston, SC 29407													
		Lab Phone:	(843) 556-8171													
Sample Name	Matrix	Date	Time	No. of Containers	Metals 6010B Soil Aluminum	Metals 6010B Soil Sodium	Metals 6010B Water Aluminum	Metals 6010B Water Sodium	Metals 6020 Soil Antimony	Metals 6020 Soil Arsenic	Metals 6020 Soil Lead	Metals 6020 Water Antimony	Metals 6020 Water Arsenic	Metals 6020 Water Lead	pH by SW9045C - Soil	Comments
ESBS0031S01	Soil	4/3/2007	9:30	1					10	10	10				10	
ESBS0035S01	Soil	4/3/2007	10:30	1					10	10	10				10	
ESBS0024S01	Soil	4/3/2007	11:06	1												
ESBS0024S02	Soil	4/3/2007	11:23	1	H	H									H	Hold all analysis.
ESBS0032D01	Soil	4/3/2007	11:30	1					10	10	10				10	
ESBS0032S01	Soil	4/3/2007	11:30	1					10	10	10				10	
ESBS0024S03	Soil	4/3/2007	11:46	1	H	H									H	Hold all analysis.
ESBS0024S04	Soil	4/3/2007	12:01	1	H	H									H	Hold all analysis.
ESBS0033S01	Soil	4/3/2007	12:15	1					10	10	10				10	
ESBS0023S01	Soil	4/3/2007	12:17	1					10	10	10				10	

1. Relinquished by:		Date:	2. Received by:		Date:	3. Relinquished by:		Date:	4. Received by:		Date:
By Samaw		4-4-07	M. K. ...		4-6-07						
Company:	MWH	Time:	0900	Company:	GEL	Time:	0915	Company:		Time:	
Comments: <input type="checkbox"/> Geotracker EDF <input checked="" type="checkbox"/> Data Validation Package <input checked="" type="checkbox"/> Level IV											

183796  
183799  
MWH-SV20070403\_01  
Page: 2 of 2

COC #:

CHAIN OF CUSTODY RECORD



Customer Information		Project Information				Requested Analyses		Instructions/TAT	
Site:	SSFL	Client Name:	Boeing	Collector:	Shelby Valenzuela	Boeing PM:			
Company:	MVH	Sampling Event:	Group 8 Step-out	Contact #:					
Report to:	Lisa Tucker	Project Number:	1891263						
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan						
	Suite 300	PM Phone #:	(626) 568-6897						
	San Diego	Field Contact:							
	CA	Field Contact #:							
	92123	Lab Name:	GEL Laboratories, LLC						
Email:	boingeds@ch2m.com	Lab Contact:	Martha Harrison						
	Lisa.Tucker@mwhglobal.com	Lab Address:	2040 Savage Road						
		Lab Phone:	Charleston, SC 29407						
			(843) 556-8171						
Sample Name	Matrix	Date	Time	No. of Containers	Requested Analyses		Instructions/TAT		
ESBS0022S01	Soil	4/3/2007	12:28	1	% Solids - Soil	10	10	10	
ESBS0022S02	Soil	4/3/2007	12:50	1	Metals 6010B Soil Aluminum	H	H		
ESBS0034S01	Soil	4/3/2007	14:00	1	Metals 6010B Soil Sodium	10	10	10	
ESBS0036S01	Soil	4/3/2007	14:46	1	Metals 6020 Soil Lead	10	10	10	
ESBS0036S02	Soil	4/3/2007	14:52	1	Metals 6020 Soil Antimony	H	H	H	
ESQW002F01	Water	4/3/2007	15:10	1	Metals 6020 Soil Arsenic	10	10	10	
					Metals 6020 Water Sodium				
					Metals 6020 Water Aluminum				
					Metals 6020 Water Antimony				
					Metals 6020 Water Arsenic				
					Metals 6020 Water Lead				
					pH by SW9045C - Soil	10	H	10	

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	4-4-07	Date:	4-6-07	Date:		Date:	
Time:	0800	Time:	0915	Time:		Time:	
Company:	MVH	Company:	fer	Company:		Company:	
Comments:		Comments:		Comments:		Comments:	

Geotracker EDF   
Data Validation Package  Level IV

183799

# CHAIN OF CUSTODY RECORD

COC #:

MWHSV20070403\_00

Page: 1 of 1

Customer Information		Project Information		Project Information		
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	
Company:	MWH	Sampling Event:	Group 8 Step-out	Contact #:		
Report to:	Lisa Tucker	Project Number:	1891264	Requested Analyses		
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan	Instructions/TAT Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract Hold		
	Suite 300	PM Phone #:	(626) 568-8897			
	San Diego	Field Contact:				
	CA	Field Contact #:				
Email:	92123	Lab Name:	GEL Laboratories, LLC	Perchlorate 314 Soil DI-WET		
	boeingdms@ch2m.com	Lab Contact:	Martha Harrison			
	Lisa.Tucker@mwglobal.com	Lab Address:	2040 Savage Road Charleston, SC 29407			
		Lab Phone:	(843) 556-8171			
Sample Name		Matrix		Date	Time	No. of Containers
FSB0031AS01	Soil			4/3/2007	9:08	1

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	4-4-07	Date:	4-6-07	Date:		Date:	
Time:	09:00	Time:	09:15	Time:		Time:	
Company:	MWH	Company:	GEL	Company:		Company:	
Comments:		Comments:		Comments:		Comments:	

Geotracker EDF  
 Data Validation Package  
 Level IV

# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 183796 and 183799**

**April 18, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on April 06, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
183796001	ESBS0031S01
183796002	ESBS0035S01
183796003	ESBS0024S01
183796004	ESBS0024S02
183796005	ESBS0032D01
183796006	ESBS0032S01
183796007	ESBS0024S03
183796008	ESBS0024S04
183796009	ESBS0033S01
183796010	ESBS0023S01
183796011	ESBS0022S01
183796012	ESBS0022S02
183796013	ESBS0034S01
183796014	ESBS0036S01
183796015	ESBS0036S02
183799001	ESQW0002F01
183799002	FSBS0031AS01

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry, and Metals.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

Martha Harrison  
Project Manager

**Subject:** RE: Boeing SSFL samples received at GEL Labs  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Fri, 6 Apr 2007 13:39:41 -0500  
**To:** "Martha Harrison" <Martha.Harrison@gel.com>

Please go ahead and analyze the samples per the requests on the COC.  
Thanks for apprising us of the situation.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Friday, April 06, 2007 1:10 PM  
To: Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: Boeing SSFL samples received at GEL Labs

Elizabeth,

GEL Labs received two shipments of samples today. The samples in the cooler with COC# MWHSV20070405\_00 were received at 7 degrees Celsius. The samples for pH are outside of the temperature specifications for the method. These samples have been logged in under work order 183763. One sample is designated on hold per the COC.

The second set of coolers, with COC# MWHSV20070403\_01 and MWHSV20070403\_00, contained samples received at 9 degrees Celsius. The samples for pH and Perchlorate are outside of the temperature specifications for the method.

Please advise.

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 763-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

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# **Chain of Custody and Supporting Documentation**

186234



**CHAIN OF CUSTODY RECORD**

COC #:

MVH5V20070516\_04

Page: 1 of 1

| Customer Information |                                                              | Project Information |                                          | Boeing PM:                                                                                                   |                                   |
|----------------------|--------------------------------------------------------------|---------------------|------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Site:                | SSFL                                                         | Client Name:        | DOE                                      | Collector:                                                                                                   | Shelby Valenzuela                 |
| Company:             | MWH                                                          | Sampling Event:     | Group 8 Hastings Data Gaps-Sc            | Contact #:                                                                                                   |                                   |
| Report to:           | Lisa Tucker                                                  | Project Number:     | 1891307                                  | Requested Analyses                                                                                           |                                   |
| Address:             | 9444 Farnham Street<br>Suite 300<br>San Diego<br>CA<br>92123 | Project Manager:    | Diana Buchanan<br>(626) 568-6897         | Instructions/IAI                                                                                             |                                   |
| Email:               | lisa.tucker@mwglobal.com<br>boeingedms@ch2m.com              | Field Contact #:    |                                          | Legend:<br>Numerical values for analyses equate to turn around time in days<br>H - Hold<br>EH - Extract_Hold |                                   |
|                      |                                                              | Lab Name:           | GEL Laboratories, LLC                    | Comments                                                                                                     |                                   |
|                      |                                                              | Lab Contact:        | Martha Harrison                          |                                                                                                              |                                   |
|                      |                                                              | Lab Address:        | 2040 Savage Road<br>Charleston, SC 29407 |                                                                                                              |                                   |
|                      |                                                              | Lab Phone:          | (843) 556-8171                           |                                                                                                              |                                   |
| Sample Name          | Matrix                                                       | Date                | Time                                     | No. of Containers                                                                                            |                                   |
| FSS0094S01           | Soil                                                         | 5/16/2007           | 13:21                                    | 2                                                                                                            |                                   |
| FSS0094S02           | Soil                                                         | 5/16/2007           | 13:26                                    | 2                                                                                                            |                                   |
|                      |                                                              |                     |                                          |                                                                                                              | % Solids - Soil 5 5 5             |
|                      |                                                              |                     |                                          |                                                                                                              | Fluoride by 300 - Soil 5 5 5      |
|                      |                                                              |                     |                                          |                                                                                                              | SVOC 8270C Soil Full w/TICs 5 5 5 |
|                      |                                                              |                     |                                          |                                                                                                              | SVOCs by SW8270C SIM - Soil 5 5 5 |
|                      |                                                              |                     |                                          |                                                                                                              | TPH 8015B Soil Terphenyls 5 5 5   |
|                      |                                                              |                     |                                          |                                                                                                              | TPH by SW8015BM - Soil 5 5 5      |

|                     |                                                                                                                 |                 |         |                     |       |                 |       |
|---------------------|-----------------------------------------------------------------------------------------------------------------|-----------------|---------|---------------------|-------|-----------------|-------|
| 1. Relinquished by: | Date:                                                                                                           | 2. Received by: | Date:   | 3. Relinquished by: | Date: | 4. Received by: | Date: |
| <i>Cy Soras</i>     | 5/16/2007                                                                                                       | <i>Bentley</i>  | 5/17/07 |                     |       |                 |       |
| Company:            | Time:                                                                                                           | Company:        | Time:   | Company:            | Time: | Company:        | Time: |
| MWH                 | 7:00                                                                                                            | GTZ             | 9:30    |                     |       |                 |       |
| Comments:           | <input type="checkbox"/> Geotracker EDF<br><input checked="" type="checkbox"/> Data Validation Package Level IV |                 |         |                     |       |                 |       |

# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 186234  
SDG: 186234**

**May 22, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 17, 2007 for analysis.

The laboratory received the following samples:

| <b><u>Laboratory Identification</u></b> | <b><u>Sample Description</u></b> |
|-----------------------------------------|----------------------------------|
| 186234001                               | FSBS0094S01                      |
| 186234002                               | FSBS0094S02                      |
| 186234003                               | FSBS0094S01                      |
| 186234004                               | FSBS0094S02                      |

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: FID Flame Ionization Detector, General Chemistry, Radiochemistry and Semi-Volatile.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison

Project Manager

**Subject:** RE: SSFL 186234, Sample Receipt

**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>

**Date:** Fri, 18 May 2007 15:17:54 -0500

**To:** "Martha Harrison" <Martha.Harrison@gel.com>, <lisa.j.tucker@us.mwhglobal.com>

**CC:** "Benjamin Finley" <Benjamin.Finley@gel.com>, "Sarah E VonRaesfeld" <Sarah.E.VonRaesfeld@us.mwhglobal.com>, "Kim Schultz" <kim.schultz@mecx.net>, <boeingdms@ch2m.com>, "Nancy Mattern" <nan00774@gel.com>, "Christy Keenan" <christy.keenan@gel.com>

For the time being, please use the time on the COC. We will need to verify with the field logbooks to verify the actual time.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

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-----Original Message-----

**From:** Martha Harrison [<mailto:Martha.Harrison@gel.com>]

**Sent:** Friday, May 18, 2007 3:05 PM

**To:** [lisa.j.tucker@us.mwhglobal.com](mailto:lisa.j.tucker@us.mwhglobal.com)

**Cc:** Benjamin Finley; Elizabeth Wessling; Sarah E VonRaesfeld; Kim Schultz; [boeingdms@ch2m.com](mailto:boeingdms@ch2m.com); Nancy Mattern; Christy Keenan

**Subject:** Re: SSFL 186234, Sample Receipt

Lisa,

Have you had a chance to look into this discrepancy with the sample collection time?

Thanks!  
Martha

~~~~~

Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
[Martha.Harrison@gel.com](mailto:Martha.Harrison@gel.com)

Benjamin Finley wrote:

Elizabeth,

Sample FSBS0094S01 had a collect time on the sample container of 13:36

and chain of custody MWHSV20070516\_04 indicates 13:26. Which collect time is correct?

Thanks,  
Ben Finley

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**Subject:** Re: SSFL Group 8 Hastings, SDG 186234  
**From:** Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
**Date:** Fri, 18 May 2007 10:33:00 -0700  
**To:** Martha Harrison <Martha.Harrison@gel.com>

Martha,  
Yes this is correct and per our phone conversation I am fine with logging in the sample under two lab IDs to facilitate reporting from your LIMS.

Thanks,  
Lisa J. Tucker  
Senior Environmental Scientist  
MWH Americas, Inc.  
9444 Farnham Street  
Suite 300  
San Diego, CA 92123  
858.751.1240 - Direct Line  
858.751.1201 - Fax  
Lisa.Tucker@mwhglobal.com

**Martha Harrison**  
<Martha.Harrison@gel.com>

05/17/2007 01:03 PM

To: Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
cc: Sarah E VonRaesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>, Elizabeth Wessling <elizabeth.wessling@mecx.net>, Ben Finley <ben01223@gel.com>, Christy Keenan <christy.keenan@gel.com>  
Subject: SSFL Group 8 Hastings, SDG 186234

Lisa,

We received COC# MWHSV20070516\_04 for two soil samples. Both samples request the SIM and FULL SVOC 8270 lists. Is this correct?

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
Martha.Harrison@gel.com

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# SAMPLE RECEIPT & REVIEW FORM

PM use only

|                               |                                                                           |
|-------------------------------|---------------------------------------------------------------------------|
| Client: <u>SSFL</u>           | SDG/ARCO/Work Order: <u>186234</u>                                        |
| Date Received: <u>5/17/07</u> | PM(A) Review (ensure non-conforming items are resolved prior to signing): |
| Received By: <u>Ben Fuley</u> | <u>MJH</u>                                                                |

| Sample Receipt Criteria                                                                  | Yes                                 | NA | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)                                              |
|------------------------------------------------------------------------------------------|-------------------------------------|----|-------------------------------------|------------------------------------------------------------------------------------------------------|
| 1 Shipping containers received intact and sealed?                                        | <input checked="" type="checkbox"/> |    |                                     | Circle Applicable: seals broken damaged container leaking container other (describe)                 |
| 2 Samples requiring cold preservation within (4 +/- 2 C)?<br>Record preservation method. | <input checked="" type="checkbox"/> |    |                                     | Circle Coolant # ice bags <u>blue ice</u> dry ice none other describe<br><u>2c</u>                   |
| 3 Chain of custody documents included with shipment?                                     | <input checked="" type="checkbox"/> |    |                                     |                                                                                                      |
| 4 Sample containers intact and sealed?                                                   | <input checked="" type="checkbox"/> |    |                                     | Circle Applicable: seals broken damaged container leaking container other (describe)                 |
| 5 Samples requiring chemical preservation at proper pH?                                  |                                     |    | <input checked="" type="checkbox"/> | Sample ID's, containers affected and observed pH:                                                    |
| 6 VOA vials free of headspace (defined as < 6mm bubble)?                                 |                                     |    | <input checked="" type="checkbox"/> | Sample ID's and containers affected:                                                                 |
| 7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)         | <input checked="" type="checkbox"/> |    |                                     | <u>sent to freezer upon receipt.</u>                                                                 |
| 8 Samples received within holding time?                                                  | <input checked="" type="checkbox"/> |    |                                     | Id's and tests affected:                                                                             |
| 9 Sample ID's on COC match ID's on bottles?                                              |                                     |    | <input checked="" type="checkbox"/> | Sample ID's and containers affected:<br><u>LOB 30010301 appears as LOB 30110301 on COC container</u> |
| 10 Date & time on COC match date & time on bottles?                                      | <input checked="" type="checkbox"/> |    |                                     | Sample ID's affected:                                                                                |
| 11 Number of containers received match number indicated on COC?                          | <input checked="" type="checkbox"/> |    |                                     | Sample ID's affected:                                                                                |
| 12 COC form is properly signed in relinquished/received sections?                        | <input checked="" type="checkbox"/> |    |                                     | <u>COC #'s MWH SV 20070516-00 / MWH SV 20070516-00 / MWH SV 20070516-02</u>                          |
| 14 Air Bill , Tracking #'s, & Additional Comments                                        |                                     |    |                                     | <u>Fed Ex # 8612 6056 8347-20 sleeves/encores - soils</u>                                            |

| Suspected Hazard Information                                                       | Non-Regulated                       | Regulated | High Level | RSO RAD Receipt # _____<br>*If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation. |
|------------------------------------------------------------------------------------|-------------------------------------|-----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A Radiological Classification?                                                     | <input checked="" type="checkbox"/> |           |            | Maximum Counts Observed*: <u>CPM 40</u>                                                                                                                                                 |
| B PCB Regulated?                                                                   | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                         |
| C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager. | <input checked="" type="checkbox"/> |           |            | Hazard Class Shipped:<br>UN#:                                                                                                                                                           |
| D Regulated as a Foreign Soil?                                                     | <input checked="" type="checkbox"/> |           |            |                                                                                                                                                                                         |

PM (or PMA) review of Hazard classification: MJH Initials 05/17/07 Date:

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

| Qualifier | Explanation                                                                                                                                                                                           |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *         | A quality control analyte recovery is outside of specified acceptance criteria                                                                                                                        |
| **        | Analyte is a surrogate compound                                                                                                                                                                       |
| <         | Result is less than value reported                                                                                                                                                                    |
| >         | Result is greater than value reported                                                                                                                                                                 |
| ^         | RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL                                                                                                                      |
| A         | The TIC is a suspected aldol-condensation product                                                                                                                                                     |
| B         | Target analyte was detected in the associated blank                                                                                                                                                   |
| B         | Metals-Either presence of analyte detected in the associated blank, or<br>MDL/IDL < sample value < PQL                                                                                                |
| BD        | Results are either below the MDC or tracer recovery is low                                                                                                                                            |
| C         | Analyte has been confirmed by GC/MS analysis                                                                                                                                                          |
| D         | Results are reported from a diluted aliquot of the sample                                                                                                                                             |
| d         | 5-day BOD-The 2:1 depletion requirement was not met for this sample                                                                                                                                   |
| E         | Organics-Concentration of the target analyte exceeds the instrument calibration range                                                                                                                 |
| E         | Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria                                                                                                         |
| H         | Analytical holding time was exceeded                                                                                                                                                                  |
| h         | Preparation or preservation holding time was exceeded                                                                                                                                                 |
| J         | Value is estimated                                                                                                                                                                                    |
| N         | Metals-The Matrix spike sample recovery is not within specified control limits                                                                                                                        |
| N         | Organics-Presumptive evidence based on mass spectral library search to make a tentative<br>identification of the analyte (TIC). Quantitation is based on nearest internal standard<br>response factor |
| N/A       | Spike recovery limits do not apply. Sample concentration exceeds spike concentration<br>by 4X or more                                                                                                 |
| ND        | Analyte concentration is not detected above the reporting limit                                                                                                                                       |
| UI        | Gamma Spectroscopy-Uncertain identification                                                                                                                                                           |
| X         | Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier                                                                                                            |
| Y         | QC Samples were not spiked with this compound                                                                                                                                                         |
| Z         | Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.                                                                                                      |

# **Laboratory Certifications**

**List of current GEL Certifications as of 22 May 2007**

| <b>State</b>              | <b>Certification</b>       |
|---------------------------|----------------------------|
| Alaska                    | UST-062                    |
| Arizona                   | AZ0668                     |
| Arkansas                  | 88-0651                    |
| CLIA                      | 42D0904046                 |
| California                | 01151CA                    |
| Colorado                  | GenEngLabs                 |
| Connecticut               | PH-0169                    |
| Dept. of Navy             | NFESC 413                  |
| EPA                       | WG-15J                     |
| Florida/NELAP             | E87156                     |
| Georgia                   | E87156 (FL/NELAP)          |
| Hawaii                    | N/A                        |
| Idaho                     | N/A                        |
| Illinois                  | 200029                     |
| Indiana                   | C-SC-01                    |
| Kansas                    | E-10332                    |
| Kentucky                  | 90129                      |
| Louisiana                 | 03046                      |
| Maryland                  | 270                        |
| Massachusetts             | M-SC012                    |
| Michigan                  | 9903                       |
| Nevada                    | SC12                       |
| New Jersey                | SC002                      |
| New Mexico                | FL NELAP E87156            |
| New York                  | 11501                      |
| North Carolina            | 233                        |
| North Carolina Drinking W | 45709                      |
| North Dakota              | R-158                      |
| Oklahoma                  | 9904                       |
| Pennsylvania              | 68-00485                   |
| South Carolina            | 10120001/10585001/10120002 |
| Tennessee                 | 02934                      |
| Texas NELAP               | T104704235-06-TX           |
| U.S. Dept. of Agriculture | S-52597                    |
| US Army Corps of Engineer | N/A                        |
| Utah                      | 8037697376 GBL             |
| Vermont                   | VT87156                    |
| Virginia                  | 00151                      |
| Washington                | C1641                      |

# **Chain of Custody and Supporting Documentation**

186348

COC #

CHAIN OF CUSTODY RECORD

| Customer Information |                     | Project Information |                       | Project Information             |                   | Project Information |  |
|----------------------|---------------------|---------------------|-----------------------|---------------------------------|-------------------|---------------------|--|
| Site:                | SSFL                | Client Name:        | DOE                   | Collector:                      | Shelby Valenzuela | Boeing PM:          |  |
| Company:             | MWH                 | Sampling Event:     | Group 8 May 2007      | Contact #:                      |                   |                     |  |
| Report to:           | Lisa Tucker         | Project Number:     | 1891307               | Requested Analyses              |                   |                     |  |
| Address:             | 9444 Farnham Street | Project Manager:    | Diana Buchanan        | TPH by SW8015BM - Soil          |                   |                     |  |
|                      | Suite 300           | PM Phone #:         | (626) 568-6897        | TPH 8015B Water Terphenyls      |                   |                     |  |
|                      | San Diego           | Field Contact:      |                       | TPH 8015B Soil Terphenyls       |                   |                     |  |
|                      | CA                  | Field Contact #:    |                       | SVOCs by SW8270C SIM - Soil     |                   |                     |  |
|                      | 92123               | Lab Name:           | GEL Laboratories, LLC | SVOC 8270C Water Full w/TICs    |                   |                     |  |
|                      |                     | Lab Contact:        | Martha Harrison       | SVOC 8270C Soil Full w/TICs     |                   |                     |  |
|                      |                     | Lab Address:        | 2040 Savage Road      | PCB by SW8082 - Soil            |                   |                     |  |
|                      |                     | Lab Phone:          | Charleston, SC 29407  | Metals 7471A Soil Mercury       |                   |                     |  |
|                      |                     |                     | (843) 556-8171        | Metals 7470A Water Mercury      |                   |                     |  |
|                      |                     |                     |                       | Metals 6010B/6020 Water Group 8 |                   |                     |  |
|                      |                     |                     |                       | Metals 6010B Soil Zirconium     |                   |                     |  |
|                      |                     |                     |                       | Fluoride by 300 - Water         |                   |                     |  |
|                      |                     |                     |                       | Fluoride by 300 - Soil          |                   |                     |  |
|                      |                     |                     |                       | Dioxin by 1613B - Water         |                   |                     |  |
|                      |                     |                     |                       | Dioxin by 1613B - Soil          |                   |                     |  |
|                      |                     |                     |                       | % Solids - Soil                 |                   |                     |  |
| Sample Name          | Matrix              | Date                | Time                  | No. of Containers               |                   |                     |  |
| FSBS0062D01          | Soil                | 5/17/2007           | 7:26                  | 2                               |                   |                     |  |
| FSBS0062S01          | Soil                | 5/17/2007           | 7:26                  | 2                               |                   |                     |  |
| FSBS0062S02          | Soil                | 5/17/2007           | 7:46                  | 2                               |                   |                     |  |
| FSBS0063S01          | Soil                | 5/17/2007           | 7:57                  | 2                               |                   |                     |  |
| FSBS0064S01          | Soil                | 5/17/2007           | 8:43                  | 1                               |                   |                     |  |
| FSBS0064S02          | Soil                | 5/17/2007           | 8:46                  | 1                               |                   |                     |  |
| FSBS0066S01          | Soil                | 5/17/2007           | 9:12                  | 2                               |                   |                     |  |
| FSBS0066S02          | Soil                | 5/17/2007           | 9:17                  | 2                               |                   |                     |  |
| FSBS0065D01          | Soil                | 5/17/2007           | 9:52                  | 1                               |                   |                     |  |
| FSBS0065S01          | Soil                | 5/17/2007           | 9:52                  | 1                               |                   |                     |  |

|                     |                  |       |           |                 |                  |       |         |
|---------------------|------------------|-------|-----------|-----------------|------------------|-------|---------|
| 1. Relinquished by: | <i>CF Faraco</i> | Date: | 5/17/2007 | 2. Received by: | <i>Greg M. B</i> | Date: | 5-18-07 |
| Company:            | MWH              | Time: | 1430      | Company:        |                  | Time: | 10:30   |
| 3. Relinquished by: |                  | Date: |           | 4. Received by: |                  | Date: |         |
| Company:            |                  | Time: |           | Company:        |                  | Time: |         |

Geotracker EDF  Data Validation Package  Level IV

Comments: All samples for dioxin analysis (1sleeve for soil - 2x1L for water) were sent directly to SGS Environmental Services.

186348

COC #

CHAIN OF CUSTODY RECORD



| Customer Information |                                                              | Project Information |                                          | Project Information          |                   |          |
|----------------------|--------------------------------------------------------------|---------------------|------------------------------------------|------------------------------|-------------------|----------|
| Site:                | SSFL                                                         | Client Name:        | DOE                                      | Collector:                   | Shelby Valenzuela |          |
| Company:             | MMH                                                          | Sampling Event:     | Group 8 May 2007                         | Contact #:                   |                   |          |
| Report to:           | Lisa Tucker                                                  | Project Number:     | 1891307                                  | Requested Analyses           |                   |          |
| Address:             | 9444 Farnham Street<br>Suite 300<br>San Diego<br>CA<br>92123 | Project Manager:    | Diana Buchanan<br>(628) 568-6897         | TPH by SW8015BM - Soil       | 5                 |          |
| Email:               | lisa.tucker@mmhglobal.com                                    | Field Contact:      |                                          | TPH 8015B Water Terphenyls   | 5                 |          |
|                      | boingedms@ch2m.com                                           | Field Contact #:    |                                          | TPH 8015B Soil Terphenyls    | 5                 |          |
|                      |                                                              | Lab Name:           | GEL Laboratories, LLC                    | SVOCs by SW8270C SIM - Soil  | 5                 |          |
|                      |                                                              | Lab Contact:        | Martha Harrison                          | SVOC 8270C Water Full w/TICs | 5                 |          |
|                      |                                                              | Lab Address:        | 2040 Savage Road<br>Charleston, SC 29407 | SVOC 8270C Soil Full w/TICs  | 5                 |          |
|                      |                                                              | Lab Phone:          | (843) 556-8171                           | PCB by SW8082 - Soil         | 5                 |          |
| Sample Name          |                                                              | Matrix              | Date                                     | Time                         | No. of Containers | Comments |
| FBSS0065S02          | Soil                                                         |                     | 5/17/2007                                | 9:55                         | 1                 |          |
| FBSS0067D01          | Soil                                                         |                     | 5/17/2007                                | 10:25                        | 2                 |          |
| FBSS0067S01          | Soil                                                         |                     | 5/17/2007                                | 10:25                        | 2                 |          |
| FBSS0067S02          | Soil                                                         |                     | 5/17/2007                                | 10:31                        | 2                 |          |
| FSOW0005E01          | Water                                                        |                     | 5/17/2007                                | 10:59                        | 10                |          |
| FBSS0007AS01         | Soil                                                         |                     | 5/17/2007                                | 11:28                        | 4                 |          |

Legend:  
Numerical values for analyses  
equale to turn around time in days  
H - Hold  
EH - Extract & Hold

Run method spike and spike duplicate

|                     |                 |                      |               |                     |       |                 |       |
|---------------------|-----------------|----------------------|---------------|---------------------|-------|-----------------|-------|
| 1. Relinquished by: | Date: 5/17/2007 | 2. Received by:      | Date: 5-18-07 | 3. Relinquished by: | Date: | 4. Received by: | Date: |
| Company: MMH        | Time: 1430      | Company: Grey M. ... | Time: 10:30   | Company:            | Time: | Company:        | Time: |

Comments: All samples for dioxin analysis (1 sleeve for soil - 2x1L for water) were sent directly to SGS Environmental Services.

Geotracker EDF   
Data Validation Package  Level IV

le



May 23, 2007

Ms. Elizabeth Wessling, MECx  
MECx, LLC  
12269 East Vassar Drive  
Aurora, Colorado 80014



Re: DOE  
Project Number: 1891307  
Project Name: Group 8 May 2007  
Work Order: 186348 and 186352  
SDG: 186348S and 186348W

Dear Ms. Elizabeth Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 18, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Martha Harrison  
Project Manager

Purchase Order: Task Order 002  
Chain of Custody: MWHSV20070517\_00  
Enclosures

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# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 186348 and 186352  
SDG: 186348S and 186348W**

May 23, 2007

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 18, 2007 for analysis.

The laboratory received the following samples:

| <b><u>Laboratory Identification</u></b> | <b><u>Sample Description</u></b> |
|-----------------------------------------|----------------------------------|
| <b>186348001</b>                        | FSBS0092D01                      |
| 186348002                               | FSBS0092S01                      |
| 186348003                               | FSBS0092S02                      |
| 186348004                               | FSBS0093S01                      |
| 186348005                               | FSBS0084S01                      |
| 186348006                               | FSBS0084S02                      |
| 186348007                               | FSBS0086S01                      |
| 186348008                               | FSBS0086S02                      |
| 186348009                               | FSBS0085D01                      |
| 186348010                               | FSBS0085S01                      |
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| 186348012                               | FSBS0087D01                      |
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| 186348015                               | FSBS0007AS01                     |
| 186348016                               | FSBS0087D01                      |
| 186348017                               | FSBS0087S01                      |
| 186348018                               | FSBS0087S02                      |
| 186348019                               | FSBS0007AS01                     |
| <b>186352001</b>                        | FSQW0005E01                      |

**Items of Note**

N/A

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: FID Flame Ionization Detector, General Chemistry, Metals, PCB, Project Management, Radiochemistry, Semi-Volatile and Dioxins / Furans.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison

Project Manager



# SAMPLE RECEIPT & REVIEW FORM

PM use only

|                                 |                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------|
| Client: <u>SSFL</u>             | SDG/ARCO/Work Order: <u>186348</u>                                                      |
| Date Received: <u>5-18-07</u>   | PM(A) Review (ensure non-conforming items are resolved prior to signing):<br><u>MWH</u> |
| Received By: <u>[Signature]</u> |                                                                                         |

| Sample Receipt Criteria                                                               | Yes                                 | NA                       | No                                  | Comments/Qualifiers (Required for Non-Conforming Items)                                                |
|---------------------------------------------------------------------------------------|-------------------------------------|--------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------|
| 1 Shipping containers received intact and sealed?                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Circle Applicable: seals broken damaged container leaking container other (describe)                   |
| 2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Circle Coolant # <u>(ice bags)</u> <u>(blue ice)</u> dry ice none other (describe)<br><u>4°C</u>       |
| 3 Chain of custody documents included with shipment?                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                                                                                        |
| 4 Sample containers intact and sealed?                                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Circle Applicable: seals broken damaged container leaking container other (describe)                   |
| 5 Samples requiring chemical preservation at proper pH?                               | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's, containers affected and observed pH:                                                      |
| 6 VOA vials free of headspace (defined as < 6mm bubble)?                              | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's and containers affected:                                                                   |
| 7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)      | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> |                                                                                                        |
| 8 Samples received within holding time?                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Id's and tests affected:                                                                               |
| 9 Sample ID's on COC match ID's on bottles?                                           | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Sample ID's and containers affected:                                                                   |
| 10 Date & time on COC match date & time on bottles?                                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Sample ID's affected:<br><u>FSB5009201 - Bottle time 7:36</u><br><u>FSB50092501 - Bottle time 7:36</u> |
| 11 Number of containers received match number indicated on COC?                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            | Sample ID's affected:                                                                                  |
| 12 COC form is properly signed in relinquished/received sections?                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |                                                                                                        |

|                                                  |                                                               |
|--------------------------------------------------|---------------------------------------------------------------|
| 14 Air Bill ,Tracking #'s, & Additional Comments | Fed: <u>801260568391 -4°C</u><br>ex: <u>861260568406 -4°C</u> |
|--------------------------------------------------|---------------------------------------------------------------|

| Suspected Hazard Information                                                       | Non-Regulated                       | Regulated                | High Level               | RSO RAD Receipt # _____<br>*If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation. |
|------------------------------------------------------------------------------------|-------------------------------------|--------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A Radiological Classification?                                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Maximum Counts Observed*: <u>80cpm</u>                                                                                                                                                  |
| B PCB Regulated?                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                                                                                                                                                                                         |
| C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Hazard Class Shipped:<br>UN#:                                                                                                                                                           |
| D Regulated as a Foreign Soil?                                                     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                                                                                                                                                                                         |

PM (or PMA) review of Hazard classification: MWH Initials 05/18/07 Date:

**Subject:** SSFL Group 8 May 2007, SDG 186348 Sample Receipt  
**From:** Martha Harrison <Martha.Harrison@gel.com>  
**Date:** Fri, 18 May 2007 12:42:17 -0400  
**To:** Sarah E VonRaesfeld <Sarah.E.VonRaesfeld@us.mwhglobal.com>, Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
**CC:** Elizabeth Wessling <elizabeth.wessling@mecx.net>, Ben Finley <ben01223@gel.com>, Christy Keenan <christy.keenan@gel.com>

Sarah or Lisa,

Two samples received with COC# MWHSV20070517\_00 have a collection time listed differently on the container. Samples FSBS0092D01 and FSBS0092S01 have 07:36 and the COC states the time as 07:26. I've logged the samples with the collection time from the COC. Please let me know if this needs to be changed.

Thanks,  
Martha

~~~~~  
Martha Harrison  
Federal Project Manager  
GEL Laboratories, LLC  
2040 Savage Road  
Charleston, SC 29407  
(843) 769-7376 x4475  
(843) 769-7384 Direct Line  
(843) 766-1178 Fax  
Martha.Harrison@gel.com

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

Qualifier Explanation

- \* A quality control analyte recovery is outside of specified acceptance criteria
- \*\* Analyte is a surrogate compound
- < Result is less than value reported
- > Result is greater than value reported
- ^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
- A The TIC is a suspected aldol-condensation product
- B Target analyte was detected in the associated blank
- B Metals-Either presence of analyte detected in the associated blank, or  
MDL/IDL < sample value < PQL
- BD Results are either below the MDC or tracer recovery is low
- C Analyte has been confirmed by GC/MS analysis
- D Results are reported from a diluted aliquot of the sample
- d 5-day BOD-The 2:1 depletion requirement was not met for this sample
- E Organics-Concentration of the target analyte exceeds the instrument calibration range
- E Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
- H Analytical holding time was exceeded
- h Preparation or preservation holding time was exceeded
- J Value is estimated
- N Metals-The Matrix spike sample recovery is not within specified control limits
- N Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
- N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
- ND Analyte concentration is not detected above the reporting limit
- UI Gamma Spectroscopy-Uncertain identification
- X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
- Y QC Samples were not spiked with this compound
- Z Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 23 May 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
BPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**

1870864  
186234

Customer Information		Project Information		Project Information		Project Information	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:	
Company:	MWH	Sampling Event:	Group 8 Hastings Data Gaps-S	Contact #:			
Report to:	Lisa Tucker	Project Number:	1691307	<b>Requested Analysis</b>			
Address:	9444 Farnham Street Suite 300 San Diego CA 92123	Project Manager:	Diana Buchanan (626) 588-8897				
Email:	lisa.tucker@mwhglobal.com boeingdms@ch2m.com	Field Contact:		<b>Instructional/TAT</b>			
		Field Contact #:					
		Lab Name:	GEL Laboratories, LLC	Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract Hold			
		Lab Contact:	Martha Harrison				
		Lab Address:	2040 Savage Road Charleston, SC 29407	Perchlorate by 314-DIWET 5 5 TPH by SW8015BM - Soil 5 5 5 5 5 TPH 8015B Soil Terphenyls 5 5 5 5 5 SVOCs by SW8270C SIM - Soil 5 5 5 5 5 SVOC 8270C Soil Full w/TICs 5 5 5 5 5 Fluoride by 300 - Soil 5 5 5 5 5 % Solids - Soil 5 5 5 5 5			
		Lab Phone:	(843) 556-8171				
<b>Sample Name</b>		<b>Matrix</b>	<b>Units</b>	<b>Date</b>	<b>Time</b>	<b># of Containers</b>	<b>Remarks</b>
FSBS0094S01	Soil			5/16/2007	13:21	2	
FSBS0094S02	Soil			5/16/2007	13:26	2	

Please leach samples FSBS0094S01 & FSBS0094S02 according to Boeing SSFL protocols and analyze the leachates for Perchlorate by Method 314 on a 5 day turnaround time to Preliminary Data.  
Highly Subj. 06/01/07

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Date:	5/16/2007	Date:	5/17/07	Date:		Date:	
Signature:	<i>Cy Sarao</i>	Signature:	<i>Burtenley</i>	Signature:		Signature:	
Company:	MWH	Company:	GEL	Company:		Company:	
Time:	16:00	Time:	14:30	Time:		Time:	

Comments:  Geotracker EDF  Data Validation Package  Level IV

187086A  
186348

COG # MWHSV20070617\_00  
Page: 2 of 2

CHAIN OF CUSTODY RECORD

Customer Information		Project Information		Boiling Pot	
Site:	SBFL	Client Name:	DOE	Collector:	Shelby Valenzuela
Company:	MWH	Sampling Event:	Group 8 May 2007	Contact #:	
Report to:	Lisa Tucker	Project Number:	189307		
Address:	9444 Farnham Street Suite 300 San Diego CA	Project Manager:	Diana Buchanan		
		PM Phone #:	(619) 588-8197		
		Field Contact:			
		Field Contact #:			
		Lab Name:	GEL Laboratories, LLC		
		Lab Contact:	Marta Harrison		
		Lab Address:	2040 Sawage Road Charleston, SC 29407		
		Lab Phone:	(843) 558-6171		
Sample Name	Matrix	Date	Time	No. of Containers	Instructions/TAT
F830087S01	Soil	5/17/2007	9:45	1	Requested Analytes: TPH by SW8015B M - Soil TPH 8015B Water Terphenyls TPH 6015B Soil Terphenyls SVOCs by SW8270C SIM - Soil SVOC 8270C Water Full w/TCs SVOC 8270C Soil Full w/TCs PCB by SW8062 - Soil Metals 7471A Soil Mercury Metals 7470A Water Mercury Metals 60108/903B Water Group 8 Metals 60108 Soil Zirconium Fluoride by 300 - Water Fluoride by 300 - Soil Dioxin by 1613B - Water Dioxin by 1613B - Soil % Solids - Soil
F830087D01	Soil	5/17/2007	10:25	2	
F830087S01	Soil	5/17/2007	10:25	2	
F830087S02	Soil	5/17/2007	10:31	2	
F830087E01	Water	5/17/2007	10:50	10	
F830087A91	Soil	5/17/2007	11:20	4	
Comments: Run method spike and spike duplicate					

PLEASE LEAVE SAMPLES F830087S01 & F830087S02 BY BOILING POT PROTOCOL AND ANALYZE THE RESULTING LEACHATES FOR PECHORDE BY METHOD 314 ON A 5 DAY TURN AROUND TIME TO PRELIMINARY DATA  
 RECEIVED BY 314-DI WET  
 Date: 5/18/07  
 Time: 10:36  
 Company: MWH

1. Relinquished by:		2. Received by:		3. Relinquished by:		4. Received by:	
Signature: <i>C. Faraco</i>	Date: 5/17/2007	Signature: <i>Cheryl M. K...</i>	Date: 5-18-07	Signature:	Date:	Signature:	Date:
Company: MWH	Time: 14:20	Company:	Time: 10:36	Company:	Time:	Company:	Time:

Geotracker EDF   
 Data Validation Package  Level IV

187086H  
186348

WVHSV20070517\_00  
Page: 1 of 2

COC #

CHAIN OF CUSTODY RECORD

Customer Information		Project Information		Collector		Boeing PM	
Sir:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:	
Company:	MWH	Sampling Event:	Group 8 May 2007	Contact #:			
Report to:	Lisa Tucker	Project Number:	1897307				
Address:	3414 Farnham Street San Diego CA	Project Manager:	Diana Buchanan (628) 568-6887				
	92123	PM Phone #:					
		Field Contact:					
		Field Contact #:					
		Lab Name:	GEL Laboratories, LLC				
		Lab Contact:	Marta Harman				
		Lab Address:	2040 Savage Road Charleston, SC 29407				
		Lab Phone:	(843) 568-5171				
Sample Name	Matrix	Qty	Time	No. of Containers	Requested Analyses	Comments	
F885000201	Soil	5/17/2007	7:26	2			
F885000201	Soil	5/17/2007	7:29	2			
F885000202	Soil	5/17/2007	7:48	2			
F885000301	Soil	5/17/2007	7:57	2			
F885000401	Soil	5/17/2007	8:43	1			
F885000402	Soil	5/17/2007	8:48	1			
F885000601	Soil	5/17/2007	9:12	2			
F885000602	Soil	5/17/2007	9:17	2			
F885000603	Soil	5/17/2007	9:52	1			
F885000609	Soil	5/17/2007	9:52	1			

*Requested Analyses:*  
 Metals 60108 Soil Zirconium  
 Fluoride by 300 - Water  
 Fluoride by 300 - Soil  
 Chlorine by 1813B - Water  
 Chlorine by 1813B - Soil  
 4 Solids - Soil  
 Metals 7470A Water Mercury  
 Metals 7471A Soil Mercury  
 PCB by SW8082 - Soil  
 SVOC 8270C Soil Full w/ TICs  
 SVOC 8270C Water Full w/ TICs  
 SVOCs by SW8270C SAs - Soil  
 TPH 8015B Water Terphenyls  
 TPH 8015B Soil Terphenyls  
 TPH by SW9015BM - Soil

*Comments:*  
 1. Relinquished by: *ex farao* Date: 5/17/2007  
 2. Received by: *Greg M. B* Date: 5-18-07  
 3. Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_  
 4. Received by: \_\_\_\_\_ Date: \_\_\_\_\_

Company: MWH  
 Time: 4:50  
 Time: 10:30

GeoTracker EDF   
 Data Validation Package  Level IV

PLEASE LEACH SAMPLES F8850006501-F8850006502 BY BOEING SSFL PROTOCOL AND ANALYZE THE RESULTING LEACHATES FOR PERCHLORATE BY METHOD 314 ON A 5 DAY TURN AROUND TIME TO PRELIMINARY DATA. *John Doe 06/01/07*

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# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 187086  
SDG: 187086H**

**June 11, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 17, 2007 and May 18, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
187086001	FSBS0094S01
187086002	FSBS0094S02
187086003	FSBS0086S01
187086004	FSBS0086S02
187086005	FSBS0087S01
187086006	FSBS0087S02

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package. On 06/01/07, the client requested the sample IDs listed above to be analyzed for Perchlorate by 314-DI WET.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

A handwritten signature in black ink that reads "Martha Harrison". The signature is written in a cursive, flowing style.

Martha Harrison

Project Manager

**Subject:** Additional Analyses Request

**From:** Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>

**Date:** Fri, 1 Jun 2007 17:10:26 -0700

**To:** Martha Harrison <Martha.Harrison@gel.com>

**CC:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>, Edmund M Sarao <Enmund.M.Sarao@us.mwhglobal.com>, Diana Buchanan <Diana.Buchanan@us.mwhglobal.com>

Martha,

I realize you are probably gone for the day and hopefully for the week. So no need to respond to this before Monday, June 4th.

We would like to request that you analyze the following six Group 8 samples for Perchlorate:

<b>GEL ID</b>	<b>MWH ID</b>
<b>186234001</b>	<b>FSBS0094S01</b>
<b>186234002</b>	<b>FSBS0094S02</b>
<b>186348007</b>	<b>FSBS0086S01</b>
<b>186348008</b>	<b>FSBS0086S02</b>
<b>186348013</b>	<b>FSBS0087S01</b>
<b>186348014</b>	<b>FSBS0087S02</b>

Please follow the Boeing SSFL leaching procedure and analyze the leachate. We are requesting a 5 day turnaround time to preliminary data.

Please let me know when we could expect the level IV package to MECx and EDD to CH2M Hill to follow.

Attached are corrected COCs with additional analyses request:

Please feel free to call if you have any questions or issues with the turn around time or sample volume.

In addition we will be collecting 3 additional soil samples on Monday or Tuesday for 5 day TAT perchlorate.

Lisa J. Tucker  
Senior Environmental Scientist  
MWH Americas, Inc.  
9444 Farnham Street  
Suite 300  
San Diego, CA 92123  
858.751.1240 - Direct Line  
858.751.1201 - Fax  
Lisa.Tucker@mwhglobal.com

**Corrected COCs for Additional Perchlorate\_06-01-07.PDF**



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>SSFL</u>	SDG/ARCO/Work Order: <u>186234, 187086</u>
Date Received: <u>5/17/07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>Ben Fuley</u>	<u>MJK</u>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.	<input checked="" type="checkbox"/>			Circle Coolant # ice bags <u>blue ice</u> dry ice none other (describe) <u>2c</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH?		<input checked="" type="checkbox"/>		Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?		<input checked="" type="checkbox"/>		Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)	<input checked="" type="checkbox"/>			<u>sent to freezer upon receipt.</u>
8 Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?			<input checked="" type="checkbox"/>	Sample ID's and containers affected: <u>LOB30010501 appears as LOB3010501 on COC container</u>
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected:
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			<u>COC #'s MNH5V20070516-00 / MNH5V20070516-02</u> <u>MNH5B20070516-00</u> <u>MNH5V20070516-02</u>
14 Air Bill, Tracking #'s, & Additional Comments				<u>Fed Ex # 8612 6056 8347-2c</u> <u>shaves, leucocytes, salts</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # _____ *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	<input checked="" type="checkbox"/>			Maximum Counts Observed*: <u>CPM 40</u>
B PCB Regulated?	<input checked="" type="checkbox"/>			
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	<input checked="" type="checkbox"/>			Hazard Class Shipped: UN#:
D Regulated as a Foreign Soil?	<input checked="" type="checkbox"/>			
PM (or PMA) review of Hazard classification: <u>MJK</u> Initials <u>05/17/07</u> Date:				

## LABORATORY TASK ORDER (LTO) FORM

*INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingdms@ch2m.com) & the Data Validator at Least 48 hrs prior to need for sample containers. Project Analytical Laboratory will confirm receipt via E-Mail.*

**Event Name:** Group 8 May 2007

**Start:** 5/14/2007 **End:** \_\_\_\_\_

**LTO DATE:**

**LTO NUMBER:**

<p><b>Consultant Name:</b> <u>MWH</u>  <b>Address:</b> <u>9444 Farnham Suite 300</u>  <u>San Diego, CA 92123</u></p> <p><b>Contact Name:</b> <u>Lisa Tucker</u>  <b>Phone Number:</b> <u>858-751-1240</u>  <b>Fax Number:</b> <u>858-751-1204</u>  <b>E-mail Address:</b> <u>Lisa.Tucker@mwhglobal.com</u></p>	<p><b>Contract Laboratory:</b> <u>GEL</u>  <b>Address:</b> <u>2040 Savage Rd.</u>  <u>Charleston, SC 29407</u></p> <p><b>Lab Contact Name:</b> <u>Martha Harrison</u>  <b>Phone Number:</b> <u>843-769-7384</u>  <b>Fax Number:</b> <u>843-766-1178</u>  <b>E-mail Address:</b> <u>Martha.Harrison@gel.com</u></p>
--	--

### SAMPLE CONTAINER ORDER FORM

**Date Required:** \_\_\_\_\_

**Requested Analyses:** (Specify # of Samples)

**Date Sample Pickup:** NA

**Ship Containers To:**  
 Project Site \_\_\_\_\_ (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments) \_\_\_\_\_ (enter "X")

	(Specify # of Samples)		
	Water	Soil	Contingent
EPA 8015M (GRO)			
EPA 8015M (DRO)			
EPA 8015M (JET FUEL)			
EPA 8015M (CC)	3	17	14
EPA 8260B (VOC)	5	9	13
EPA 8270C SIM (SVOC)	1	17	22
EPA 8310 (PAH)			
EPA 8082 (PCB)	3	21	25
EPA TO-15 VOCs (Scan)			
EPA TO-15 VOCs (SIM)			
CCR Title 22 Metals	4	16	29
Total Chromium			
EPA 7196A (Hexavalent Chromium)	0	0	10
Total Lead			
Wet Chemistry (pH, etc.)			
General Minerals			
Fish Bioassay			
EPA TO-14 (VOCs)			

**Container Information:**  
 Trip Blank (VOA only) No (Yes/No)  
 Temp Blank (VOA Only) No (Yes/No)  
 DI Water Required? No (Yes/No)  
 MS/MSD Extra Bottles? No (Yes/No)

**Sample Matrix:**  
 Soil X (select all applicable)  
 Water X (select all applicable)  
 Vapor \_\_\_\_\_ (select all applicable)

Est. Total # of Samples: 115 Est. Total # of EDDs 15

### LABORATORY REPORTING REQUIREMENTS

**Project TAT:**  
 Normal: X (10 Business days)  
 RUSH: 5 day (Specify- 24 / 48 / 72HRS)  
 Other: \_\_\_\_\_ (Specify # of Days)  
 Report Due Date: \_\_\_\_\_

**Laboratory Results/Reports Deliverables:**  
 Draft Results Fax?: \_\_\_\_\_ (Yes/No)  
 Draft Results E-mail?: Yes (Yes/No)  
 Specify Fax/E-mail Contact Name, #, E-mail Address: Lisa.Tucker@mwhglobal.com  
 Send Original Reports To:  
 Project Site \_\_\_\_\_ (enter "X")  
 Consultant Office \_\_\_\_\_ (enter "X")  
 Other Location (specify in comments) \_\_\_\_\_ (enter "X")  
 # of Copies Reports Req.: 1

**Special Reporting Requirements:**  
 Contingent Analysis? Yes (Yes/No)  
 TIC (VOC) Required? Yes (Yes/No)  
 TIC (SVOC) Required? Yes (Yes/No)  
 Data Validation Pckge.: Tier III (Boeing Tier I, II or III)

### SPECIAL INSTRUCTIONS/LTO NOTES

1. Contingent samples for SVOCs, PCBs, and TPH will be extracted and then placed on hold. Encores will be extruded and then frozen.
2. Hardcopy data will be sent to Patti Meeks at MECX 12269 East Vassar Dr. Aurora, CO 80014
3. Hardcopy result and EDDs on 10 day TAT unless specified otherwise

### CONFIRMATION OF TRANSMITTAL & RECEIPT

**LTO Sent By:**  
 Name: Lisa Tucker  
 Date: 05/14/07

**LTO Received By:**  
 Name: \_\_\_\_\_  
 Date: \_\_\_\_\_

## LABORATORY TASK ORDER (LTO) FORM (PAGE 2)

### ADDITIONAL REQUIRED ANALYSES

LTO DATE:

LTO NUMBER:

**Consultant Name:** MWH  
**Address:** 9444 Farnham Suite 300  
San Diego, CA 92123

**Contract Laboratory:** GEL  
**Address:** 2040 Savage Rd.  
Charleston, SC 29407

**Contact Name:** Lisa Tucker  
**Phone Number:** 858-751-1240  
**Fax Number:** 858-751-1204  
**E-mail Address:** Lisa.Tucker@mwhglobal.com

**Lab Contact Name:** Martha Harrison  
**Phone Number:** 843-769-7384  
**Fax Number:** 843-766-1178  
**E-mail Address:** Martha.Harrison@gel.com

### SAMPLE CONTAINER ORDER FORM (CONTINUED)

**Requested Analyses:** (Specify # of Samples)

	Water	Soil	Contingent
1613B (Dioxins)	3	5	16
% Solids (160.3)	0	71	28
Fluoride (300.0)	4	49	24
SVOCs w. TICs (8270C)	3	35	17
Aluminum (6010B)	1	12	0
Boron (6010B)	1	8	6
Mercury (7470A/7471A)	2	16	30
Sodium (6010B)	1	12	0
Zirconium (6010B)	0	14	0
Perchlorate (314.0 DI WET)	0	0	8
Terphenyls (8015B)	4	47	24

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 11 June 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**

187202



**CHAIN OF CUSTODY RECORD**

COC #:

MWHSV20070605\_00

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Customer Information		Project Information			Project Information	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:
Company:	MWH	Sampling Event:	Group 8 June 2007	Contact #:		
Report to:	Lisa Tucker	Project Number:	1891307-FSDF	Requested Analyses		
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan	Instructions/TAT		
	Suite 300	PM Phone #:	(626) 568-6897	Legend: Numerical values for analyses equate to turn around time in days		
	San Diego	Field Contact:		H - Hold		
	CA	Field Contact #:		EH - Extract Hold		
	92123	Lab Name:	GEL Laboratories, LLC			
Email:	lisa.tucker@mwhglobal.com	Lab Contact:	Martha Harrison			
	boeingedims@ch2m.com	Lab Address:	2040 Savage Road			
		Lab Phone:	Charleston, SC 29407			
			(843) 556-8171			
Sample Name	Matrix	Date	Time	No. of Containers	Comments	
FSBS0090S01	Soil	6/5/2007	8:00	1	Perchlorate by 314-DI WET	
FSBS0091S01	Soil	6/5/2007	8:13	1	% Solids - Soil	
FSBS0091S02	Soil	6/5/2007	8:33	1		

1. Relinquished by:	Date:	2. Received by:	Date:	3. Relinquished by:	Date:	4. Received by:	Date:
	6/5/2007	<i>Bentley</i>	6/6/07				
Company:	Time:	Company:	Time:	Company:	Time:	Company:	Time:
MWH		GEL	7:50				
Comments:	Geotracker EDF <input type="checkbox"/> Level IV Data Validation Package <input checked="" type="checkbox"/>						

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Laboratories LLC

a member of **The GEL Group** INC



PO Box 30712 Charleston, SC 29417  
2040 Savage Road Charleston, SC 29407

P 843.556.8171 F 843.766.1178

[www.gel.com](http://www.gel.com)

June 11, 2007

Ms. Elizabeth Wessling, MECx  
MECx, LLC  
12269 East Vassar Drive  
Aurora, Colorado 80014

Re: SSFL  
Project Number: 1891307-FSDF  
Project Name: Group 8 June 2007  
Work Order: 187202  
SDG: 187202

Dear Ms. Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 06, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Martha Harrison  
Project Manager

Purchase Order: 1891306.021105  
Chain of Custody: MWHSV20070605\_00  
Enclosures

problem solved

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# Case Narrative

Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 187202  
SDG: 187202

June 12, 2007

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 06, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
187202001	FSBS0090S01
187202002	FSBS0091S01
187202003	FSBS0091S02

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: General Chemistry and Radiochemistry.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

  
Martha Harrison  
Project Manager

**Subject:** RE: Boeing SSFL, Group 8, SDG 187202 Perchlorate Request  
**From:** "Elizabeth Wessling" <elizabeth.wessling@mecx.net>  
**Date:** Tue, 12 Jun 2007 13:17:01 -0500  
**To:** "Nancy Mattern" <nancy.mattern@gel.com>  
**CC:** "Martha Harrison" <Martha.Harrison@gel.com>, "Lisa J Tucker" <Lisa.J.Tucker@us.mwhglobal.com>, "Ben Finley" <ben01223@gel.com>

Wouldn't the first be a "J" value?  
Please report the first value with the second in the misc file.

**Elizabeth A. Wessling**  
Senior Environmental Chemist

Phone: 720.535.5502  
Cell: 303. 881.6816  
Fax: 720.535.7555  
[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

**MECX, LLC**  
**12269 East Vassar Drive**  
**Aurora, Colorado 80014**  
[www.mecx.net](http://www.mecx.net)  
*A Service-Disabled Veteran-Owned Small Business*

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-----Original Message-----

**From:** Nancy Mattern [mailto:nancy.mattern@gel.com]  
**Sent:** Tuesday, June 12, 2007 10:19 AM  
**To:** Elizabeth Wessling  
**Cc:** Martha Harrison; Lisa J Tucker; Ben Finley  
**Subject:** Re: Boeing SSFL, Group 8, SDG 187202 Perchlorate Request

Do you want the original data reported and the 2nd run in Miscellaneous or vice versa? One would be a non-detect (barely) and the other a detect.

Elizabeth Wessling wrote:

Please go ahead and report the data. It looks like the perchlorate is there an causing a carryover matrix effect. We would rather see the detect rather than a nondetect at a higher reporting limit. We will estimate the data for the CCV and MS outlier.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502  
Cell: 303. 881.6816  
Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

MECX, LLC

12269 East Vassar Drive

Aurora, Colorado 80014

[www.mecx.net](http://www.mecx.net)

A Service-Disabled Veteran-Owned Small Business

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-----Original Message-----

From: Nancy Mattern [<mailto:nancy.mattern@gel.com>]

Sent: Tuesday, June 12, 2007 8:06 AM

To: Elizabeth Wessling

Cc: Martha Harrison; Lisa J Tucker; Ben Finley

Subject: Re: Boeing SSFL, Group 8, SDG 187202 Perchlorate Request

Elizabeth,

I have attached copies of the original neat and second neat runs with accompanying QC. The high failing CVHs are the problem for our QC measures. The high Spike on the 2nd run is also slightly over our acceptance criteria (80 - 120%).

Elizabeth Wessling wrote:

Can I see a chromatogram of the neat sample? I don't want to hide a detect especially if the analyst thinks the detect is real. Also we have the option to analyze by an MS method if we cannot get "good" data by IC.

Elizabeth A. Wessling  
Senior Environmental Chemist

Phone: 720.535.5502

Cell: 303. 881.6816

Fax: 720.535.7555

[elizabeth.wessling@mecx.net](mailto:elizabeth.wessling@mecx.net)

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-----Original Message-----

From: Martha Harrison [<mailto:Martha.Harrison@gel.com>]  
Sent: Monday, June 11, 2007 2:09 PM  
To: Lisa J Tucker; Elizabeth Wessling  
Cc: Nancy Mattern; Ben Finley  
Subject: Boeing SSFL, Group 8, SDG 187202 Perchlorate Request

Lisa and Elizabeth,

Please review the email below from the IC analyst. She's analyzing the

soil leachate samples for Perchlorate under the Group 8 Project # 1891307-FSDF. The sample ID is FSBS0090S01 (187202001).

Please advise.

Thanks,  
Martha

----- Original Message -----

Subject: SSFL -187202001  
Date: Mon, 11 Jun 2007 14:43:33 -0400  
From: Mary Sherwood <[mary.sherwood@gel.com](mailto:mary.sherwood@gel.com)>  
To: Martha Harrison <[mar00840@gel.com](mailto:mar00840@gel.com)>, Nancy Mattern <[nancy.mattern@gel.com](mailto:nancy.mattern@gel.com)>, Jamie Johnson <[Jamie.Johnson@gel.com](mailto:Jamie.Johnson@gel.com)>

Martha,  
Sample 187202001 from Batch # 640486 has been analyzed twice neat and I'm not able to get a passing PS or CCV without diluting. The CCV and

PS

are failing high.

The question is do we report 6.04 ppb with high QC recoveries or do we dilute and try and get a reportable <8.00 ppb if I can get the passing QC at a 2X dilution.

Thanks,  
Mary

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--

Nancy D. Mattern  
Quality Assurance Officer  
GEL Laboratories, LLC  
2040 Savage Rd  
Charleston, SC 29407  
(843) 556-8171 X 4735  
(843) 766-1178 FAX

---

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**SAMPLE RECEIPT & REVIEW FORM**

Client: <u>SSFL (1891307-F3AF)</u>		SDG/ARCOC/Work Order: <u>187202</u>	
Received By: <u>Ben Finley</u>		Date Received: <u>6/6/07</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		✓	Maximum Counts Observed*: <u>CPM 50</u>
Classified Radioactive II by RSO?		✓	
COC/Samples marked containing PCBs?		✓	
Shipped as a DOT Hazardous?		✓	Hazard Class Shipped: _____ UN#: _____
Samples identified as Foreign Soil?		✓	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	✓			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)?	✓			Preservation Method: <u>ice bags</u> blue ice    dry ice    none    other (describe) <u>4°C</u>
3 Chain of custody documents included with shipment?	✓			
4 Sample containers intact and sealed?	✓			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5 Samples requiring chemical preservation at proper pH?		✓		Sample ID's, containers affected and observed pH: <u>5.011</u> If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?		✓		Sample ID's and containers affected:
7 Are Encore containers present?			✓	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	✓			Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?	✓			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	✓			Sample ID's affected:
11 Number of containers received match number indicated on COC?	✓			Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?	✓			

Comments: FedEx # 8599 0990 2003 - 4c (soils)

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 11 June 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**

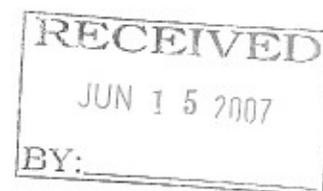




June 11, 2007

Ms. Elizabeth Wessling, MECx  
MECx, LLC  
12269 East Vassar Drive  
Aurora, Colorado 80014

Re: SSFL  
Project Number: 1891307  
Project Name: Group 8 June 2007  
Work Order: 187451  
SDG: 187451



Dear Ms. Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on June 08, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Martha Harrison  
Project Manager

Purchase Order: 1891306.021105  
Chain of Custody: MWHSV20070607\_02  
Enclosures

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# **Case Narrative**

**Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 187451  
SDG: 187451**

**June 11, 2007**

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on June 08, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
187451001	FSBS0036AS01
187451002	FSBS0095S01
187451003	FSBS0096S01

**Items of Note**

There are no items to note.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Metals.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.



Martha Harrison  
Project Manager



Client: <u>SSL*</u>		SDG/ARCOC/Work Order: <u>187451</u>	
Received By: <u>Burt Finley</u>		Date Received: <u>6/8/07</u>	
Suspected Hazard Information	Yes	No	*If Counts > x2 area background on samples not marked "radioactive", contact the Radiation Safety Group of further investigation.
COC/Samples marked as radioactive?		<input checked="" type="checkbox"/>	Maximum Counts Observed*: <u>CPM10</u>
Classified Radioactive II by RSO?		<input checked="" type="checkbox"/>	
COC/Samples marked containing PCBs?		<input checked="" type="checkbox"/>	
Shipped as a DOT Hazardous?		<input checked="" type="checkbox"/>	Hazard Class Shipped: UN#:
Samples identified as Foreign Soil?		<input checked="" type="checkbox"/>	

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)?	<input checked="" type="checkbox"/>			Preservation Method: <u>ice bags</u> <u>blue ice</u> dry ice    none    other (describe) <u>3c</u>
3 Chain of custody documents included with shipment?	<input checked="" type="checkbox"/>			
4 Sample containers intact and sealed?	<input checked="" type="checkbox"/>			Circle Applicable: seals broken    damaged container    leaking container    other (describe)
5 Samples requiring chemical preservation at proper pH?			<input checked="" type="checkbox"/>	Sample ID's, containers affected and observed pH: If Preservation added, Lot#:
6 VOA vials free of headspace (defined as < 6mm bubble)?			<input checked="" type="checkbox"/>	Sample ID's and containers affected:
7 Are Encore containers present?			<input checked="" type="checkbox"/>	(If yes, immediately deliver to Volatiles laboratory)
8 Samples received within holding time?	<input checked="" type="checkbox"/>			Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?	<input checked="" type="checkbox"/>			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	<input checked="" type="checkbox"/>			Sample ID's affected: <u>time on both containers for AFBS0083501 is 0845 for COC</u> Client notified <u>MWH</u> 6/8/07
11 Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			Sample ID's affected: <u>MWHSV20070607-00</u>
12 COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			<u>MWHSV20070607-00</u> <u>MWHSV20070607-02</u> > sleeves

Comments: FedEx# 8599 0990 2025-3c soil  
 \* = Group 1A (1891328.21101) } included in 1 cooler  
       Group 8 June (1891307) }

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 11 June 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641

# **Chain of Custody and Supporting Documentation**



187884H



**GEL** Laboratories LLC  
a member of **The GEL Group** INC

PO Box 30712 Charleston, SC 29417  
2040 Savage Road Charleston, SC 29407  
P 843.556.8171 F 843.766.1178

[www.gel.com](http://www.gel.com)

June 26, 2007

Ms. Elizabeth Wessling, MECx  
MECx, LLC  
12269 East Vassar Drive  
Aurora, Colorado 80014

Re: SSFL  
Project Number: 1891307-FSDF  
Project Name: Group 8 May 2007  
Work Order: 187884  
SDG: 187884H

Dear Ms. Wessling,

GEL Laboratories, LLC (GEL) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on May 31, 2007. This original data report has been prepared and reviewed in accordance with GEL's standard operating procedures.

Our policy is to provide high quality, personalized analytical services to enable you to meet your analytical needs on time every time. We trust that you will find everything in order and to your satisfaction. If you have any questions, please do not hesitate to call me at (843) 556-8171, ext. 4475.

Sincerely,

Martha Harrison  
Project Manager

Purchase Order: 1891306.021105  
Chain of Custody: MWHSV20070530\_03  
Enclosures

problem solved

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# **Case Narrative**

Case Narrative  
for  
Boeing - Santa Susanna Field Laboratory  
Work Order: 187884  
SDG: 187884H

June 26, 2007

**Laboratory Identification:**

GEL Laboratories LLC  
2040 Savage Road  
Charleston, South Carolina 29407  
(843) 556-8171

**Summary:**

**Sample Receipt**

The samples arrived at GEL Laboratories LLC, Charleston, South Carolina on May 31, 2007 for analysis. The samples were delivered with proper chain of custody documentation and signatures. All sample containers arrived without any visible signs of tampering or breakage.

The laboratory received the following samples:

<b><u>Laboratory Identification</u></b>	<b><u>Sample Description</u></b>
187884001	FSBS0089S01
187884002	FSBS0089S02
187884003	FSBS0088S01

**Items of Note**

Boeing - Santa Susanna Field Laboratory Technical Representative was contacted seeking resolution to any analytical and/or receipt issues. Please see the enclosed e-mails.

**Case Narrative**

Sample analyses were conducted using methodology as outlined in GEL Laboratories, LLC (GEL) Standard Operating Procedures. Any technical or administrative problems during analysis, data review, and reduction are contained in the analytical case narratives in the enclosed data package. On 06/14/07, the client requested the samples listed above to be analyzed for % Solids and Sodium. The original SDG number is 186397.

**Data Package:**

The enclosed data package contains the following sections: Case Narrative, Chain of Custody, Cooler Receipt Checklist, Data Package Qualifier Definitions and data from the following fractions: Metals and Radiochemistry.

I certify that this data package is in compliance with the terms and conditions of the subcontract and task order, both technically and for the completeness, for other than the conditions detailed in the attached case narratives.

  
Martha Harrison  
Project Manager

**Subject:** Group 8 hold release request, revised  
**From:** Lisa J Tucker <Lisa.J.Tucker@us.mwhglobal.com>  
**Date:** Thu, 14 Jun 2007 12:10:39 -0700  
**To:** Martha Harrison <Martha.Harrison@gel.com>  
**CC:** Elizabeth Wessling <elizabeth.wessling@mecx.net>, Edmund M Sarao <Enmund.M.Sarao@us.mwhglobal.com>

Martha,  
I have revised the COC to include % Solids.

Thanks again,  
Lisa

----- Forwarded by Lisa J Tucker/User/Americas/Montgomery Watson on 06/14/2007 12:07 PM -----

**Lisa J Tucker/User/Americas/Montgomery Watson**

06/14/2007 11:49 AM

To Martha Harrison <Martha.Harrison@gel.com>

cc Elizabeth Wessling <elizabeth.wessling@mecx.net>, Edmund M Sarao/User/Americas/Montgomery Watson@MW

Subject Group 8 hold release request [Link](#)

Martha,  
Please run the following samples for sodium analysis by 6010B:

- 

Please report the preliminary data fax in 5 days with full package to follow on a 10 data turn around time.  
Attached is the amended COC MWHSV20070530\_03:

<<attachment(s) MWHSV20070530\_Hold Release\_061407.PDF snipped>>

Thanks,  
Lisa J. Tucker  
Senior Environmental Scientist  
MWH Americas, Inc.  
9444 Farnham Street  
Suite 300  
San Diego, CA 92123  
858.751.1240 - Direct Line  
858.751.1201 - Fax  
Lisa.Tucker@mwhglobal.com

**MWHSV20070530\_Hold Release\_061407(Rev1).PDF**



# SAMPLE RECEIPT & REVIEW FORM

PM use only

Client: <u>SSFL</u>	SDG/ARCOC/Work Order: <u>186937, 187884</u>
Date Received: <u>5/31/07</u>	PM(A) Review (ensure non-conforming items are resolved prior to signing):
Received By: <u>JT</u>	<u>MW</u>

Sample Receipt Criteria	Yes	NA	No	Comments/Qualifiers (Required for Non-Conforming Items)
1 Shipping containers received intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
2 Samples requiring cold preservation within (4 +/- 2 C)? Record preservation method.	X			Circle Coolant # <u>ice bags</u> <u>blue ice</u> dry ice none other (describe) <u>5°</u>
3 Chain of custody documents included with shipment?	X			
4 Sample containers intact and sealed?	X			Circle Applicable: seals broken damaged container leaking container other (describe)
5 Samples requiring chemical preservation at proper pH? <u>JP</u> <u>9/31</u>	X	X		Sample ID's, containers affected and observed pH:
6 VOA vials free of headspace (defined as < 6mm bubble)?	X			Sample ID's and containers affected:
7 Are Encore containers present? (If yes, immediately deliver to VOA laboratory)	X			
8 Samples received within holding time?			X	Id's and tests affected:
9 Sample ID's on COC match ID's on bottles?	X			Sample ID's and containers affected:
10 Date & time on COC match date & time on bottles?	X			Sample ID's affected:
11 Number of containers received match number indicated on COC?	X			Sample ID's affected:
12 COC form is properly signed in relinquished/received sections?	X			
14 Air Bill, Tracking #'s, & Additional Comments				<u>FOI # 859907401990</u>

Suspected Hazard Information	Non-Regulated	Regulated	High Level	RSO RAD Receipt # *If > x2 area background is observed on samples identified as "non-regulated/non-radioactive", contact the Radiation Safety group for further investigation.
A Radiological Classification?	X			Maximum Counts Observed*: <u>40 cpm</u>
B PCB Regulated?	X			
C Shipped as DOT Hazardous Material? If yes, contact Waste Manager or ESH Manager.	X			Hazard Class Shipped: UN#:
D Regulated as a Foreign Soil?	X			
PM (or PMA) review of Hazard classification: <u>MW</u> Initials <u>05/31/07</u> Date:				

## LABORATORY TASK ORDER (LTO) FORM

INSTRUCTIONS: To be completed by Environmental Contractor & Emailed to Laboratory Project Manager, CH2M HILL (boeingdms@ch2m.com) & the Data Validator at Least 48 hrs prior to need for sample containers. Project Analytical Laboratory will confirm receipt via E-Mail.

Event Name: Group 8 May 2007

Start: 5/14/2007 End: \_\_\_\_\_

LTO DATE:

LTO NUMBER:

<b>Consultant Name:</b> <u>MWH</u> <b>Address:</b> <u>9444 Farnham Suite 300</u> <u>San Diego, CA 92123</u>  <b>Contact Name:</b> <u>Lisa Tucker</u> <b>Phone Number:</b> <u>858-751-1240</u> <b>Fax Number:</b> <u>858-751-1204</u> <b>E-mail Address:</b> <u>Lisa.Tucker@mwhglobal.com</u>	<b>Contract Laboratory:</b> <u>GEL</u> <b>Address:</b> <u>2040 Savage Rd.</u> <u>Charleston, SC 29407</u>  <b>Lab Contact Name:</b> <u>Martha Harrison</u> <b>Phone Number:</b> <u>843-769-7384</u> <b>Fax Number:</b> <u>843-766-1178</u> <b>E-mail Address:</b> <u>Martha.Harrison@gel.com</u>
---	---

### SAMPLE CONTAINER ORDER FORM

<b>Date Required:</b> _____  <b>Date Sample Pickup:</b> <u>NA</u>  <b>Ship Containers To:</b> Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) _____ (enter "X")  <b>Container Information:</b> Trip Blank (VOA only) <u>No</u> (Yes/No) Temp Blank (VOA Only) <u>No</u> (Yes/No) DI Water Required? <u>No</u> (Yes/No) MS/MSD Extra Bottles? <u>No</u> (Yes/No)  <b>Sample Matrix:</b> Soil <u>X</u> (select all applicable) Water <u>X</u> (select all applicable) Vapor _____ (select all applicable)  Est. Total # of Samples: <u>115</u>	<b>Requested Analyses:</b> (Specify # of Samples) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">Water</th> <th style="text-align: center;">Soil</th> <th style="text-align: center;">Contingent</th> </tr> </thead> <tbody> <tr><td>EPA 8015M (GRO)</td><td></td><td></td><td></td></tr> <tr><td>EPA 8015M (DRO)</td><td></td><td></td><td></td></tr> <tr><td>EPA 8015M (JET FUEL)</td><td></td><td></td><td></td></tr> <tr><td>EPA 8015M (CC)</td><td style="text-align: center;">3</td><td style="text-align: center;">17</td><td style="text-align: center;">14</td></tr> <tr><td>EPA 8260B (VOC)</td><td style="text-align: center;">5</td><td style="text-align: center;">9</td><td style="text-align: center;">13</td></tr> <tr><td>EPA 8270C SIM (SVOC)</td><td style="text-align: center;">1</td><td style="text-align: center;">17</td><td style="text-align: center;">22</td></tr> <tr><td>EPA 8310 (PAH)</td><td></td><td></td><td></td></tr> <tr><td>EPA 8082 (PCB)</td><td style="text-align: center;">3</td><td style="text-align: center;">21</td><td style="text-align: center;">25</td></tr> <tr><td>EPA TO-15 VOCs (Scan)</td><td></td><td></td><td></td></tr> <tr><td>EPA TO-15 VOCs (SIM)</td><td></td><td></td><td></td></tr> <tr><td>CCR Title 22 Metals</td><td style="text-align: center;">4</td><td style="text-align: center;">16</td><td style="text-align: center;">29</td></tr> <tr><td>Total Chromium</td><td></td><td></td><td></td></tr> <tr><td>EPA 7196A (Hexavalent Chromium)</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">10</td></tr> <tr><td>Total Lead</td><td></td><td></td><td></td></tr> <tr><td>Wet Chemistry (pH, etc.)</td><td></td><td></td><td></td></tr> <tr><td>General Minerals</td><td></td><td></td><td></td></tr> <tr><td>Fish Bioassay</td><td></td><td></td><td></td></tr> <tr><td>EPA TO-14 (VOCs)</td><td></td><td></td><td></td></tr> </tbody> </table>		Water	Soil	Contingent	EPA 8015M (GRO)				EPA 8015M (DRO)				EPA 8015M (JET FUEL)				EPA 8015M (CC)	3	17	14	EPA 8260B (VOC)	5	9	13	EPA 8270C SIM (SVOC)	1	17	22	EPA 8310 (PAH)				EPA 8082 (PCB)	3	21	25	EPA TO-15 VOCs (Scan)				EPA TO-15 VOCs (SIM)				CCR Title 22 Metals	4	16	29	Total Chromium				EPA 7196A (Hexavalent Chromium)	0	0	10	Total Lead				Wet Chemistry (pH, etc.)				General Minerals				Fish Bioassay				EPA TO-14 (VOCs)			
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### LABORATORY REPORTING REQUIREMENTS

<b>Project TAT:</b> Normal: <u>X</u> (10 Business days) RUSH: <u>5 day</u> (Specify- 24 / 48 / 72HRS) Other: _____ (Specify # of Days)  Report Due Date: _____	<b>Laboratory Results/Reports Deliverables:</b> Draft Results Fax?: _____ (Yes/No) Draft Results E-mail?: <u>Yes</u> (Yes/No)  Specify Fax/E-mail Contact Name, #, E-mail Address: <u>Lisa.Tucker@mwhglobal.com</u>  Send Original Reports To: Project Site _____ (enter "X") Consultant Office _____ (enter "X") Other Location (specify in comments) <u>X</u> (enter "X") # of Copies Reports Req.: <u>1</u>
<b>Special Reporting Requirements:</b> Contingent Analysis? <u>Yes</u> (Yes/No) TIC (VOC) Required? <u>Yes</u> (Yes/No) TIC (SVOC) Required? <u>Yes</u> (Yes/No) Data Validation Pckge.: <u>Tier III</u> (Boeing Tier I, II or III)	

### SPECIAL INSTRUCTIONS/LTO NOTES

1. Contingent samples for SVOCs, PCBs, and TPH will be extracted and then placed on hold. Encores will be extruded and then frozen.
2. Hardcopy data will be sent to Patti Meeks at MECX 12269 East Vassar Dr. Aurora, CO 80014
3. Hardcopy result and EDDs on 10 day TAT unless specified otherwise

### CONFIRMATION OF TRANSMITTAL & RECEIPT

<b>LTO Sent By:</b> Name: <u>Lisa Tucker</u> Date: <u>05/14/07</u>	<b>LTO Received By-</b> Name: _____ Date: _____
--	---

## LABORATORY TASK ORDER (LTO) FORM (PAGE: 2)

### ADDITIONAL REQUIRED ANALYSES

LTO DATE:

LTO NUMBER:

**Consultant Name:** MWH  
**Address:** 9444 Farnham Suite 300  
San Diego, CA 92123

**Contract Laboratory:** GEL  
**Address:** 2040 Savage Rd.  
Charleston, SC 29407

**Contact Name:** Lisa Tucker  
**Phone Number:** 858-751-1240  
**Fax Number:** 858-751-1204  
**E-mail Address:** Lisa.Tucker@mwhglobal.com

**Lab Contact Name:** Martha Harrison  
**Phone Number:** 843-769-7384  
**Fax Number:** 843-766-1178  
**E-mail Address:** Martha.Harrison@gel.com

### SAMPLE CONTAINER ORDER FORM (CONTINUED)

**Requested Analyses:** (Specify # of Samples)

	Water	Soil	Contingent
1613B (Dioxins)	3	5	16
% Solids (160.3)	0	71	28
Fluoride (300.0)	4	49	24
SVOCs w. TICs (8270C)	3	35	17
Aluminum (6010B)	1	12	0
Boron (6010B)	1	8	6
Mercury (7470A/7471A)	2	16	30
Sodium (6010B)	1	12	0
Zirconium (6010B)	0	14	0
Perchlorate (314.0 DI WET)	0	0	8
Terphenyls (8015B)	4	47	24

8

# **Data Qualifiers Definitions**

## Data Review Qualifier Definitions

Qualifier	Explanation
*	A quality control analyte recovery is outside of specified acceptance criteria
**	Analyte is a surrogate compound
<	Result is less than value reported
>	Result is greater than value reported
^	RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
A	The TIC is a suspected aldol-condensation product
B	Target analyte was detected in the associated blank
B	Metals-Either presence of analyte detected in the associated blank, or MDL/IDL < sample value < PQL
BD	Results are either below the MDC or tracer recovery is low
C	Analyte has been confirmed by GC/MS analysis
D	Results are reported from a diluted aliquot of the sample
d	5-day BOD-The 2:1 depletion requirement was not met for this sample
E	Organics-Concentration of the target analyte exceeds the instrument calibration range
E	Metals-%difference of sample and SD is >10%. Sample concentration must meet flagging criteria
H	Analytical holding time was exceeded
h	Preparation or preservation holding time was exceeded
J	Value is estimated
N	Metals-The Matrix spike sample recovery is not within specified control limits
N	Organics-Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A	Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
ND	Analyte concentration is not detected above the reporting limit
UI	Gamma Spectroscopy-Uncertain identification
X	Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y	QC Samples were not spiked with this compound
Z	Paint Filter Test-Particulates passed through the filter, however no free liquids were observed.

# **Laboratory Certifications**

**List of current GEL Certifications as of 20 June 2007**

<b>State</b>	<b>Certification</b>
Alaska	UST-062
Arizona	AZ0668
Arkansas	88-0651
CLIA	42D0904046
California	01151CA
Colorado	GenEngLabs
Connecticut	PH-0169
Dept. of Navy	NFESC 413
EPA	WG-15J
Florida/NELAP	E87156
Georgia	E87156 (FL/NELAP)
Hawaii	N/A
Idaho	N/A
Illinois	200029
Indiana	C-SC-01
Kansas	E-10332
Kentucky	90129
Louisiana	03046
Maryland	270
Massachusetts	M-SC012
Michigan	9903
Nevada	SC12
New Jersey	SC002
New Mexico	FL NELAP E87156
New York	11501
North Carolina	233
North Carolina Drinking W	45709
North Dakota	R-158
Oklahoma	9904
Pennsylvania	68-00485
South Carolina	10120001/10585001/10120002
Tennessee	02934
Texas NELAP	T104704235-06-TX
U.S. Dept. of Agriculture	S-52597
US Army Corps of Engineer	N/A
Utah	8037697376 GEL
Vermont	VT87156
Virginia	00151
Washington	C1641



5/17/07  
STL

### CHAIN OF CUSTODY RECORD

COC #:

MMHSHV20070517\_03  
Page: 1 of 1

Customer Information		Project Information			Project Information		Requested Analyses		Instructions/TAT	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:				
Company:	MWH	Sampling Event:	Group 8 May 2007	Contact #:						
Report to:	Lisa Tucker	Project Number:	1891307-B056							
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan							Legend: Numerical values for analyses equal to turn around time in days H - Hold EH - Extract Hold
	Suite 300	PM Phone #:	(626) 568-6897							
	San Diego	Field Contact:								
	CA	Field Contact #:								
	92123	Lab Name:	STL-Denver							
Email:	lisa.tucker@mwhglobal.com	Lab Contact:	Michael Phillips							
	boingedms@ch2m.com	Lab Address:	4955 Yarrow							
		Lab Phone:	Arvada, CO 80002							
			(303) 736-0100							
Sample Name	Matrix	Date	Time	No. of Containers	% Solids - Soil	Fluoride by 300 - Soil				Comments
BLBSC063S01SP	Soil	5/17/2007	8:45	1	5	5				

1. Relinquished by:	Date:	5/17/2007	2. Received by:	Date:	5/17/07	3. Relinquished by:	Date:	4. Received by:	Date:
<i>q/Brown</i>			<i>[Signature]</i>		<i>[Signature]</i>				
Company:	Time:	1687D	Company:	Time:	0815	Company:	Time:	Company:	Time:
MWH			STZ						

Geotracker EDF   
Data Validation Package  Level IV

**MORNING**

2,300  
14  
5,1007  
122

**CHAIN OF CUSTODY RECORD**

COC #:

MWHSV20070517\_01  
Page: 1 of 1

Customer Information		Project Information			Project Information					Instructions/TAT	
Site:	SSFL	Client Name:	DOE	Collector:	Shelby Valenzuela	Boeing PM:					Legend: Numerical values for analyses equate to turn around time in days H - Hold EH - Extract Hold
Company:	MWH	Sampling Event:	Group 8 May 2007	Contact #:							
Report to:	Lisa Tucker	Project Number:	1891307	Requested Analyses							
Address:	9444 Farnham Street	Project Manager:	Diana Buchanan								
	Suite 300	PM Phone #:	(926) 566-6897								
	San Diego	Field Contact:									
	CA	Field Contact #:									
	92123	Lab Name:	STL-Denver								
Email:	lisa.tucker@mwhglobal.com	Lab Contact:	Michael Phillips								
	boingdedms@cn2im.com	Lab Address:	4855 Yarrow								
		Lab Phone:	Arvada, CO 80002								
			(303) 736-0100								
Sample Name	Matrix	Date	Time	No. of Containers	% Solids - Soil	Dioxin by 1613B - Soil	Fluoride by 300 - Soil	Metals 6010B Soil Zirconium	Metals 7471A Soil Mercury	PCB by SW8082 - Soil	Comments
FSBS0093S01SP	Soil	5/17/2007	7:57	2	5	5	5	5	5	5	
FSBS0084S01SP	Soil	5/17/2007	8:43	1	5	5	5	5			
FSBS0086S01SP	Soil	5/17/2007	9:12	2	5	5	5	5			

1. Relinquished by: *St. Seaver* Date: 5/17/2007 Time: 1400

2. Received by: *[Signature]* Date: 5/16/07 Time: 0800

3. Relinquished by: Company: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

4. Received by: Company: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Comments: Geotracker EDF  Data Validation Package  Level IV

# STL

STL Denver  
4955 Yarrow Street  
Arvada, CO 80002

Tel: 303 736 0100 Fax: 303 431 7171  
www.stl-inc.com

## ANALYTICAL REPORT

SSFL / Boeing Group 8

Lot D7E180378



Lisa Tucker  
MWH Americas  
9444 Farnham Street, Suite 300  
San Diego, CA 92123

Severn Trent Laboratories, Inc. / STL Denver

A handwritten signature in cursive script that reads "Michael P. Phillips".

Michael P. Phillips  
Project Manager

June 6, 2007

## Case Narrative

Enclosed is the report for four samples received at STL Denver on May 18, 2007. The results included in this report have been reviewed for compliance with STL's Laboratory Quality Manual. The test results shown in this report meet all requirements of NELAC and any exceptions are noted below.

This report may include reporting limits (RLs) less than STL Denver's standard reporting limit. The reported sample results and associated reporting limits are being used specifically to meet the needs of this project. Note that data are not normally reported to these levels without qualification because they are inherently less reliable and potentially less defensible than required by the latest industry standards.

Dilution factors and footnotes have been provided to assist in the interpretation of the results. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

STL utilizes USEPA approved methods in all analytical work. The sample presented in this report was analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

This report shall not be reproduced except in full, without the written approval of the laboratory.

### Quality Control Summary for Lot D7E180378

#### Sample Receiving

The cooler temperature for the samples received on May 18, 2007 at the Denver laboratory was 2.3°C.

All sample containers were received in acceptable condition.

#### Dioxins/Furans – EPA 1613B

In some cases, due to the analyte concentrations present, several compounds are estimated at the maximum possible concentration. Associated results in the analytical report have been flagged with a "Q".

A low level of OCDD is present in the method blank associated with QC batch 7145343. Because the concentration in the method blank is not present at a level greater than the reporting limit, corrective action is deemed unnecessary. Associated results have been flagged with a "B".

No other anomalies were encountered.

#### PCBs – SW846 8082

No anomalies were encountered.

**Total Metals – SW846 6010B and 7471A**

The MS/MSD associated with QC batch 7141529 was performed using a sample from another client and/or lot and exhibited a MSD percent recovery and a relative percent difference outside the QC control limits for Mercury. Method precision and accuracy have been verified by the acceptable LCS analysis data; therefore, corrective action is deemed unnecessary.

No other anomalies were encountered.

**Fluoride – SW846 9056**

No anomalies were encountered.

**Total Solids – EPA 160.3**

No anomalies were encountered.

## PROJECT NARRATIVE

Lot Number: D7E180378

Method(s): SW-846 8290

### Dioxin Analysis

All QC criteria were met.

The following flags are used to qualify results for chlorinated dioxin and furan results:

**J** – The reported result is an estimate. The amount reported is below the Minimum Level (ML). The qualitative definition of the ML is “the lowest level at which the analytical system must give a reliable signal and an acceptable calibration point”. The ML was introduced in EPA Methods 1624 and 1625 in 1980 and was promulgated in these methods in 1984 at 40 CFR Part 136, Appendix A. For the purposes of this report the ML is qualitatively defined as described above, and quantitatively defined as follows: **Minimum Level:** The concentration or mass of analyte in the sample that corresponds to the lowest calibration level in the initial calibration. It represents a concentration (in the sample extract) equivalent to that of the lowest calibration standard, after corrections for method-specified sample weights, volumes and cleanup procedures has been employed.

Example: The lowest calibration level for TCDD in the initial calibration is 0.5 pg/uL. A mass of 10 pg of 2,3,7,8-TCDD in the sample would result in a concentration of 0.5 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the lowest calibration standard, the 10 pg mass in the sample components is the ML. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example: A 1/10 dilution is performed on the sample extract described above. The ML for 2,3,7,8-TCDD becomes 100 pg rather than the default of 10 pg.

**E** – The reported result is an estimate. The amount reported is above the UCL described below.

The E qualifier is applied on the basis of the **Upper Calibration Level (UCL)**. The quantitative definition of the UCL is listed below:

**Upper Calibration Level:** The concentration or mass of analyte in the sample that corresponds to the highest calibration level in the initial calibration. It is equivalent to the concentration of the highest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Example:

The maximum calibration level for TCDD in the initial calibration is 200 pg/uL. A mass of 4000 pg of 2,3,7,8-TCDD in the sampling components would result in a concentration of 200 pg/uL in the sample extract (at a final volume of 20 uL). Since the concentration in the sample extract corresponds to the concentration in the highest calibration standard, the 4000 pg mass in the sample components is the UCL. If the sample extract is further diluted, the ML will increase by the dilution factor.

Example:

A 1/10 dilution is performed on the sample extract described above. The UCL for 2,3,7,8-TCDD becomes 40,000 pg rather than the default of 4000 pg. In this examples all positive 2,3,7,8-TCDD results above 40,000 pg are flagged with an E.

**B** – The analyte is present in the associated method blank at a reportable level. For this analysis, there is no method specified reporting level, other than the qualitative criterion that peaks must exhibit a signal-to-noise ratio of 2.5-to-1. Therefore, the presence of any amount of the analyte present in the blank will result a B qualifier on all associated samples.

If the blank has analytes present above the ML (described above) the need for corrective action beyond qualifying the associated data is evaluated. The determination is made whether the amount in the blank is less than 5% of the lowest amount in associated client samples or regulatory limit. If this is the case, sample processing may continue with the qualification of the data. If the amount in the blank is greater than 5% of the lowest amount in associated client samples or regulatory limit, corrective action must be taken.

The corrective actions may include extracting a second aliquot of sample if available, or notifying the client to assess the impact on the project objectives.

Note: Some laboratories do not report contamination in the blank unless it is above their lower calibration limit, or an established percentage of the level in the samples, or an established percentage of the regulatory limit. Likewise, some laboratories set a reporting limit at one half the lower calibration limit.

**Q** – Estimated maximum possible concentration. This qualifier is used when the result is generated from chromatographic data that does not meet all the qualitative criteria for a positive identification given in the method. The criteria include the following areas:

- Ion abundance ratios must be within specified limits (+/-15% of theoretical ion abundance ratio.)
- Retention time criteria (relative to the method-specified isotope labeled retention time standard).
- Co-maximization criterion. The two quantitation ion peaks must reach their maxima within 2 seconds of each other.

- Polychlorinated dibenzofuran purity. No peak can be identified as a polychlorinated dibenzofuran if a polychlorinated diphenyl ether peak maximizes within +/- 2 seconds of the furan candidate.

**S** – Ion suppression evident. The trace indicating the signal from the lock mass of the calibration compound shows a deflection at the retention time of the analyte. This may indicate a temporary suppression of the instrument sensitivity, due to a matrix-borne interference.

**C** – Coeluting Isomer. The isomer is known to coelute with another member of its homologue group, or the peak shape is shouldered, indicating the likelihood of a coeluting isomer

**X** – Other. See explanation in narrative.

# METHODS SUMMARY

D7E180378

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>	<u>PREPARATION METHOD</u>
Dioxins/Furans, HRGC/HRMS	EPA-5 1613B	EPA-5 1613
Fluoride	SW846 9056	SW846 9056
Inductively Coupled Plasma (ICP) Metals	SW846 6010B	SW846 3050B
Mercury in Solid Waste (Manual Cold-Vapor)	SW846 7471A	SW846 7471A
PCBs by SW-846 8082	SW846 8082	SW846 3550E/366
Total Residue as Percent Solids	MCAWW 160.3 MOD	MCAWW 160.3 MOD

## References:

- EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994
- MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

# METHOD / ANALYST SUMMARY

D7E180378

<u>ANALYTICAL METHOD</u>	<u>ANALYST</u>	<u>ANALYST ID</u>
EPA-5 1613B	Patricia(Trish) M. Parsly	050655
MCAWW 160.3 MOD	Kevin Bloom	006134
SW846 6010B	Lynn-Anne Trudell	006645
SW846 6010B	Lynn-Anne Trudell	6645
SW846 7471A	David Wells	5099
SW846 8082	Teresa L. Williams	002510
SW846 9056	Grant Henshaw	004878

## References:

EPA-5 "Method 1613: Tetra- through Octa- Chlorinated Dioxins and Furans by Isotope Dilution, HRGC/HRMS, Revision B", EPA, OCTOBER 1994

MCAWW "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, March 1983 and subsequent revisions.

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

# SAMPLE SUMMARY

D7E180378

<u>WO #</u>	<u>SAMPLE#</u>	<u>CLIENT SAMPLE ID</u>	<u>SAMPLED DATE</u>	<u>SAMP TIME</u>
JXAPE	001	FSBS0093S01SP	05/17/07	07:57
JXAPF	002	FSBS0084S01SP	05/17/07	08:43
JXAPG	003	FSBS0086S01SP	05/17/07	09:12
JXAPH	004	BLBS0063S01SP	05/17/07	08:45

**NOTE (S) :**

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

# QC DATA ASSOCIATION SUMMARY

D7E180378

Sample Preparation and Analysis Control Numbers

<u>SAMPLE#</u>	<u>MATRIX</u>	<u>ANALYTICAL METHOD</u>	<u>LEACH BATCH #</u>	<u>PREP BATCH #</u>	<u>MS RUN#</u>
001	SO	EPA-5 1613B		7145343	7145209
	SO	SW846 9056		7146065	7146056
	SO	SW846 7471A		7141529	7141331
	SO	SW846 8082		7141093	7141052
	SO	SW846 6010B		7142591	7142327
	SO	MCAWW 160.3 MOD		7143403	7145088
002	SO	SW846 9056		7146065	7146056
	SO	SW846 6010B		7142591	7142327
	SO	MCAWW 160.3 MOD		7141589	7145113
003	SO	SW846 9056		7146065	7146056
	SO	SW846 6010B		7142591	7142327
	SO	MCAWW 160.3 MOD		7141589	7145113
004	SO	SW846 9056		7146065	7146056
	SO	MCAWW 160.3 MOD		7141589	7145113

**SEVERN TRENT LABORATORIES**

**ANALYTICAL REPORT**

**FOR**

**MECX, LLC**

**DENVER LOT ID D7E180378**

## Description of Supporting Documentation

The enclosed expanded raw data package is arranged in the order in which the initial calibration curve, internal quality control samples, and the samples for this lot were analyzed. Also included are any client requested batch quality control samples. When applicable, the data is organized alphabetically by instrument ID, then chronologically by analysis date.

### *GC/MS*

- I. Organic Extraction Log Sheets
- II. Instrument Log Sheets
- III. Standard Data
  - A. Initial calibration raw data. Initial calibration raw data includes tuning data, the initial calibration summary (listing response factors, % RSDs), target compound reports, internal standard summaries, and chromatograms (RIC).
  - B. Continuing calibration raw data. Continuing calibration raw data includes tuning data, the continuing calibration summary (listing response factors, % Ds), target compound reports, initial standard summaries, and chromatograms (RIC).
- IV. Sample Data
  - A. Quality control sample raw data and sample raw data. Raw data includes the target compound report, IS summary, surrogate recovery report, chromatograms (RIC), spectra, and Tentatively Identified Compounds (TIC) report with library searches (when applicable).

### *GC*

- I. Organic Extraction Log Sheets
- II. Instrument Log Sheets
- III. Standard Data
  - A. Initial calibration raw data. Initial calibration raw data includes the initial calibration summary, analysis report, and chromatograms for each column used in analysis.
  - B. Continuing calibration raw data. Continuing calibration raw data includes the continuing calibration summary, analysis report, and chromatograms for each column used in analysis.
- IV. Sample Data
  - A. Quality control sample raw data and sample raw data. Raw data includes the analysis report and chromatograms for each column.

### *Metals*

- I. Preparation Logs
- II. ICP and/or ICP/MS Data
  - A. Computer printouts listing all calibrations.
  - B. Quality control sample raw data and sample raw data.
- III. CFAA and/or CVAA Raw Data
  - A. Analysis bench sheets listing all calibrations.
  - B. Quality control sample raw data and sample raw data.

### *Wet chemistry*

- I. Preparation Logs
- II. Sample Data
  - A. Analysis bench sheets listing all calibration.
  - B. Quality control sample raw data and sample raw data.

## LABORATORY REPORT

Prepared For: IT Corporation/Emcon - Burbank  
601 S. Glenoaks Boulevard, Suite 314  
Burbank, CA 91502

Attention Sally Bilodeau  
Project Boeing/Rocketdyne  
870071

Sampled: 06/06/00  
Received: 06/07/00  
Reported: 06/19/00

*This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.*

CA ELAP Certificate #1197  
AZ DHS License #AZ0428

  
**Del Mar Analytical, Irvine**  
Pat Abe  
Project Manager

IT Corporation/Emcon - Burbank  
601 S. Glenoaks Boulevard, Suite 314  
Burbank, CA 91502  
Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne  
870071  
Report Number: IJF0189

Sampled: 06/06/00  
Received: 06/07/00

## DATA QUALIFIERS AND DEFINITIONS

- R** The RPD exceeded the method control limit due to sample matrix effects. The individual analyte QA/QC recoveries, however, were within acceptance limits.
- Z4** The sample required a dilution due to high analyte concentration. Because of this dilution, the surrogate spike concentration was reduced to a level where the recovery calculation does not provide useful information.
- ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.
- NR** Not reported.
- RPD** Relative Percent Difference

**CHAIN OF CUSTODY FORM**

Client Name/Address: <b>Boeing/Rockwell</b>		Project/PO Number: <b>870071</b>		Analysis Required					Special Instructions			
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives	PCBs (8088)	Mercury (total)	Dioxins				
CAC-1S	soil	8oz.	1	6/6/00	ice	X						
CAC-2R	rock	8oz	1	6/6/00	ice	X						
CAC-3ST	soil	4oz	1	6/6/00	ice	X						
CAC-3SB	soil	4oz	1	6/6/00	ice	X					@1.3'	
CAC-4ST	soil	4oz	1	6/6/00	ice	X						
CAC-4SB	soil	4oz	1	6/6/00	ice	X					@2.7	
CAC-5S	soil	4oz	1	6/6/00	ice	X						
CAC-6ST	soil	4oz	1	6/6/00	ice	X						
CAC-6SB	soil	4oz	1	6/6/00	ice	X					@1.2'	
CAC-7ST	soil	4oz	1	6/6/00	ice	X						
CAC-7SB	soil	4oz	1	6/6/00	ice	X					@1.8'	
CAC-8B	soil	4oz	1	6/6/00	ice	X						
CAC-9R	soil	4oz	1	6/6/00	ice	X						
CAC-10B	soil	4oz	1	6/6/00	ice	X						

Project Manager: **Sally Bilodean/John McMillan**  
 Phone Number: **(818) 841-1160**  
 Fax Number: **(818) 846-9280**  
 Sampler: **BE/SWB**

Received by: *[Signature]* Date/Time: **6-7-00 11:12**  
 Received by: *[Signature]* Date/Time: **6-7-00 12:10**  
 Received by: *[Signature]* Date/Time: **6-7-00 12:12**

Turnaround Time: (Check) 72 hours same day 24 hours 48 hours  
 Sample Integrity: (Check) intact on ice

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.



16 of 18 PCB  
2 - H5  
2 - C104

## LABORATORY REPORT

Prepared For: IT Corporation/Emcon - Burbank  
601 S. Glenoaks Boulevard, Suite 314  
Burbank, CA 91502

Attention Sally Bilodeau  
Project Boeing/Rocketdyne  
870071

Sampled: 06/07/00  
Received: 06/08/00  
Reported: 06/20/00

*This laboratory report is confidential and is intended for the sole use of Del Mar Analytical and its client. This entire report was reviewed and approved for release.*

CA ELAP Certificate #1197  
AZ DHS License #AZ0428



Del Mar Analytical, Irvine  
Pat Abe  
Project Manager

*The results pertain only to the samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.*

IT Corporation/Emcon - Burbank  
601 S. Glenoaks Boulevard, Suite 314  
Burbank, CA 91502  
Attention: Sally Bilodeau

Client Project ID: Boeing/Rocketdyne  
870071  
Report Number: IJF0277

Sampled: 06/07/00  
Received: 06/08/00

## DATA QUALIFIERS AND DEFINITIONS

- A-01** Coeluted with Aroclor 1254.  
**A-01a** Coeluted with Aroclor 1260.  
**Z4** The sample required a dilution due to high analyte concentration. Because of this dilution, the surrogate spike concentration was reduced to a level where the recovery calculation does not provide useful information.  
**ND** Analyte NOT DETECTED at or above the reporting limit or MDL, if MDL is specified.  
**NR** Not reported.  
**RPD** Relative Percent Difference



2852 Alton Ave., Irvine, CA 92606 (949) 261-1022  
 1014 E. Cooley Dr., Suite A Colton, CA 92324 (909) 370-4667  
 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844  
 9630 South 51st St., Suite B-120, Phoenix, AZ 85044 (602) 785-0043  
 9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (619) 505-9596

008782

Page 1 of 2

# CHAIN OF CUSTODY FORM

Client Name/Address: Boeing/Rocketdyne 601 S. Glencockes Blvd. #314 Burbank, CA 91502		Project/PO Number: 870071		Analysis Required	
Sample Description	Sample Matrix	Container Type	# of Cont.	Sampling Date/Time	Preservatives
CAC-15R	Rock	40z	1	6/7 930	NONE
CAC-15B	Soil		1	6/7 940	
CAC-26B			1	938	
CAC-27B			1	942	
CAC-28B			1	955	
CAC-32SW			1	1020	
CAC-31SW			1	1010	
CAC-30B			1	1028	
CAC-29B			1	1054	
CAC-16R	Rock	40z	1	6/7 1205	
CAC-17R	Rock	40z	1	6/7 1315	
CAC-25B	Soil	40z	1	6/7 1235	
CAC-18B	Soil	40z	1	6/7 1225	
CAC-19R	Rock	40z	1	6/7 1250	

Relinquished By:	Date/Time:	Received by:	Date/Time:
Brian K. Epton	6/7 17:45	[Signature]	6-8-00 11:10
[Signature]	6-8-00 2:15	[Signature]	6-8-00 14:15

Turnaround Time:	(Check)
same day	<input type="checkbox"/>
24 hours	<input type="checkbox"/>
48 hours	<input type="checkbox"/>
72 hours	<input checked="" type="checkbox"/>
5 days	<input checked="" type="checkbox"/>
normal	<input checked="" type="checkbox"/>

Sample Integrity:	(Check)
intact	<input checked="" type="checkbox"/>
on ice	<input type="checkbox"/>

Note: By relinquishing samples to Del Mar Analytical, client agrees to pay for the services requested on this chain of custody form and any additional analyses performed on this project. Payment for services is due within 30 days from the date of invoice. Sample(s) will be disposed of after 30 days.



## **CASE NARRATIVE**

### **QUANTERRA INCORPORATED PROJECT NUMBER G0F100161**

SOLID, 8290, Dioxins/Furans, HRGC/HRMS

Your samples were received at fifteen degrees Celsius. There was no documentation received with the samples. The laboratory upon receipt of the samples generated a Chain-of-Custody. A copy of the original Chain-of-Custody was received via facsimile on June 12, 2000.

There were no other anomalies associated with this project.





