December 6, 2024

Mr. David Lacey
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St Ste 600
Portland OR 97232

Re: CAMU-Eligibility Approval Request for Water Treatment Plant Waste Streams, Rhone-Poulenc Portland Site, ECSI No. 155

Dear Mr. Lacey:

On behalf of StarLink Logistics Inc. (StarLink), BSI America Professional Services Inc. (BSI) requests the Oregon Department of Environmental Quality (DEQ) approve a Corrective Action Management Unit (CAMU) eligible determination for offsite disposal of Rhone-Poulenc Portland Site (Site) remediation waste generated by the onsite water treatment plant (WTP). The WTP is a component of the interim remedial action measure (IRAM) implemented to capture and treat extracted groundwater, stormwater runoff, and other remedial action derived waters pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07. The periodic removal, stabilization, and offsite disposal of accumulated solids, sediments, and sludge from floors, sumps, and tanks is critical to the WTP operation and maintenance cycle. This CAMU eligibility request is comprehensive, covering the waste streams periodically generated by normal operation and maintenance of the WTP and having constituent concentrations exceeding Land Disposal Restriction (LDR) Universal Treatment Standards (UTS).

DEQ has previously determined that the waste streams, including spent granular activated carbon, tank sludges, stormwater sump sediments, and floor sweepings, are CAMU eligible (see attached DEQ 2003; DEQ 2006; DEQ 2007a; DEQ 2007b; DEQ 2019). WTP influent and operation of the treatment process have not substantively changed since DEQ first determined the CAMU eligibility of the wastes and no substantive change are anticipated as the project advances towards remedial action. DEQ's previous reviews and CAMU-eligible designations for these wastes are therefore still relevant and applicable. Because WTP maintenance only periodically generates waste, and CAMU eligibility has previously been established, StarLink requests DEQ grant a 10-year window to dispose of these waste streams as they are generated. Approving a period of time will greatly increase efficiency by eliminating the need for individual eligibility requests for each generation event, remove barriers to effective operation and maintenance of the WTP system, and reduce the possibility of waste accumulating onsite for more than 90 days.

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CAMU-approved wastes will be disposed offsite at the secure Chemical Waste Management of the Northwest (CWMNW) Subtitle C facility in Arlington, Oregon. Prior to offsite disposal, CAMU wastes will continue to be accumulated in accordance with DEQ Order on Consent No. WMCSR-NWR-99-07 and the applicable state and federal requirements for hazardous waste generators.

CAMU Rule and Determination

On January 22, 2002, the United States Environmental Protection Agency (EPA) published additional regulations pertaining to disposal of remediation waste in the Federal Register (Amendments to the CAMU Rule; Final Rule, 67, Federal Register 2962). EPA adopted these regulations to encourage expeditious cleanups at contaminated sites by reducing obstacles related to the disposal of remediation waste. The Rhone-Poulenc Portland Site exemplifies the type of cleanup scenario for which this rule was promulgated. The CAMU regulations provide alternatives to the Resource Conservation and Recovery Act (RCRA) LDRs and UTS for offsite disposal, provided that the remediation waste meets the requirements outlined in the regulations. The Amendments to the CAMU Rule also include provisions that authorize the DEQ to implement the regulations without further amendment to the existing DEQ RCRA program authorization.

The requirements for offsite disposal of CAMU-eligible waste in permitted hazardous waste Subtitle C landfills are set forth in §264.555. The Regional Administrator (DEQ) with regulatory oversight where the cleanup is taking place may approve placement of CAMU-eligible wastes in a hazardous waste landfill when all the following conditions are met:

- The waste must meet the definition of CAMU-eligible in 264.552(a)(1) and (2).
- Principal Hazardous Constituents (PHCs) must be identified in accordance with 264.552(e)(4)(i) and the waste treated to the standards specified for CAMU-eligible waste.
- The receiving hazardous waste landfill is permitted to accept CAMU-eligible waste.
- The landfill meets the design requirements of a permitted Subtitle C landfill.
- DEQ provides public notice and reasonable opportunity for public comment prior to approval.
- The generator and landfill comply with the reporting, tracking, and recordkeeping requirements.

The following sections provide the information necessary for DEQ to make a determination that Rhone-Poulenc Portland Site IDW and Remediation Waste are CAMU-eligible.

CAMU Eligibility Criteria

CAMU-eligible waste is defined in §264.552(a)(1) as "all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris that are managed for implementing cleanup." The person seeking approval shall provide sufficient information to enable the DEQ to make a CAMU-eligible determination including:

- The origin of the waste and how it was subsequently managed.
- Whether the waste was listed or identified as hazardous at the time of disposal and/or release.
- Whether the disposal and/or release occurred before or after the land disposal requirements of part 268 for the waste listing or characteristic.

Remedial action waste generated by operation and maintenance of the WTP is CAMU-eligible because the waste is generated to implement Site cleanup. The Remedial Investigation (RI) and risk assessments are complete, and DEQ has approved a list of site-specific COCs in the Feasibility Study Work Plan (AMEC, 2010; DEQ, 2015; Golder 2017). Site history, including the timing and nature of releases and waste disposal as well as comprehensive investigation of environmental media, is fully documented in these reports. As previously stated, continued operation of the onsite WTP is an IRAM stipulated in the Order on Consent.

Descriptions of the waste streams, summaries of laboratory analytical testing, and analytical results summaries are detailed in the attached CAMU-eligibility request letters to DEQ:

- Disposal of Spent Carbon, January 6, 2003
- Disposal of Water Treatment Plant Sludge, CAMU-Eligibility, July 11, 2006
- Disposal of Accumulated Sediments from WTP Stormwater Collection Sump CAMU-Eligibility, August 31, 2006
- Disposal of Water Treatment Plant Sludge, CAMU-Eligibility, April 20, 2007
- Disposal of Water Treatment Plant Sweepings, Request for CAMU Eligibility Approval, June 24, 2019

Brief summaries of the waste streams are included below for completeness and clarity.

Sludge

Components of the treatment process that result in sludge generation include a suspended film biological reactor and associated sump, settling tanks, and carbon adsorbers backwash receiving tank. A figure showing the layout of the WTP is provided in the attached 2019 CAMU-eligibility approval request for disposal of WTP sweepings (BSI 2019). Treatment in the suspended film biological reactor occurs by microorganisms absorbing and metabolizing organic matter and nutrients from recovered groundwater. Organic matter, microorganisms, and inorganic solids settle out in lower-velocity regions of the bioreactor tank (V-531). Subsequent stages of the WTP include a settling tank (V-531) where suspended microorganisms and inorganic solids (fine sand and clay) are settled out before the clarified supernatant is mixed with collected stormwater (tanks V-526 through V-530) and passed through granular activated carbon. Solids also accumulate in the carbon adsorber backwash receiving tank (V-534), where they are allowed to settle before the water is decanted back into the combined treated groundwater and stormwater tanks. Sedimentation rates in the bioreactor and settling tanks are quite low, and removal is not needed more than once every 10 years.

Sludge removal is performed by pumping the material into dewatering vessels within the secondary containment of the WTP. Excess water is routed back into the WTP system for treatment and discharge under the NDPES permit.

Sump Sediments

Captured stormwater from the former herbicide and insecticide manufacturing area is routed through various catch basins to a below-ground concrete basin (stormwater collection sump) located in the lower WTP, and then combined with treated groundwater prior to passage through granular activated carbon.

Suspended/entrained inorganic solids (fine sand and clay) are settled out within the stormwater collection system. Settled solids must periodically be removed for effective operation.

Sump sediment waste is dewatered within the secondary containment of the WTP, and excess water is returned to the WTP system for treatment.

Spent Carbon

Two 20,000-lb. vessels of granular activated carbon are the final treatment stage before WTP effluent is discharge under the NPDES permit. At least one vessel is emptied and refilled annually. Spent carbon is transferred into roll-off dewatering boxes where excess water is routed back into the WTP system for treatment.

WTP Sweepings

WTP maintenance includes periodic removal of accumulated dirt, moss, leaves, and debris from within the upper and lower WTP secondary-containment areas to reduce accumulation in WTP sumps. The material includes sediments and moss primarily accumulated in and around channels that drain to secondary-containment sumps and leaves and wind-blown debris collected along containment walls and under pipe racks. WTP sweepings typically do not contain free liquid. If free liquid is present, it is either decanted or an absorbent (perlite) is added prior to shipment.

If the treatment process changes substantively enough to impact waste characteristics, these changes will be communicated to DEQ, and sampling of the potentially affected waste stream will be performed to demonstrate conformance with the parameters of this CAMU request prior to shipment.

Principal Hazardous Constituents (PHCs)

PHCs are constituents that are otherwise subject to treatment under the LDR program and that DEQ determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site. In accordance with 264.552(e)(4)(i), DEQ will designate as PHCs:

- Carcinogens that pose a potential direct risk from ingestion or inhalation at the site at or above 10^{-3}.
- Non-carcinogens that pose a potential direct risk from ingestion or inhalation at the site an order of magnitude or greater over their reference dose.
- When risks to human health and the environment posed by the potential migration of a constituent in wastes to ground water are substantially higher than cleanup levels or goals at the site, if appropriate. DEQ may consider such factors as constituent concentrations, and fate and transport characteristics under site conditions.
- Other constituents that DEQ determines pose a risk to human health and the environment substantially higher than the cleanup levels or goals at the site.

Constituents in waters treated by the WTP may include F-, K-, P- or U-listed volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polycyclic aromatic hydrocarbons (PAHs), herbicides, organochlorine insecticides, organophosphorus insecticides, polychlorinated biphenyls (PCBs),

polychlorinated dibenzodioxins (dioxins), polychlorinated dibenzofurans (furans), and heavy metals. Previous CAMU eligibility requests conservatively identified PHCs as any constituent detected in the waste above LDR UTS or the CAMU alternative treatment standard of 10 times the UTS. Even at this conservative level, most detected constituents fall within the CAMU alternative treatment standard. A summary of PHCs identified in each request is provided below.

2003 Spent Carbon

- Below 10x UTS: Total tetrachlorodibenzo-p-dioxin (TCDD) and Total pentachlorodibenzofuran (PeCDF)
- Above 10x UTS: Total tetrachlorodibenzofuran (TCDF)

2006 WTP Sludge

- Below 10x UTS: 2,4-dichlorophenoxyacetic acid (2,4-D), 2,4-dichlorophenol, Total TCDD
- Above 10x UTS: Endosulfan sulfate, 4,4'-dichlorodiphenyl-dichloroethane (4,4'-DDD), Total PeCDF, and Total TCDF

2006 WTP Sump Sediment:

- Below 10x UTS: lead, chromium, 2,4-dichlorophenol and Total TCDD
- Above 10x UTS: Total PeCDF and Total TCDF

2019 WTP Sweepings

- Above 10x UTS: Total PeCDF and Total TCDD

Treatment Requirements

The 2002 CAMU rule amendment established a framework for treatment of wastes placed in CAMUs where PHCs must meet either minimum national treatment standards adapted from the LDR Phase IV soil standards (10x UTS rule) or, in specific circumstances, site-specific treatment standards based on defined adjustment factors. CAMU-eligible wastes to be disposed in permitted hazardous waste landfills may be exempted from LDR requirements if PHCs meet one of the treatment standards specified in §264.555(a)(2). The applicable and appropriate standard for Rhone-Poulenc Portland Site remediation waste follows §264.555(a)(2)(iii) which refers to treatment standards adjusted in accordance with §264.552(e)(4)(v)(A) "the technical impracticability of treatment to the levels or by the methods in paragraph (e)(4)(iv)." This adjustment factor for technical impracticability allows DEQ to waive LDR requirements in consideration of available technologies and cost and is thus appropriate due to the treatment of F027-listed dioxin-containing waste being limited to thermal destruction for offsite treatment. While incineration is technically possible, it is inordinately costly, and the nearest permitted facility in the US is 2,300 miles away in Port Arthur, Texas. Outside the US, the closest facility is 1,200 miles from the Site. This would add not only transportation cost but also greatly increase the risk associated with shipping hazardous waste long distances. Waiving LDRs for current and future CAMU-eligible waste and allowing disposal in the CWMNW Subtitle C landfill follows the intent of the CAMU rule, is more efficient, and greatly mitigates risk posed by waste handling and treatment.

The CWMNW facility's permit requires that dioxin-containing waste be managed by encapsulation within prefabricated, high-strength, high-density polyethylene (HDPE) macroencapsulation boxes (macroboxes) prior to placement within the landfill, or encapsulation within an HDPE flexible membrane liner (FML) constructed within the landfill. Macroboxes and FMLs are specially formulated to resist contaminants and leachate and are sealed using fusion or extrusion methods, thereby isolating the CAMU wastes from leachate and substantially reducing the likelihood of migration of hazardous constituents from the waste. Additionally, TCLP testing has shown that PHCs have very low mobility, and the CWMNW facility is in an arid region which receives an average of about 11 inches of annual precipitation, resulting in very low leachate generation rates.

TSDF Acceptance Requirements

In accordance with the CWMNW treatment, storage, and disposal facility (TSDF) acceptance requirements, dioxin- and furan-containing waste with concentrations above LDR UTS will be encapsulated within the landfill. Solids must pass the paint filter test prior to encapsulation.

Waste Profiling

StarLink will renew the existing hazardous waste profiles for each of the CAMU-eligible WTP waste streams, including:

- Spent granular activated carbon.
- Tank sludge.
- Stormwater sump solids.
- WTP floor sweepings (dirt, moss, debris).

EPA listed hazardous waste codes applied to the waste profiles based upon generator knowledge and sampling will include[1]:

- F002 (1,2-dichlorobenzene, methylene chloride, trichloroethylene)
- F003 (acetone, ethylbenzene)
- F005 (benzene, methyl ethyl ketone, toluene)
- F027 (Silvex, 2,4,5-TP)
- K043 (2,6-dichlorophenol)
- K099 (2,4-D)
- P004 (aldrin)
- P037 (dieldrin)
- P050 (endosulfan)
- P051 (endrin)
- P059 (heptachlor)
- P089 (parathion)

[1] The waste codes identified are likely conservative and over-inclusive. StarLink and DEQ historically were not in agreement on the proper waste determination under RCRA and Oregon's hazardous waste laws for certain waste generated at the Site containing 2,4-D. Without any admission and reserving its right to revise the waste codes, StarLink has included waste codes K043, K099 and U240 in its determinations at the direction of DEQ.

- P123 (toxaphene)
- U036 (chlordane)
- U052 (2-methylphenol [o-cresol])
- U060 (DDD)
- U061 (DDT)
- U070 (1,2-dichlorobenzene)
- U080 (methylene chloride)
- U129 (lindane)
- U140 (isobutyl alcohol)
- U188 (phenol)
- U239 (xylene)
- U240 (2,4-D)
- U247 (methoxychlor)

Closing

StarLink appreciates DEQ's consideration of this CAMU-eligibility request which will streamline operation of the current WTP for up to 10 years and ensure hazardous wastes do not accumulate onsite. Due to the periodic nature of generation events and length of the CAMU-eligibility window, DEQ will receive written notification of waste generation prior shipment.

If you have any questions, please contact me at (503) 451-5586 or ryan.stringfellow@bsigroup.com.

Sincerely,

Ryan Stringfellow, RG
Site Manager

cc: Michael Bogdan, StarLink
Joan Underwood, BSI
Laura Maffei, Cable Huston

Attachments:

Attachment A: DEQ CAMU Approval Letters

- CAMU Eligibility for Hazardous Waste letter (spent granular activated carbon), April 4, 2003
- CAMU Eligibility for Hazardous Waste letter (WTP sludge), August 17, 2006
- CAMU Eligibility for Hazardous Waste letter (stormwater sump sediment), March 14, 2007
- CAMU Eligibility for Water Treatment Plant Sludge letter, May 1, 2007
- DEQ Review "Disposal of Water Treatment Plant Sweepings, Request for Corrective Action Management Unit Eligibility Approval," November 5, 2019

Attachment B: StarLink CAMU Eligibility Request Letters

- Disposal of Spent Carbon, January 6, 2003
- Disposal of Water Treatment Plant Sludge, CAMU-Eligibility, July 11, 2006
- Disposal of Accumulated Sediments from WTP Stormwater Collection Sump CAMU-Eligibility, August 31, 2006
- Disposal of Water Treatment Plant Sludge, CAMU-Eligibility, April 20, 2007
- Disposal of Water Treatment Plant Sweepings, Request for CAMU Eligibility Approval, June 24, 2019

References

AMEC 2010. RI/SCE Report, RP – Portland Site, prepared for SLLI, prepared by AMEC Earth & Environmental, Inc., submitted to Oregon Department of Environmental Quality, November 19, 2010.

AMEC 2012. Revised Final Human Health Risk Assessment, Rhone-Poulenc – Portland Site, prepared for StarLink Logistics Inc., prepared by AMEC Environment & Infrastructure, Inc., submitted to Oregon Department of Environmental Quality, June 25, 2012.

BSI 2019. Disposal of Water Treatment Plant Sweepings, Request for Corrective Action Management Unit Eligibility Approval letter, Former Rhone-Poulenc - Portland Site, submitted to Oregon Department of Environmental Quality, June 24, 2019.

DEQ 2003. CAMU Eligibility for Hazardous Waste letter (spent granular activated carbon), Rhone Poulenc Site, prepared by Oregon Department of Environmental Quality, submitted to Starlink Logistics, Inc., April 4, 2003.

DEQ 2006. CAMU Eligibility for Hazardous Waste letter (WTP sludge), Rhone Poulenc Site, prepared by Oregon Department of Environmental Quality, submitted to SLLI c/o Sanofi-Aventis, August 17, 2006.

DEQ 2007a. CAMU Eligibility for Hazardous Waste letter (stormwater sump sediment), Rhone Poulenc Site, prepared by Oregon Department of Environmental Quality, submitted to SLLI c/o Sanofi-Aventis, March 14, 2007.

DEQ 2007b. CAMU Eligibility for Water Treatment Plant Sludge letter, Rhone Poulenc Site, prepared by Oregon Department of Environmental Quality, submitted to SLLI c/o Sanofi-Aventis, May 1, 2007.DEQ 2015. Rhone-Poulenc Remedial Investigation Report: Addendum – RI/SCE Report Volumes I and II, prepared by Oregon Department of Environmental Quality, submitted to Rhone-Poulenc ECSI Site #155 Project File, April 2015.

DEQ 2019. DEQ Review "Disposal of Water Treatment Plant Sweepings, Request for Corrective Action Management Unit Eligibility Approval," RP-Portland Site, ECSI #155, prepared by Oregon Department of Environmental Quality, submitted to Sanofi-Aventis U.S., November 5, 2019.

Golder 2017. Third Revised Draft – Feasibility Study Work Plan – Operable Unit 1, Former Rhone-Poulenc Site, prepared for StarLink Logistics Inc., prepared by Golder Associates Inc., submitted to Oregon Department of Environmental Quality, June 2, 2017.

Golder 2018. Draft 2018 Preliminary Hot Spot Evaluation, Former Rhone-Poulenc Site, prepared for StarLink Logistics Inc., prepared by Golder Associates Inc., submitted to Oregon Department of Environmental Quality, April 30, 2018.

Attachment A

DEQ CAMU Approval Letters

Oregon

Theodore Kulongoski, Governor

Department of Environmental Quality
Northwest Region Portland Office
2020 SW 4th Avenue, Suite 400
Portland, OR 97201-4987
(503) 229-5263
FAX (503) 229-6945
TTY (503) 229-5471

April 4, 2003

Mr. Robert L. Ferguson
Manager, Remediation
Starlink Logistics, Inc.
One Copley Parkway
Suite 309
Morrisville, NC 27560

RE: CAMU Eligibility for Hazardous Waste,
Rhone Poulenc Site

Dear Mr. Ferguson:

This letter documents the Department of Environmental Quality (DEQ) determination that approximately 40,000 pounds of spent activated carbon generated at the Rhone Poulenc site is a Corrective Action Management Unit (CAMU) eligible waste. This determination is based on the following regulations and facts.

- The spent granular activated carbon was generated at the Rhone Poulenc facility in Portland, Oregon on October 24, 2002. The spent carbon was used to treat groundwater contaminated with a number of chemicals including chlorinated solvents, chlorinated pesticides, chlorinated herbicides and polychlorinated dibenzo-p-dioxins and furans. The spent carbon is currently stored on site in three baker tanks.

- EPA recently amended the corrective action management unit rule to allow the off-site disposal of certain remediation wastes, known as "CAMU-eligible wastes". CAMU-eligible wastes are defined in 40 Code of Federal Regulations (CFR) 264.552(a)(1)(i) as: "all solid and hazardous wastes, and all media (including groundwater, surface water, soils and sediments and debris, that are managed for implementing cleanup." The State of Oregon has been authorized to designate CAMU-eligible waste in accordance with 40 CFR 271.27. Because the Rhone Poulenc facility is under an Order with regulatory oversight provided by DEQ's cleanup program, the CAMU-eligible waste determination is an applicable or relevant and appropriate requirement (ARAR) for the facility.

- The principal hazardous constituents of the waste are three dioxin homologs: total tetrachlorodibenzo-p-dioxin (TCDD), total tetrachlorodibenzofuran (TCDF) and total polychlorinated dibenzofuran (PCDF). The treatment standards have not been met for these constituents; however, the treatment standards may be adjusted where treatment has been used to significantly reduce the toxicity or mobility of the principal hazardous constituents in the waste. In this case, the dioxin compounds are strongly sorbed to the granular activated

carbon. As a result, the mobility is significantly reduced and adjustment of the treatment standards is appropriate.

- The waste's disposal will be off-site with an adjusted standard in accordance with 40 CFR 264.552(e)(4)(v) and 40 CFR 264.555. Under 40 CFR 264.555, the Regional Administrator with regulatory oversight were the cleanup is taking place may approve placement of CAMU eligible wastes in hazardous waste landfills not located at the site from which the wastes originated provided the waste meets the appropriate treatment standards. Rhone Poulenc has proposed that the waste be disposed of at the Chemical Waste Management (CWM) Subtitle C landfill in Arlington, Oregon. CWM recently received a permit modification to accept CAMU-eligible waste at their Arlington facility.

- 40 CFR 264.555(c) requires that DEQ "provide public notice and a reasonable opportunity for public comment before approving CAMU-eligible waste for placement in an off-site permitted hazardous waste landfill" at the location where the cleanup is taking place. DEQ issued a public notice and no comments were received through the end of the comment period on February 24, 2003.

Based on the above findings, DEQ approves CAMU eligibility of the spent activated carbon. DEQ's Eastern Region Hazardous Waste Program will confirm approval for disposal of the waste at the Arlington facility by permit modification. If you have any questions regarding this matter, please contact Tom Roick at 503-229-5502.

Sincerely,

Neil Mullane,
Northwest Region Administrator

Cc: Tom Roick/ Mike Rosen/ Andree Pollock, DEQ/NWR
Brett McKnight/ Frederick Moore, DEQ/ER (Bend)
Roger Gresh, AMEC Earth and Environmental
Jim Benedict, Cable, Huston, Benedict Haagensen & Lloyd

Oregon
Theodore Kulongoski, Governor

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August 17, 2006

Mr. Stuart Dearden
SLLI c/o Sanofi-Aventis
Mail Code J103F
Route 202-206
P.O. Box 6800
Bridgewater, NJ 08807-0800

RE: CAMU Eligibility for Hazardous Waste,
Rhone Poulenc Site

Dear Mr. Dearden:

This letter documents the Department of Environmental Quality (DEQ) determination that approximately 202 cubic yards of water treatment plant sludge accumulated at the Rhone Poulenc, Portland site are a Corrective Action Management Unit (CAMU) eligible waste. This determination is based on the following regulations and facts.

- The sludge is a listed hazardous waste accumulated as part of the implementation of an interim remedial measure for the extraction and treatment of contaminated groundwater, stormwater runoff, and other remedial action derived waters. The sludge is contained in the sedimentation tanks of the water treatment plant at the Rhone Poulenc facility in Portland, Oregon.

- EPA amended the corrective action management unit rule to allow the off-site disposal of certain remediation wastes, known as "CAMU-eligible wastes". CAMU-eligible wastes are defined in 40 Code of Federal Regulations (CFR) 264.552(a)(1)(i) as: "all solid and hazardous wastes, and all media (including groundwater, surface water, soils and sediments) and debris, that are managed for implementing cleanup." The State of Oregon has been authorized to designate CAMU-eligible waste in accordance with 40 CFR 271.27. Because the Rhone Poulenc facility is under an Order with regulatory oversight provided by DEQ's cleanup program, the CAMU-eligible waste determination is an applicable or relevant and appropriate requirement (ARAR) for the facility.

- Most of the principle hazardous constituents in the sludge tested below Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) Universal Treatment Standards (UTS) and applicable CAMU-eligible waste alternative treatment standards (10x the UTS). Certain organochlorine pesticides (endosulfan sulfate and 4,4'-DDD), total tetrachlorodibenzofurans (TCDFs), and total pentachlorodibenzofurans (PeCDFs) exceeded 10x UTS for one or both of the composite samples analyzed. Treatment standards may be adjusted where treatment has been used to significantly reduce the toxicity or mobility of the principal hazardous constituents in the waste. In this case, the sludge is

derived from a treatment process that has substantially reduced hazardous constituent concentrations. For the organochlorine pesticides, total TCDFs, and total PeCDFs, Starlink Logistics, Inc. has demonstrated that these compounds have very low mobility through testing of the sludge by the toxic characteristic leaching procedure (TCLP).

- The waste's disposal will be off-site with an adjusted standard in accordance with 40 CFR 264.552(e)(4)(v) and 40 CFR 264.555. Under 40 CFR 264.555, the Regional Administrator with regulatory oversight where the cleanup is taking place may approve placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the wastes originated, provided the waste meets appropriate treatment standards (as noted above). Starlink Logistics, Inc. has proposed that the waste be disposed of at the Chemical Waste Management (CWM) Subtitle C landfill in Arlington, Oregon. The waste will be placed in a high density polyethylene macroencapsulation device within the landfill, further limiting potential mobility. CWM received a permit modification to accept CAMU-eligible waste at their Arlington facility.

- 40 CFR 264.555(c) requires that DEQ "provide public notice and a reasonable opportunity for public comment before approving CAMU-eligible waste for placement in an off-site permitted hazardous waste landfill" at the location where the cleanup is taking place. DEQ issued a public notice and no comments were received through the end of the comment period on August 15, 2006.

Based on the above findings, DEQ approves CAMU eligibility of the water treatment sludge. DEQ's Eastern Region Hazardous Waste Program will confirm approval for disposal of the waste at the Arlington facility by permit modification. If you have any questions regarding this matter, please contact Tom Roick at 503-229-5502.

Sincerely,

Dick Pedersen,
Northwest Region Administrator

Cc: Tom Roick/ Keith Johnson/ Mike Kortenhof, DEQ/NWR
Brett McKnight/ Frederick Moore, DEQ/ER (Bend)
Roger Gresh, AMEC Earth and Environmental
Jim Benedict, Cable, Huston, Benedict Haagensen & Lloyd

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March 14, 2007

Mr. Stuart Dearden
SLLI c/o Sanofi-Aventis
Mail Code J103F
Route 202-206
P.O. Box 6800
Bridgewater, NJ 08807-0800

RE: CAMU Eligibility for Hazardous Waste,
Rhone Poulenc Site

Dear Mr. Dearden:

This letter documents the Department of Environmental Quality's (DEQ) determination that approximately 5 cubic yards of sediment removed from a stormwater collection sump associated with the water treatment plant at the Rhone Poulenc, Portland site are a Corrective Action Management Unit (CAMU) eligible waste for intended disposal at the Chemical Waste Management landfill in Arlington. This determination is based on the following regulations and facts.

- The sediment is a listed hazardous waste accumulated as part of the implementation of stormwater collection and treatment remedial measures conducted pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07. In January 2006, Starlink Logistics Inc. (SLLI) removed the accumulated sediment from the stormwater collection sump to ensure continued optimum operation of the on-site water treatment plant. The sediment was dewatered and is currently stored in steel drums at the Rhone Poulenc facility in Portland, Oregon.

- EPA amended the corrective action management unit rule to allow the off-site disposal of certain remediation wastes, known as "CAMU-eligible wastes". CAMU-eligible wastes are defined in 40 Code of Federal Regulations (CFR) 264.552(a)(1)(i) as: "all solid and hazardous wastes, and all media (including groundwater, surface water, soils and sediments) and debris, that are managed for implementing cleanup." The State of Oregon has been authorized to designate CAMU-eligible waste in accordance with 40 CFR 271.27. Because the Rhone Poulenc facility is under an Order with regulatory oversight provided by DEQ's cleanup program, the CAMU-eligible waste determination is an applicable or relevant and appropriate requirement (ARAR) for the facility.

- Most of the principle hazardous constituents in the sump sediment tested below Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) Universal Treatment Standards (UTS). Lead, chromium, 2,4-dichlorophenol, and total tetrachlorodibenzo-p-dioxin (TCDD) were detected below applicable CAMU-eligible waste alternative treatment standards (10x the UTS). Total tetrachlorodibenzofuran (TCDF), and

total pentachlorodibenzofuran (PeCDF) exceeded 10x UTS. The Regional Administrator may adjust treatment and disposal standards as long as the adjusted standards do not present an unacceptable risk. Toxic characteristic leaching procedure (TCLP) was conducted for leachable dioxin homologs with nondetectable results, including total TCDF and total PeCDF. Although TCDF and PeCDF exceed 10x UTS, they have very low mobility demonstrated through the testing by TCLP. Additionally, the waste will be placed in a high density polyethylene macroencapsulation device within the landfill, further limiting potential release to the environment. Treatment standards have been substantially met for the principal hazardous constituents in the waste and the lack of mobility was considered in adjusting the disposal standards for TCDF and PeCDF.

- The waste's disposal will be off-site with an adjusted standard in accordance with 40 CFR 264.552(e)(4)(v) and 40 CFR 264.555. Under 40 CFR 264.555, the Regional Administrator with regulatory oversight where the cleanup is taking place may approve placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the wastes originated, provided the waste meets appropriate treatment standards (as noted above). Starlink Logistics, Inc. has proposed that the waste be disposed of at the Chemical Waste Management (CWM) Subtitle C landfill in Arlington, Oregon. CWM previously received a permit modification to accept CAMU-eligible waste at their Arlington facility.

- 40 CFR 264.555(c) requires that DEQ "provide public notice and a reasonable opportunity for public comment before approving CAMU-eligible waste for placement in an off-site permitted hazardous waste landfill" at the location where the cleanup is taking place. DEQ issued a public notice on February 1, 2007 and no comments were received through the end of the comment period.

Based on the above findings, DEQ approves CAMU eligibility of the stormwater sediment. DEQ's Eastern Region Hazardous Waste Program will confirm approval for disposal of the waste at the Arlington facility. If you have any questions regarding this matter, please contact Tom Roick at 503-229-5502.

Sincerely,

(Dotted)

Dick Pedersen,
Northwest Region Administrator

Cc: Tom Roick/ Keith Johnson, DEQ/NWR
Brett McKnight/ Bob Schwarz DEQ/ER (Bend)
Roger Gresh, AMEC Earth and Environmental
Jim Benedict, Cable, Huston, Benedict Haagensen & Lloyd

Oregon
Theodore Kulongoski, Governor

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Northwest Region Portland Offi
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May 1, 2007

Mr. Stuart Dearden
SLLI c/o Sanofi-Aventis
Mail Code J103F
Route 202-206
P.O. Box 6800
Bridgewater, NJ 08807-0800

RE: CAMU Eligibility for Water Treatment Plant Sludge,
Rhone Poulenc Site

Dear Mr. Dearden:

The Department of Environmental Quality (DEQ) reviewed the April 20, 2007 request to dispose of Tank V-531 sludge at the Chemical Waste Management of Northwest (CWMNW) Subtitle C landfill facility in Arlington, Oregon. The request was submitted by AMEC Earth & Environmental, Inc. (AMEC) on behalf of Starlink Logistics, Inc. (SLLI) for an estimated 60 cubic yards of accumulated solids within Tank V-531 of the water treatment plant at the Rhone Poulenc, Portland site.

The information provided by AMEC, based on the generating process and analytical results, adequately shows that the 60 cubic yards of water treatment plant sludge is essentially the same material as 202 cubic yards of material previously reviewed by DEQ for CAMU eligibility. That review and approval is documented by an August 17, 2006 letter from Dick Pedersen to Stuart Dearden of SLLI, and a September 25, 2006 letter from Brett McKnight to Sam Jiries of CWMNW. DEQ Northwest Region Cleanup approves the Tank V-531 material as CAMU eligible waste pursuant to that prior review, and DEQ's Hazardous Waste Program similarly approves this material going to the Chemical Waste Management facility in Arlington.

Sincerely,

Thomas E. Roick, Project Manager
Cleanup & Lower Willamette Section

Cc: Bob Schwarz, DEQ/ER (Bend)
Roger Gresh, AMEC Earth and Environmental
Jim Benedict, Cable, Huston, Benedict Haagensen & Lloyd

Oregon
Kate Brown, Governor

Department of Environmental Quality
Northwest Region
700 NE Multnomah Street Suite 600
Portland, OR 97232
(503) 229-5263
FAX (503) 229-6945
TTY 711

November 5, 2019

Ryan Stringfellow
StarLink Logistics Inc.
PO BOX 10224
Portland OR 97296

Subject: CAMU Eligibility Waste Disposal Approval
RP-Portland Site
ECSI #155

Dear Mr. Stringfellow:

The Oregon Department of Environmental Quality (DEQ) received your June 24, 2019 request for Corrective Action Management Unit Eligibility Approval for disposal of Water Treatment Plant Sweepings. This letter documents the Department of Environmental Quality's (DEQ) determination that five drums of accumulated solids (floor sweepings) from the water treatment plant secondary containment area at the former Rhone-Poulenc manufacturing facility are a Corrective Action Management Unit (CAMU) eligible waste for intended disposal at the Chemical Waste Management landfill in Arlington, OR. This determination is based on the following regulations and facts.

- The solids are a listed hazardous waste accumulated as part of the implementation of stormwater collection and treatment remedial measures conducted pursuant to Order on Consent DEQ No. WMCSR-NWR-099-07. In June 2018, StarLink Logistics Inc. removed the solids as part of water treatment plant maintenance.
- EPA amended the corrective action management unit rule to allow for the off-site disposal of certain remediation wastes, known as "CAMU-eligible wastes". CAMU-eligible wastes are defined in 40 Code of Federal Regulations (CFR) 264.552(a)(1)(i) as: "all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris, that are managed for implementing cleanup." The State of Oregon has been authorized to designate CAMU-eligible waste in accordance with 40 CFR 271.27. Because the Rhone Poulenc facility is under an Order with regulatory oversight provided by DEQ's cleanup program, the CAMU-eligible waste determination is an applicable or relevant and appropriate requirement (ARAR) for the facility.
- Most of the principle hazardous constituents in the sediment tested below Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs). Total tetrachlorodibenzodioxin (TCDD) and total pentachlorodibenzofuran (PeCDF) exceeded LDRs. The regional Administrator may adjust treatment and disposal standards as long as the adjusted standards do not present an unacceptable risk. StarLink demonstrated that these compounds have very low mobility through test results by the toxic characteristic

leaching procedure (TCLP). Concentrations for both of these constituents in TCLP leachate were below site specific preliminary remediation goals (PRGs). Additionally, the waste will be placed in a high density polyethylene macroencapsulation device within the landfill, further limiting potential release to the environment. Treatment standards have been substantially met for the principal hazardous constituents in the waste and the lack of mobility was considered in adjusting the disposal standards for TCDD and PeCDF.

- The waste's disposal will be off-site with an adjusted standard in accordance with 40 CFR 264.552(e)(4)(v) and 40 CFR 264.55. Under 40 CFR 264.555, the Regional Administrator with regulatory oversight where the cleanup is taking place may approve placement of CAMU-eligible wastes in hazardous waste landfills not located at the site from which the wastes originated, provided the waste meets appropriate treatment standards (as noted above). StarLink Logistics, Inc. has proposed that the waste be disposed of at the Chemical Waste Management Subtitle C landfill in Arlington, Oregon. Chemical Waste Management previously received a permit modification to accept CAMU-eligible waste at their Arlington facility.
- 40 CFR 264.555(c) requires that DEQ "provide public notice and a reasonable opportunity for public comment before approving CAMU-eligible waste for placement in an off-site permitted hazardous waste landfill." DEQ issued a public notice on September 1, 2019 and no comments were received through the end of the comment period.

Based on the above findings, DEQ approves CAMU eligibility of the accumulated solids. DEQ's Eastern Region Hazardous Waste Program will confirm approval for disposal of the waste at the Arlington facility. If you have any questions regarding this matter, please contact David Lacey at 503-229-5354.

Sincerely,

Nina DeConcini

Nina DeConcini
DEQ Northwest Region Administrator

C: *Joan Underwood, BSI Group*
Jim Benedict, Cable, Huston, Benedict, Haagensen & Lloyd
Dan Duso, DEQ Eastern Region Hazardous Waste Program
Audrey O'Brien, DEQ Northwest Region
Paul Seidel, DEQ Northwest Region
Eva DeMaria/EPA (electronic only)
ECSI #155

Attachment B

StarLink CAMU Eligibility Request Letters

January 6, 2003

0-61M-10703-0/Task 34D

Mr. Eric Blischke
Coordinator, Portland Harbor
Department of Environmental Quality
2020 S.W. 4th Avenue
Portland, Oregon 97201

Dear Mr. Blischke:

Re: Disposal of Spent Carbon
RPAC - Portland Site
Portland, Oregon

Introduction

On behalf of RPAC, AMEC Earth and Environmental, Inc. (AMEC) is providing the Oregon Department of Environmental Quality (DEQ) with a status summary for recent replacement of spent granular activated carbon (GAC) associated with the groundwater treatment system at the RPAC Site. RPAC also requests approval from DEQ to dispose of this spent GAC at a secure Subtitle C facility using the criteria for a Corrective Action Management Unit (CAMU)-eligible waste, as defined in paragraph 3 below. The information required for DEQ to determine if the spent GAC can be managed as a CAMU-eligible waste is included in this letter. If necessary, RPAC is available for a meeting to discuss disposal of the spent GAC.

RPAC recently contracted Calgon Carbon Corporation, Inc. to remove approximately 40,000 pounds (dry-weight) of spent GAC material from adsorber vessels at the RPAC groundwater treatment system (treatment system). The spent GAC was transferred from the adsorber units and into dewatering bins using a slurry process. Free water generated during the transfer was collected and pumped to the treatment system. The spent GAC is fully dewatered, and the bins containing the spent GAC have been covered and stored on a secondary containment pad located near the treatment system, pending decisions concerning final disposal.

On January 22, 2002, the United States Environmental Protection Agency (USEPA) published additional regulations regarding disposal of remediation waste in the Federal Register (Amendments to the Corrective Action Management Unit Rule; Final Rule, 67 Fed. Reg. 2962). These new regulations were promulgated to encourage expeditious cleanups at contaminated sites by reducing obstacles to disposal of remediation waste. The regulations provide alternatives to the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) and Universal Treatment Standards (UTS) for off-site disposal, provided that the remediation waste meets the requirements outlined in the regulations. Waste that

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meets the off-site disposal criteria in the new regulations is identified as "CAMU-eligible waste". The spent GAC material currently awaiting disposal at the Site meets the criteria for CAMU-eligible waste, as described further in this letter.

The new regulations include provisions that authorize the DEQ to implement the regulations without amendment to the existing DEQ RCRA program authorization. As discussed below, RPAC requests that DEQ authorize the management of the spent GAC from the RPAC treatment system as a CAMU-eligible waste in order to facilitate disposal at a Subtitle C facility.

Sampling and Chemical Testing

In anticipation of disposal, RPAC obtained two composite samples of the spent GAC from the three dewatering bins. One composite sample included material from the two smaller 20-cubic-yard capacity dewatering bins, which contained spent GAC from the first adsorber in series (the Primary Vessel). The second composite sample included material from the larger, 30-cubic-yard capacity dewatering bin, which contained spent GAC from the second adsorber in series (the Polishing Vessel).

In order to ensure that the two composite samples were representative of the material in the bins, one core sample was collected for approximately every 5 cubic yards of spent GAC from each vessel. The bin containing GAC from the Polishing Vessel (30 cubic yards) was divided into six sampling zones, and the two bins containing spent GAC from the Primary Vessel (15 to 20 cubic yards) were each divided into four sampling zones. Samples were collected from the center of each sampling zone using a hand auger to collect a core. Each core included material from the surface of the spent GAC in the bin to a depth 1 to 2 feet above the bottom of the container.

The Primary Vessel composite was prepared by mixing the contents of the eight cores collected from the two smaller bins into a single analytical sample, and the Polishing Vessel composite was prepared by mixing the contents of the six cores collected from the larger bin into a second analytical sample. The two composite samples were then submitted to analytical laboratories for analysis. The laboratories used and specific analyses performed are listed below:

<u>North Creek Analytical (NCA) - Beaverton, OR</u>

- Total and TCLP for RCRA Metals - USEPA 6010B, 7470A/7471A
- Total and TCLP for Herbicides and Insecticides - USEPA 8151A and 8081A
- Total and TCLP for Volatile Organic Compounds (VOCs) - USEPA 8260B
- Total SVOCs (Including Phenols) - USEPA 8270C
- Total Solids
- Paint Filter (Free Liquids)

- pH
- Ignitability

Triangle Laboratories, Inc. (TLI) - Durham, NC

- Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans (PCDD/PCDFs) - USEPA 8280 (tetra- through octa chlorinated PCDD and PCDF congeners and homologs)
- TCLP for PCDD/PCDFs (TCLP extract prepared by NCA, PCDD/PCDF extraction and analysis by TLI) - USEPA 8280

Analytical Results

We have attached two tables providing analytical results and UTS concentrations. Based on our review of the analytical data from NCA, no metals, volatile organic compounds, insecticides, herbicides, or phenols were detected in the composite samples at concentrations that exceed RCRA UTS.

The analytical results from TLI show that concentrations for three PCDD/PCDF homologs (Total TCDD (1.7 micrograms per kilogram [µg/kg]), Total TCDF (14.7 µg/kg), Total PeCDF (6.5 µg/kg) were greater than the RCRA UTS (1.0 µg/kg) for the Primary Vessel composite. In addition, the concentration of one PCDF homolog (Total TCDF (1.5 µg/kg) was above the RCRA UTS for the Polishing Vessel composite. The concentration of Total TCDD and Total PeCDF in the Primary Vessel composite and the concentration of Total TCDF in the Polishing Vessel composite were less than the CAMU-eligible waste alternative treatment standard (10 x UTS, or 10 µg/kg). The concentration of Total TCDF (14.7 µg/kg) in the Primary Vessel composite was slightly greater than the 10 µg/kg alternate treatment standard.

Please note that no 2,3,7,8-substituted PCDD/PCDF congener was present in either sample at an appreciable concentration, and that 2,3,7,8 TCDF was not detected in the Primary Vessel composite, even though the concentration of Total TCDF in the Primary Vessel was slightly higher than the alternate treatment standard. This demonstrates that the majority of the PCDD/PCDFs present are non-2,3,7,8-substituted, and non-2,3,7,8-substituted congeners are assigned a zero (0) value for risk assessment purposes. In addition, results of the TCLP analysis indicate a very low leaching potential for all PCDD/PCDFs, including Total TCDF, demonstrating that off-site land disposal in a Subtitle C facility is appropriate under the CAMU-eligible waste criteria.

Disposal Options

RPAC has reviewed disposal options for the spent GAC material using the January 2002 alternative treatment standards for remediation waste and has determined that the spent GAC

material is a "remediation waste" and qualifies as CAMU-eligible waste as well.[1] The treatment standards for CAMU-eligible waste are stated in 40 CFR Part 264.552(e)(4)(iv). The "Regional Administrator" (in this instance, the DEQ), for the RCRA CAMU program can modify the disposal standards for CAMU-eligible remediation waste[2] as long as the modified treatment standards do not represent an unacceptable risk.

As discussed above, the detected levels of principal hazardous constituents (PHCs) in the spent GAC generally meet the 10 x UTS standard applicable to CAMU-eligible waste. The fact that the concentration of a single PCDF homolog in one sample slightly exceeds the 10 x UTS standard should not bar disposal of the GAC at a Subtitle C facility. As allowed in 40 C.F.R. § 264.552(e)(4)(v)(E)(1), DEQ can modify the disposal requirements for CAMU-eligible waste where the 10 x UTS standard is "substantially met" and the remaining PHCs are of "very low mobility."

It is RPAC's understanding, based on conversations with Mr. Gary Calaba (DEQ Headquarters) and Mr. Frederick Moore (DEQ Bend), that the DEQ RCRA Division would also consider this material to be a CAMU-eligible waste. We also understand that the Chemical Waste Management of the Northwest (WM) facility in Arlington, Oregon has been granted permission to accept CAMU-eligible waste. RPAC requests authorization from DEQ to allow disposal of this spent GAC at the WM Arlington facility. RPAC further requests prompt action on this proposal, and is prepared to meet with you and DEQ RCRA Division staff, if necessary, to expedite this request.

[1] "CAMU-eligible wastes" are defined as "all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup." 40 C.F.R. § 264.552(a)(1). Because the GAC is an integral part of the groundwater treatment process at the RPAC site, it would be considered "managed for implementing cleanup." See 63 Fed. Reg. 65,874, 65,881 (Nov. 30, 1998) (spent carbon filters used in groundwater pump and treat systems considered "remediation waste" because they are managed for implementing cleanup).

[2] As indicated in 40 CFR Part 264.552(e)(4)(v), the Regional Administrator (DEQ) may adjust the treatment level or methods based on several factors identified in Part 264.552(e)(4)(v)(A-E). Based upon the analytical results and other factors stated above, off-site disposal of the GAC at Arlington is consistent with these factors.

If you have any questions regarding the information presented or wish to discuss further the CAMU-eligible option please contact Roger Gresh at (503) 639-3400.

Sincerely,

AMEC Earth & Environmental, Inc.

Jennifer Casler Kuiper, R.G.
Project Manager

Roger T. Gresh, P.G.
Vice President

Attachments

JCK/lmp

c: Robert Ferguson, RPAC
James Benedict, CHBH&L

ATTACHMENT ONE

SUMMARY OF ANALYTICAL RESULTS (DETECTIONS ONLY) FOR SPENT GRANULATED ACTIVE CARBON FROM THE RPAC GROUNDWATER TREATMENT SYSTEM

Table 1
Analytical Results Excluding Dioxins - Detections Only
RPAC - Portland Site

* Data presented in table not yet quality assurance validated.

Sample Location	Method	Specific Analytes	Sample Results		Universal Treatment Standards		Toxicity Characteristic	
			Total Conc. (mg/kg)	TCLP Conc. (mg/L)	UTS Conc.	UTS Unit	Regulatory Level	Unit
Primary Carbon Vessel	RCRA Metals 6000/7000	Arsenic	24.1	0.293	5	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Barium	121	1.47	21	mg/L	100	mg/L
	RCRA Metals 6000/7000	Chromium	24	0.291	0.6	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Lead	22.9	0.278	0.75	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Mercury	0.158	ND	0.025	mg/L	0.2	mg/L
	RCRA Metals 6000/7000	Selenium	1.92	ND	5.7	mg/L	1.0	mg/L
	Organochlorine Insecticides 8081A	No Detections			NA		NA	
	Chlorinated Herbicides 8151A	2,4-D	2.680	ND	10	mg/l	10	mg/L
	VOCs 8260B	Bromodichloromethane	1.760	ND	15	mg/kg	NA	NA
	VOCs 8260B	Bromoform	0.637	ND	NA	NA	NA	NA
	VOCs 8260B	Chloroform	3.030	ND	6.0	mg/kg	6.0	mg/L
	VOCs 8260B	Dibromochloromethane	1.190	ND	15	mg/kg	NA	NA
	SVOCs 8270C	2,4-Dichlorophenol	2.10	NA	14	mg/kg	NA	NA
Polishing Carbon Vessel	RCRA Metals 6000/7000	Arsenic	4.18	ND	5	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Barium	70.6	0.842	21	mg/L	100	mg/L
	RCRA Metals 6000/7000	Chromium	9.42	0.112	0.6	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Lead	4.02	ND	0.75	mg/L	5.0	mg/L
	RCRA Metals 6000/7000	Selenium	0.813	ND	5.7	mg/L	1.0	mg/L
	Organochlorine Insecticides 8081A	No Detections			NA		NA	
	Chlorinated Herbicides 8151A	No Detections			NA		NA	
	VOCs 8260B	Bromodichloromethane	1.080	ND	15	mg/L	NA	NA
	VOCs 8260B	Bromoform	0.193	ND	NA	NA	NA	NA
	VOCs 8260B	Chloroform	2.740	ND	6.0	mg/kg	6.0	mg/L
	VOCs 8260B	Dibromochloromethane	0.534	ND	15	mg/kg	NA	NA
	SVOCs 8270C	No Detections			NA		NA	

TCLP Toxicity Characteristic Leachate Procedure

UTS RCRA Universal Treatment Standards for Nonwastewaters (mg/L results apply to UTS based on leachable concentration; mg/kg results apply to UTS based on total concentration)

mg/kg milligrams per kilogram or parts per million

mg/L milligrams per liter or parts per million

NA Not applicable

ND Analyte NOT DETECTED at or above the reporting limit

VOCs Volatile Organic Compounds

SVOCs Semivolatile Organic Compounds

Table 2
PCDD/PCDF Analytical Results - Detections Only
RPAC-Portland Site

* Data presented in table not yet quality assurance validated.

Sample Location	Specific Analytes	Sample Results		Universal Treatment Standards	
		Total Concentration (µg/kg)	TCLP Concentration (ng/L)	UTS (µg/kg)	10 x UTS (µg/kg)
Primary Carbon Vessel	2,3,7,8-TCDD	0.65	3.2	NA	NA
	1,2,3,7,8-PeCDD	ND	ND	NA	NA
	1,2,3,4,7,8-HxCDD	ND	ND	NA	NA
	1,2,3,6,7,8-HxCDD	ND	ND	NA	NA
	1,2,3,7,8,9-HxCDD	ND	ND	NA	NA
	1,2,3,4,6,7,8-HpCDD	0.13	ND	2.5	25
	1,2,3,4,6,7,8,9-OCDD	0.81	3.8	5	50
	2,3,7,8-TCDF	ND	26.3	NA	NA
	1,2,3,4,6,7,8,9-OCDF	0.24	ND	5	50
	Total TCDD	1.7	9.5	1	10
	Total PeCDD	0.11	1.4	1	10
	Total HxCDD	ND	1.6	1	10
	Total HpCDD	0.26	ND	NA	NA
	Total TCDF	14.7	69.9	1	10
	Total PeCDF	6.5	28.5	1	10
	Total HxCDF	ND	0.96	1	10
Polishing Carbon Vessel	2,3,7,8-TCDD	0.17	0.64	NA	NA
	1,2,3,4,6,7,8,9-OCDD	0.25	ND	5	50
	2,3,7,8-TCDF	1.5	ND	NA	NA
	Total TCDD	0.49	0.64	1	10
	Total TCDF	3.7	9.9	1	10
	Total PeCDF	1.8	4.0	1	10
	Total HxCDF	0.05	ND	1	10

TCLP	Toxicity Characteristic Leachate Procedure
UTS	RCRA Universal Treatment Standards for Nonwastewaters
NA	Not applicable. UTS for TCDDs, TCDFs, PeCDDs, PeCDFs, HxCDDs and HxCDFs are based on total homolog concentrations and not individual congener concentrations.
ng/l	nanograms per liter or parts per trillion
µg/kg	micrograms per kilogram or parts per billion
TCDD/TCDF	Tetrachlorodibenzo-p-dioxin/Tetrachlorodibenzofuran
PeCDD/PeCDF	Pentachlorodibenzo-p-dioxin/Pentachlorodibenzofuran
HxCDD/HxCDF	Hexachlorodibenzo-p-dioxin/Hexachlorodibenzofuran
HpCDD/HpCDF	Heptachlorodibenzo-p-dioxin/Heptachlorodibenzofuran
OCDD/OCDF	Octachlorodibenzo-p-dioxin/Octachlorodibenzofuran

July 11, 2006

0-61M-107030/Phase 34F

Thomas E. Roick
Project Manager, Cleanup & Portland Harbor
Oregon Department of Environmental Quality
2020 S.W. 4th Avenue, Suite 400
Portland, Oregon 97201

Dear Mr. Roick:

Re: Disposal of Water Treatment Plant Sludge
Corrective Action Management Unit (CAMU)-Eligibility
RP - Portland Site

INTRODUCTION

On behalf of SLLI, AMEC Earth & Environmental, Inc. (AMEC) is providing the Oregon Department of Environmental Quality (DEQ) with a status summary for planned removal and disposal of accumulated solids (sludge) from the water treatment plant (WTP) at the former Rhône-Poulenc (RP) manufacturing facility (Site) located at 6200 NW St. Helens Road in Portland, Oregon. The sludge is generated from implementation of an interim remedial measure for the extraction and treatment of groundwater, stormwater runoff, and other remedial action derived waters pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07. The discharge of treated groundwater is governed by National Pollutant Discharge Elimination System (NPDES) Permit No. 101180. The periodic removal, stabilization, and off-site disposal of excess sludge from the sedimentation tank are part of a normal WTP operation and maintenance cycle.

In August 2006, SLLI plans to remove accumulated solids from V-529 and V-530 for off-site disposal to ensure optimum continued operation of the WTP. SLLI requests approval from DEQ to dispose of this WTP sludge at a secure Subtitle C facility using the criteria for a Corrective Action Management Unit (CAMU)-eligible waste, as discussed below. The information required for DEQ to determine that the sludge may be managed as a CAMU-eligible waste is included in this letter. It is important to note that the DEQ previously approved the disposal of spent granular activated carbon from the Site's WTP at a Subtitle C landfill (Chemical Waste Management in Arlington, Oregon) as CAMU-eligible waste.

WASTEWATER TREATMENT AND SLUDGE GENERATION

As indicated, the WTP treats extracted groundwater and stormwater as part of an interim remedial measure. Pursuant to the Site's NPDES permit, the WTP may also treat other wastewaters generated from the implementation remedial activities provided that the WTP will continue to meet applicable effluent limitations. See NPDES permit, Schedule D, Condition 3.

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As described in more detail below, the WTP includes a suspended film biological reactor in which microorganisms absorb and metabolize organic matter and nutrients from recovered groundwater. Subsequent stages of the WTP include sedimentation tanks where suspended microorganisms and inorganic solids (fine sand and clay) are settled out before the clarified supernatant is mixed with the collected stormwater and passed through granular activated carbon. The sediment to be removed from the sedimentation tanks and disposed is a relatively small volume residue from the treatment, by the WTP, of large volumes of water (several million gallons each year over several years). Initial concentrations of various organic compounds are significantly reduced during the biological and sedimentation treatments. For instance, 2,4-dichlorophenoxyacetic acid (2,4-D) concentrations in the water stream have been observed to decrease from 66,900 to less than 1 micrograms per liter (µg/L). A layout of the WTP and description of the various water treatment stages are provided in the attached Process and Instrumentation Diagram - Figure 1.

Solids are primarily removed from the treated groundwater effluent by gravity separation in a 63,000-gallon sludge settler tank (V-529). Settled solids are also generated within a 100,000-gallon emergency overflow and sludge conditioning tank (V-530) and within WTP tanks used to combine treated groundwater and stormwater which also act as gravity separation tanks. Ongoing treatment of the sludge inside V-529 and V-530 includes periodic aerobic conditioning and regular anaerobic digestion to decompose organic matter and reduce the overall sludge volume.

Tank V-529 contains an estimated 2,500 cubic feet (92 cubic yards) of settled solids. In March 2006, approximately 3.5 feet of a black, soft, cohesive semi-solid (estimated solids content of 6%) was measured in the base of tank V-529. The emergency overflow and sludge conditioning tank V-530 contains an estimated 3,000 cubic feet (110 cubic yards) of settled solids. The sludge column inside tank V-530 is approximately 2.5 feet thick and similar in physical and chemical composition to sludge in tank V-529.

Corrective Action Management Unit Rule

On January 22, 2002, the United States Environmental Protection Agency (EPA) published additional regulations regarding disposal of remediation waste in the Federal Register (Amendments to the CAMU Rule; Final Rule, 67, *Federal Regulation* 2962). These regulations were promulgated to encourage expeditious cleanups at contaminated sites by reducing obstacles to disposal of remediation waste. The regulations provide alternatives to the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) and Universal Treatment Standards (UTS) for off-site disposal, provided that the remediation waste meets the requirements outlined in the regulations. Waste that meets the off-site disposal criteria in the new regulations is identified as "CAMU-eligible waste". The sludge from tanks V-529 and V-530 meets the criteria for CAMU-eligible waste, as described further in this letter.

The January 2002 CAMU Rule amendment includes provisions that authorize the DEQ to implement the regulations without further amendment to the existing DEQ RCRA program authorization. SLLI requests that DEQ authorize the management of the V-529 and V-530

sludge from the WTP as a CAMU-eligible waste to facilitate its disposal at the Chemical Waste Management Subtitle C landfill in Arlington, Oregon.

Sampling and Laboratory Analyses

Anticipating the need to remove sludge from Tanks V-529 and V-530, on March 17, 2006, one representative composite sample of settled sludge from the base of each tank (V-529 and V-530) was collected for physical and chemical characterization. Each composite sample was drawn from three separate discrete sample locations inside each tank. The discrete samples of the soft, cohesive solids were retrieved under suction lock using disposable 2-inch-diameter Teflon® tubes manually pushed through the entire sludge column. The discrete samples were then homogenized in stainless steel mixing bowls and transferred to laboratory-prepared sample containers. All disposable sampling equipment (i.e., Nitrile gloves and Teflon® tubes) was replaced and non-disposable handling utensils (i.e., stainless steel mixing bowls and spoons) were decontaminated between tanks to prevent cross contamination.

The two composite samples were submitted to TestAmerica (TA) of Beaverton, Oregon for the following physical parameters:

- Total solids by EPA Method 160.3m
- pH by EPA Method 9045B
- Flashpoint by EPA Method 1010
- Free Liquid by EPA Method 9095

To represent better the physical state and composition of the dewatered sludge that would be prepared for disposal, TA was instructed to dewater the sludge using pressure filtration before completing the chemical analyses. The filter cake left on the glass-fiber filter was then tested for the following chemical analyses:

- Total and toxic characteristic leaching procedure (TCLP) RCRA 8 Metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury) by EPA Methods 1311, 6010B, 6020, and/or 7470A;
- Total and TCLP organochlorine pesticides and chlorinated herbicides by EPA Methods 8081A and 8151A, respectively;
- Total and TCLP volatile organic compounds (VOCs) by EPA Method 8260B;
- Total and TCLP semivolatile organic compounds (SVOCs) phenols by EPA Method 8270; and
- Total and TCLP polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDFs) by EPA Method 8280 (tetra- through octa-chlorinated PCDD and PCDF congeners and homologs).

The liquid generated during laboratory filtration was not analyzed. Pace Analytical Services, Inc. of Minneapolis, Minnesota performed the PCDD/PCDF chemical analyses.

The TCLP methods were chosen based upon the recognition that protection of the environment within a landfill setting is closely aligned to the leaching potential of hazardous constituents. For those constituents whose concentrations within contaminated media exceed 10X UTS values, the constituent leaching potentials are a valuable parameter in the land disposal protectiveness.

Analytical Results

The attached tables summarize the analytical results and compare the results to RCRA UTS concentrations. The constituents of the waste detected in the composite sludge samples at total concentrations above their respective RCRA UTS are three dioxin homologs (total tetrachlorodibenzo-p-dioxin [TCDD]; total tetrachlorodibenzofuran [TCDF]; total pentachlorodibenzofuran [PeCDF]), as well as endosulfan sulfate, 4,4'-dichlorodiphenyl-dichloroethane (4,4'-DDD), 2,4-dichlorophenoxyacetic acid (2,4-D), and 2,4-dichlorophenol.

As shown in the attached tables, the concentrations of TCDD, 2,4-D and 2,4-dichlorophenol were less than respective CAMU-eligible waste alternative treatment standards (10 x UTS). The total concentrations of endosulfan sulfate and 4,4'-DDD were greater than 10 x UTS in composite sample V-529, but not in composite sample V-530 (Table 1). The concentrations of total TCDF and total PeCDF in the composite samples were greater than 10 x UTS (Table 2).

Leachable concentrations of endosulfan sulfate, 4,4,'-DDD, 2,4-D, and/or 2,4-dichlorophenol in the composite samples obtained from Tanks V-529 and V-530 using the TCLP method were either not detected or detected at concentrations below the respective characteristic waste thresholds. Leachable concentrations of TCDD, TCDF, and PeCDF in particular, and PCDDs and PCDFs in general, were not detected following TCLP preparation of the V-529 and V-530 composite samples.

The analytical results from this sampling event were reviewed for conformance with the project's data quality objectives. Some minor data quality anomalies were encountered during the sludge analyses and select analytical results were qualified on Tables 1 and 2. The quality of the chemical analytical data used to form conclusions in this letter is acceptable for its intended use based on our review of the TA results and associated quality control parameters. A detailed discussion of the data quality anomalies is provided in Attachment A.

Waste Codes

The waste codes that apply to the detected constituents include: F002 and U080 (methylene chloride); K043 (2,4-dichlorophenol); K099 and U240 (2,4-D); U060 (4,4'-DDD); U239 (xylenes); P050 (endosulfan sulfate); and X001 (Bromoxynil).

Based on waste codes currently applied at the RP Site, and the types of wastes that may have been discharged into the WTP, the following RCRA and Oregon waste codes may be applicable to the waste:

1. RCRA Waste Codes: F002, F003, F005, F027, K043, K099, P004, P037, P050, P051, P059, P123, U031, U036, U052, U060, U061, U070, U080, U129, U140, U188, U239, U240, U247
2. DEQ Waste Codes: X001

The waste codes listed have been assigned based on process knowledge, waste analytical results, and analytical results for groundwater samples taken in the area that this waste was generated. As a result, the waste codes identified are likely conservative and may be over-inclusive. In addition, SLLI and the DEQ are currently not in agreement on the proper waste determination under RCRA and Oregon's hazardous waste laws for certain waste generated at the RP Site containing 2,4-D. However, based on the direction from DEQ, SLLI has included the waste codes K043, K099 and U240 in its waste determination. The conservative assignment of waste codes including the assignment of K043, K099, and U240 shall not be deemed an admission by SLLI of the applicability of these waste codes nor a waiver of any right of RP. SLLI specifically reserves the right to revise these waste codes upon resolution of the existing disagreement between SLLI and the DEQ.

Principal Hazardous Constituents

The waste will not be available to the environment during generation, treatment, storage, or disposal. The risk scenarios as described in 40 C.F.R. § 264.552(e)(4)(i)(A) do not apply in this context. Therefore, the principal hazardous constituents (PHCs) within the waste will be designated as those constituents present in the waste at concentrations exceeding land disposal restrictions. Thus, the PHCs include: total TCDD, total TCDF, total PeCDF, endosulfan sulfate, 4,4'-DDD, 2,4-D, and 2,4-dichlorophenol.

Treatment and Disposal Options

SLLI has reviewed treatment and disposal options for the waste sludge using the January 2002 alternative treatment standards for remediation waste and has determined that the WTP sludge is a "remediation waste" and qualifies as CAMU-eligible waste.[1] The treatment standards for CAMU-eligible waste are stated in 40 CFR Part 264.552(e)(4)(iv). The "Regional Administrator" (in this instance, the DEQ) for the RCRA CAMU program can modify the disposal standards for CAMU-eligible remediation waste[2] as long as the modified treatment standards do not represent an unacceptable risk.

[1] "CAMU-eligible wastes" are defined as "all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup." 40 C.F.R. § 264.552(a)(1). Because the sludge is an integral part of the groundwater treatment process at the RP Portland Site, it would be considered "managed for implementing cleanup." See 63 Fed. Reg. 65,874, 65,881 (Nov. 30, 1998)

[2] As indicated in 40 CFR §Part 264.552(e)(4)(v), the Regional Administrator (DEQ) may adjust the treatment level or methods based on several factors identified in Part 264.552(e)(4)(v)(A-E). Based upon the analytical results and other factors stated above, off-site disposal of the sludge at an authorized Subtitle C landfill is consistent with these factors.

The sludge will be removed from the tanks and then dewatered to an extent of 20 to 50% by one or more of the following processes: gravity drainage vessels; filter presses; or centrifuge systems. The dewatered sludge, referred to as sludge cake, will then be treated for free liquids, if necessary, by amendment with absorbents as required in 40 C.F.R. § 264.552(a)(3). A free liquid analysis (EPA Method SW 9095) will be performed on a representative treated sludge cake sample. Free water generated during the sludge transfer and dewatering will be collected and routed to the WTP bioreactor.

We understand that the Chemical Waste Management of the Northwest (CWMNW) Subtitle C landfill facility in Arlington, Oregon has been granted permission in the past to accept CAMU-eligible waste. In accordance with their operational permit, CWMNW is required to macroencapsulate this type of waste.

For a waste such as this solid, CWMNW uses high density polyethylene (HDPE) macroencapsulation devices. The waste is loaded into the device with a backhoe or excavator. Once the waste is loaded into the device (the device is filled at least 90% full), a filler material is added to fill any remaining void spaces. Typical filler material includes stabilization reagents such as kiln dust, portland cement, bed ash, etc.; or, native soil. Filler materials are placed to within 2 inches of the upper flange around the outside perimeter of the device. After filler material has been added, the device lid is sealed by gluing and screwing of the lid to the device flange pursuant to the manufacturer's instructions. The sealed device is placed within the landfill cell, inspected, and repaired, if necessary. Backfill is placed over and around the device, as necessary, to support the weight of equipment and future layers of wastes.

As discussed above, the detected levels of the majority of the PHCs in the WTP sludge meet the 10 x UTS standard applicable to CAMU-eligible waste, meaning that most constituents are already at the suitable treatment levels. The fact that detected concentrations of select organochlorine pesticides (endosulfan sulfate and 4,4'-DDD) and total TCDF and PeCDF homologs in the samples exceed the 10 x UTS standard should not bar disposal of the WTP sludge at a Subtitle C facility. As allowed in 40 C.F.R. § 264.552(e)(4)(v)(E)(1), DEQ can modify the disposal requirements for CAMU-eligible waste where the 10 x UTS standard is "substantially met" and the remaining PHCs are of "very low mobility." Please note that results of the TCLP analysis indicate a very low leaching potential for all organochlorine pesticides and no leaching potential for PCDD/PCDFs, demonstrating that off-site land disposal in a Subtitle C facility is appropriate under the CAMU-eligible waste criteria. Macroencapsulation of the waste will further ensure that the waste will meet the immobility criteria set out in 40 C.F.R. § 264.552(e)(4)(v)(E)(1).The waste meets the criteria for disposal in a permitted hazardous waste landfill as laid out in 40 C.F.R. § 264.555(a).

Therefore, SLLI requests authorization from DEQ to allow disposal of this WTP sludge at the CWMNW Arlington facility. SLLI further requests prompt action on this proposal, and is prepared to meet with you and DEQ RCRA Division staff, if necessary, to expedite this request.

If you have any questions regarding the information presented or wish to discuss further the CAMU-eligible option please contact Kurt Harrington or Roger Gresh at (503) 639-3400.

Sincerely,

AMEC Earth & Environmental, Inc.

Kurt Harrington, P.E.
Task Leader

Roger T. Gresh, P.G.
Project Manager

Attachments:

	Table 1	Summary of Detected Analytes in Water Treatment Plant Sludge
	Table 2	Summary of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans in Water Treatment Plant Sludge
	Figure 1	Groundwater/Stormwater Treatment System P&ID
	Attachment A	Data Quality Review

JKH/JS/lp

c: S. Dearden, sanofi aventis US, Inc.
R. Ferguson, SLLI
J. Benedict, CHBH&L
J. Kincaid, CHBH&L

ATTACHMENTS

Tables and Figure

TABLE 1
Summary of Detected Analytes in Water Treatment Plant Sludge
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sludge Result (µg/kg)	Universal Treatment Standard (µg/kg)	Exceed Universal Treatment Standard?	TCLP Result mg/L	Toxicity Characterisitic Standard (mg/L)	Exceed Toxicity Charcteristic Standard?
V-529	03/17/2006	160.3m	**Total Solids**	**183,000,000**	NL	---	NT	NL	---
V-529	03/17/2006	6020	**Arsenic**	**34,200**	NL	---	**0.0535 J**	5.0	No
V-529	03/17/2006	6020	**Barium**	**64,200**	NL	---	**0.057 J**	100.0	No
V-529	03/17/2006	6020	**Cadmium**	198 U	NL	---	**0.00128 J**	1.0	No
V-529	03/17/2006	6020	**Chromium**	**26,600**	NL	---	**0.0169 J**	5.0	No
V-529	03/17/2006	6020	**Lead**	**10,800**	NL	---	**0.011 J**	5.0	No
V-529	03/17/2006	7471A	**Mercury**	**211**	NL	---	**0.0000241 J**	0.2	No
V-529	03/17/2006	6020	**Selenium**	405 U	NL	---	0.0736 U	NL	---
V-529	03/17/2006	6020	**Silver**	**352 J**	NL	---	**0.00938 J**	5.0	No
V-529	03/17/2006	8081A	**Endosulfan sulfate**	**3,810 N**	130	Exceed	**0.0004 UJ**	NL	---
V-529	03/17/2006	8081A	**4,4´-DDD**	**4,830 N**	87	Exceed	**0.0004 UJ**	NL	---
V-529	03/17/2006	8151mod	**2,4-D**	**23,900 J**	10,000	Exceed	**0.006**	10.0	No
V-529	03/17/2006	8151mod	**Bromoxynil**	**8,220 J**	NL	---	NT	NL	---
V-529	03/17/2006	8260B	**1,2,4-Trimethylbenzene**	**32.9 J**	NL	---	0.01 U	NL	---
V-529	03/17/2006	8260B	**1,3,5-Trimethylbenzene**	**13 J**	NL	---	0.01 U	NL	---
V-529	03/17/2006	8260B	**m,p-Xylene**	**30.9 J**	NL	---	0.01 U	NL	---
V-529	03/17/2006	8260B	**o-Xylene**	**12 J**	30,000	No	0.01 U	NL	---
V-529	03/17/2006	8270C	**2,4,6-Trichlorophenol**	**1850 J**	7,400	No	0.05 U	2.0	No
V-529	03/17/2006	8270C	**2,4-Dichlorophenol**	**21,200**	14,000	Exceed	0.05 U	NL	---
V-529	03/17/2006	8270C	**2-Chlorophenol**	**1,120 J**	5,700	No	0.05 U	NL	---

Notes:

TCLP = Toxic Characteristic Leaching Procedure

NL = no limit; NT = not tested; --- = not applicable

BOLD = analytical detection

= Sludge Result exceeds the Universal Treatment Standard

J = The "J" qualifier indicates that the associated result is quantitatively uncertain. "J" qualifiers added during validation may indicate a data limitation related to a quality control element that exceeds required acceptance limits.

N = The "N" qualifier indicates that an analyte has been presumptively indentified. Presumptive detection means that a chromatographic peak was detected at the correct retention time for an analyte, but that not all required identification criteria were met.

UJ = not detected above the method reporting limit; the limit is an approximate value.

mg/L = milligrams per liter; µg/kg = micrograms per kilogram

TABLE 1
Summary of Detected Analytes in Water Treatment Plant Sludge
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sludge Result (µg/kg)	Universal Treatment Standard (µg/kg)	Exceed Universal Treatment Standard?	TCLP Result mg/L	Toxicity Characterisitic Standard (mg/L)	Exceed Toxicity Charcteristic Standard?
V-530	03/17/2006	160.3m	**Total Solids**	**294,000,000**	NL	---	NT	---	---
V-530	03/17/2006	6020	**Lead**	**101,000**	NL	---	**0.00306 J**	5.0	No
V-530	03/17/2006	6020	**Silver**	**1,230**	NL	---	**0.00549**	5.0	No
V-530	03/17/2006	6020	**Arsenic**	**36,200**	NL	---	**0.0296 J**	5.0	No
V-530	03/17/2006	6020	**Barium**	**88,400**	NL	---	**0.042 J**	100.0	No
V-530	03/17/2006	6020	**Cadmium**	**767**	NL	---	**0.00358 J**	1.0	No
V-530	03/17/2006	6020	**Chromium**	**80,700**	NL	---	0.00763 U	5.0	No
V-530	03/17/2006	6020	**Selenium**	**642**	NL	---	0.0376 U	1.0	No
V-530	03/17/2006	7471A	**Mercury**	**103**	NL	---	0.000023 U	0.2	No
V-530	03/17/2006	8081A	**Hexachlorobenzene**	**1,730 N**	10,000	No	0.05 U	0.13	No
V-530	03/17/2006	8151mod	**Bromoxynil**	**9,080 J**	NL	---	NT	---	---
V-530	03/17/2006	8151mod	**2,4-D**	**34,100 J**	10,000	Exceed	**0.00367**	10.0	No
V-530	03/17/2006	8260B	**Methylene chloride**	**42.6 J**	30,000	No	0.25 U	---	---
V-530	03/17/2006	8270C	**2,4,6-Trichlorophenol**	**1,890 J**	7,400	No	0.05 U	2.0	No
V-530	03/17/2006	8270C	**2,4-Dichlorophenol**	**15,300**	14,000	Exceed	0.05 U	---	---

Notes:

TCLP = Toxic Characteristic Leaching Procedure

NL = no limit; NT = not tested; --- = not applicable

BOLD = analytical detection

= Sludge Result exceeds the Universal Treatment Standard

J = The "J" qualifier indicates that the associated result is quantitatively uncertain. "J" qualifiers added during validation may indicate a data limitation related to a quality control element that exceeds required acceptance limits.

N = The "N" qualifier indicates that an analyte has been presumptively indentified. Presumptive detection means that a chromatographic peak was detected at the correct retention time for an analyte, but that not all required identification criteria were met.

UJ = not detected above the method reporting limit; the limit is an approximate value.

mg/L = milligrams per liter; µg/kg = micrograms per kilogram

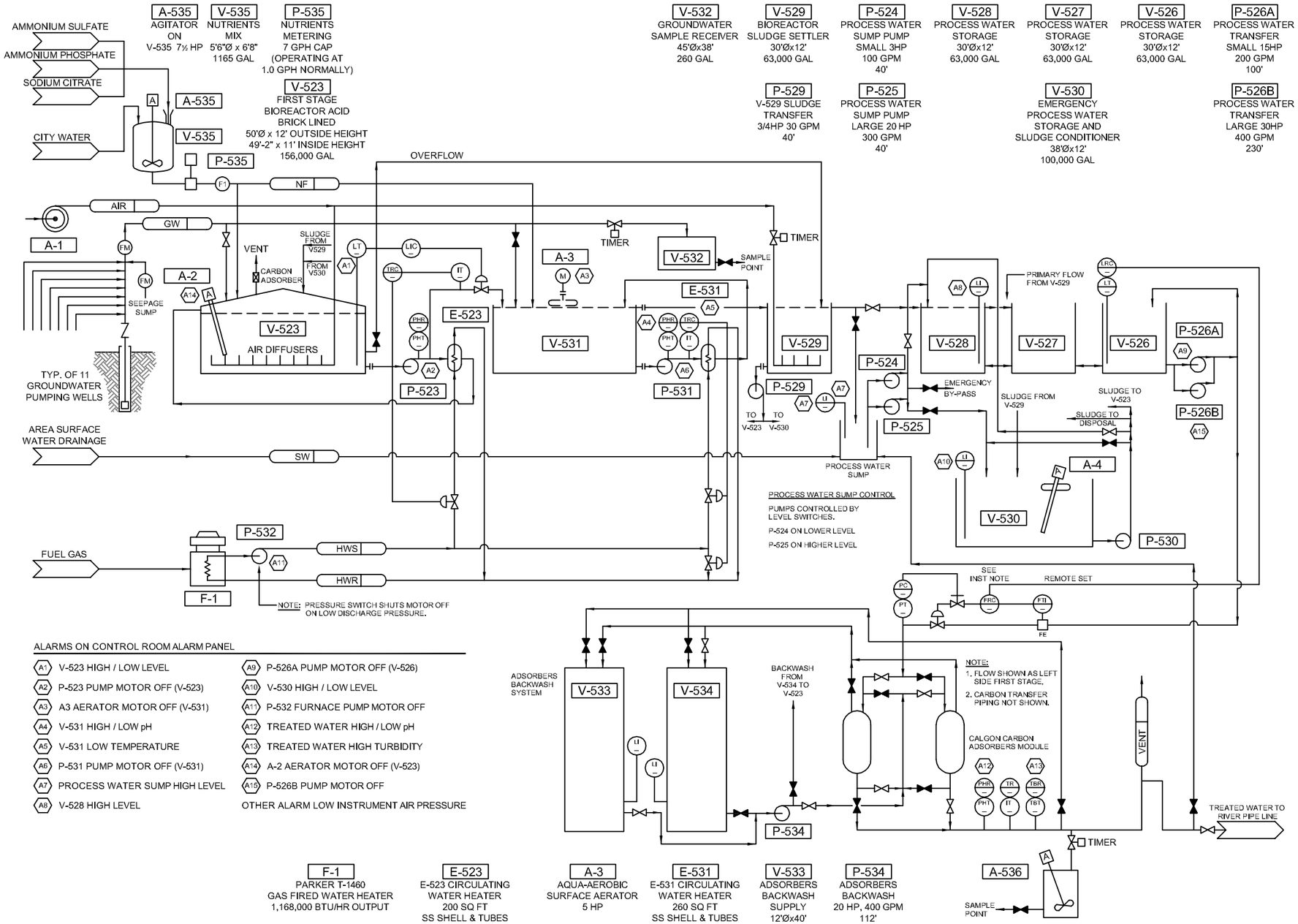
TABLE 2
Summary of Polychlorinated Dibenzo-p-Dioxions and Dibenzofurans
in Water Treatment Plant Sludge
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sludge Result (µg/kg)	UTS (µg/kg)	Exceed UTS	TCLP Result* (µg/L)
V-529	03/17/2006	8280A	1,2,3,4,6,7,8-HpCDD	2.5 U	3	No	0.025 U
V-529	03/17/2006	8280A	1,2,3,4,6,7,8-HpCDF	2.5 U	3	No	0.025 U
V-529	03/17/2006	8280A	1,2,3,4,7,8,9-HpCDF	2.5 U	3	No	0.025 U
V-529	03/17/2006	8280A	1,2,3,4,7,8-HxCDD	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,4,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,6,7,8-HxCDD	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,6,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,7,8,9-HxCDD	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,7,8,9-HxCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,7,8-PeCDD	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	1,2,3,7,8-PeCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	2,3,4,6,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	2,3,4,7,8-PeCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	**2,3,7,8-TCDD**	**3.4**	NL	---	0.01 U
V-529	03/17/2006	8280A	2,3,7,8-TCDF	1 U	NL	---	0.01 U
V-529	03/17/2006	8280A	OCDD	5 U	5	No	0.05 U
V-529	03/17/2006	8280A	OCDF	5 U	5	No	0.05 U
V-529	03/17/2006	8280A	Total HpCDD	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	Total HpCDF	2.5 U	NL	---	0.025 U
V-529	03/17/2006	8280A	Total HxCDD	2.5 U	1	No	0.025 U
V-529	03/17/2006	8280A	Total HxCDF	2.5 U	1	No	0.025 U
V-529	03/17/2006	8280A	Total PeCDD	2.5 U	1	No	0.025 U
V-529	03/17/2006	8280A	**Total PeCDF**	**26**	1	Exceed	0.025 U
V-529	03/17/2006	8280A	**Total TCDD**	**6.4**	1	Exceed	0.01 U
V-529	03/17/2006	8280A	**Total TCDF**	**72**	1	Exceed	0.01 U

TABLE 2
Summary of Polychlorinated Dibenzo-p-Dioxions and Dibenzofurans
in Water Treatment Plant Sludge
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sludge Result (µg/kg)	UTS (µg/kg)	Exceed UTS	TCLP Result* (µg/L)
V-530	03/17/2006	8280A	1,2,3,4,6,7,8-HpCDD	2.5 U	3	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,4,6,7,8-HpCDF	2.5 U	3	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,4,7,8,9-HpCDF	2.5 U	3	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,4,7,8-HxCDD	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,4,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,6,7,8-HxCDD	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,6,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,7,8,9-HxCDD	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,7,8,9-HxCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,7,8-PeCDD	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	1,2,3,7,8-PeCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	2,3,4,6,7,8-HxCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	2,3,4,7,8-PeCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	**2,3,7,8-TCDD**	**4.3**	NL	No	0.01 U
V-530	03/17/2006	8280A	2,3,7,8-TCDF	1 U	NL	---	0.01 U
V-530	03/17/2006	8280A	OCDD	5 U	5	---	0.05 U
V-530	03/17/2006	8280A	OCDF	5 U	5	---	0.05 U
V-530	03/17/2006	8280A	Total HpCDD	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	Total HpCDF	2.5 U	NL	---	0.025 U
V-530	03/17/2006	8280A	Total HxCDD	2.5 U	1	---	0.025 U
V-530	03/17/2006	8280A	Total HxCDF	2.5 U	1	---	0.025 U
V-530	03/17/2006	8280A	Total PeCDD	2.5 U	1	---	0.025 U
V-530	03/17/2006	8280A	**Total PeCDF**	**39**	1	Exceed	0.025 U
V-530	03/17/2006	8280A	**Total TCDD**	**9**	1	Exceed	0.01 U
V-530	03/17/2006	8280A	**Total TCDF**	**80**	1	Exceed	0.01 U

Notes:
U = not detected at or above the reported detection limit
NL = not limit; --- = Not applicable (UTS does not apply)
BOLD = analytical detection
= Sludge Result exceeds the Universal Treatment Standard
µg/kg = micrograms per kilogram; mg/L = milligrams per liter
TCLP = Toxic Characteristic Leaching Procedure
UTS = Universal Treatment Standard
*There are no applicable dioxin/furan TCLP regulatory standards.



ALARMS ON CONTROL ROOM ALARM PANEL

A1	V-523 HIGH / LOW LEVEL	A9	P-526A PUMP MOTOR OFF (V-526)
A2	P-523 PUMP MOTOR OFF (V-523)	A10	V-530 HIGH / LOW LEVEL
A3	A3 AERATOR MOTOR OFF (V-531)	A11	P-532 FURNACE PUMP MOTOR OFF
A4	V-531 HIGH / LOW pH	A12	TREATED WATER HIGH / LOW pH
A5	V-531 LOW TEMPERATURE	A13	TREATED WATER HIGH TURBIDITY
A6	P-531 PUMP MOTOR OFF (V-531)	A14	A-2 AERATOR MOTOR OFF (V-523)
A7	PROCESS WATER SUMP HIGH LEVEL	A15	P-526B PUMP MOTOR OFF
A8	V-528 HIGH LEVEL		OTHER ALARM LOW INSTRUMENT AIR PRESSURE

EQUIPMENT LEGEND

A	AGITATOR OR AERATOR
E	HEAT EXCHANGER
P	PUMP
V	VESSEL
	NORMALLY CLOSED VALVE (NC)
	NORMALLY OPEN VALVE (NO)
	CHECK VALVE
X	ALARM POINT

PROCESS LEGEND

AIR	BLOWER AIR
GWI	GROUNDWATER INFLUENT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
NF	NUTRIENT FEED
SW	SURFACE WATER
VENT	VENT TO ATMOSPHERE

INSTRUMENT LEGEND

FE	FLOW ELEMENT (FOXBORO MAG FLOW METER)
FI	FLOW INDICATOR (ROTAMETER)
FM	TOTALIZING FLOW METER
FRC	FLOW RECORDER CONTROLLER
FTT	FLOW TRANSMITTER TOTALIZER
LI	LEVEL INDICATOR
LIC	LEVEL INDICATOR CONTROLLER
LRC	LEVEL RECORDER CONTROLLER
LT	LEVEL TRANSMITTER
PC	PRESSURE CONTROLLER
PHT	pH TRANSMITTER
PHR	pH RECORDER
PT	PRESSURE TRANSMITTER
TBT	TURBIDITY TRANSMITTER
TBR	TURBIDITY RECORDER
TRC	TEMPERATURE RECORDER CONTROLLER
IT	TEMPERATURE TRANSMITTER

PIPING / SIGNAL LEGEND

- PRIMARY
- SECONDARY
- PHEUMATIC
- (PHT) FIELD
- (PHR) CONTROL ROOM PANEL

INSTRUMENT NOTE

HIGH PRESSURE OVERRIDES FLOW CONTROL VIA A 1 TO 1 RELAY - LOWER OUTPUT PRESSURE OF PC OR FRC APPLIED TO FLOW CONTROL VALVE.

SOURCE:
GROUNDWATER/SURFACEWATER TREATMENT SYSTEM P&ID, SJO CONSULTING ENGINEERS, PORTLAND, OREGON, REVISED SEPT. 18, 1997

FIGURE 1
GROUNDWATER / STORMWATER TREATMENT SYSTEM P&ID
RP - PORTLAND SITE

W.O. 0-61M-10703-0 P-34F
DESIGN JKH
DRAWN DD
DATE MAY 2006
SCALE NOT TO SCALE

amec
7376 S.W. Durham Road
Portland, OR, U.S.A. 97224

ATTACHMENT A

Data Quality Review

DATA QUALITY REVIEW
FOR SLUDGE SAMPLES
RP - PORTLAND SITE

May 25, 2006

Submitted to:

Oregon Department of Environmental Quality
Northwest Region
2020 S.W. 4th Avenue
Portland, Oregon 97201

Submitted for:

SLLI
One Copely Parkway, Suite 309
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Submitted by:

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Portland, Oregon 97224

0-61M-107030/Phase 34F

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Tables

1.0 INTRODUCTION

Two sludge samples were collected and submitted to TestAmerica Analytical Testing Corporation (TA) in Portland, Oregon on March 17, 2006. TA extracted aliquots of the sludge using the toxicity characterization leaching procedure (TCLP) specified in United States Environmental Protection Agency (EPA) Method 1311. TA analyzed both the bulk samples and TCLP extracts for metals using EPA 6000/7000-Series methods; organochlorine pesticides using EPA Method 8081A; chlorinated herbicides using EPA Method 8151A Modified; volatile organic compounds (VOCs) using EPA Method 8260B; semivolatile organic compounds (SVOCs) using EPA Method 8270C, conventional chemistry parameters by EPA Methods 160.3 and 9045A and physical parameters by EPA Methods 1010 and 9095. TA subcontracted polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) analyses to Pace Analytical lab (Pace) located in Minneapolis, Minnesota. Pace received the samples on March 28, 2006 and analyzed them for PCDDs and PCDFs using EPA Method 8280. A list of these samples by field sample identification (ID), sample matrix, TA Sample ID, and Pace sample ID is presented below.

Field Sample ID	Sample Matrix	TA Sample ID	Pace Sample ID
V-529 Sludge	Sludge	P6C0765-01	1029702001
	TCLP Extract	-	1029702003
V-530 Sludge	Sludge	P6C0765-02	1029702002
	TCLP Extract	-	1029702004

2.0 DATA QUALITY REVIEW METHODOLOGY

This data quality review has been performed with reference to EPA guidelines as given in the April 1992 final version of Guidance for Data Usability in Risk Assessment, the current EPA functional guidelines for organic and inorganic data review, and the EPA Office of Solid Waste and Emergency Response standard operating procedures (SOPs) for inorganic and organic data review. The EPA guidelines listed above were written specifically for the Contract Laboratory Program, and have been modified for the purposes of this data quality review where they differ from EPA Method SW-846 quality control requirements and those specified in the Department of Environmental Quality-approved Revised Quality Assurance Project Plan (QAPP), dated June 13, 2001 (AMEC, 2001) and the QAPP Addendum No. 1 dated August 1, 2002 (AMEC, 2002).

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following: chain of custody (COC) compliance; holding time compliance; presence or absence of laboratory contamination as demonstrated by method and field blanks; accuracy and bias as demonstrated by recovery of surrogate spikes, laboratory control samples (LCS), and matrix spikes (MS); analytical precision as relative percent difference (RPD) of analyte concentration between replicate samples (i.e., laboratory duplicates) or MS and matrix spike duplicates (MSD); sampling precision as RPD of analyte concentration between field duplicates; calibration performance; and insofar as possible, the degree of conformance to method requirements and good laboratory practices. Data from all analytical methods has undergone a data quality review, which does not include the review or validation of the raw analytical data.

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may contain error.

3.0 EXPLANATION OF DATA QUALITY INDICATORS AND EVALUATION CRITERIA

The following is a discussion of data quality indicators reviewed during the data quality review.

Laboratory Control Sample Recoveries

LCS and laboratory control sample duplicates (LCSD), also known as blank spike (BS) and blank spike duplicates (BSD), are aliquots of analyte-free sand or water that are spiked with the analytes of interest for an analytical method or a representative subset of those analytes. The spiked sand or water is then processed through the same extraction, concentration, cleanup, and analytical procedures as the samples they accompany. LCS recovery and precision are an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

Matrix Spike Recoveries

MS and MSD are prepared by adding known amounts of the analytes of interest for an analytical method, or a representative subset of those analytes, to an aliquot of sample. The spiked sample is then processed through the same extraction, concentration, cleanup, and analytical procedures as the unspiked samples in an analytical batch.

MS recovery and precision are an indication of a laboratory's ability to successfully recover an analyte in the matrix of a specific sample or closely related sample matrices. It is important not to apply MS results for any specific sample to other samples without understanding how the sample matrices are related.

Surrogate Spike Recoveries

Surrogate spikes are used to evaluate accuracy, method performance, and extraction efficiency in each individual sample. Surrogate compounds are compounds not normally found in environmental samples, but which are similar to target analytes in chemical composition and behavior in the analytical process.

Blank Concentrations

Method blanks are aliquots of analyte free water or sand that are processed by the laboratory using exactly the same procedures as the field samples. Method blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis. Analytes detected in method blanks would be qualified, if detected, in all samples processed with the method blank; based on the ratio of sample concentration versus blank concentration.

4.0 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

Samples should be received by the laboratory at a temperature of 4.0 degrees Celsius (°C) ± 2.0°C. The lower limit of 2.0°C is meant to prevent aqueous samples from freezing and possibly breaking the sample containers.

TA received the samples on March 17, 2006 at the documented temperature of 23°C. The samples were submitted to TA within 4 hours of sampling and in AMEC's professional opinion data usability is not adversely affected.

The COC was complete and properly signed.

5.0 DEFINITIONS OF QUALIFIERS THAT MAY BE ADDED AS A RESULT OF DATA QUALITY REVIEW

The U qualifier indicates that an analyte must be considered to be nondetected at the concentration listed. U qualifiers added during data quality review are typically a result of detection of target analytes in blanks.

The J qualifier indicates that the associated result is quantitatively uncertain and is an estimated value. J qualifiers added during data quality review may indicate a data limitation related to a QC element that exceeds required acceptance limits or an analyte concentration between the method detection limit (MDL) and method reporting limit (MRL).

The N qualifier indicates an analyte has been presumptively identified. Presumptive detection means that a chromatographic peak was detected at the correct retention time for an analyte, but that not all required identification criteria were met. The associated result is both qualitatively and quantitatively uncertain.

The R qualifier indicates that a result has been rejected to serious QC problems. It is not possible to definitively determine whether the analyte is present or absent in the sample.

6.0 SPECIFIC DATA QUALITY REVIEW FINDINGS FOR EACH ANALYTICAL METHOD

Sections 6.1 to 6.8 contain narrative descriptions of data quality review findings and data quality limitations.

6.1 Metals by EPA 6000/7000 Series

Metals results generated by TA may be considered usable with the limitations and exceptions described below.

6.1.1 Holding Time

The samples were analyzed for mercury within the recommended technical holding time of 28 days and for all other metals within the recommended technical holding time of 6 months.

6.1.2 Blanks

Metals were not detected in the preparation blanks associated with these samples, except for barium, chromium, and selenium as described in Table A-1.

6.1.3 Laboratory Control Sample Recoveries

All LCS recoveries were within method-specified 80 to 120% acceptance limits, except for arsenic, as described in Table A-2.

6.1.4 Matrix Spikes

TA preformed MS on sample V-530 sludge. Recoveries were within method-specified 75 to 125% acceptance limits, except for barium, chromium, lead, and arsenic, as described in Table A-3.

6.1.5 Laboratory Duplicates

Laboratory duplicates were performed on samples V-529 Sludge (TCLP) and V-530 Sludge. Precision values were less than the method-specified 20% RPD, except for lead in sample V-529 Sludge (TCLP) with 32.8% RPD. Lead concentrations detected in the primary and duplicate analyses were less than the MRL of 0.200 milligrams per liter (mg/L) and data usability is not adversely affected.

6.1.6 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.2 Organochlorine Pesticides by EPA Method 8081A

Pesticides results generated by TA may be considered usable with the limitations and exceptions described below.

6.2.1 Holding Times

The sludge samples were extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and the TCLP extracts were extracted within the EPA recommended maximum holding time of 7 days from preparation to extraction. All extracts were analyzed within recommended maximum 40 day holding time.

6.2.2 Method Blanks

Target analytes were not detected in the method blanks associated with the analysis of these samples.

6.2.3 Laboratory Control Sample Recoveries

LCS recoveries were within QAPP-specified 70 to 130% acceptance limits, except for toxaphene, as described in Table A-2.

6.2.4 Surrogate Recoveries

Surrogate recoveries were within QAPP-specified acceptance limits, except as described in Table A-4.

6.2.5 Matrix Spikes

Matrix spikes were performed on sample V-530 Sludge. Recoveries were acceptable for all analytes.

6.2.6 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

AMEC N qualified the 4,4-DDD and endosulfan sulfate results from sample V-529 sludge and the hexachlorobenzene result from sample V-530 sludge because there was greater than 40% difference between the concentrations from the primary and conformational analytical columns according to TA's notes. (N-SC)

AMEC UJ qualified the nondetected 4,4-DDD and endosulfan sulfate results from samples V-529 Sludge (TCLP) and V-530 Sludge (TCLP) because these analytes are generally not reported for TCLP extracts and the results were not supported by LCS or MS recoveries (UJ-NQ).

6.3 Chlorinated Herbicides by EPA Method 8151 Modified

Herbicide results generated by TA may be considered usable with the limitations and exceptions described below.

6.3.1 Holding Times

The sludge samples were extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and the TCLP extracts were extracted within the EPA recommended maximum holding time of 7 days from

preparation to extraction. All extracts were analyzed within recommended maximum 40 day holding time.

6.3.2 Continuing Calibration

According to TA's notes, the continuing calibration verification (CCV) standard associated with the TCLP QC samples had high 2,4-D recovery, indicating a possible high bias in the spike recoveries. All spike recoveries were acceptable, ranging between 106 and 126% and in AMEC's professional opinion it is unlikely that the high CCV recovery masked low extraction efficiency and data usability is not adversely affected.

6.3.3 Method Blanks

Target analytes were not detected in the method blanks associated with the analysis of these samples.

6.3.4 Laboratory Control Sample Recoveries

LCS recoveries were within QAPP-specified acceptance limits, except as described in Table A-2.

6.3.5 Surrogate Recoveries

Surrogate recoveries were within QAPP-specified acceptance limits, except as described in Table A-4.

6.3.6 Matrix Spikes

Matrix spike was performed on sample V-529 Sludge. Recoveries were acceptable for all analytes.

6.3.7 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.4 Volatile Organic Compounds by EPA Method 8260B

VOC results generated by TA may be considered usable with the limitations and exceptions described below.

6.4.1 Holding Times

The samples were analyzed for VOCs within the EPA-recommended maximum holding time of 14 days.

6.4.2 Method Blanks

Target analytes were not detected in the method blanks associated with the analysis of these samples..

6.4.3 Laboratory Control Sample Recoveries

LCS recoveries were within EPA-specified or QAPP-specified acceptance limits, except for 2-ethyl-1-hexanol, as described in Table A-2.

6.4.4 Surrogate Recoveries

Surrogate recoveries were within QAPP-specified acceptance limits of 60 to 140%.

6.4.5 Matrix Spikes

MS were performed on sample V-529 Sludge. Recoveries were acceptable for all analytes, except for acetone, 2,2-dichloropropane and isobutyl alcohol, as described in Table A-3.

6.4.6 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.5 Semivolatile Organic Compounds by EPA Method 8270C

SVOC results generated by TA may be considered usable with the limitations and exceptions described below:

6.5.1 Holding Times

The sludge samples were extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and the TCLP extracts were extracted within the EPA recommended maximum holding time of 7 days from preparation to extraction. All extracts were analyzed within recommended maximum 40 day holding time.

6.5.2 Blanks

SVOCs were not detected in the method blanks associated with these samples, except for bis-2-ethylhexyl phthalate, as described in Table A-1.

6.5.3 Laboratory Control Sample Recoveries

All reported LCS recoveries were within QAPP-specified 70% to 130% acceptance limits for organic compounds, except for 2,4-dinitrophenol and pyridine, as described in Table A-2.

6.5.4 Surrogate Recoveries

Surrogate recoveries were within method-specified acceptance limits, except as described in Table A-4.

6.5.5 Matrix Spike Recoveries

MS were performed on sample V-529 Sludge. Recoveries were within EPA acceptance criteria for all analytes, except for pyridine, 1,4-dichlorobenzene, and total cresols, as described in Table A-3.

6.5.6 Data Reporting and Analytical Procedures

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.6 Conventional Chemistry Parameters by EPA Methods 160.3 and 9045B

Total Solids and pH results generated by TA for these samples may be considered usable.

6.6.1 Holding Times

All sediment samples were processed within the method-recommended holding time of 14 days for total solids and 2 hours for pH, respectively.

6.6.2 Blanks

Total Solids were not detected in method blanks associated with these samples. EPA Method 9045B for pH does not require the analysis of a method blank.

6.6.3 Laboratory duplicate

TA analyzed sample V-529 in duplicate for both methods. Precision values were within method specified criteria.

6.7 Physical Parameters by EPA Method 1010 and EPA Method 9095

Flashpoint and Free Liquid results generated by TA for these samples may be considered usable.

6.7.1 Holding Times

All sediment samples were processed within the method-recommended holding times.

6.7.2 Laboratory Control Sample Recoveries

All reported LCS recoveries were either within QAPP-specified acceptance limits or within EPA-recommended acceptance limits.

6.7.3 Laboratory duplicate

Laboratory duplicate was preformed on sample V-529 Sludge. Precision value was within EPA and QAPP specified criteria.

6.8 Polychlorinated Dibenzo-p-dioxins and Dibenzofurans by EPA Method 8280

PCDDs and PCDFs results generated by Pace may be considered usable with the limitations and exceptions described below.

6.8.1 Holding Times

The sludge samples were extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and the TCLP extracts were extracted within the EPA recommended maximum holding time of 7 days from preparation to extraction. All extracts were analyzed within recommended maximum 40 day holding time.

6.8.2 Blanks

PCDDs and PCDFs were not detected in the method blanks associated with these samples.

6.8.3 Laboratory Control Sample Recoveries

All reported LCS recoveries were within method-specified 70 to 130% acceptance limits.

6.8.4 Internal Standards Recoveries

Internal standard recoveries were within method-specified 25 to 150% acceptance limits.

7.0 SUMMARY AND CONCLUSIONS

AMEC R qualified and rejected the 2-ethyl-1-hexanol result from sample V-530 sludge because the analyte was not recovered in the LCS and analytical accuracy could not be determined.

Overall laboratory performance and data quality appear to be acceptable and the data are usable for with the addition of the qualifiers summarized in Table A-5.

LIMITATIONS

This report was prepared exclusively for SLLI by AMEC Earth & Environmental, Inc. (AMEC). The quality of information, conclusions, and estimates contained herein is consistent with the level of effort involved in AMEC services and based on: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This Data Validation Report is intended to be used by SLLI for the RP - Portland Site, 6200 N.W. St. Helens Road, Portland, Oregon only, subject to the terms and conditions of its contract with AMEC. Any other use of, or reliance on, this report by any third party is at that party's sole risk.

ATTACHMENT A TABLES

TABLE A-1
Analytes Detected in Laboratory Blanks
WTP Sludge Sampling
RP - Portland Site

Associated Samples	EPA Method	Detected Analyte	Detected Concentration	U Qualify Results Below the Following Concentrations (5x or 10x Rule)	Notes
Method Blank 6031275-BLK1					
V-529 Sludge (TCLP) V-530 Sludge (TCLP)	6010B	Barium	0.00818	0.0409	Barium concentrations detected in the samples were more than 5 times the concentration detected in the blank and data usability is not adversely affected.
		Chromium	0.00140	0.00700	AMEC U qualified the TCLP chromium result from sample V-530 Sludge because the concentration detected in the sample was less than 5 times the concentration detected in the blank. (U-MB)
		Selenium	0.0204	0.102	AMEC U qualified the TCLP selenium results from these samples because the detected concentrations were less than 5 times the concentration detected in the blank. (U-MB)
V-529 Sludge (TCLP) V-530 Sludge (TCLP)	8270C	bis-2-ethylhexyl phthalate	1.03	10.3	Bis-2-ethylhexyl phthalate was not detected in the associated samples and data usability is not adversely affected.

WTP = water treatment plant
EPA = United States Environmental Protection Agency

TABLE A-2
Laboratory Control Sample Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sludge Sampling
RP - Portland Site

Associated Samples	EPA Method	Analyte Outside Acceptance Limits	LCS Recovery	LCSD Recovery	Notes
LCS 6031275-BS1					
V-529 Sludge (TCLP) V-530 Sludge (TCLP)	6010B	Arsenic	126%	-	AMEC J qualified the arsenic results from the associated samples because of a possible high bias in the analytical results. (J-HL)
LCS 6031341-BS3					
V-529 Sludge (TCLP) V-530 Sludge (TCLP)	8081A	Toxaphene	68.5%	-	AMEC UJ qualified the nondetected toxaphene results from the associated samples because of a possible low bias in the analytical results. (UJ-LL)
LCS/LCSD 6031472-BS1/6031472-BSD1					
V-529 Sludge V-530 Sludge	8151A	2,4-D Bromoxynil	58.5% 55.1%	59.7% 50.2%	AMEC J qualified the detected results for these analytes in the associated samples because of possible low bias in the analytical results. (J-LL)
		2,4-DB 2,4,5-T 2,4,5-TP Dalapon Dichlorprop Dinoseb MCPA MCPP	69.6% 57.7% 61.1% 60.7% 62.0% 38.4% 55.2% 59.0%	66.2% 61.1% 60.7% 60.0% 62.7% 39.3% 53.8% 54.4%	AMEC UJ qualified the nondetected results for these analytes in the associated samples because of possible low bias in the analytical results. (UJ-LL)
LCS 6031252-BS1					
V-529 Sludge V-530 Sludge	8260B	2-Ethyl-1-hexanol	NR	-	AMEC R qualified and rejected the 2-ethyl-1-hexanol result from sample V-530 Sludge because the analyte was not recovered in the LCS. MS were performed on sample V-530 Sludge and 2-ethyl-1-hexanol recovery was acceptable. (R-BS)
LCS 6031197-BS1					
V-529 Sludge V-530 Sludge	8270C	2,4-Dinitrophenol	43.8%	62.3%	UJ qualify the nondetected 2,4-dinitrophenol results from the associated samples because of a possible low bias in the analytical results. (UJ-LL)
LCS 6031342-BS1					
V-529 Sludge (TCLP) V-530 Sludge (TCLP)	8270C	Pyridine	45.5%	-	UJ qualify the nondetected pyridine results from the associated sample because of a possible low bias in the analytical results. (UJ-LL

EPA = United States Environmental Protection Agency
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
QAPP = Quality Assurance Project Plan
WTP = water treatment plant

TABLE A-3
Matrix Spike Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sludge Sampling
RP - Portland Site

Spiked Sample	EPA Method	Analyte Outside Acceptance Limits	MS Recovery	MSD Recovery	Notes
Matrix Spike (6031445-MS1)					
V-530 Sludge	6020	Barium Chromium Lead	132% 161% 147%	- - -	Background analyte concentrations in the unspiked samples were more than 4 times the spike concentration of 9.52 mg/kg. Data usability is not adversely affected.
Matrix Spike (6031275-MS1)					
V-529 Sludge (TCLP)	6010B	Arsenic	126%	125%	Recovery is within 1% of the upper 125% acceptance limit and in AMEC's professional opinion data usability is not adversely affected.
Matrix Spike (6031252-MS1)					
V-529 Sludge	8260B	Acetone 2,2-Dichloropropane	132% 131%	123% 125%	Recoveries were slightly high in the MS but acceptable in the MSD. In AMEC's professional opinion data usability is not adversely affected.
		Isobutyl alcohol	197%	204%	Recoveries were high but this analyte was not detected in the associated samples. Data usability is not adversely affected.
Matrix Spike (6031342-MS1)					
V-529 Sludge (TCLP)	8270C	Pyridine 1,4-Dichlorobenzene Total Cresols	50.0% 62.2% 65.7%	- - -	AMEC UJ qualified the nondetected results for these analytes in this sample because of possible low bias in the analytical results. (UJ-LM)

MSD = matrix spike duplicate
QAPP = Quality Assurance Project Plan
WTP = water treatment plant
mg/kg = milligrams per killogram
EPA = United States Environmental Protection Agency

TABLE A-4
Surrogate Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sludge Sampling
RP - Portland Site

Sample ID	EPA Method	Surrogate	Recovery	Notes
V-529 Sludge V-530 Sludge	8081A	TCMX	NR	Samples were analyzed at 1:500 dilutions because of high analyte concentrations. The dilutions reduced surrogate concentrations below the analytical detection limit and data usability is not adversely affected.
V-530 Sludge (TCLP)	8081A	DCBP	53.5%	TA did not report DCBP recovery in the sample, but they did report DCBP recovery in the MS. Target analyte recoveries were acceptable in the MS and in AMEC's professional opinion data usability is not adversely affected.
V-529 Sludge V-530 Sludge	8151A	2,4-DCAA	NR	Samples were analyzed at 1:500 dilutions because of high analyte concentrations. The dilutions reduced surrogate concentrations below the analytical detection limit and data usability is not adversely affected.
V-529 Sludge V-530 Sludge	8270C	2,4,6-Tribromophenol	162% 172%	Up to 1 surrogate from each fraction can be outside of acceptance limits without affecting data quality and data usability is not adversely affected.
V-529 Sludge (TCLP)	8270C	2-Fluorophenol Phenol-d6	56.2% 36.7%	AMEC UJ qualified all acid-extractable compound (phenols) results from this sample because of possible low bias in the analytical results. (UJ-LS)
V-530 Sludge (TCLP)	8270C	2-Fluorophenol Phenol-d6	51.7% 33.3%	AMEC UJ qualified all phenols results from this sample because of possible low bias in the analytical results. (UJ-LS)

MS = matrix spike
TA = TestAmerica Analytical Testing Corporation
QAPP = Quality Assurance Project Plan
WTP = water treatment plant
TCMX = tetrachloro-m-xylene
DCBP = decachlorobiphenyl
2,4-DCAA = 2,4-dichlorophenylacetic acid
EPA = United States Environmental Protection Agency

TABLE A-5
Qualified Data Summary
WTP Sludge Sampling
RP - Portland Site

EPA Method	Chemical Name	V-529 Sludge						V-530 Sludge					
		Result	MDL	MRL	Unit	Qualifier	Reason Code	Result	MDL	MRL	Unit	Qualifier	Reason Code
1311/6010B	Arsenic	0.0535	0.0147	1.00	mg/L	J	DL,HL	0.0296	0.0147	1.00	mg/L	J	DL, HL
1311/6010B	Barium	0.0570	0.000500	2.00	mg/L	J	DL	0.0420	0.000500	2.00	mg/L	J	DL
1311/6010B	Cadmium	0.00128	0.000500	0.200	mg/L	J	DL	0.00358	0.000500	0.200	mg/L	J	DL
1311/6010B	Chromium	0.0169	0.00126	0.200	mg/L	J	DL	0.00763	0.00126	0.200	mg/L	U	MB
1311/6010B	Lead	0.0110	0.00306	0.200	mg/L	J	DL		0.00306	0.200	mg/L	U	DL
1311/6010B	Selenium	0.0736	0.0155	1.00	mg/L	U	MB	0.0376	0.0155	1.00	mg/L	U	MB
1311/6010B	Silver	0.00938	0.00306	0.200	mg/L	J	DL	0.00549	0.00306	0.200	mg/L	J	DL
1311/7470A	Mercury	0.0000241	0.0000230	0.000200	mg/L	J	DL						
1311/8081A	4,4'-DDD		0.0004	0.0004	mg/L	UJ	NQ		0.0004	0.0004	mg/L	UJ	NQ
1311/8081A	Endosulfan sulfate		0.0004	0.0004	mg/L	UJ	NQ		0.0004	0.0004	mg/L	UJ	NQ
1311/8081A	Toxaphene		0.0500	0.0500	mg/L	UJ	LL		0.0500	0.0500	mg/L	UJ	LL
1311/8270	1,4-Dichlorobenzene		0.0500	0.0500	mg/L	UJ	LM						
1311/8270	2,4,5-Trichlorophenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	2,4,6-Trichlorophenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	2,4-Dichlorophenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	2,4-Dimethylphenol		0.100	0.100	mg/L	UJ	LS		0.100	0.100	mg/L	UJ	LS
1311/8270	2,4-Dinitrophenol		0.200	0.200	mg/L	UJ	LS		0.200	0.200	mg/L	UJ	LS
1311/8270	2-Chlorophenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	2-Methyl-4,6-dinitrophenol		0.200	0.200	mg/L	UJ	LS		0.200	0.200	mg/L	UJ	LS
1311/8270	2-Nitrophenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	3 & 4-Methylphenol		0.100	0.100	mg/L	UJ	LS, LM		0.100	0.100	mg/L	UJ	LS
1311/8270	4-Chloro-3-methylphenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	4-Nitrophenol		0.200	0.200	mg/L	UJ	LS		0.200	0.200	mg/L	UJ	LS
1311/8270	Pentachlorophenol		0.100	0.100	mg/L	UJ	LS		0.100	0.100	mg/L	UJ	LS
1311/8270	Phenol		0.0500	0.0500	mg/L	UJ	LS		0.0500	0.0500	mg/L	UJ	LS
1311/8270	Pyridine		0.200	0.200	mg/L	UJ	LL, LM		0.200	0.200	mg/L	UJ	LL
8081A	4,4'-DDD	4830	124	249	µg/kg wet	N	SE		2100	2100	µg/kg wet	N	SC
8081A	Endosulfan sulfate	3810	124	249	µg/kg wet	N	SE		2300	2300	µg/kg wet	N	SC
8081A	Hexachlorobenzene							1730	125	250	µg/kg wet	N	SC
8260B	1,2,4-Trimethylbenzene	32.9	14.8	99.7	µg/kg wet	J	DL						
8260B	1,3,5-Trimethylbenzene	13.0	8.18	99.7	µg/kg wet	J	DL						
8260B	2-Ethyl-1-hexanol		9970	9970	µg/kg wet	R	BS						
8260B	m,p-Xylene	30.9	17.7	199	µg/kg wet	J	DL						
8260B	Methylene chloride							42.6	5.52	495	µg/kg wet	J	DL
8260B	o-Xylene	12.0	6.45	99.7	µg/kg wet	J	DL						
8270C	2,4,6-Trichlorophenol	1.85	0.700	3.30	mg/kg wet	J	DL	1.89	0.691	3.26	mg/kg wet	J	DL
8270C	2,4-Dinitrophenol		5.00	20.0	mg/kg wet	UJ	LL		4.93	19.7	mg/kg wet	UJ	LL
8270C	2-Chlorophenol	1.12	0.700	3.30	mg/kg wet	J	DL						
6020	Silver	0.352	0.0365	0.495	mg/kg	J	DL						

TABLE A-5
Qualified Data Summary
WTP Sludge Sampling
RP - Portland Site

EPA Method	Chemical Name	V-529 Sludge						V-530 Sludge					
		Result	MDL	MRL	Unit	Qualifier	Reason Code	Result	MDL	MRL	Unit	Qualifier	Reason Code
8151mod	2,4,5-T		8960	747000	µg/kg	UJ	LL		8970	748000	µg/kg	UJ	LL
8151mod	2,4,5-TP (Silvex)		7870	747000	µg/kg	UJ	LL		7880	748000	µg/kg	UJ	LL
8151mod	2,4-D	23900	2860	149000	µg/kg	J	LL, DL	34100	14300	748000	µg/kg	J	LL, DL
8151mod	2,4-DB		19300	747000	µg/kg	UJ	LL		19300	748000	µg/kg	UJ	LL
8151mod	Bromoxynil	8220	8070	747000	µg/kg	J	LL, DL	9080	8080	748000	µg/kg	J	LL, DL
8151mod	Dalapon		16700	747000	µg/kg	UJ	LL		16700	748000	µg/kg	UJ	LL
8151mod	Dichlorprop		8310	747000	µg/kg	UJ	LL		8330	748000	µg/kg	UJ	LL
8151mod	Dinoseb		12500	747000	µg/kg	UJ	LL		12600	748000	µg/kg	UJ	LL
8151mod	MCPA		1150000	74700000	µg/kg	UJ	LL		1150000	74800000	µg/kg	UJ	LL
8151mod	MCPP		1150000	74700000	µg/kg	UJ	LL		1150000	74800000	µg/kg	UJ	LL

Notes
MDL = method detection limit
MRL = method reporting limit
BS = Blank spikes with unacceptable recovery
DL = Analyte concentration was between the MDL and MRL
LL = Low laboratory control sample recovery
LS = Low surrogate recovery. Analytical results may be biased low.
LM = Low MS/MSD recovery
HL = High laboratory control sample recovery
SC = Greater than 40% difference between concentrations detected on the primary and secondary analytical columns
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
EPA = United States Environmental Protection Agency

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Amended Report

May 03, 2006

Marie Bevier
AMEC- Portland
7376 SW Durham Road
Portland, OR 97224

RE: RP Sludge Sampling

Enclosed are the results of analyses for samples received by the laboratory on 03/17/06 13:50. The following list is a summary of the Work Orders contained in this report, generated on 05/03/06 16:42.

If you have any questions concerning this report, please feel free to contact me.

Amended Report: All results reported here supercede any previously reported results.

Work Order	Project	ProjectNumber
P6C0765	RP Sludge Sampling	0-6IM-107030-0 Task 34F

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
V-529 Sludge	P6C0765-01	Other wet	03/17/06 10:00	03/17/06 13:50
V-530 Sludge	P6C0765-02	Other wet	03/17/06 12:30	03/17/06 13:50

Amended Report

Joy D. Chang, Project Manager

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AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Analytical Case Narrative

North Creek Analytical - Portland

P6C0765

This report is not complete without the Dioxin report from Pace Analytical.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Total Metals per EPA 6000/7000 Series Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Arsenic	EPA 6020	**34.2**	*0.423*	0.495	mg/kg	1x	6031445	03/30/06	04/01/06 02:52	
Barium	"	**64.2**	*0.161*	0.495	"	"	"	"	"	
Cadmium	"	ND	*0.198*	0.495	"	"	"	"	"	**U**
Chromium	"	**26.6**	*0.493*	0.495	"	"	"	"	"	
Lead	"	**10.8**	*0.102*	0.495	"	"	"	"	"	
Selenium	"	ND	*0.405*	0.495	"	"	"	"	"	**U**
Silver	"	**0.352**	*0.0365*	0.495	"	"	"	"	"	**J**
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Arsenic	EPA 6020	**36.2**	*0.415*	0.485	mg/kg	1x	6031445	03/30/06	04/01/06 03:32	
Barium	"	**88.4**	*0.158*	0.485	"	"	"	"	"	
Cadmium	"	**0.767**	*0.194*	0.485	"	"	"	"	"	
Chromium	"	**80.7**	*0.483*	0.485	"	"	"	"	"	
Lead	"	**101**	*0.100*	0.485	"	"	"	"	"	
Selenium	"	**0.642**	*0.397*	0.485	"	"	"	"	"	
Silver	"	**1.23**	*0.0358*	0.485	"	"	"	"	"	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

TCLP Metals per EPA 1311/6000/7000 Series Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Arsenic	1311/6010B	**0.0535**	*0.0147*	1.00	mg/l	2x	6031275	03/27/06	03/29/06 16:27	**J, D**
Barium	"	**0.0570**	*0.000500*	2.00	"	"	"	"	"	**J, D**
Cadmium	"	**0.00128**	*0.000500*	0.200	"	"	"	"	"	**J, D**
Chromium	"	**0.0169**	*0.00126*	0.200	"	"	"	"	"	**J, D**
Lead	"	**0.0110**	*0.00306*	0.200	"	"	"	"	"	**J, D**
Selenium	"	**0.0736**	*0.0155*	1.00	"	"	"	"	"	**J, D**
Silver	"	**0.00938**	*0.00306*	0.200	"	"	"	"	"	**J, D**
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Arsenic	1311/6010B	**0.0296**	*0.0147*	1.00	mg/l	2x	6031275	03/27/06	03/29/06 16:47	**J, D**
Barium	"	**0.0420**	*0.000500*	2.00	"	"	"	"	"	**J, D**
Cadmium	"	**0.00358**	*0.000500*	0.200	"	"	"	"	"	**J, D**
Chromium	"	**0.00763**	*0.00126*	0.200	"	"	"	"	"	**J, D**
Lead	"	ND	*0.00306*	0.200	"	"	"	"	"	**U, D**
Selenium	"	**0.0376**	*0.0155*	1.00	"	"	"	"	"	**J, D**
Silver	"	**0.00549**	*0.00306*	0.200	"	"	"	"	"	**J, D**

Amended Report

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Total Mercury per EPA Method 7471A

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Mercury	EPA 7471A	**0.211**	*0.0111*	0.0758	mg/kg wet	1x	6040083	04/03/06	04/04/06 10:50	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Mercury	EPA 7471A	**0.103**	*0.0111*	0.0758	mg/kg wet	1x	6040083	04/03/06	04/04/06 10:59	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Mercury per EPA Methods 1311/7470A

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Mercury	1311/7470A	**0.0000241**	*0.0000230*	0.000200	mg/l	1x	6040183	04/05/06	04/05/06 17:56	**J**
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Mercury	1311/7470A	ND	*0.0000230*	0.000200	mg/l	1x	6040183	04/05/06	04/05/06 17:58	**U**

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Organochlorine Pesticides per EPA Method 8081A

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01RE1 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						**R-05**
Aldrin	EPA 8081A	ND	*12.4*	24.9	ug/kg wet	50x	6031196	03/24/06	03/28/06 20:10	**U, D**
alpha-BHC	"	ND	*59.7*	59.7	"	"	"	"	"	**R-03, U, D**
beta-BHC	"	ND	*12.4*	24.9	"	"	"	"	"	**U, D**
delta-BHC	"	ND	*59.7*	59.7	"	"	"	"	"	**R-03, U, D**
gamma-BHC (Lindane)	"	ND	*12.4*	24.9	"	"	"	"	"	**U, D**
alpha-Chlordane	"	ND	*303*	303	"	"	"	"	"	**R-03, U, D**
gamma-Chlordane	"	ND	*149*	149	"	"	"	"	"	**R-03, U, D**
4,4´-DDD	"	**4830**	*124*	249	"	500x	"	"	03/28/06 17:38	**T-02, D**
4,4´-DDE	"	ND	*527*	527	"	50x	"	"	03/28/06 20:10	**R-03, U, D**
4,4´-DDT	"	ND	*1290*	1290	"	500x	"	"	03/28/06 17:38	**R-03, U, D**
Dieldrin	"	ND	*12.4*	24.9	"	50x	"	"	03/28/06 20:10	**U, D**
Endosulfan I	"	ND	*532*	532	"	"	"	"	"	**R-03, U, D**
Endosulfan II	"	ND	*801*	801	"	"	"	"	"	**R-03, U, D**
Endosulfan sulfate	"	**3810**	*124*	249	"	500x	"	"	03/28/06 17:38	**T-02, D**
Endrin	"	ND	*1640*	1640	"	"	"	"	"	**R-03, U, D**
Endrin aldehyde	"	ND	*562*	562	"	50x	"	"	03/28/06 20:10	**R-03, U, D**
Endrin ketone	"	ND	*308*	308	"	"	"	"	"	**R-03, U, D**
Heptachlor	"	ND	*24.9*	49.8	"	"	"	"	"	**U, D**
Heptachlor epoxide	"	ND	*398*	398	"	500x	"	"	03/28/06 17:38	**R-03, U, D**
Hexachlorobenzene	"	ND	*408*	408	"	50x	"	"	03/28/06 20:10	**R-03, U, D**
Methoxychlor	"	ND	*697*	697	"	"	"	"	"	**R-03, U, D**
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*NR*			*63 - 119 %*	*500x*			*03/28/06 17:38*	***S-01, U***
P6C0765-02RE1 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						**R-05**
Aldrin	EPA 8081A	ND	*135*	135	ug/kg wet	50x	6031196	03/24/06	03/28/06 21:00	**R-03, U, D**
alpha-BHC	"	ND	*94.8*	94.8	"	"	"	"	"	**R-03, U, D**
beta-BHC	"	ND	*89.8*	89.8	"	"	"	"	"	**R-03, U, D**
delta-BHC	"	ND	*79.9*	79.9	"	"	"	"	"	**R-03, U, D**
gamma-BHC (Lindane)	"	ND	*12.5*	25.0	"	"	"	"	"	**U, D**
alpha-Chlordane	"	ND	*509*	509	"	"	"	"	"	**R-03, U, D**
gamma-Chlordane	"	ND	*255*	255	"	"	"	"	"	**R-03, U, D**
4,4´-DDD	"	ND	*2100*	2100	"	500x	"	"	03/28/06 18:28	**R-03, U, D**
4,4´-DDE	"	ND	*394*	394	"	50x	"	"	03/28/06 21:00	**R-03, U, D**
4,4´-DDT	"	ND	*1450*	1450	"	500x	"	"	03/28/06 18:28	**R-03, U, D**
Dieldrin	"	ND	*12.5*	25.0	"	50x	"	"	03/28/06 21:00	**U, D**
Endosulfan I	"	ND	*998*	998	"	500x	"	"	03/28/06 18:28	**R-03, U, D**
Endosulfan II	"	ND	*1200*	1200	"	"	"	"	"	**R-03, U, D**
Endosulfan sulfate	"	ND	*2300*	2300	"	"	"	"	"	**R-03, U, D**
Endrin	"	ND	*1550*	1550	"	"	"	"	"	**R-03, U, D**
Endrin aldehyde	"	ND	*444*	444	"	50x	"	"	03/28/06 21:00	**R-03, U, D**

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Organochlorine Pesticides per EPA Method 8081A

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02RE1 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						**R-05**
Endrin ketone	EPA 8081A	ND	*225*	225	ug/kg wet	50x	6031196	03/24/06	03/28/06 21:00	**R-03, U, D**
Heptachlor	"	ND	*49.9*	49.9	"	"	"	"	"	**U, D**
Heptachlor epoxide	"	ND	*449*	449	"	500x	"	"	03/28/06 18:28	**R-03, U, D**
Hexachlorobenzene	"	**1730**	*125*	250	"	"	"	"	"	**T-02, D**
Methoxychlor	"	ND	*374*	374	"	50x	"	"	03/28/06 21:00	**U, D**
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*NR*			*63 - 119 %*	*500x*			*03/28/06 18:28*	***U, S-01***

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Chlorinated Herbicides per EPA Method 8151A Modified

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01RE1 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						**R-05**
2,4-D	8151mod	**23900**	*2860*	149000	ug/kg	100x	6031472	03/30/06	04/04/06 00:04	**J, D**
2,4-DB	"	ND	*19300*	747000	"	500x	"	"	04/01/06 20:14	**U, D**
2,4,5-T	"	ND	*8960*	747000	"	"	"	"	"	**U, D**
2,4,5-TP (Silvex)	"	ND	*7870*	747000	"	"	"	"	"	**U, D**
Dalapon	"	ND	*16700*	747000	"	"	"	"	"	**U, D**
Dicamba	"	ND	*10500*	747000	"	"	"	"	"	**U, D**
Dichlorprop	"	ND	*8310*	747000	"	"	"	"	"	**U, D**
Dinoseb	"	ND	*12500*	747000	"	"	"	"	"	**U, D**
MCPA	"	ND	*1150000*	74700000	"	"	"	"	"	**U, D**
MCPP	"	ND	*1150000*	74700000	"	"	"	"	"	**U, D**
Bromoxynil	"	**8220**	*8070*	747000	"	"	"	"	"	**J, D**
Surrogate(s): 2,4-Dichlorophenylacetic acid		*NR*		*20 - 150 %*	"				"	***S-01. U***
P6C0765-02RE1 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						**R-05**
2,4-D	8151mod	**34100**	*14300*	748000	ug/kg	500x	6031472	03/30/06	04/04/06 01:27	**J, D**
2,4-DB	"	ND	*19300*	748000	"	"	"	"	04/01/06 20:42	**U, D**
2,4,5-T	"	ND	*8970*	748000	"	"	"	"	"	**U, D**
2,4,5-TP (Silvex)	"	ND	*7880*	748000	"	"	"	"	"	**U, D**
Dalapon	"	ND	*16700*	748000	"	"	"	"	"	**U, D**
Dicamba	"	ND	*10500*	748000	"	"	"	"	"	**U, D**
Dichlorprop	"	ND	*8330*	748000	"	"	"	"	"	**U, D**
Dinoseb	"	ND	*12600*	748000	"	"	"	"	"	**U, D**
MCPA	"	ND	*1150000*	74800000	"	"	"	"	"	**U, D**
MCPP	"	ND	*1150000*	74800000	"	"	"	"	"	**U, D**
Bromoxynil	"	**9080**	*8080*	748000	"	"	"	"	"	**J, D**
Surrogate(s): 2,4-Dichlorophenylacetic acid		*NR*		*20 - 150 %*	"				"	***S-01. U***

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Acetone	EPA 8260B	ND	*599*	2490	ug/kg wet	1x	6031252	03/27/06	03/27/06 16:17	**U**
Benzene	"	ND	*4.22*	99.7	"	"	"	"	"	**U**
Bromobenzene	"	ND	*12.5*	99.7	"	"	"	"	"	**U**
Bromochloromethane	"	ND	*9.72*	99.7	"	"	"	"	"	**U**
Bromodichloromethane	"	ND	*10.2*	99.7	"	"	"	"	"	**U**
Bromoform	"	ND	*9.17*	99.7	"	"	"	"	"	**U**
Bromomethane	"	ND	*8.03*	499	"	"	"	"	"	**U**
2-Butanone (MEK)	"	ND	*25.3*	997	"	"	"	"	"	**U**
n-Butylbenzene	"	ND	*6.38*	499	"	"	"	"	"	**U**
sec-Butylbenzene	"	ND	*5.07*	99.7	"	"	"	"	"	**U**
tert-Butylbenzene	"	ND	*9.74*	99.7	"	"	"	"	"	**U**
Carbon disulfide	"	ND	*7.17*	997	"	"	"	"	"	**U**
Carbon tetrachloride	"	ND	*11.0*	99.7	"	"	"	"	"	**U**
Chlorobenzene	"	ND	*3.06*	99.7	"	"	"	"	"	**U**
Chloroethane	"	ND	*18.4*	99.7	"	"	"	"	"	**U**
Chloroform	"	ND	*5.42*	99.7	"	"	"	"	"	**U**
Chloromethane	"	ND	*6.97*	499	"	"	"	"	"	**U**
2-Chlorotoluene	"	ND	*5.92*	99.7	"	"	"	"	"	**U**
4-Chlorotoluene	"	ND	*4.33*	99.7	"	"	"	"	"	**U**
1,2-Dibromo-3-chloropropane	"	ND	*41.2*	499	"	"	"	"	"	**U**
Dibromochloromethane	"	ND	*7.40*	99.7	"	"	"	"	"	**U**
1,2-Dibromoethane	"	ND	*10.4*	99.7	"	"	"	"	"	**U**
Dibromomethane	"	ND	*4.74*	99.7	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*7.77*	99.7	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*6.23*	99.7	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*8.43*	99.7	"	"	"	"	"	**U**
Dichlorodifluoromethane	"	ND	*7.17*	499	"	"	"	"	"	**U**
1,1-Dichloroethane	"	ND	*6.70*	99.7	"	"	"	"	"	**U**
1,2-Dichloroethane	"	ND	*7.56*	99.7	"	"	"	"	"	**U**
1,1-Dichloroethene	"	ND	*12.0*	99.7	"	"	"	"	"	**U**
cis-1,2-Dichloroethene	"	ND	*10.8*	99.7	"	"	"	"	"	**U**
trans-1,2-Dichloroethene	"	ND	*5.84*	99.7	"	"	"	"	"	**U**
1,2-Dichloropropane	"	ND	*6.70*	99.7	"	"	"	"	"	**U**
1,3-Dichloropropane	"	ND	*6.63*	99.7	"	"	"	"	"	**U**
2,2-Dichloropropane	"	ND	*6.27*	99.7	"	"	"	"	"	**U**
1,1-Dichloropropene	"	ND	*7.89*	99.7	"	"	"	"	"	**U**
cis-1,3-Dichloropropene	"	ND	*4.59*	99.7	"	"	"	"	"	**U**
trans-1,3-Dichloropropene	"	ND	*5.84*	99.7	"	"	"	"	"	**U**
Ethylbenzene	"	ND	*2.82*	99.7	"	"	"	"	"	**U**
2-Ethyl-1-hexanol	"	ND	*9970*	9970	"	"	"	"	"	**U**

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Hexachlorobutadiene	EPA 8260B	ND	*8.86*	399	ug/kg wet	1x	6031252	03/27/06	03/27/06 16:17	**U**
2-Hexanone	"	ND	*28.2*	997	"	"	"	"	"	**U**
Iodomethane	"	ND	*135*	1990	"	"	"	"	"	**U**
Isobutyl alcohol	"	ND	*1440*	9970	"	"	"	"	"	**U**
Isopropylbenzene	"	ND	*7.40*	199	"	"	"	"	"	**U**
p-Isopropyltoluene	"	ND	*9.65*	199	"	"	"	"	"	**U**
4-Methyl-2-pentanone	"	ND	*19.0*	499	"	"	"	"	"	**U**
Methylene chloride	"	ND	*5.55*	499	"	"	"	"	"	**U**
Naphthalene	"	ND	*7.68*	199	"	"	"	"	"	**U**
n-Propylbenzene	"	ND	*7.01*	99.7	"	"	"	"	"	**U**
Styrene	"	ND	*3.13*	99.7	"	"	"	"	"	**U**
1,1,1,2-Tetrachloroethane	"	ND	*9.30*	99.7	"	"	"	"	"	**U**
1,1,2,2-Tetrachloroethane	"	ND	*11.4*	99.7	"	"	"	"	"	**U**
Tetrachloroethene	"	ND	*14.4*	99.7	"	"	"	"	"	**U**
Toluene	"	ND	*3.49*	99.7	"	"	"	"	"	**U**
1,2,3-Trichlorobenzene	"	ND	*9.35*	199	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*13.9*	199	"	"	"	"	"	**U**
1,1,1-Trichloroethane	"	ND	*5.02*	99.7	"	"	"	"	"	**U**
1,1,2-Trichloroethane	"	ND	*6.77*	99.7	"	"	"	"	"	**U**
Trichloroethene	"	ND	*7.24*	99.7	"	"	"	"	"	**U**
Trichlorofluoromethane	"	ND	*31.0*	99.7	"	"	"	"	"	**U**
1,2,3-Trichloropropane	"	ND	*6.45*	99.7	"	"	"	"	"	**U**
1,2,4-Trimethylbenzene	"	**32.9**	*14.8*	99.7	"	"	"	"	"	**J**
1,3,5-Trimethylbenzene	"	**13.0**	*8.18*	99.7	"	"	"	"	"	**J**
Vinyl chloride	"	ND	*7.46*	99.7	"	"	"	"	"	**U**
o-Xylene	"	**12.0**	*6.45*	99.7	"	"	"	"	"	**J**
m,p-Xylene	"	**30.9**	*17.7*	199	"	"	"	"	"	**J**
Surrogate(s): *4-BFB*		*96.2%*		*43 - 130 %*	*0.005x*				*"*	
1,2-DCA-d4		*104%*		*57 - 144 %*	*"*				*"*	
Dibromofluoromethane		*99.0%*		*46 - 130 %*	*"*				*"*	
Toluene-d8		*103%*		*42 - 144 %*	*"*				*"*	

Amended Report

Joy D. Chang, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Acetone	EPA 8260B	ND	*595*	2480	ug/kg wet	1x	6031252	03/27/06	03/27/06 16:45	**U**
Benzene	"	ND	*4.19*	99.1	"	"	"	"	"	**U**
Bromobenzene	"	ND	*12.4*	99.1	"	"	"	"	"	**U**
Bromochloromethane	"	ND	*9.66*	99.1	"	"	"	"	"	**U**
Bromodichloromethane	"	ND	*10.1*	99.1	"	"	"	"	"	**U**
Bromoform	"	ND	*9.11*	99.1	"	"	"	"	"	**U**
Bromomethane	"	ND	*7.97*	495	"	"	"	"	"	**U**
2-Butanone (MEK)	"	ND	*25.2*	991	"	"	"	"	"	**U**
n-Butylbenzene	"	ND	*6.34*	495	"	"	"	"	"	**U**
sec-Butylbenzene	"	ND	*5.04*	99.1	"	"	"	"	"	**U**
tert-Butylbenzene	"	ND	*9.68*	99.1	"	"	"	"	"	**U**
Carbon disulfide	"	ND	*7.12*	991	"	"	"	"	"	**U**
Carbon tetrachloride	"	ND	*10.9*	99.1	"	"	"	"	"	**U**
Chlorobenzene	"	ND	*3.04*	99.1	"	"	"	"	"	**U**
Chloroethane	"	ND	*18.3*	99.1	"	"	"	"	"	**U**
Chloroform	"	ND	*5.39*	99.1	"	"	"	"	"	**U**
Chloromethane	"	ND	*6.92*	495	"	"	"	"	"	**U**
2-Chlorotoluene	"	ND	*5.88*	99.1	"	"	"	"	"	**U**
4-Chlorotoluene	"	ND	*4.30*	99.1	"	"	"	"	"	**U**
1,2-Dibromo-3-chloropropane	"	ND	*40.9*	495	"	"	"	"	"	**U**
Dibromochloromethane	"	ND	*7.35*	99.1	"	"	"	"	"	**U**
1,2-Dibromoethane	"	ND	*10.3*	99.1	"	"	"	"	"	**U**
Dibromomethane	"	ND	*4.71*	99.1	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*7.72*	99.1	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*6.19*	99.1	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*8.38*	99.1	"	"	"	"	"	**U**
Dichlorodifluoromethane	"	ND	*7.12*	495	"	"	"	"	"	**U**
1,1-Dichloroethane	"	ND	*6.66*	99.1	"	"	"	"	"	**U**
1,2-Dichloroethane	"	ND	*7.51*	99.1	"	"	"	"	"	**U**
1,1-Dichloroethene	"	ND	*11.9*	99.1	"	"	"	"	"	**U**
cis-1,2-Dichloroethene	"	ND	*10.7*	99.1	"	"	"	"	"	**U**
trans-1,2-Dichloroethene	"	ND	*5.80*	99.1	"	"	"	"	"	**U**
1,2-Dichloropropane	"	ND	*6.66*	99.1	"	"	"	"	"	**U**
1,3-Dichloropropane	"	ND	*6.59*	99.1	"	"	"	"	"	**U**
2,2-Dichloropropane	"	ND	*6.23*	99.1	"	"	"	"	"	**U**
1,1-Dichloropropene	"	ND	*7.84*	99.1	"	"	"	"	"	**U**
cis-1,3-Dichloropropene	"	ND	*4.56*	99.1	"	"	"	"	"	**U**
trans-1,3-Dichloropropene	"	ND	*5.80*	99.1	"	"	"	"	"	**U**
Ethylbenzene	"	ND	*2.80*	99.1	"	"	"	"	"	**U**
2-Ethyl-1-hexanol	"	ND	*9910*	9910	"	"	"	"	"	**U**

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Hexachlorobutadiene	EPA 8260B	ND	*8.81*	396	ug/kg wet	1x	6031252	03/27/06	03/27/06 16:45	**U**
2-Hexanone	"	ND	*28.0*	991	"	"	"	"	"	**U**
Iodomethane	"	ND	*134*	1980	"	"	"	"	"	**U**
Isobutyl alcohol	"	ND	*1430*	9910	"	"	"	"	"	**U**
Isopropylbenzene	"	ND	*7.35*	198	"	"	"	"	"	**U**
p-Isopropyltoluene	"	ND	*9.59*	198	"	"	"	"	"	**U**
4-Methyl-2-pentanone	"	ND	*18.9*	495	"	"	"	"	"	**U**
Methylene chloride	"	**42.6**	*5.52*	495	"	"	"	"	"	**J**
Naphthalene	"	ND	*7.63*	198	"	"	"	"	"	**U**
n-Propylbenzene	"	ND	*6.96*	99.1	"	"	"	"	"	**U**
Styrene	"	ND	*3.11*	99.1	"	"	"	"	"	**U**
1,1,1,2-Tetrachloroethane	"	ND	*9.24*	99.1	"	"	"	"	"	**U**
1,1,2,2-Tetrachloroethane	"	ND	*11.3*	99.1	"	"	"	"	"	**U**
Tetrachloroethene	"	ND	*14.3*	99.1	"	"	"	"	"	**U**
Toluene	"	ND	*3.47*	99.1	"	"	"	"	"	**U**
1,2,3-Trichlorobenzene	"	ND	*9.29*	198	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*13.8*	198	"	"	"	"	"	**U**
1,1,1-Trichloroethane	"	ND	*4.99*	99.1	"	"	"	"	"	**U**
1,1,2-Trichloroethane	"	ND	*6.73*	99.1	"	"	"	"	"	**U**
Trichloroethene	"	ND	*7.19*	99.1	"	"	"	"	"	**U**
Trichlorofluoromethane	"	ND	*30.8*	99.1	"	"	"	"	"	**U**
1,2,3-Trichloropropane	"	ND	*6.41*	99.1	"	"	"	"	"	**U**
1,2,4-Trimethylbenzene	"	ND	*14.7*	99.1	"	"	"	"	"	**U**
1,3,5-Trimethylbenzene	"	ND	*8.12*	99.1	"	"	"	"	"	**U**
Vinyl chloride	"	ND	*7.41*	99.1	"	"	"	"	"	**U**
o-Xylene	"	ND	*6.41*	99.1	"	"	"	"	"	**U**
m,p-Xylene	"	ND	*17.6*	198	"	"	"	"	"	**U**

Surrogate(s):	*4-BFB*	*99.1%*	*43 - 130 %*	*0.005x*	*"*
	1,2-DCA-d4	*110%*	*57 - 144 %*	*"*	*"*
	Dibromofluoromethane	*106%*	*46 - 130 %*	*"*	*"*
	Toluene-d8	*108%*	*42 - 144 %*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Semivolatile Organic Compounds per EPA Method 8270C

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01RE1 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						**R-05**
4-Chloro-3-methylphenol	EPA 8270C	ND	*0.700*	3.30	mg/kg wet	10x	6031197	03/24/06	03/27/06 21:52	**U, D**
2-Chlorophenol	"	**1.12**	*0.700*	3.30	"	"	"	"	"	**J, D**
2,4-Dichlorophenol	"	**21.2**	*0.700*	3.30	"	"	"	"	"	**D**
2,6-Dichlorophenol	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
2,4-Dimethylphenol	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
4,6-Dinitro-2-methylphenol	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
2,4-Dinitrophenol	"	ND	*5.00*	20.0	"	"	"	"	"	**U, D**
Dinoseb	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
2-Methylphenol	"	ND	*0.700*	3.30	"	"	"	"	"	**U, D**
3-,4-Methylphenol	"	ND	*0.700*	3.30	"	"	"	"	"	**U, D**
2-Nitrophenol	"	ND	*0.700*	3.30	"	"	"	"	"	**U, D**
4-Nitrophenol	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
Pentachlorophenol	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
Phenol	"	ND	*0.700*	3.30	"	"	"	"	"	**U, D**
Tetrachlorophenols (2)	"	ND	*5.00*	9.99	"	"	"	"	"	**U, D**
2,4,5-Trichlorophenol	"	ND	*0.700*	3.30	"	"	"	"	"	**U, D**
2,4,6-Trichlorophenol	"	**1.85**	*0.700*	3.30	"	"	"	"	"	**J, D**
Surrogate(s): *2-Fluorophenol*		*78.8%*			*27 - 112 %*	"			"	
Phenol-d6		*81.6%*			*23 - 113 %*	"			"	
2,4,6-Tribromophenol		*162%*			*25 - 130 %*	"			"	***S-09***
P6C0765-02RE1 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						**R-05**
4-Chloro-3-methylphenol	EPA 8270C	ND	*0.691*	3.26	mg/kg wet	10x	6031197	03/24/06	03/27/06 22:34	**U, D**
2-Chlorophenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
2,4-Dichlorophenol	"	**15.3**	*0.691*	3.26	"	"	"	"	"	**D**
2,6-Dichlorophenol	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
2,4-Dimethylphenol	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
4,6-Dinitro-2-methylphenol	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
2,4-Dinitrophenol	"	ND	*4.93*	19.7	"	"	"	"	"	**U, D**
Dinoseb	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
2-Methylphenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
3-,4-Methylphenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
2-Nitrophenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
4-Nitrophenol	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
Pentachlorophenol	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
Phenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
Tetrachlorophenols (2)	"	ND	*4.93*	9.87	"	"	"	"	"	**U, D**
2,4,5-Trichlorophenol	"	ND	*0.691*	3.26	"	"	"	"	"	**U, D**
2,4,6-Trichlorophenol	"	**1.89**	*0.691*	3.26	"	"	"	"	"	**J, D**

Amended Report

Joy D. Chang, Project Manager

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BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Semivolatile Organic Compounds per EPA Method 8270C

TestAmerica - Portland, OR

Analyte		Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02RE1	**(V-530 Sludge)**		**Other wet**		**Sampled: 03/17/06 12:30**						**R-05**
Surrogate(s):	*2-Fluorobiphenyl*		*75.7%*			*27 - 113 %*	*10x*			*03/27/06 22:34*	
	2-Fluorophenol		*77.5%*			*27 - 112 %*	*"*			*"*	
	Phenol-d6		*79.1%*			*23 - 113 %*	*"*			*"*	
	2,4,6-Tribromophenol		*172%*			*25 - 130 %*	*"*			*"*	***S-09***

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Pesticides per EPA Method 1311/8081A

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
4,4´-DDD	1311/8081A	ND	*0.000400*	0.000400	mg/l	1x	6031341	03/28/06	03/31/06 22:46	**A-07, U**
Endosulfan sulfate	"	ND	*0.000400*	0.000400	"	"	"	"	"	**A-07, U**
gamma-BHC (Lindane)	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Chlordane (tech)	"	ND	*0.00500*	0.00500	"	"	"	"	"	**U**
Endrin	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Heptachlor	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Heptachlor epoxide	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Methoxychlor	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Toxaphene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*96.0%*			*30 - 140 %*	"			"	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
4,4´-DDD	1311/8081A	ND	*0.000400*	0.000400	mg/l	1x	6031341	03/28/06	03/31/06 23:11	**A-07, U**
Endosulfan sulfate	"	ND	*0.000400*	0.000400	"	"	"	"	"	**A-07, U**
gamma-BHC (Lindane)	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Chlordane (tech)	"	ND	*0.00500*	0.00500	"	"	"	"	"	**U**
Endrin	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Heptachlor	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Heptachlor epoxide	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Methoxychlor	"	ND	*0.000400*	0.000400	"	"	"	"	"	**U**
Toxaphene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*94.0%*			*30 - 140 %*	"			"	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Herbicides per EPA Method 1311/8151

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
2,4-D	1311/8151	**0.00600**	*0.000160*	0.00100	mg/l	1x	6031298	03/28/06	04/04/06 22:51	
2,4,5-TP (Silvex)	"	ND	*0.000230*	0.00100	"	"	"	"	04/01/06 07:50	**U**
Surrogate(s): 2,4-Dichlorophenylacetic acid		*101%*		*20 - 150 %*		*"*			*"*	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
2,4-D	1311/8151	**0.00367**	*0.000160*	0.00100	mg/l	1x	6031298	03/28/06	04/04/06 23:19	
2,4,5-TP (Silvex)	"	ND	*0.000230*	0.00100	"	"	"	"	04/01/06 09:41	**U**
Surrogate(s): 2,4-Dichlorophenylacetic acid		*103%*		*20 - 150 %*		*"*			*"*	

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Acetone	1311/8260B	ND	*0.250*	0.500	mg/l	1x	6031331	03/28/06	03/28/06 15:54	**U**
Benzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromochloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromodichloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromoform	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromomethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
n-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
sec-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
tert-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Carbon Tetrachloride	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Chlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Chloroethane	"	ND	*0.00250*	0.0500	"	"	"	"	"	**U**
Chloroform	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Chloromethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
2-Chlorotoluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
4-Chlorotoluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dibromo-3-chloropropane	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
Dibromochloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dibromoethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Dibromomethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Dichlorodifluoromethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
1,1-Dichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
cis-1,2-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
trans-1,2-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
2,2-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
cis-1,3-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
trans-1,3-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Ethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Hexachlorobutadiene	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
2-Hexanone	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
Isopropylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
p-Isopropyltoluene	1311/8260B	ND	*0.0100*	0.0200	mg/l	1x	6031331	03/28/06	03/28/06 15:54	**U**
4-Methyl-2-pentanone	"	ND	*0.100*	0.200	"	"	"	"	"	**U**
2-Butanone (MEK)	"	ND	*0.0250*	0.500	"	"	"	"	"	**U**
Methylene chloride	"	ND	*0.250*	0.500	"	"	"	"	"	**U**
Methyl tert-butyl ether	"	ND	*0.865*	10.0	"	"	"	"	"	**U**
Naphthalene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
n-Propylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Styrene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,1,2-Tetrachloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,2,2-Tetrachloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Tetrachloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Toluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,3-Trichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,1-Trichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,2-Trichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Trichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Trichlorofluoromethane	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
1,2,3-Trichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,4-Trimethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3,5-Trimethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Vinyl chloride	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
o-Xylene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
m,p-Xylene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Surrogate(s): 4-BFB		*87.5%*			*75 - 130 %*	*0.1x*			*"*	
Dibromofluoromethane		*96.5%*			*75 - 130 %*	*"*			*"*	
Toluene-d8		*104%*			*75 - 130 %*	*"*			*"*	
1,2-DCA-d4		*107%*			*79 - 123 %*	*"*			*"*	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Acetone	1311/8260B	ND	*0.250*	0.500	mg/l	1x	6031331	03/28/06	03/28/06 16:21	**U**
Benzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromochloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromodichloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromoform	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Bromomethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
n-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
sec-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
tert-Butylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Carbon Tetrachloride	1311/8260B	ND	*0.0100*	0.0200	mg/l	1x	6031331	03/28/06	03/28/06 16:21	**U**
Chlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Chloroethane	"	ND	*0.00250*	0.0500	"	"	"	"	"	**U**
Chloroform	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Chloromethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
2-Chlorotoluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
4-Chlorotoluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dibromo-3-chloropropane	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
Dibromochloromethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dibromoethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Dibromomethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Dichlorodifluoromethane	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
1,1-Dichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
cis-1,2-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
trans-1,2-Dichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
2,2-Dichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
cis-1,3-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
trans-1,3-Dichloropropene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Ethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Hexachlorobutadiene	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
2-Hexanone	"	ND	*0.0500*	0.100	"	"	"	"	"	**U**
Isopropylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
p-Isopropyltoluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
4-Methyl-2-pentanone	"	ND	*0.100*	0.200	"	"	"	"	"	**U**
2-Butanone (MEK)	"	ND	*0.0250*	0.500	"	"	"	"	"	**U**
Methylene chloride	"	ND	*0.250*	0.500	"	"	"	"	"	**U**
Methyl tert-butyl ether	"	ND	*0.865*	10.0	"	"	"	"	"	**U**
Naphthalene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
n-Propylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Styrene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,1,2-Tetrachloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,2,2-Tetrachloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Tetrachloroethene	1311/8260B	ND	*0.0100*	0.0200	mg/l	1x	6031331	03/28/06	03/28/06 16:21	**U**
Toluene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,3-Trichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,1-Trichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,1,2-Trichloroethane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Trichloroethene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Trichlorofluoromethane	"	ND	*0.0250*	0.0500	"	"	"	"	"	**U**
1,2,3-Trichloropropane	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,2,4-Trimethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
1,3,5-Trimethylbenzene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Vinyl chloride	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
o-Xylene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
m,p-Xylene	"	ND	*0.0100*	0.0200	"	"	"	"	"	**U**
Surrogate(s): *4-BFB*		*88.0%*			*75 - 130 %*	*0.1x*			*"*	
Dibromofluoromethane		*97.0%*			*75 - 130 %*	*"*			*"*	
Toluene-d8		*104%*			*75 - 130 %*	*"*			*"*	
1,2-DCA-d4		*108%*			*79 - 123 %*	*"*			*"*	

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Pyridine	1311/8270	ND	*0.200*	0.200	mg/l	1x	6031342	03/28/06	03/29/06 20:59	**U**
Phenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Bis(2-chloroethyl)ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Chlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzyl alcohol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Total Cresols	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Bis(2-chloroisopropyl)ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
N-Nitrosodi-n-propylamine	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachloroethane	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Nitrobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Isophorone	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Nitrophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dimethylphenol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Bis(2-chloroethoxy)methane	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzoic acid	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
2,4-Dichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Naphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Chloroaniline	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Hexachlorobutadiene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Chloro-3-methylphenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Methylnaphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachlorocyclopentadiene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4,6-Trichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4,5-Trichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Chloronaphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Dimethyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Acenaphthylene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,6-Dinitrotoluene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
3-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Acenaphthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dinitrophenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
4-Nitrophenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Dibenzofuran	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dinitrotoluene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Diethyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Fluorene	1311/8270	ND	*0.0500*	0.0500	mg/l	1x	6031342	03/28/06	03/29/06 20:59	**U**
4-Chlorophenyl phenyl ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
4,6-Dinitro-2-methylphenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
N-Nitrosodiphenylamine	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Bromophenyl phenyl ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Pentachlorophenol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Phenanthrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Di-n-butyl phthalate	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Butyl benzyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (a) anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
3,3´-Dichlorobenzidine	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Chrysene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Bis(2-ethylhexyl)phthalate	"	ND	*0.200*	0.200	"	"	"	"	"	**B-18, U**
Di-n-octyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (b) fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (k) fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (a) pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Indeno (1,2,3-cd) pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Dibenzo (a,h) anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (ghi) perylene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Surrogate(s): *2-Fluorophenol*		*56.2%*			*7 - 116 %*	"			"	
Phenol-d6		*36.7%*			*1 - 114 %*	"			"	
Nitrobenzene-d5		*103%*			*29 - 140 %*	"			"	
2-Fluorobiphenyl		*79.3%*			*12 - 135 %*	"			"	
2,4,6-Tribromophenol		*91.3%*			*33 - 150 %*	"			"	
p-Terphenyl-d14		*88.3%*			*47 - 138 %*	"			"	

Amended Report

Joy D. Chang, Project Manager

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BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Pyridine	1311/8270	ND	*0.200*	0.200	mg/l	1x	6031342	03/28/06	03/29/06 21:41	**U**
Phenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Bis(2-chloroethyl)ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Chlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,3-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,4-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzyl alcohol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
1,2-Dichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Total Cresols	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Bis(2-chloroisopropyl)ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
N-Nitrosodi-n-propylamine	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachloroethane	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Nitrobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Isophorone	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Nitrophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dimethylphenol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Bis(2-chloroethoxy)methane	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzoic acid	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
2,4-Dichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
1,2,4-Trichlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Naphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Chloroaniline	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Hexachlorobutadiene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Chloro-3-methylphenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Methylnaphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachlorocyclopentadiene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4,6-Trichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4,5-Trichlorophenol	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Chloronaphthalene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Dimethyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Acenaphthylene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,6-Dinitrotoluene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
3-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Acenaphthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dinitrophenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
4-Nitrophenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Dibenzofuran	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
2,4-Dinitrotoluene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Diethyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**

Amended Report

Joy D. Chang, Project Manager

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ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Fluorene	1311/8270	ND	*0.0500*	0.0500	mg/l	1x	6031342	03/28/06	03/29/06 21:41	**U**
4-Chlorophenyl phenyl ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Nitroaniline	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
4,6-Dinitro-2-methylphenol	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
N-Nitrosodiphenylamine	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
4-Bromophenyl phenyl ether	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Hexachlorobenzene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Pentachlorophenol	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Phenanthrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Di-n-butyl phthalate	"	ND	*0.100*	0.100	"	"	"	"	"	**U**
Fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Butyl benzyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (a) anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
3,3´-Dichlorobenzidine	"	ND	*0.200*	0.200	"	"	"	"	"	**U**
Chrysene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Bis(2-ethylhexyl)phthalate	"	ND	*0.200*	0.200	"	"	"	"	"	**B-18, U**
Di-n-octyl phthalate	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (b) fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (k) fluoranthene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (a) pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Indeno (1,2,3-cd) pyrene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Dibenzo (a,h) anthracene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Benzo (ghi) perylene	"	ND	*0.0500*	0.0500	"	"	"	"	"	**U**
Surrogate(s): *2-Fluorophenol*		*51.7%*			*7 - 116 %*	"			"	
Phenol-d6		*33.3%*			*1 - 114 %*	"			"	
Nitrobenzene-d5		*94.7%*			*29 - 140 %*	"			"	
2-Fluorobiphenyl		*72.7%*			*12 - 135 %*	"			"	
2,4,6-Tribromophenol		*88.2%*			*33 - 150 %*	"			"	
p-Terphenyl-d14		*86.3%*			*47 - 138 %*	"			"	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Conventional Chemistry Parameters per APHA/EPA Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Total Solids	EPA 160.3m	**183000**	-----	99.9	mg/kg	1x	6031156	03/24/06	03/24/06 13:20	
pH	EPA 9045B	**7.67**	-----		pH Units	"	6031340	03/28/06	03/28/06 16:00	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Total Solids	EPA 160.3m	**294000**	-----	99.5	mg/kg	1x	6031156	03/24/06	03/24/06 13:20	
pH	EPA 9045B	**6.40**	-----		pH Units	"	6031340	03/28/06	03/28/06 16:00	

Amended Report

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Amended Report

AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Physical Parameters per APHA/ASTM/EPA Methods

TestAmerica - Portland, OR

Analyte	Method	Result	MDL*	MRL	Units	Dil	Batch	Prepared	Analyzed	Notes
P6C0765-01 (V-529 Sludge)		**Other wet**		**Sampled: 03/17/06 10:00**						
Flashpoint	EPA 1010	ND	-----	150	°F	1x	6031369	03/29/06	03/30/06 16:25	
Free Liquid	EPA 9095	ND	-----	TIC	%	"	6031154	03/24/06	03/24/06 10:15	
P6C0765-02 (V-530 Sludge)		**Other wet**		**Sampled: 03/17/06 12:30**						
Flashpoint	EPA 1010	ND	-----	150	°F	1x	6031369	03/29/06	03/30/06 16:25	
Free Liquid	EPA 9095	ND	-----	TIC	%	"	6031154	03/24/06	03/24/06 10:15	

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Total Metals per EPA 6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031445 **Other wet Preparation Method: EPA 3050**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031445-BLK1)									Extracted: 03/30/06 10:55					
Arsenic	EPA 6020	ND	0.423	0.495	mg/kg	1x	--	--	--	--	--	--	04/01/06 02:24	U
Barium	"	ND	0.161	0.495	"	"	--	--	--	--	--	--	"	U
Cadmium	"	ND	0.198	0.495	"	"	--	--	--	--	--	--	"	U
Chromium	"	ND	0.493	0.495	"	"	--	--	--	--	--	--	"	U
Lead	"	ND	0.102	0.495	"	"	--	--	--	--	--	--	"	U
Selenium	"	ND	0.405	0.495	"	"	--	--	--	--	--	--	"	U
Silver	"	ND	0.0365	0.495	"	"	--	--	--	--	--	--	"	U
LCS (6031445-BS1)									Extracted: 03/30/06 10:55					
Arsenic	EPA 6020	10.5	0.423	0.495	mg/kg	1x	--	9.90	106%	(80-120)	--	--	04/01/06 02:38	
Barium	"	11.2	0.161	0.495	"	"	--	"	113%	"	--	--	"	
Cadmium	"	11.6	0.198	0.495	"	"	--	"	117%	"	--	--	"	
Chromium	"	11.8	0.493	0.495	"	"	--	"	119%	"	--	--	"	
Lead	"	11.4	0.102	0.495	"	"	--	"	115%	"	--	--	"	
Selenium	"	5.26	0.405	0.495	"	"	--	4.95	106%	"	--	--	"	
Silver	"	5.57	0.0365	0.495	"	"	--	"	113%	"	--	--	"	
Duplicate (6031445-DUP1)					QC Source: P6C0765-02				Extracted: 03/30/06 10:55					
Arsenic	EPA 6020	39.6	0.415	0.485	mg/kg	1x	36.2	--	--	--	8.97%	(40)	04/01/06 03:45	
Barium	"	98.8	0.158	0.485	"	"	88.4	--	--	--	11.1%	"	"	
Cadmium	"	0.927	0.194	0.485	"	"	0.767	--	--	--	18.9%	"	"	
Chromium	"	87.6	0.483	0.485	"	"	80.7	--	--	--	8.20%	"	"	
Lead	"	112	0.100	0.485	"	"	101	--	--	--	10.3%	"	"	
Selenium	"	0.691	0.397	0.485	"	"	0.642	--	--	--	7.35%	"	"	
Silver	"	1.37	0.0358	0.485	"	"	1.23	--	--	--	10.8%	"	"	
Matrix Spike (6031445-MS1)					QC Source: P6C0765-02				Extracted: 03/30/06 10:55					
Arsenic	EPA 6020	47.4	0.407	0.476	mg/kg	1x	36.2	9.52	118%	(75-125)	--	--	04/01/06 04:11	
Barium	"	101	0.155	0.476	"	"	88.4	"	132%	"	--	--	"	Q-03
Cadmium	"	11.5	0.190	0.476	"	"	0.767	"	113%	"	--	--	"	
Chromium	"	96.0	0.474	0.476	"	"	80.7	"	161%	"	--	--	"	Q-03
Lead	"	115	0.0981	0.476	"	"	101	"	147%	"	--	--	"	Q-03
Selenium	"	5.44	0.390	0.476	"	"	0.642	4.76	101%	"	--	--	"	
Silver	"	6.38	0.0351	0.476	"	"	1.23	"	108%	"	--	--	"	

Amended Report

Joy D. Chang, Project Manager

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ANALYTICAL TESTING CORPORATION

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Metals per EPA 1311/6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031275 **Soil Preparation Method: EPA 1311/3005**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031275-BLK1)									Extracted: 03/27/06 16:31					
Arsenic	1311/6010B	ND	0.0147	1.00	mg/l	2x	--	--	--	--	--	--	03/29/06 16:01	U, D
Barium	"	0.00818	0.000500	2.00	"	"	--	--	--	--	--	--	"	J, D
Cadmium	"	ND	0.000500	0.200	"	"	--	--	--	--	--	--	"	U, D
Chromium	"	0.00140	0.00126	0.200	"	"	--	--	--	--	--	--	"	J, D
Lead	"	ND	0.00306	0.200	"	"	--	--	--	--	--	--	"	U, D
Selenium	"	0.0204	0.0155	1.00	"	"	--	--	--	--	--	--	"	J, D
Silver	"	ND	0.00306	0.200	"	"	--	--	--	--	--	--	"	U, D
LCS (6031275-BS1)									Extracted: 03/27/06 16:31					
Arsenic	1311/6010B	2.51	0.0147	1.00	mg/l	2x	--	1.99	126%	(75-125)	--	--	03/29/06 16:20	Q-29, D
Barium	"	0.996	0.000500	2.00	"	"	--	1.00	99.6%	"	--	--	"	J, D
Cadmium	"	0.376	0.000500	0.200	"	"	--	0.400	94.0%	"	--	--	"	D
Chromium	"	0.968	0.00126	0.200	"	"	--	1.00	96.8%	"	--	--	"	D
Lead	"	1.95	0.00306	0.200	"	"	--	2.00	97.5%	"	--	--	"	D
Selenium	"	2.07	0.0155	1.00	"	"	--	"	104%	"	--	--	"	D
Silver	"	0.966	0.00306	0.200	"	"	--	1.00	96.6%	"	--	--	"	D
Duplicate (6031275-DUP1)							QC Source: P6C0765-01			Extracted: 03/27/06 16:31				
Arsenic	1311/6010B	0.0481	0.0147	1.00	mg/l	2x	0.0535	--	--	--	10.6%	(20)	03/29/06 16:34	J, D
Barium	"	0.0572	0.000500	2.00	"	"	0.0570	--	--	--	0.350	"	"	J, D
Cadmium	"	0.00141	0.000500	0.200	"	"	0.00128	--	--	--	9.67%	"	"	J, D
Chromium	"	0.0167	0.00126	0.200	"	"	0.0169	--	--	--	1.19%	"	"	J, D
Lead	"	0.00790	0.00306	0.200	"	"	0.0110	--	--	--	32.8%	"	"	Q-06, J, D
Selenium	"	0.0852	0.0155	1.00	"	"	0.0736	--	--	--	14.6%	"	"	J, D
Silver	"	0.00997	0.00306	0.200	"	"	0.00938	--	--	--	6.10%	"	"	J, D
Matrix Spike (6031275-MS1)							QC Source: P6C0765-01			Extracted: 03/27/06 16:31				
Arsenic	1311/6010B	2.56	0.0147	1.00	mg/l	2x	0.0535	1.99	126%	(50-150)	--	--	03/29/06 16:40	D
Barium	"	1.03	0.000500	2.00	"	"	0.0570	1.00	97.3%	"	--	--	"	J, D
Cadmium	"	0.370	0.000500	0.200	"	"	0.00128	0.400	92.2%	"	--	--	"	D
Chromium	"	0.971	0.00126	0.200	"	"	0.0169	1.00	95.4%	"	--	--	"	D
Lead	"	1.92	0.00306	0.200	"	"	0.0110	2.00	95.4%	"	--	--	"	D
Selenium	"	2.10	0.0155	1.00	"	"	0.0736	"	101%	"	--	--	"	D
Silver	"	0.972	0.00306	0.200	"	"	0.00938	1.00	96.3%	(75-125)	--	--	"	D

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Metals per EPA 1311/6000/7000 Series Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031275 **Soil Preparation Method: EPA 1311/3005**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (6031275-MS2)					**QC Source: P6C0765-02**				**Extracted: 03/27/06 16:31**					
Arsenic	1311/6010B	2.51	0.0147	1.00	mg/l	2x	0.0296	1.99	125%	(50-150)	--	--	03/29/06 16:53	D
Barium	"	0.995	0.000500	2.00	"	"	0.0420	1.00	95.3%	"	--	--	"	J, D
Cadmium	"	0.367	0.000500	0.200	"	"	0.00358	0.400	90.9%	"	--	--	"	D
Chromium	"	0.945	0.00126	0.200	"	"	0.00763	1.00	93.7%	"	--	--	"	D
Lead	"	1.90	0.00306	0.200	"	"	ND	2.00	95.0%	"	--	--	"	D
Selenium	"	2.05	0.0155	1.00	"	"	0.0376	"	101%	"	--	--	"	D
Silver	"	0.948	0.00306	0.200	"	"	0.00549	1.00	94.3%	(75-125)	--	--	"	D

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AMEC- Portland	Project Name: **RP Sludge Sampling**	
7376 SW Durham Road	Project Number: 0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager: Marie Bevier	05/03/06 16:42

Total Mercury per EPA Method 7471A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6040083 **Soil Preparation Method: EPA 7471A**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6040083-BLK1)								**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	ND	0.0147	0.100	mg/kg wet	1x	--	--	--	--	--	--	04/04/06 10:21	U
LCS (6040083-BS1)								**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	1.01	0.0147	0.100	mg/kg wet	1x	--	1.00	101%	(80-120)	--	--	04/04/06 10:23	
LCS Dup (6040083-BSD1)								**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	1.05	0.0147	0.100	mg/kg wet	1x	--	1.00	105%	(80-120)	3.88%	(20)	04/04/06 10:26	
Duplicate (6040083-DUP1)					**QC Source: P6C1075-06**			**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	0.0722	0.0131	0.0889	mg/kg dry	1x	0.0805	--	--	--	10.9%	(40)	04/04/06 10:28	J
Matrix Spike (6040083-MS1)					**QC Source: P6C1075-06**			**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	0.967	0.0134	0.0913	mg/kg dry	1x	0.0805	0.913	97.1%	(75-125)	--	--	04/04/06 10:31	
Matrix Spike Dup (6040083-MSD1)					**QC Source: P6C1075-06**			**Extracted: 04/03/06 18:09**						
Mercury	EPA 7471A	1.09	0.0150	0.102	mg/kg dry	1x	0.0805	1.02	99.0%	(75-125)	12.0%	(40)	04/04/06 10:33	

Amended Report

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AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Mercury per EPA Methods 1311/7470A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6040183 **Soil Preparation Method: EPA 1311/7470A**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6040183-BLK1)								**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	ND	0.0000230	0.000200	mg/l	1x	--	--	--	--	--	--	04/05/06 17:39	U
LCS (6040183-BS1)								**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	0.00486	0.0000230	0.000200	mg/l	1x	--	0.00500	97.2%	(75-125)	--	--	04/05/06 17:41	
LCS Dup (6040183-BSD1)								**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	0.00485	0.0000230	0.000200	mg/l	1x	--	0.00500	97.0%	(75-125)	0.206	(20)	04/05/06 17:44	
Duplicate (6040183-DUP1)				**QC Source: P6C0765-01**				**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	0.0000665	0.0000230	0.000200	mg/l	1x	0.0000241	--	--	--	93.6%	(20)	04/05/06 17:51	Q-06, J
Duplicate (6040183-DUP2)				**QC Source: P6C0765-02**				**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	ND	0.0000230	0.000200	mg/l	1x	ND	--	--	--	NR	(20)	04/05/06 17:53	U
Matrix Spike (6040183-MS1)				**QC Source: P6C0765-01**				**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	0.00502	0.0000230	0.000200	mg/l	1x	0.0000241	0.00500	99.9%	(50-150)	--	--	04/05/06 17:47	
Matrix Spike (6040183-MS2)				**QC Source: P6C0765-02**				**Extracted: 04/05/06 14:14**						
Mercury	1311/7470A	0.00473	0.0000230	0.000200	mg/l	1x	ND	0.00500	94.6%	(50-150)	--	--	04/05/06 17:49	

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Organochlorine Pesticides per EPA Method 8081A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031196 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031196-BLK1)									**Extracted: 03/24/06 23:10**					
Aldrin	EPA 8081A	ND	0.249	0.498	ug/kg wet	1x	--	--	--	--	--	--	03/28/06 14:20	U
alpha-BHC	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
beta-BHC	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
delta-BHC	"	ND	0.498	0.995	"	"	--	--	--	--	--	--	"	U
gamma-BHC (Lindane)	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
alpha-Chlordane	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
gamma-Chlordane	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
4,4´-DDD	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
4,4´-DDE	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
4,4´-DDT	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Dieldrin	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endosulfan I	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endosulfan II	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endosulfan sulfate	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endrin	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endrin aldehyde	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Endrin ketone	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Heptachlor	"	ND	0.498	0.995	"	"	--	--	--	--	--	--	"	U
Heptachlor epoxide	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Hexachlorobenzene	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Methoxychlor	"	ND	0.249	0.498	"	"	--	--	--	--	--	--	"	U
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 88.0%*			*Limits: 63-119%*	"							*03/28/06 14:20*	
LCS (6031196-BS1)									**Extracted: 03/24/06 23:10**					
Aldrin	EPA 8081A	8.34	0.250	0.500	ug/kg wet	1x	--	9.99	83.5%	(64-136)	--	--	03/28/06 14:46	
alpha-BHC	"	8.64	0.250	0.500	"	"	--	"	86.5%	(40-150)	--	--	"	
beta-BHC	"	8.70	0.250	0.500	"	"	--	"	87.1%	"	--	--	"	
delta-BHC	"	8.74	0.500	0.999	"	"	--	"	87.5%	"	--	--	"	
gamma-BHC (Lindane)	"	8.57	0.250	0.500	"	"	--	"	85.8%	(62-140)	--	--	"	
alpha-Chlordane	"	9.02	0.250	0.500	"	"	--	"	90.3%	(40-150)	--	--	"	
gamma-Chlordane	"	8.61	0.250	0.500	"	"	--	"	86.2%	"	--	--	"	
4,4´-DDD	"	9.08	0.250	0.500	"	"	--	"	90.9%	"	--	--	"	
4,4´-DDE	"	9.03	0.250	0.500	"	"	--	"	90.4%	"	--	--	"	
4,4´-DDT	"	9.36	0.250	0.500	"	"	--	"	93.7%	(65-130)	--	--	"	
Dieldrin	"	8.64	0.250	0.500	"	"	--	"	86.5%	(70-135)	--	--	"	
Endosulfan I	"	8.99	0.250	0.500	"	"	--	"	90.0%	(40-150)	--	--	"	
Endosulfan II	"	9.17	0.250	0.500	"	"	--	"	91.8%	"	--	--	"	
Endosulfan sulfate	"	9.22	0.250	0.500	"	"	--	"	92.3%	"	--	--	"	
Endrin	"	9.02	0.250	0.500	"	"	--	"	90.3%	(65-135)	--	--	"	

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Organochlorine Pesticides per EPA Method 8081A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031196 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031196-BS1)								**Extracted: 03/24/06 23:10**						
Endrin aldehyde	EPA 8081A	8.32	0.250	0.500	ug/kg wet	1x	--	9.99	83.3%	(40-150)	--	--	03/28/06 14:46	
Endrin ketone	"	9.07	0.250	0.500	"	"	--	"	90.8%	"	--	--	"	
Heptachlor	"	8.75	0.500	0.999	"	"	--	"	87.6%	(48-124)	--	--	"	
Heptachlor epoxide	"	9.03	0.250	0.500	"	"	--	"	90.4%	(40-150)	--	--	"	
Methoxychlor	"	10.3	0.250	0.500	"	"	--	"	103%	"	--	--	"	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 94.4%*			*Limits: 63-119%*	"							*03/28/06 14:46*	
LCS Dup (6031196-BSD1)								**Extracted: 03/24/06 23:10**						
Aldrin	EPA 8081A	8.61	0.250	0.499	ug/kg wet	1x	--	9.99	86.2%	(64-136)	3.19%	(50)	03/28/06 15:11	
alpha-BHC	"	8.93	0.250	0.499	"	"	--	"	89.4%	(40-150)	3.30%	"	"	
beta-BHC	"	8.80	0.250	0.499	"	"	--	"	88.1%	"	1.14%	"	"	
delta-BHC	"	8.89	0.499	0.999	"	"	--	"	89.0%	"	1.70%	"	"	
gamma-BHC (Lindane)	"	8.85	0.250	0.499	"	"	--	"	88.6%	(62-140)	3.21%	"	"	
alpha-Chlordane	"	9.45	0.250	0.499	"	"	--	"	94.6%	(40-150)	4.66%	"	"	
gamma-Chlordane	"	8.82	0.250	0.499	"	"	--	"	88.3%	"	2.41%	"	"	
4,4´-DDD	"	9.06	0.250	0.499	"	"	--	"	90.7%	"	0.221	"	"	
4,4´-DDE	"	9.14	0.250	0.499	"	"	--	"	91.5%	"	1.21%	"	"	
4,4´-DDT	"	9.50	0.250	0.499	"	"	--	"	95.1%	(65-130)	1.48%	"	"	
Dieldrin	"	8.72	0.250	0.499	"	"	--	"	87.3%	(70-135)	0.922	"	"	
Endosulfan I	"	9.39	0.250	0.499	"	"	--	"	94.0%	(40-150)	4.35%	"	"	
Endosulfan II	"	9.30	0.250	0.499	"	"	--	"	93.1%	"	1.41%	"	"	
Endosulfan sulfate	"	9.44	0.250	0.499	"	"	--	"	94.5%	"	2.36%	"	"	
Endrin	"	9.27	0.250	0.499	"	"	--	"	92.8%	(65-135)	2.73%	"	"	
Endrin aldehyde	"	8.41	0.250	0.499	"	"	--	"	84.2%	(40-150)	1.08%	"	"	
Endrin ketone	"	9.34	0.250	0.499	"	"	--	"	93.5%	"	2.93%	"	"	
Heptachlor	"	9.02	0.499	0.999	"	"	--	"	90.3%	(48-124)	3.04%	"	"	
Heptachlor epoxide	"	9.39	0.250	0.499	"	"	--	"	94.0%	(40-150)	3.91%	"	"	
Methoxychlor	"	10.3	0.250	0.499	"	"	--	"	103%	"	0.00%	"	"	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 94.2%*			*Limits: 63-119%*	"							*03/28/06 15:11*	

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Chlorinated Herbicides per EPA Method 8151A Modified - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031472 **Other wet Preparation Method: 3545 ASE**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031472-BLK1)								**Extracted: 03/30/06 16:24**						
2,4-D	8151mod	ND	287	1500	ug/kg	1x	--	--	--	--	--	--	04/01/06 18:51	U
2,4-DB	"	ND	387	1500	"	"	--	--	--	--	--	--	"	U
2,4,5-T	"	ND	180	1500	"	"	--	--	--	--	--	--	"	U
2,4,5-TP (Silvex)	"	ND	158	1500	"	"	--	--	--	--	--	--	"	U
Dalapon	"	ND	336	1500	"	"	--	--	--	--	--	--	"	U
Dicamba	"	ND	210	1500	"	"	--	--	--	--	--	--	"	U
Dichlorprop	"	ND	167	1500	"	"	--	--	--	--	--	--	"	U
Dinoseb	"	ND	252	1500	"	"	--	--	--	--	--	--	"	U
MCPA	"	ND	23000	150000	"	"	--	--	--	--	--	--	"	U
MCPP	"	ND	23000	150000	"	"	--	--	--	--	--	--	"	U
Bromoxynil	"	ND	162	1500	"	"	--	--	--	--	--	--	"	U
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 75.6%*			*Limits: 20-150%*	"							*04/01/06 18:51*	
LCS (6031472-BS1)								**Extracted: 03/30/06 16:24**						
2,4-D	8151mod	58.5	28.7	1500	ug/kg	1x	--	100	58.5%	(40-160)	--	--	04/01/06 19:19	J
2,4-DB	"	69.6	38.7	1500	"	"	--	"	69.6%	"	--	--	"	J
2,4,5-T	"	57.7	18.0	1500	"	"	--	"	57.7%	"	--	--	"	J
2,4,5-TP (Silvex)	"	60.1	15.8	1500	"	"	--	"	60.1%	"	--	--	"	J
Dalapon	"	60.7	33.6	1500	"	"	--	"	60.7%	"	--	--	"	J
Dicamba	"	69.8	21.0	1500	"	"	--	"	69.8%	"	--	--	"	J
Dichlorprop	"	62.0	16.7	1500	"	"	--	"	62.0%	"	--	--	"	J
Dinoseb	"	38.4	25.2	1500	"	"	--	"	38.4%	(10-160)	--	--	"	J
MCPA	"	5520	2300	150000	"	"	--	10000	55.2%	(40-160)	--	--	"	J
MCPP	"	5900	2300	150000	"	"	--	"	59.0%	"	--	--	"	J
Bromoxynil	"	55.1	16.2	1500	"	"	--	100	55.1%	"	--	--	"	J
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 74.2%*			*Limits: 40-160%*	"							*04/01/06 19:19*	
LCS Dup (6031472-BSD1)								**Extracted: 03/30/06 16:24**						
2,4-D	8151mod	59.7	28.7	1500	ug/kg	1x	--	100	59.7%	(40-160)	2.03%	(40)	04/01/06 19:47	J
2,4-DB	"	66.2	38.7	1500	"	"	--	"	66.2%	"	5.01%	"	"	J
2,4,5-T	"	61.1	18.0	1500	"	"	--	"	61.1%	"	5.72%	"	"	J
2,4,5-TP (Silvex)	"	60.7	15.8	1500	"	"	--	"	60.7%	"	0.993	"	"	J
Dalapon	"	60.0	33.6	1500	"	"	--	"	60.0%	"	1.16%	"	"	J
Dicamba	"	72.3	21.0	1500	"	"	--	"	72.3%	"	3.52%	"	"	J
Dichlorprop	"	62.7	16.7	1500	"	"	--	"	62.7%	"	1.12%	"	"	J
Dinoseb	"	39.3	25.2	1500	"	"	--	"	39.3%	(10-160)	2.32%	"	"	J
MCPA	"	5380	2300	150000	"	"	--	10000	53.8%	(40-160)	2.57%	"	"	J
MCPP	"	5440	2300	150000	"	"	--	"	54.4%	"	8.11%	"	"	J
Bromoxynil	"	50.2	16.2	1500	"	"	--	100	50.2%	"	9.31%	"	"	J

TestAmerica - Portland, OR

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Chlorinated Herbicides per EPA Method 8151A Modified - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031472 **Other wet Preparation Method: 3545 ASE**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS Dup (6031472-BSD1)							**Extracted: 03/30/06 16:24**							
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 73.3%*			*Limits: 40-160%*	*1x*							*04/01/06 19:47*	

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031252-BLK1)							**Extracted: 03/27/06 12:44**							
Acetone	EPA 8260B	ND	599	2490	ug/kg wet	1x	--	--	--	--	--	--	03/27/06 17:12	U
Benzene	"	ND	4.22	99.7	"	"	--	--	--	--	--	--	"	U
Bromobenzene	"	ND	12.5	99.7	"	"	--	--	--	--	--	--	"	U
Bromochloromethane	"	ND	9.72	99.7	"	"	--	--	--	--	--	--	"	U
Bromodichloromethane	"	ND	10.2	99.7	"	"	--	--	--	--	--	--	"	U
Bromoform	"	ND	9.17	99.7	"	"	--	--	--	--	--	--	"	U
Bromomethane	"	ND	8.03	499	"	"	--	--	--	--	--	--	"	U
2-Butanone (MEK)	"	ND	25.3	997	"	"	--	--	--	--	--	--	"	U
n-Butylbenzene	"	ND	6.38	499	"	"	--	--	--	--	--	--	"	U
sec-Butylbenzene	"	ND	5.07	99.7	"	"	--	--	--	--	--	--	"	U
tert-Butylbenzene	"	ND	9.74	99.7	"	"	--	--	--	--	--	--	"	U
Carbon disulfide	"	ND	7.17	997	"	"	--	--	--	--	--	--	"	U
Carbon tetrachloride	"	ND	11.0	99.7	"	"	--	--	--	--	--	--	"	U
Chlorobenzene	"	ND	3.06	99.7	"	"	--	--	--	--	--	--	"	U
Chloroethane	"	ND	18.4	99.7	"	"	--	--	--	--	--	--	"	U
Chloroform	"	ND	5.42	99.7	"	"	--	--	--	--	--	--	"	U
Chloromethane	"	ND	6.97	499	"	"	--	--	--	--	--	--	"	U
2-Chlorotoluene	"	ND	5.92	99.7	"	"	--	--	--	--	--	--	"	U
4-Chlorotoluene	"	ND	4.33	99.7	"	"	--	--	--	--	--	--	"	U
1,2-Dibromo-3-chloropropane	"	ND	41.2	499	"	"	--	--	--	--	--	--	"	U
Dibromochloromethane	"	ND	7.40	99.7	"	"	--	--	--	--	--	--	"	U
1,2-Dibromoethane	"	ND	10.4	99.7	"	"	--	--	--	--	--	--	"	U
Dibromomethane	"	ND	4.74	99.7	"	"	--	--	--	--	--	--	"	U
1,2-Dichlorobenzene	"	ND	7.77	99.7	"	"	--	--	--	--	--	--	"	U
1,3-Dichlorobenzene	"	ND	6.23	99.7	"	"	--	--	--	--	--	--	"	U
1,4-Dichlorobenzene	"	ND	8.43	99.7	"	"	--	--	--	--	--	--	"	U
Dichlorodifluoromethane	"	ND	7.17	499	"	"	--	--	--	--	--	--	"	U
1,1-Dichloroethane	"	ND	6.70	99.7	"	"	--	--	--	--	--	--	"	U
1,2-Dichloroethane	"	ND	7.56	99.7	"	"	--	--	--	--	--	--	"	U
1,1-Dichloroethene	"	ND	12.0	99.7	"	"	--	--	--	--	--	--	"	U
cis-1,2-Dichloroethene	"	ND	10.8	99.7	"	"	--	--	--	--	--	--	"	U
trans-1,2-Dichloroethene	"	ND	5.84	99.7	"	"	--	--	--	--	--	--	"	U
1,2-Dichloropropane	"	ND	6.70	99.7	"	"	--	--	--	--	--	--	"	U
1,3-Dichloropropane	"	ND	6.63	99.7	"	"	--	--	--	--	--	--	"	U
2,2-Dichloropropane	"	ND	6.27	99.7	"	"	--	--	--	--	--	--	"	U
1,1-Dichloropropene	"	ND	7.89	99.7	"	"	--	--	--	--	--	--	"	U
cis-1,3-Dichloropropene	"	ND	4.59	99.7	"	"	--	--	--	--	--	--	"	U
trans-1,3-Dichloropropene	"	ND	5.84	99.7	"	"	--	--	--	--	--	--	"	U
Ethylbenzene	"	ND	2.82	99.7	"	"	--	--	--	--	--	--	"	U

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031252-BLK1)							**Extracted: 03/27/06 12:44**							
2-Ethyl-1-hexanol	EPA 8260B	ND	9970	9970	ug/kg wet	1x	--	--	--	--	--	--	03/27/06 17:12	U
Hexachlorobutadiene	"	ND	8.86	399	"	"	--	--	--	--	--	--	"	U
2-Hexanone	"	ND	28.2	997	"	"	--	--	--	--	--	--	"	U
Iodomethane	"	ND	135	1990	"	"	--	--	--	--	--	--	"	U
Isobutyl alcohol	"	ND	1440	9970	"	"	--	--	--	--	--	--	"	U
Isopropylbenzene	"	ND	7.40	199	"	"	--	--	--	--	--	--	"	U
p-Isopropyltoluene	"	ND	9.65	199	"	"	--	--	--	--	--	--	"	U
4-Methyl-2-pentanone	"	ND	19.0	499	"	"	--	--	--	--	--	--	"	U
Methylene chloride	"	ND	5.55	499	"	"	--	--	--	--	--	--	"	U
Naphthalene	"	ND	7.68	199	"	"	--	--	--	--	--	--	"	U
n-Propylbenzene	"	ND	7.01	99.7	"	"	--	--	--	--	--	--	"	U
Styrene	"	ND	3.13	99.7	"	"	--	--	--	--	--	--	"	U
1,1,1,2-Tetrachloroethane	"	ND	9.30	99.7	"	"	--	--	--	--	--	--	"	U
1,1,2,2-Tetrachloroethane	"	ND	11.4	99.7	"	"	--	--	--	--	--	--	"	U
Tetrachloroethene	"	ND	14.4	99.7	"	"	--	--	--	--	--	--	"	U
Toluene	"	ND	3.49	99.7	"	"	--	--	--	--	--	--	"	U
1,2,3-Trichlorobenzene	"	ND	9.35	199	"	"	--	--	--	--	--	--	"	U
1,2,4-Trichlorobenzene	"	ND	13.9	199	"	"	--	--	--	--	--	--	"	U
1,1,1-Trichloroethane	"	ND	5.02	99.7	"	"	--	--	--	--	--	--	"	U
1,1,2-Trichloroethane	"	ND	6.77	99.7	"	"	--	--	--	--	--	--	"	U
Trichloroethene	"	ND	7.24	99.7	"	"	--	--	--	--	--	--	"	U
Trichlorofluoromethane	"	ND	31.0	99.7	"	"	--	--	--	--	--	--	"	U
1,2,3-Trichloropropane	"	ND	6.45	99.7	"	"	--	--	--	--	--	--	"	U
1,2,4-Trimethylbenzene	"	ND	14.8	99.7	"	"	--	--	--	--	--	--	"	U
1,3,5-Trimethylbenzene	"	ND	8.18	99.7	"	"	--	--	--	--	--	--	"	U
Vinyl chloride	"	ND	7.46	99.7	"	"	--	--	--	--	--	--	"	U
o-Xylene	"	ND	6.45	99.7	"	"	--	--	--	--	--	--	"	U
m,p-Xylene	"	ND	17.7	199	"	"	--	--	--	--	--	--	"	U

Surrogate(s):	*4-BFB*	*Recovery: 96.9%*	*Limits: 43-130%*	*0.01x*	*03/27/06 17:12*
	1,2-DCA-d4	*106%*	*57-144%*	*"*	*"*
	Dibromofluoromethane	*102%*	*46-130%*	*"*	*"*
	Toluene-d8	*106%*	*42-144%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031252-BS1)								**Extracted: 03/27/06 12:44**						
Acetone	EPA 8260B	4250	600	2500	ug/kg wet	1x	--	3990	107%	(55-167)	--	--	03/27/06 17:39	
Benzene	"	2110	4.22	99.9	"	"	--	2000	106%	(70-130)	--	--	"	
Bromobenzene	"	2020	12.5	99.9	"	"	--	"	101%	"	--	--	"	
Bromochloromethane	"	2130	9.74	99.9	"	"	--	"	106%	"	--	--	"	
Bromodichloromethane	"	2230	10.2	99.9	"	"	--	"	112%	(70-141)	--	--	"	
Bromoform	"	1730	9.19	99.9	"	"	--	"	86.5%	(70-151)	--	--	"	
Bromomethane	"	1980	8.04	499	"	"	--	"	99.0%	(52-168)	--	--	"	
2-Butanone (MEK)	"	4230	25.4	999	"	"	--	3990	106%	(69-130)	--	--	"	
n-Butylbenzene	"	1930	6.39	499	"	"	--	2000	96.5%	(78-130)	--	--	"	
sec-Butylbenzene	"	1880	5.08	99.9	"	"	--	"	94.0%	(70-130)	--	--	"	
tert-Butylbenzene	"	1910	9.76	99.9	"	"	--	"	95.5%	"	--	--	"	
Carbon disulfide	"	4490	7.18	999	"	"	--	3990	113%	(68-130)	--	--	"	
Carbon tetrachloride	"	2210	11.0	99.9	"	"	--	2000	110%	(70-130)	--	--	"	
Chlorobenzene	"	2150	3.07	99.9	"	"	--	"	108%	"	--	--	"	
Chloroethane	"	2140	18.5	99.9	"	"	--	"	107%	"	--	--	"	
Chloroform	"	2230	5.43	99.9	"	"	--	"	112%	"	--	--	"	
Chloromethane	"	1950	6.98	499	"	"	--	"	97.5%	(42-150)	--	--	"	
2-Chlorotoluene	"	2030	5.93	99.9	"	"	--	"	102%	(70-120)	--	--	"	
4-Chlorotoluene	"	1930	4.33	99.9	"	"	--	"	96.5%	(70-130)	--	--	"	
1,2-Dibromo-3-chloropropane	"	1860	41.2	499	"	"	--	"	93.0%	(65-134)	--	--	"	
Dibromochloromethane	"	1800	7.41	99.9	"	"	--	"	90.0%	(70-130)	--	--	"	
1,2-Dibromoethane	"	2200	10.4	99.9	"	"	--	"	110%	"	--	--	"	
Dibromomethane	"	2090	4.74	99.9	"	"	--	"	104%	"	--	--	"	
1,2-Dichlorobenzene	"	2040	7.78	99.9	"	"	--	"	102%	"	--	--	"	
1,3-Dichlorobenzene	"	2080	6.24	99.9	"	"	--	"	104%	"	--	--	"	
1,4-Dichlorobenzene	"	1960	8.45	99.9	"	"	--	"	98.0%	"	--	--	"	
Dichlorodifluoromethane	"	2110	7.18	499	"	"	--	"	106%	"	--	--	"	
1,1-Dichloroethane	"	2130	6.71	99.9	"	"	--	"	106%	"	--	--	"	
1,2-Dichloroethane	"	2150	7.57	99.9	"	"	--	"	108%	"	--	--	"	
1,1-Dichloroethene	"	2110	12.0	99.9	"	"	--	"	106%	"	--	--	"	
cis-1,2-Dichloroethene	"	2100	10.8	99.9	"	"	--	"	105%	"	--	--	"	
trans-1,2-Dichloroethene	"	2050	5.85	99.9	"	"	--	"	102%	"	--	--	"	
1,2-Dichloropropane	"	2250	6.71	99.9	"	"	--	"	112%	"	--	--	"	
1,3-Dichloropropane	"	2180	6.64	99.9	"	"	--	"	109%	"	--	--	"	
2,2-Dichloropropane	"	2510	6.28	99.9	"	"	--	"	126%	(70-132)	--	--	"	
1,1-Dichloropropene	"	2260	7.90	99.9	"	"	--	"	113%	(70-130)	--	--	"	
cis-1,3-Dichloropropene	"	2150	4.59	99.9	"	"	--	"	108%	"	--	--	"	
trans-1,3-Dichloropropene	"	1960	5.85	99.9	"	"	--	"	98.0%	(70-137)	--	--	"	
Ethylbenzene	"	2000	2.83	99.9	"	"	--	"	100%	(70-130)	--	--	"	

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031252-BS1)								**Extracted: 03/27/06 12:44**						
2-Ethyl-1-hexanol	EPA 8260B	ND	9990	9990	ug/kg wet	1x	--	20000	NR	(60-140)	--	--	03/27/06 17:39	Q-27, U
Hexachlorobutadiene	"	1770	8.88	399	"	"	--	2000	88.5%	(68-132)	--	--	"	
2-Hexanone	"	3530	28.3	999	"	"	--	3990	88.5%	(56-130)	--	--	"	
Iodomethane	"	3270	135	2000	"	"	--	"	82.0%	(60-140)	--	--	"	
Isobutyl alcohol	"	23200	1440	9990	"	"	--	20000	116%	"	--	--	"	
Isopropylbenzene	"	2040	7.41	200	"	"	--	2000	102%	(70-130)	--	--	"	
p-Isopropyltoluene	"	2070	9.67	200	"	"	--	"	104%	"	--	--	"	
4-Methyl-2-pentanone	"	3980	19.1	499	"	"	--	3990	99.7%	(52-130)	--	--	"	
Methylene chloride	"	1950	5.56	499	"	"	--	2000	97.5%	(70-130)	--	--	"	
Naphthalene	"	1750	7.69	200	"	"	--	"	87.5%	(70-153)	--	--	"	
n-Propylbenzene	"	2090	7.02	99.9	"	"	--	"	104%	(70-130)	--	--	"	
Styrene	"	1940	3.14	99.9	"	"	--	"	97.0%	"	--	--	"	
1,1,1,2-Tetrachloroethane	"	1980	9.32	99.9	"	"	--	"	99.0%	(70-123)	--	--	"	
1,1,2,2-Tetrachloroethane	"	2190	11.4	99.9	"	"	--	"	110%	(70-139)	--	--	"	
Tetrachloroethene	"	2140	14.4	99.9	"	"	--	"	107%	(70-130)	--	--	"	
Toluene	"	2120	3.49	99.9	"	"	--	"	106%	"	--	--	"	
1,2,3-Trichlorobenzene	"	1770	9.37	200	"	"	--	"	88.5%	(70-148)	--	--	"	
1,2,4-Trichlorobenzene	"	1990	13.9	200	"	"	--	"	99.5%	(70-135)	--	--	"	
1,1,1-Trichloroethane	"	2210	5.03	99.9	"	"	--	"	110%	(70-130)	--	--	"	
1,1,2-Trichloroethane	"	2150	6.78	99.9	"	"	--	"	108%	"	--	--	"	
Trichloroethene	"	2070	7.25	99.9	"	"	--	"	104%	"	--	--	"	
Trichlorofluoromethane	"	2160	31.1	99.9	"	"	--	"	108%	"	--	--	"	
1,2,3-Trichloropropane	"	2040	6.46	99.9	"	"	--	"	102%	(70-133)	--	--	"	
1,2,4-Trimethylbenzene	"	1910	14.8	99.9	"	"	--	"	95.5%	(70-130)	--	--	"	
1,3,5-Trimethylbenzene	"	2070	8.19	99.9	"	"	--	"	104%	"	--	--	"	
Vinyl chloride	"	2140	7.47	99.9	"	"	--	"	107%	"	--	--	"	
o-Xylene	"	2010	6.46	99.9	"	"	--	"	100%	"	--	--	"	
m,p-Xylene	"	4030	17.8	200	"	"	--	3990	101%	"	--	--	"	

Surrogate(s):	*4-BFB*	*Recovery: 102%*	*Limits: 43-130%*	*0.01x*	*03/27/06 17:39*
	1,2-DCA-d4	*104%*	*57-144%*	*"*	*"*
	Dibromofluoromethane	*108%*	*46-130%*	*"*	*"*
	Toluene-d8	*105%*	*42-144%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (6031252-MS1)				**QC Source: P6C0765-01**				**Extracted: 03/27/06 12:44**						
Acetone	EPA 8260B	5250	599	2490	ug/kg wet	1x	ND	3990	132%	(60-143)	--	--	03/27/06 18:06	
Benzene	"	2190	4.22	99.7	"	"	ND	1990	110%	(70-130)	--	--	"	
Bromobenzene	"	2090	12.5	99.7	"	"	ND	"	105%	"	--	--	"	
Bromochloromethane	"	2200	9.72	99.7	"	"	ND	"	111%	"	--	--	"	
Bromodichloromethane	"	2330	10.2	99.7	"	"	ND	"	117%	(70-135)	--	--	"	
Bromoform	"	1900	9.17	99.7	"	"	ND	"	95.5%	(69-151)	--	--	"	
Bromomethane	"	2050	8.03	499	"	"	ND	"	103%	(31-155)	--	--	"	
2-Butanone (MEK)	"	5110	25.3	997	"	"	ND	3990	128%	(70-143)	--	--	"	
n-Butylbenzene	"	2050	6.38	499	"	"	ND	1990	103%	(70-140)	--	--	"	
sec-Butylbenzene	"	2050	5.07	99.7	"	"	ND	"	103%	(70-134)	--	--	"	
tert-Butylbenzene	"	2040	9.74	99.7	"	"	ND	"	103%	(70-132)	--	--	"	
Carbon disulfide	"	4670	7.17	997	"	"	ND	3990	117%	(40-167)	--	--	"	
Carbon tetrachloride	"	2420	11.0	99.7	"	"	ND	1990	122%	(70-130)	--	--	"	
Chlorobenzene	"	2210	3.06	99.7	"	"	ND	"	111%	(70-134)	--	--	"	
Chloroethane	"	2200	18.4	99.7	"	"	ND	"	111%	(70-130)	--	--	"	
Chloroform	"	2290	5.42	99.7	"	"	ND	"	115%	"	--	--	"	
Chloromethane	"	2000	6.97	499	"	"	ND	"	101%	(40-150)	--	--	"	
2-Chlorotoluene	"	2070	5.92	99.7	"	"	ND	"	104%	(70-130)	--	--	"	
4-Chlorotoluene	"	2010	4.33	99.7	"	"	ND	"	101%	"	--	--	"	
1,2-Dibromo-3-chloropropane	"	1980	41.2	499	"	"	ND	"	99.5%	(59-143)	--	--	"	
Dibromochloromethane	"	1940	7.40	99.7	"	"	ND	"	97.5%	(70-130)	--	--	"	
1,2-Dibromoethane	"	2310	10.4	99.7	"	"	ND	"	116%	"	--	--	"	
Dibromomethane	"	2210	4.74	99.7	"	"	ND	"	111%	(70-131)	--	--	"	
1,2-Dichlorobenzene	"	2000	7.77	99.7	"	"	ND	"	101%	(70-130)	--	--	"	
1,3-Dichlorobenzene	"	2190	6.23	99.7	"	"	ND	"	110%	"	--	--	"	
1,4-Dichlorobenzene	"	2040	8.43	99.7	"	"	ND	"	103%	"	--	--	"	
Dichlorodifluoromethane	"	2120	7.17	499	"	"	ND	"	107%	(63-134)	--	--	"	
1,1-Dichloroethane	"	2190	6.70	99.7	"	"	ND	"	110%	(70-130)	--	--	"	
1,2-Dichloroethane	"	2200	7.56	99.7	"	"	ND	"	111%	"	--	--	"	
1,1-Dichloroethene	"	2120	12.0	99.7	"	"	ND	"	107%	"	--	--	"	
cis-1,2-Dichloroethene	"	2130	10.8	99.7	"	"	ND	"	107%	(70-136)	--	--	"	
trans-1,2-Dichloroethene	"	2150	5.84	99.7	"	"	ND	"	108%	(70-130)	--	--	"	
1,2-Dichloropropane	"	2280	6.70	99.7	"	"	ND	"	115%	"	--	--	"	
1,3-Dichloropropane	"	2350	6.63	99.7	"	"	ND	"	118%	(70-132)	--	--	"	
2,2-Dichloropropane	"	2610	6.27	99.7	"	"	ND	"	131%	(70-143)	--	--	"	
1,1-Dichloropropene	"	2290	7.89	99.7	"	"	ND	"	115%	(70-130)	--	--	"	
cis-1,3-Dichloropropene	"	2280	4.59	99.7	"	"	ND	"	115%	"	--	--	"	
trans-1,3-Dichloropropene	"	2060	5.84	99.7	"	"	ND	"	104%	(70-135)	--	--	"	
Ethylbenzene	"	2060	2.82	99.7	"	"	ND	"	104%	(70-130)	--	--	"	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (6031252-MS1)				**QC Source: P6C0765-01**				**Extracted: 03/27/06 12:44**						
2-Ethyl-1-hexanol	EPA 8260B	18100	9970	9970	ug/kg wet	1x	ND	19900	91.0%	(60-140)	--	--	03/27/06 18:06	
Hexachlorobutadiene	"	1920	8.86	399	"	"	ND	1990	96.5%	(47-157)	--	--	"	
2-Hexanone	"	4560	28.2	997	"	"	ND	3990	114%	(63-152)	--	--	"	
Iodomethane	"	3710	135	1990	"	"	ND	"	93.0%	(60-140)	--	--	"	
Isobutyl alcohol	"	39200	1440	9970	"	"	ND	19900	197%	"	--	--	"	MS-3
Isopropylbenzene	"	2130	7.40	199	"	"	ND	1990	107%	(70-130)	--	--	"	
p-Isopropyltoluene	"	2230	9.65	199	"	"	ND	"	112%	(70-138)	--	--	"	
4-Methyl-2-pentanone	"	4400	19.0	499	"	"	ND	3990	110%	(59-151)	--	--	"	
Methylene chloride	"	2020	5.55	499	"	"	ND	1990	102%	(70-130)	--	--	"	
Naphthalene	"	2040	7.68	199	"	"	ND	"	103%	(69-163)	--	--	"	
n-Propylbenzene	"	2210	7.01	99.7	"	"	ND	"	111%	(70-133)	--	--	"	
Styrene	"	2040	3.13	99.7	"	"	ND	"	103%	(47-152)	--	--	"	
1,1,1,2-Tetrachloroethane	"	2080	9.30	99.7	"	"	ND	"	105%	(70-129)	--	--	"	
1,1,2,2-Tetrachloroethane	"	2340	11.4	99.7	"	"	ND	"	118%	(70-146)	--	--	"	
Tetrachloroethene	"	2200	14.4	99.7	"	"	ND	"	111%	(70-130)	--	--	"	
Toluene	"	2160	3.49	99.7	"	"	ND	"	109%	(70-131)	--	--	"	
1,2,3-Trichlorobenzene	"	2080	9.35	199	"	"	ND	"	105%	(70-154)	--	--	"	
1,2,4-Trichlorobenzene	"	2140	13.9	199	"	"	ND	"	108%	(70-148)	--	--	"	
1,1,1-Trichloroethane	"	2290	5.02	99.7	"	"	ND	"	115%	(70-130)	--	--	"	
1,1,2-Trichloroethane	"	2250	6.77	99.7	"	"	ND	"	113%	"	--	--	"	
Trichloroethene	"	2110	7.24	99.7	"	"	ND	"	106%	(68-130)	--	--	"	
Trichlorofluoromethane	"	2230	31.0	99.7	"	"	ND	"	112%	(70-130)	--	--	"	
1,2,3-Trichloropropane	"	2100	6.45	99.7	"	"	ND	"	106%	(70-131)	--	--	"	
1,2,4-Trimethylbenzene	"	2030	14.8	99.7	"	"	32.9	"	100%	(70-136)	--	--	"	
1,3,5-Trimethylbenzene	"	2190	8.18	99.7	"	"	13.0	"	109%	(70-141)	--	--	"	
Vinyl chloride	"	2140	7.46	99.7	"	"	ND	"	108%	(70-132)	--	--	"	
o-Xylene	"	2110	6.45	99.7	"	"	12.0	"	105%	(70-130)	--	--	"	
m,p-Xylene	"	4200	17.7	199	"	"	30.9	3990	104%	(70-134)	--	--	"	

Surrogate(s):	*4-BFB*	*Recovery: 103%*	*Limits: 43-130%*	*0.01x*	*03/27/06 18:06*
	1,2-DCA-d4	*107%*	*57-144%*	*"*	*"*
	Dibromofluoromethane	*107%*	*46-130%*	*"*	*"*
	Toluene-d8	*105%*	*42-144%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (6031252-MSD1)				**QC Source: P6C0765-01**				**Extracted: 03/27/06 12:44**						
Acetone	EPA 8260B	4900	599	2490	ug/kg wet	1x	ND	3990	123%	(60-143)	6.90%	(25)	03/27/06 18:33	
Benzene	"	2120	4.22	99.7	"	"	ND	1990	107%	(70-130)	3.25%	"	"	
Bromobenzene	"	2050	12.5	99.7	"	"	ND	"	103%	"	1.93%	"	"	
Bromochloromethane	"	2120	9.72	99.7	"	"	ND	"	107%	"	3.70%	"	"	
Bromodichloromethane	"	2290	10.2	99.7	"	"	ND	"	115%	(70-135)	1.73%	"	"	
Bromoform	"	1860	9.17	99.7	"	"	ND	"	93.5%	(69-151)	2.13%	"	"	
Bromomethane	"	1970	8.03	499	"	"	ND	"	99.0%	(31-155)	3.98%	"	"	
2-Butanone (MEK)	"	4570	25.3	997	"	"	ND	3990	115%	(70-143)	11.2%	"	"	
n-Butylbenzene	"	2050	6.38	499	"	"	ND	1990	103%	(70-140)	0.00%	"	"	
sec-Butylbenzene	"	1980	5.07	99.7	"	"	ND	"	99.5%	(70-134)	3.47%	"	"	
tert-Butylbenzene	"	1960	9.74	99.7	"	"	ND	"	98.5%	(70-132)	4.00%	"	"	
Carbon disulfide	"	4510	7.17	997	"	"	ND	3990	113%	(40-167)	3.49%	"	"	
Carbon tetrachloride	"	2310	11.0	99.7	"	"	ND	1990	116%	(70-130)	4.65%	"	"	
Chlorobenzene	"	2120	3.06	99.7	"	"	ND	"	107%	(70-134)	4.16%	"	"	
Chloroethane	"	2140	18.4	99.7	"	"	ND	"	108%	(70-130)	2.76%	"	"	
Chloroform	"	2220	5.42	99.7	"	"	ND	"	112%	"	3.10%	"	"	
Chloromethane	"	1940	6.97	499	"	"	ND	"	97.5%	(40-150)	3.05%	"	"	
2-Chlorotoluene	"	2000	5.92	99.7	"	"	ND	"	101%	(70-130)	3.44%	"	"	
4-Chlorotoluene	"	1990	4.33	99.7	"	"	ND	"	100%	"	1.00%	"	"	
1,2-Dibromo-3-chloropropane	"	2170	41.2	499	"	"	ND	"	109%	(59-143)	9.16%	"	"	
Dibromochloromethane	"	1920	7.40	99.7	"	"	ND	"	96.5%	(70-130)	1.04%	"	"	
1,2-Dibromoethane	"	2170	10.4	99.7	"	"	ND	"	109%	"	6.25%	"	"	
Dibromomethane	"	2150	4.74	99.7	"	"	ND	"	108%	(70-131)	2.75%	"	"	
1,2-Dichlorobenzene	"	2020	7.77	99.7	"	"	ND	"	102%	(70-130)	0.995	"	"	
1,3-Dichlorobenzene	"	2110	6.23	99.7	"	"	ND	"	106%	"	3.72%	"	"	
1,4-Dichlorobenzene	"	2000	8.43	99.7	"	"	ND	"	101%	"	1.98%	"	"	
Dichlorodifluoromethane	"	1990	7.17	499	"	"	ND	"	100%	(63-134)	6.33%	"	"	
1,1-Dichloroethane	"	2110	6.70	99.7	"	"	ND	"	106%	(70-130)	3.72%	"	"	
1,2-Dichloroethane	"	2150	7.56	99.7	"	"	ND	"	108%	"	2.30%	"	"	
1,1-Dichloroethene	"	2040	12.0	99.7	"	"	ND	"	103%	"	3.85%	"	"	
cis-1,2-Dichloroethene	"	2060	10.8	99.7	"	"	ND	"	104%	(70-136)	3.34%	"	"	
trans-1,2-Dichloroethene	"	2050	5.84	99.7	"	"	ND	"	103%	(70-130)	4.76%	"	"	
1,2-Dichloropropane	"	2240	6.70	99.7	"	"	ND	"	113%	"	1.77%	"	"	
1,3-Dichloropropane	"	2200	6.63	99.7	"	"	ND	"	111%	(70-132)	6.59%	"	"	
2,2-Dichloropropane	"	2490	6.27	99.7	"	"	ND	"	125%	(70-143)	4.71%	"	"	
1,1-Dichloropropene	"	2220	7.89	99.7	"	"	ND	"	112%	(70-130)	3.10%	"	"	
cis-1,3-Dichloropropene	"	2210	4.59	99.7	"	"	ND	"	111%	"	3.12%	"	"	
trans-1,3-Dichloropropene	"	2000	5.84	99.7	"	"	ND	"	101%	(70-135)	2.96%	"	"	
Ethylbenzene	"	2030	2.82	99.7	"	"	ND	"	102%	(70-130)	1.47%	"	"	

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Volatile Organic Compounds per EPA Method 8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031252 **Soil Preparation Method: EPA 5035 Modified**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (6031252-MSD1)					**QC Source: P6C0765-01**				**Extracted: 03/27/06 12:44**					
2-Ethyl-1-hexanol	EPA 8260B	14300	9970	9970	ug/kg wet	1x	ND	19900	71.9%	(60-140)	23.5%	(25)	03/27/06 18:33	
Hexachlorobutadiene	"	2020	8.86	399	"	"	ND	1990	102%	(47-157)	5.08%	"	"	
2-Hexanone	"	4370	28.2	997	"	"	ND	3990	110%	(63-152)	4.26%	"	"	
Iodomethane	"	3680	135	1990	"	"	ND	"	92.2%	(60-140)	0.812	"	"	
Isobutyl alcohol	"	40500	1440	9970	"	"	ND	19900	204%	"	3.26%	"	"	MS-3
Isopropylbenzene	"	2080	7.40	199	"	"	ND	1990	105%	(70-130)	2.38%	"	"	
p-Isopropyltoluene	"	2120	9.65	199	"	"	ND	"	107%	(70-138)	5.06%	"	"	
4-Methyl-2-pentanone	"	4170	19.0	499	"	"	ND	3990	105%	(59-151)	5.37%	"	"	
Methylene chloride	"	1940	5.55	499	"	"	ND	1990	97.5%	(70-130)	4.04%	"	"	
Naphthalene	"	2080	7.68	199	"	"	ND	"	105%	(69-163)	1.94%	"	"	
n-Propylbenzene	"	2150	7.01	99.7	"	"	ND	"	108%	(70-133)	2.75%	"	"	
Styrene	"	1980	3.13	99.7	"	"	ND	"	99.5%	(47-152)	2.99%	"	"	
1,1,1,2-Tetrachloroethane	"	2000	9.30	99.7	"	"	ND	"	101%	(70-129)	3.92%	"	"	
1,1,2,2-Tetrachloroethane	"	2290	11.4	99.7	"	"	ND	"	115%	(70-146)	2.16%	"	"	
Tetrachloroethene	"	2150	14.4	99.7	"	"	ND	"	108%	(70-130)	2.30%	"	"	
Toluene	"	2080	3.49	99.7	"	"	ND	"	105%	(70-131)	3.77%	"	"	
1,2,3-Trichlorobenzene	"	2010	9.35	199	"	"	ND	"	101%	(70-154)	3.42%	"	"	
1,2,4-Trichlorobenzene	"	2170	13.9	199	"	"	ND	"	109%	(70-148)	1.39%	"	"	
1,1,1-Trichloroethane	"	2270	5.02	99.7	"	"	ND	"	114%	(70-130)	0.877	"	"	
1,1,2-Trichloroethane	"	2190	6.77	99.7	"	"	ND	"	110%	"	2.70%	"	"	
Trichloroethene	"	2040	7.24	99.7	"	"	ND	"	103%	(68-130)	3.37%	"	"	
Trichlorofluoromethane	"	2140	31.0	99.7	"	"	ND	"	108%	(70-130)	4.12%	"	"	
1,2,3-Trichloropropane	"	2060	6.45	99.7	"	"	ND	"	104%	(70-131)	1.92%	"	"	
1,2,4-Trimethylbenzene	"	2000	14.8	99.7	"	"	32.9	"	98.8%	(70-136)	1.49%	"	"	
1,3,5-Trimethylbenzene	"	2140	8.18	99.7	"	"	13.0	"	107%	(70-141)	2.31%	"	"	
Vinyl chloride	"	1960	7.46	99.7	"	"	ND	"	98.5%	(70-132)	8.78%	"	"	
o-Xylene	"	2030	6.45	99.7	"	"	12.0	"	101%	(70-130)	3.86%	"	"	
m,p-Xylene	"	4090	17.7	199	"	"	30.9	3990	102%	(70-134)	2.65%	"	"	

Surrogate(s):	*4-BFB*	*Recovery: 102%*	*Limits: 43-130%*	*0.01x*	*03/27/06 18:33*
	1,2-DCA-d4	*106%*	*57-144%*	*"*	*"*
	Dibromofluoromethane	*108%*	*46-130%*	*"*	*"*
	Toluene-d8	*103%*	*42-144%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031197 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031197-BLK1)								**Extracted: 03/24/06 23:30**						
4-Chloro-3-methylphenol	EPA 8270C	ND	0.0694	0.327	mg/kg wet	1x	--	--	--	--	--	--	03/27/06 23:16	U
2-Chlorophenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
2,4-Dichlorophenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
2,6-Dichlorophenol	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
2,4-Dimethylphenol	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
4,6-Dinitro-2-methylphenol	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
2,4-Dinitrophenol	"	ND	0.496	1.98	"	"	--	--	--	--	--	--	"	U
Dinoseb	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
2-Methylphenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
3-,4-Methylphenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
2-Nitrophenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
4-Nitrophenol	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
Pentachlorophenol	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
Phenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
Tetrachlorophenols (2)	"	ND	0.496	0.991	"	"	--	--	--	--	--	--	"	U
2,4,5-Trichlorophenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
2,4,6-Trichlorophenol	"	ND	0.0694	0.327	"	"	--	--	--	--	--	--	"	U
Surrogate(s): 2-Fluorophenol		*Recovery: 67.5%*			*Limits: 27-112%*	"							*03/27/06 23:16*	
Phenol-d6		*71.0%*			*23-113%*	"							"	
2,4,6-Tribromophenol		*71.6%*			*25-130%*	"							"	
LCS (6031197-BS1)								**Extracted: 03/24/06 23:30**						
4-Chloro-3-methylphenol	EPA 8270C	1.61	0.0700	0.330	mg/kg wet	1x	--	1.67	96.4%	(22-147)	--	--	03/27/06 18:41	
2-Chlorophenol	"	1.37	0.0700	0.330	"	"	--	"	82.0%	(23-134)	--	--	"	
2,4-Dichlorophenol	"	1.55	0.0700	0.330	"	"	--	"	92.8%	(20-150)	--	--	"	
2,6-Dichlorophenol	"	1.58	0.500	1.00	"	"	--	"	94.6%	"	--	--	"	
2,4-Dimethylphenol	"	1.38	0.500	1.00	"	"	--	"	82.6%	"	--	--	"	
4,6-Dinitro-2-methylphenol	"	1.33	0.500	1.00	"	"	--	"	79.6%	(10-150)	--	--	"	
2,4-Dinitrophenol	"	0.732	0.500	2.00	"	"	--	"	43.8%	"	--	--	"	J
2-Methylphenol	"	1.48	0.0700	0.330	"	"	--	"	88.6%	(20-150)	--	--	"	
3-,4-Methylphenol	"	1.54	0.0700	0.330	"	"	--	"	92.2%	"	--	--	"	
2-Nitrophenol	"	1.44	0.0700	0.330	"	"	--	"	86.2%	"	--	--	"	
4-Nitrophenol	"	1.52	0.500	1.00	"	"	--	"	91.0%	(0-132)	--	--	"	
Pentachlorophenol	"	1.23	0.500	1.00	"	"	--	"	73.7%	(14-176)	--	--	"	
Phenol	"	1.55	0.0700	0.330	"	"	--	"	92.8%	(5-112)	--	--	"	
Tetrachlorophenols (2)	"	1.40	0.500	1.00	"	"	--	"	83.8%	(20-150)	--	--	"	
2,4,5-Trichlorophenol	"	1.42	0.0700	0.330	"	"	--	"	85.0%	"	--	--	"	
2,4,6-Trichlorophenol	"	1.40	0.0700	0.330	"	"	--	"	83.8%	"	--	--	"	
Surrogate(s): 2-Fluorophenol		*Recovery: 69.2%*			*Limits: 27-112%*	"							*03/27/06 18:41*	
Phenol-d6		*74.2%*			*23-113%*	"							"	

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Semivolatile Organic Compounds per EPA Method 8270C - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031197 **Soil Preparation Method: EPA 3550**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031197-BS1)								**Extracted: 03/24/06 23:30**						
Surrogate(s): 2,4,6-Tribromophenol		*Recovery: 79.8%*			*Limits: 25-130%*	*1x*							*03/27/06 18:41*	
LCS Dup (6031197-BSD1)								**Extracted: 03/24/06 23:30**						
4-Chloro-3-methylphenol	EPA 8270C	1.67	0.0699	0.330	mg/kg wet	1x	--	1.67	100%	(22-147)	3.66%	(60)	03/27/06 19:23	
2-Chlorophenol	"	1.46	0.0699	0.330	"	"	--	"	87.4%	(23-134)	6.36%	"	"	
2,4-Dichlorophenol	"	1.61	0.0699	0.330	"	"	--	"	96.4%	(20-150)	3.80%	"	"	
2,6-Dichlorophenol	"	1.66	0.500	0.999	"	"	--	"	99.4%	"	4.94%	"	"	
2,4-Dimethylphenol	"	1.46	0.500	0.999	"	"	--	"	87.4%	"	5.63%	"	"	
4,6-Dinitro-2-methylphenol	"	1.56	0.500	0.999	"	"	--	"	93.4%	(10-150)	15.9%	"	"	
2,4-Dinitrophenol	"	1.04	0.500	2.00	"	"	--	"	62.3%	"	34.8%	"	"	J
2-Methylphenol	"	1.53	0.0699	0.330	"	"	--	"	91.6%	(20-150)	3.32%	"	"	
3-,4-Methylphenol	"	1.61	0.0699	0.330	"	"	--	"	96.4%	"	4.44%	"	"	
2-Nitrophenol	"	1.48	0.0699	0.330	"	"	--	"	88.6%	"	2.74%	"	"	
4-Nitrophenol	"	1.68	0.500	0.999	"	"	--	"	101%	(0-132)	10.0%	"	"	
Pentachlorophenol	"	1.41	0.500	0.999	"	"	--	"	84.4%	(14-176)	13.6%	"	"	
Phenol	"	1.67	0.0699	0.330	"	"	--	"	100%	(5-112)	7.45%	"	"	
Tetrachlorophenols (2)	"	1.47	0.500	0.999	"	"	--	"	88.0%	(20-150)	4.88%	"	"	
2,4,5-Trichlorophenol	"	1.49	0.0699	0.330	"	"	--	"	89.2%	"	4.81%	"	"	
2,4,6-Trichlorophenol	"	1.42	0.0699	0.330	"	"	--	"	85.0%	"	1.42%	"	"	
Surrogate(s): 2-Fluorophenol		*Recovery: 80.4%*			*Limits: 27-112%*	*"*							*03/27/06 19:23*	
Phenol-d6		*85.4%*			*23-113%*	*"*							*"*	
2,4,6-Tribromophenol		*92.0%*			*25-130%*	*"*							*"*	

Amended Report

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Pesticides per EPA Method 1311/8081A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031341 **Other wet Preparation Method: EPA 1311/3010**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031341-BLK1)								**Extracted: 03/28/06 22:20**						
Endosulfan sulfate	1311/8081A	ND	0.000400	0.000400	mg/l	1x	--	--	--	--	--	--	03/31/06 21:04	A-07, U
4,4´-DDD	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	A-07, U
gamma-BHC (Lindane)	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	U
Chlordane (tech)	"	ND	0.00500	0.00500	"	"	--	--	--	--	--	--	"	U
Endrin	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	U
Heptachlor	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	U
Heptachlor epoxide	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	U
Methoxychlor	"	ND	0.000400	0.000400	"	"	--	--	--	--	--	--	"	U
Toxaphene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 93.5%*			*Limits: 30-140%*	"							*03/31/06 21:04*	
LCS (6031341-BS1)								**Extracted: 03/28/06 22:20**						
Chlordane (tech)	1311/8081A	0.0160	0.00500	0.00500	mg/l	1x	--	0.0200	80.0%	(50-150)	--	--	03/31/06 12:53	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 97.5%*			*Limits: 30-140%*	"							*03/31/06 12:53*	
LCS (6031341-BS2)								**Extracted: 03/28/06 22:20**						
gamma-BHC (Lindane)	1311/8081A	0.000942	0.000400	0.000400	mg/l	1x	--	0.00100	94.2%	(50-150)	--	--	03/31/06 13:45	
Endrin	"	0.000915	0.000400	0.000400	"	"	--	"	91.5%	"	--	--	"	
Heptachlor	"	0.000851	0.000400	0.000400	"	"	--	"	85.1%	"	--	--	"	
Heptachlor epoxide	"	0.000971	0.000400	0.000400	"	"	--	"	97.1%	"	--	--	"	
Methoxychlor	"	0.000909	0.000400	0.000400	"	"	--	"	90.9%	"	--	--	"	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 99.5%*			*Limits: 30-140%*	"							*03/31/06 13:45*	
LCS (6031341-BS3)								**Extracted: 03/28/06 22:20**						
Toxaphene	1311/8081A	0.0137	0.0100	0.0100	mg/l	1x	--	0.0200	68.5%	(50-150)	--	--	04/03/06 16:51	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 83.0%*			*Limits: 30-140%*	"							*04/03/06 16:51*	
Decachlorobiphenyl		*74.5%*			*20-120%*	"							"	
Duplicate (6031341-DUP1)							**QC Source: P6C0765-02**						**Extracted: 03/28/06 22:20**	
Endosulfan sulfate	1311/8081A	ND	0.000400	0.000400	mg/l	1x	ND	--	--	--	NR		03/31/06 23:36	A-07, U
4,4´-DDD	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR		"	A-07, U
gamma-BHC (Lindane)	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR		"	U
Chlordane (tech)	"	ND	0.00500	0.00500	"	"	ND	--	--	--	NR	"	"	U
Endrin	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR	"	"	U
Heptachlor	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR	"	"	U
Heptachlor epoxide	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR	"	"	U
Methoxychlor	"	ND	0.000400	0.000400	"	"	ND	--	--	--	NR	"	"	U
Toxaphene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 94.0%*			*Limits: 30-140%*	"							*03/31/06 23:36*	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Pesticides per EPA Method 1311/8081A - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031341 **Other wet Preparation Method: EPA 1311/3010**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike (6031341-MS1)					**QC Source: P6C0765-02**				**Extracted: 03/28/06 22:20**					
gamma-BHC (Lindane)	1311/8081A	0.000879	0.000400	0.000400	mg/l	1x	ND	0.00100	87.9%	(50-150)	--	--	04/03/06 16:26	
Endrin	"	0.000858	0.000400	0.000400	"	"	ND	"	85.8%	"	--	--	"	
Heptachlor	"	0.000796	0.000400	0.000400	"	"	ND	"	79.6%	"	--	--	"	
Heptachlor epoxide	"	0.000914	0.000400	0.000400	"	"	ND	"	91.4%	"	--	--	"	
Methoxychlor	"	0.000723	0.000400	0.000400	"	"	ND	"	72.3%	"	--	--	"	
Surrogate(s): 2,4,5,6-Tetrachloro-m-xylene		*Recovery: 92.0%*			*Limits: 30-140%*	"							*04/03/06 16:26*	
Decachlorobiphenyl		*53.5%*			*20-120%*	"							"	

Amended Report

Joy D. Chang, Project Manager

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PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Herbicides per EPA Method 1311/8151 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031298 **Water Preparation Method: EPA 3510/600 Series**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031298-BLK1)								**Extracted: 03/28/06 08:59**						
2,4-D	1311/8151	ND	0.000160	0.00100	mg/l	1x	--	--	--	--	--	--	04/01/06 06:27	Q-28, U
2,4,5-TP (Silvex)	"	ND	0.000230	0.00100	"	"	--	--	--	--	--	--	"	U
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 102%*			*Limits: 20-150%*	"							*04/01/06 06:27*	
LCS (6031298-BS1)								**Extracted: 03/28/06 08:59**						
2,4-D	1311/8151	0.0250	0.000160	0.00100	mg/l	1x	--	0.0200	125%	(30-150)	--	--	04/01/06 06:54	Q-28
2,4,5-TP (Silvex)	"	0.0184	0.000230	0.00100	"	"	--	"	92.0%	"	--	--	"	
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 101%*			*Limits: 20-150%*	"							*04/01/06 06:54*	
LCS Dup (6031298-BSD1)								**Extracted: 03/28/06 08:59**						
2,4-D	1311/8151	0.0251	0.000160	0.00100	mg/l	1x	--	0.0200	126%	(30-150)	0.399	(50)	04/01/06 07:22	Q-28
2,4,5-TP (Silvex)	"	0.0191	0.000230	0.00100	"	"	--	"	95.5%	"	3.73%	"	"	
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 104%*			*Limits: 20-150%*	"							*04/01/06 07:22*	
Matrix Spike (6031298-MS1)							**QC Source: P6C0765-01**	**Extracted: 03/28/06 08:59**						
2,4-D	1311/8151	0.0271	0.000160	0.00100	mg/l	1x	0.00600	0.0200	106%	(30-150)	--	--	04/01/06 08:45	Q-28
2,4,5-TP (Silvex)	"	0.0132	0.000230	0.00100	"	"	ND	"	66.0%	"	--	--	"	
Surrogate(s): 2,4-Dichlorophenylacetic acid		*Recovery: 104%*			*Limits: 20-150%*	"							*04/01/06 08:45*	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031331 **Water Preparation Method: EPA 1311/5030**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031331-BLK1)									Extracted: 03/28/06 14:11					
Acetone	1311/8260B	ND	0.250	0.500	mg/l	1x	--	--	--	--	--	--	03/29/06 13:05	U
Benzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Bromobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Bromochloromethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Bromodichloromethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Bromoform	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Bromomethane	"	ND	0.0500	0.100	"	"	--	--	--	--	--	--	"	U
n-Butylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
sec-Butylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
tert-Butylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Carbon Tetrachloride	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Chlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Chloroethane	"	ND	0.00250	0.0500	"	"	--	--	--	--	--	--	"	U
Chloroform	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Chloromethane	"	ND	0.0500	0.100	"	"	--	--	--	--	--	--	"	U
2-Chlorotoluene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
4-Chlorotoluene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2-Dibromo-3-chloropropane	"	ND	0.0250	0.0500	"	"	--	--	--	--	--	--	"	U
Dibromochloromethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2-Dibromoethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Dibromomethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2-Dichlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,3-Dichlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,4-Dichlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Dichlorodifluoromethane	"	ND	0.0500	0.100	"	"	--	--	--	--	--	--	"	U
1,1-Dichloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2-Dichloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1-Dichloroethene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
cis-1,2-Dichloroethene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
trans-1,2-Dichloroethene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2-Dichloropropane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,3-Dichloropropane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
2,2-Dichloropropane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1-Dichloropropene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
cis-1,3-Dichloropropene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
trans-1,3-Dichloropropene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Ethylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Hexachlorobutadiene	"	ND	0.0250	0.0500	"	"	--	--	--	--	--	--	"	U
2-Hexanone	"	ND	0.0500	0.100	"	"	--	--	--	--	--	--	"	U

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031331 **Water Preparation Method: EPA 1311/5030**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031331-BLK1)							**Extracted: 03/28/06 14:11**							
Isopropylbenzene	1311/8260B	ND	0.0100	0.0200	mg/l	1x	--	--	--	--	--	--	03/29/06 13:05	U
p-Isopropyltoluene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
4-Methyl-2-pentanone	"	ND	0.100	0.200	"	"	--	--	--	--	--	--	"	U
2-Butanone (MEK)	"	ND	0.0250	0.500	"	"	--	--	--	--	--	--	"	U
Methylene chloride	"	ND	0.250	0.500	"	"	--	--	--	--	--	--	"	U
Methyl tert-butyl ether	"	ND	0.865	10.0	"	"	--	--	--	--	--	--	"	U
Naphthalene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
n-Propylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Styrene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1,1,2-Tetrachloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1,2,2-Tetrachloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Tetrachloroethene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Toluene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2,3-Trichlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2,4-Trichlorobenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1,1-Trichloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,1,2-Trichloroethane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Trichloroethene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Trichlorofluoromethane	"	ND	0.0250	0.0500	"	"	--	--	--	--	--	--	"	U
1,2,3-Trichloropropane	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,2,4-Trimethylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
1,3,5-Trimethylbenzene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
Vinyl chloride	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
o-Xylene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U
m,p-Xylene	"	ND	0.0100	0.0200	"	"	--	--	--	--	--	--	"	U

Surrogate(s):	*4-BFB*	*Recovery: 95.5%*	*Limits: 75-130%*	*0.1x*	*03/29/06 13:05*
	Dibromofluoromethane	*102%*	*75-130%*	*"*	*"*
	Toluene-d8	*106%*	*75-130%*	*"*	*"*
	1,2-DCA-d4	*108%*	*79-123%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031331 **Water Preparation Method: EPA 1311/5030**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031331-BS1)								**Extracted: 03/28/06 14:11**						
Benzene	1311/8260B	0.219	0.0100	0.0200	mg/l	1x	--	0.200	110%	(66-142)	--	--	03/28/06 19:04	
Carbon Tetrachloride	"	0.240	0.0100	0.0200	"	"	--	"	120%	(50-150)	--	--	"	
Chlorobenzene	"	0.224	0.0100	0.0200	"	"	--	"	112%	(60-133)	--	--	"	
Chloroform	"	0.233	0.0100	0.0200	"	"	--	"	116%	(50-150)	--	--	"	
1,4-Dichlorobenzene	"	0.190	0.0100	0.0200	"	"	--	"	95.0%	"	--	--	"	
1,2-Dichloroethane	"	0.231	0.0100	0.0200	"	"	--	"	116%	"	--	--	"	
1,1-Dichloroethene	"	0.208	0.0100	0.0200	"	"	--	"	104%	(59-172)	--	--	"	
2-Butanone (MEK)	"	0.470	0.0250	0.500	"	"	--	0.400	118%	(40-180)	--	--	"	J
Tetrachloroethene	"	0.223	0.0100	0.0200	"	"	--	0.200	112%	(50-150)	--	--	"	
Trichloroethene	"	0.211	0.0100	0.0200	"	"	--	"	106%	(62-137)	--	--	"	
Vinyl chloride	"	0.0919	0.0100	0.0200	"	"	--	"	46.0%	(40-180)	--	--	"	
Surrogate(s):	*4-BFB*	*Recovery:*	*96.5%*		*Limits:*	*75-130%*	*0.1x*						*03/28/06 19:04*	
	Dibromofluoromethane		*110%*			*75-130%*	*"*						*"*	
	Toluene-d8		*106%*			*75-130%*	*"*						*"*	
	1,2-DCA-d4		*110%*			*79-123%*	*"*						*"*	
Matrix Spike (6031331-MS1)					**QC Source: P6C0765-01**			**Extracted: 03/28/06 14:11**						
Benzene	1311/8260B	0.216	0.0100	0.0200	mg/l	1x	ND	0.200	108%	(66-142)	--	--	03/28/06 19:31	
Carbon Tetrachloride	"	0.238	0.0100	0.0200	"	"	ND	"	119%	(50-150)	--	--	"	
Chlorobenzene	"	0.226	0.0100	0.0200	"	"	ND	"	113%	(60-133)	--	--	"	
Chloroform	"	0.236	0.0100	0.0200	"	"	ND	"	118%	(50-150)	--	--	"	
1,4-Dichlorobenzene	"	0.194	0.0100	0.0200	"	"	ND	"	97.0%	"	--	--	"	
1,2-Dichloroethane	"	0.235	0.0100	0.0200	"	"	ND	"	118%	"	--	--	"	
1,1-Dichloroethene	"	0.206	0.0100	0.0200	"	"	ND	"	103%	(59-172)	--	--	"	
2-Butanone (MEK)	"	0.505	0.0250	0.500	"	"	ND	0.400	126%	(40-180)	--	--	"	
Tetrachloroethene	"	0.219	0.0100	0.0200	"	"	ND	0.200	110%	(50-150)	--	--	"	
Trichloroethene	"	0.205	0.0100	0.0200	"	"	ND	"	102%	(62-137)	--	--	"	
Vinyl chloride	"	0.191	0.0100	0.0200	"	"	ND	"	95.5%	(40-180)	--	--	"	
Surrogate(s):	*4-BFB*	*Recovery:*	*98.0%*		*Limits:*	*75-130%*	*0.1x*						*03/28/06 19:31*	
	Dibromofluoromethane		*108%*			*75-130%*	*"*						*"*	
	Toluene-d8		*106%*			*75-130%*	*"*						*"*	
	1,2-DCA-d4		*112%*			*79-123%*	*"*						*"*	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Volatile Organic Compounds per EPA Method 1311/8260B - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031331 **Water Preparation Method: EPA 1311/5030**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Matrix Spike Dup (6031331-MSD1)					**QC Source: P6C0765-01**				**Extracted: 03/28/06 14:11**					
Benzene	1311/8260B	0.217	0.0100	0.0200	mg/l	1x	ND	0.200	108%	(66-142)	0.462	(21)	03/28/06 19:58	
Carbon Tetrachloride	"	0.226	0.0100	0.0200	"	"	ND	"	113%	(50-150)	5.17%	(40)	"	
Chlorobenzene	"	0.230	0.0100	0.0200	"	"	ND	"	115%	(60-133)	1.75%	(21)	"	
Chloroform	"	0.236	0.0100	0.0200	"	"	ND	"	118%	(50-150)	0.00%	(40)	"	
1,4-Dichlorobenzene	"	0.198	0.0100	0.0200	"	"	ND	"	99.0%	"	2.04%	"	"	
1,2-Dichloroethane	"	0.230	0.0100	0.0200	"	"	ND	"	115%	"	2.15%	"	"	
1,1-Dichloroethene	"	0.211	0.0100	0.0200	"	"	ND	"	106%	(59-172)	2.40%	(22)	"	
2-Butanone (MEK)	"	0.488	0.0250	0.500	"	"	ND	0.400	122%	(40-180)	3.42%	(50)	"	J
Tetrachloroethene	"	0.218	0.0100	0.0200	"	"	ND	0.200	109%	(50-150)	0.458	"	"	
Trichloroethene	"	0.210	0.0100	0.0200	"	"	ND	"	105%	(62-137)	2.41%	(24)	"	
Vinyl chloride	"	0.212	0.0100	0.0200	"	"	ND	"	106%	(40-180)	10.4%	(50)	"	

Surrogate(s):	*4-BFB*	*Recovery:*	*104%*	*Limits: 75-130%*	*0.1x*	*03/28/06 19:58*
	Dibromofluoromethane		*112%*	*75-130%*	*"*	*"*
	Toluene-d8		*108%*	*75-130%*	*"*	*"*
	1,2-DCA-d4		*111%*	*79-123%*	*"*	*"*

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031342 **Other wet Preparation Method: EPA 3510/600**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031342-BLK1)								**Extracted: 03/28/06 20:00**						
Pyridine	1311/8270	ND	0.200	0.200	mg/l	1x	--	--	--	--	--	--	03/29/06 18:55	U
Phenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Bis(2-chloroethyl)ether	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2-Chlorophenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
1,3-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
1,4-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzyl alcohol	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
1,2-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Total Cresols	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
Bis(2-chloroisopropyl)ether	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
N-Nitrosodi-n-propylamine	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Hexachloroethane	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Nitrobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Isophorone	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2-Nitrophenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,4-Dimethylphenol	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
Bis(2-chloroethoxy)methane	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzoic acid	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
2,4-Dichlorophenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
1,2,4-Trichlorobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Naphthalene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
4-Chloroaniline	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
Hexachlorobutadiene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
4-Chloro-3-methylphenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2-Methylnaphthalene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Hexachlorocyclopentadiene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,4,6-Trichlorophenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,4,5-Trichlorophenol	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2-Chloronaphthalene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2-Nitroaniline	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
Dimethyl phthalate	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Acenaphthylene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,6-Dinitrotoluene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
3-Nitroaniline	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
Acenaphthene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,4-Dinitrophenol	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
4-Nitrophenol	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
Dibenzofuran	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
2,4-Dinitrotoluene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031342 **Other wet Preparation Method: EPA 3510/600**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031342-BLK1)							**Extracted: 03/28/06 20:00**							
Diethyl phthalate	1311/8270	ND	0.0500	0.0500	mg/l	1x	--	--	--	--	--	--	03/29/06 18:55	U
Fluorene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
4-Chlorophenyl phenyl ether	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
4-Nitroaniline	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
4,6-Dinitro-2-methylphenol	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
N-Nitrosodiphenylamine	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
4-Bromophenyl phenyl ether	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Hexachlorobenzene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Pentachlorophenol	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
Phenanthrene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Anthracene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Di-n-butyl phthalate	"	ND	0.100	0.100	"	"	--	--	--	--	--	--	"	U
Fluoranthene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Pyrene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Butyl benzyl phthalate	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzo (a) anthracene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
3,3´-Dichlorobenzidine	"	ND	0.200	0.200	"	"	--	--	--	--	--	--	"	U
Chrysene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Bis(2-ethylhexyl)phthalate	"	1.03	0.800	0.800	"	4x	--	--	--	--	--	--	04/01/06 01:36	A-01, D
Di-n-octyl phthalate	"	ND	0.0500	0.0500	"	1x	--	--	--	--	--	--	03/29/06 18:55	U
Benzo (b) fluoranthene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzo (k) fluoranthene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzo (a) pyrene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Indeno (1,2,3-cd) pyrene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Dibenzo (a,h) anthracene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U
Benzo (ghi) perylene	"	ND	0.0500	0.0500	"	"	--	--	--	--	--	--	"	U

Surrogate(s):	*2-Fluorophenol*	*Recovery: 45.8%*	*Limits: 7-116%*	"	*03/29/06 18:55*
	Phenol-d6	*30.5%*	*1-114%*	"	"
	Nitrobenzene-d5	*93.0%*	*29-140%*	"	"
	2-Fluorobiphenyl	*73.7%*	*12-135%*	"	"
	2,4,6-Tribromophenol	*78.5%*	*33-150%*	"	"
	p-Terphenyl-d14	*80.7%*	*47-138%*	"	"

Amended Report

Joy D. Chang, Project Manager

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BEAVERTON, OR 97008-97132
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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031342 **Other wet Preparation Method: EPA 3510/600**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031342-BS1)								**Extracted: 03/28/06 20:00**						
Pyridine	1311/8270	0.182	0.100	0.200	mg/l	1x	--	0.400	45.5%	(1-130)	--	--	03/29/06 19:36	J
1,4-Dichlorobenzene	"	0.252	0.0500	0.0500	"	"	--	"	63.0%	(5-102)	--	--	"	
Total Cresols	"	0.786	0.100	0.100	"	"	--	1.20	65.5%	(5-117)	--	--	"	
Hexachloroethane	"	0.281	0.0500	0.0500	"	"	--	0.400	70.2%	(5-134)	--	--	"	
Nitrobenzene	"	0.375	0.0500	0.0500	"	"	--	"	93.8%	(30-128)	--	--	"	
Hexachlorobutadiene	"	0.288	0.0500	0.0500	"	"	--	"	72.0%	(5-151)	--	--	"	
2,4,6-Trichlorophenol	"	0.319	0.0500	0.0500	"	"	--	"	79.8%	(39-126)	--	--	"	
2,4,5-Trichlorophenol	"	0.311	0.0500	0.0500	"	"	--	"	77.8%	(48-128)	--	--	"	
2,4-Dinitrotoluene	"	0.299	0.0500	0.0500	"	"	--	"	74.8%	(41-128)	--	--	"	
Hexachlorobenzene	"	0.292	0.0500	0.0500	"	"	--	"	73.0%	(43-124)	--	--	"	
Pentachlorophenol	"	0.338	0.100	0.100	"	"	--	"	84.5%	(40-134)	--	--	"	
Surrogate(s): 2-Fluorophenol		*Recovery: 53.2%*			*Limits: 7-116%*	"							*03/29/06 19:36*	
Phenol-d6		*34.5%*			*1-114%*	"							"	
Nitrobenzene-d5		*98.7%*			*29-140%*	"							"	
2-Fluorobiphenyl		*78.0%*			*12-135%*	"							"	
2,4,6-Tribromophenol		*89.3%*			*33-150%*	"							"	
p-Terphenyl-d14		*87.3%*			*47-138%*	"							"	
Duplicate (6031342-DUP1)					**QC Source: P6C0765-01**					**Extracted: 03/28/06 20:00**				
Pyridine	1311/8270	ND	0.200	0.200	mg/l	1x	ND	--	--	--	NR	(50)	03/30/06 02:35	U
Phenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Bis(2-chloroethyl)ether	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2-Chlorophenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
1,3-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
1,4-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Benzyl alcohol	"	ND	0.100	0.100	"	"	ND	--	--	--	NR	"	"	U
1,2-Dichlorobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Total Cresols	"	ND	0.100	0.100	"	"	ND	--	--	--	NR	"	"	U
Bis(2-chloroisopropyl)ether	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
N-Nitrosodi-n-propylamine	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Hexachloroethane	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Nitrobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Isophorone	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2-Nitrophenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,4-Dimethylphenol	"	ND	0.100	0.100	"	"	ND	--	--	--	NR	"	"	U
Bis(2-chloroethoxy)methane	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Benzoic acid	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
2,4-Dichlorophenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
1,2,4-Trichlorobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Naphthalene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031342 **Other wet Preparation Method: EPA 3510/600**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6031342-DUP1)				**QC Source: P6C0765-01**				**Extracted: 03/28/06 20:00**						
4-Chloroaniline	1311/8270	ND	0.100	0.100	mg/l	1x	ND	--	--	--	NR	(50)	03/30/06 02:35	U
Hexachlorobutadiene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
4-Chloro-3-methylphenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2-Methylnaphthalene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Hexachlorocyclopentadiene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,4,6-Trichlorophenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,4,5-Trichlorophenol	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2-Chloronaphthalene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2-Nitroaniline	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
Dimethyl phthalate	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Acenaphthylene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,6-Dinitrotoluene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
3-Nitroaniline	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
Acenaphthene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,4-Dinitrophenol	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
4-Nitrophenol	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
Dibenzofuran	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
2,4-Dinitrotoluene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Diethyl phthalate	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Fluorene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
4-Chlorophenyl phenyl ether	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
4-Nitroaniline	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
4,6-Dinitro-2-methylphenol	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
N-Nitrosodiphenylamine	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
4-Bromophenyl phenyl ether	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Hexachlorobenzene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Pentachlorophenol	"	ND	0.100	0.100	"	"	ND	--	--	--	NR	"	"	U
Phenanthrene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Anthracene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Di-n-butyl phthalate	"	ND	0.100	0.100	"	"	ND	--	--	--	NR	"	"	U
Fluoranthene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Pyrene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Butyl benzyl phthalate	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Benzo (a) anthracene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
3,3´-Dichlorobenzidine	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
Chrysene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Bis(2-ethylhexyl)phthalate	"	ND	0.200	0.200	"	"	ND	--	--	--	NR	"	"	U
Di-n-octyl phthalate	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Benzo (b) fluoranthene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

TCLP Semivolatiles per EPA Method 1311/8270 - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031342 **Other wet Preparation Method: EPA 3510/600**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6031342-DUP1)					**QC Source: P6C0765-01**				**Extracted: 03/28/06 20:00**					
Benzo (k) fluoranthene	1311/8270	ND	0.0500	0.0500	mg/l	1x	ND	--	--	--	NR	(50)	03/30/06 02:35	U
Benzo (a) pyrene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Indeno (1,2,3-cd) pyrene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Dibenzo (a,h) anthracene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Benzo (ghi) perylene	"	ND	0.0500	0.0500	"	"	ND	--	--	--	NR	"	"	U
Surrogate(s): 2-Fluorophenol		*Recovery: 57.0%*			*Limits: 7-116%*	"							*03/30/06 02:35*	
Phenol-d6		*37.7%*			*1-114%*	"							"	
Nitrobenzene-d5		*107%*			*29-140%*	"							"	
2-Fluorobiphenyl		*83.0%*			*12-135%*	"							"	
2,4,6-Tribromophenol		*89.2%*			*33-150%*	"							"	
p-Terphenyl-d14		*96.3%*			*47-138%*	"							"	
Matrix Spike (6031342-MS1)					**QC Source: P6C0765-01**				**Extracted: 03/28/06 20:00**					
Pyridine	1311/8270	0.200	0.200	0.200	mg/l	1x	ND	0.400	50.0%	(1-110)	--	--	03/29/06 20:17	
1,4-Dichlorobenzene	"	0.249	0.0500	0.0500	"	"	ND	"	62.2%	(14-100)	--	--	"	
Total Cresols	"	0.788	0.100	0.100	"	"	ND	1.20	65.7%	(1-132)	--	--	"	
Hexachloroethane	"	0.281	0.0500	0.0500	"	"	ND	0.400	70.2%	(1-118)	--	--	"	
Nitrobenzene	"	0.365	0.0500	0.0500	"	"	ND	"	91.2%	(11-153)	--	--	"	
Hexachlorobutadiene	"	0.291	0.0500	0.0500	"	"	ND	"	72.8%	(9-122)	--	--	"	
2,4,6-Trichlorophenol	"	0.314	0.0500	0.0500	"	"	ND	"	78.5%	(34-133)	--	--	"	
2,4,5-Trichlorophenol	"	0.310	0.0500	0.0500	"	"	ND	"	77.5%	(43-132)	--	--	"	
2,4-Dinitrotoluene	"	0.294	0.0500	0.0500	"	"	ND	"	73.5%	(36-131)	--	--	"	
Hexachlorobenzene	"	0.291	0.0500	0.0500	"	"	ND	"	72.8%	(39-128)	--	--	"	
Pentachlorophenol	"	0.340	0.100	0.100	"	"	ND	"	85.0%	(17-154)	--	--	"	
Surrogate(s): 2-Fluorophenol		*Recovery: 52.3%*			*Limits: 7-116%*	"							*03/29/06 20:17*	
Phenol-d6		*34.5%*			*1-114%*	"							"	
Nitrobenzene-d5		*99.3%*			*29-140%*	"							"	
2-Fluorobiphenyl		*76.0%*			*12-135%*	"							"	
2,4,6-Tribromophenol		*86.5%*			*33-150%*	"							"	
p-Terphenyl-d14		*87.3%*			*47-138%*	"							"	

Amended Report

Joy D. Chang, Project Manager

TestAmerica
ANALYTICAL TESTING CORPORATION

PORTLAND, OR 9405 S.W. NIMBUS AVENUE
BEAVERTON, OR 97008-97132
ph: (503) 906.9200 fax: (503) 906.9210

Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Conventional Chemistry Parameters per APHA/EPA Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031156 **Other wet Preparation Method: Wet Chem**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Blank (6031156-BLK1)								**Extracted: 03/24/06 10:44**						
Total Solids	EPA 160.3m	ND	---	10.0	mg/kg	1x	--	--	--	--	--	--	03/24/06 13:20	
Duplicate (6031156-DUP1)							**QC Source: P6C0765-01**			**Extracted: 03/24/06 10:44**				
Total Solids	EPA 160.3m	183000	---	99.7	mg/kg	1x	183000	--	--	--	0.00%	(10)	03/24/06 13:20	

QC Batch: 6031340 **Soil Preparation Method: General Preparation**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
Duplicate (6031340-DUP1)							**QC Source: P6C0765-01**			**Extracted: 03/28/06 15:02**				
pH	EPA 9045B	7.62	---		pH Units	1x	7.67	--	--	--	0.654	(25)	03/28/06 16:00	

Amended Report

Joy D. Chang, Project Manager

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Amended Report

AMEC- Portland	Project Name:	**RP Sludge Sampling**	
7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Physical Parameters per APHA/ASTM/EPA Methods - Laboratory Quality Control Results

TestAmerica - Portland, OR

QC Batch: 6031369 **Other wet Preparation Method: EPA 1010**

Analyte	Method	Result	MDL*	MRL	Units	Dil	Source Result	Spike Amt	% REC	(Limits)	% RPD	(Limits)	Analyzed	Notes
LCS (6031369-BS1)								**Extracted: 03/29/06 09:13**						
Flashpoint	EPA 1010	131	---		°F	1x	--	127	103%	(96.5-103)	--	--	03/30/06 16:25	
Duplicate (6031369-DUP1)							**QC Source: P6C0765-01**			**Extracted: 03/29/06 09:13**				
Flashpoint	EPA 1010	ND	---	150	°F	1x	ND	--	--	--		(50)	03/30/06 16:25	

Amended Report

Joy D. Chang, Project Manager

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7376 SW Durham Road	Project Number:	0-6IM-107030-0 Task 34F	Report Created:
Portland, OR 97224	Project Manager:	Marie Bevier	05/03/06 16:42

Notes and Definitions

Report Specific Notes:

A-01	-	Suspected lab contamination.
A-07	-	Result is an estimate; no MDL/MRL has been performed and established on this analyte in a TCLP matrix.
B-18	-	Analyte was detected in the blank at greater than one-half of the MRL, but samples are ND.
D	-	Data reported from a preparation or analytical dilution.
J	-	Estimated value.
MS-3	-	The Matrix Spike and/or Matrix Spike Duplicate were above the acceptance limits due to sample matrix interference. See Laboratory Control Sample.
Q-03	-	The matrix spike recovery, and/or RPD, for this QC sample cannot be accurately calculated due to the high concentration of analyte already present in the source sample.
Q-06	-	RPD is not applicable for analyte concentrations less than 5 times the MRL.
Q-27	-	Analyte recovery outside of specified criteria. Individual analyte criteria exceedences allowed for multi-component analyses without disqualification of data per USACE EM200-1-3.
Q-28	-	The recovery of the daily Continuing Calibration Verification Standard (CCV) was above method specified criteria for this analyte. Results for QC Samples may be biased high.
Q-29	-	The recovery for the Laboratory Control Sample, and/or LCS Duplicate, for this analyte was above method specified criteria. All samples were Non Detect for this analyte, therefore Data Quality is not affected.
R-03	-	The reporting limit for this analyte was raised due to matrix interference.
R-05	-	Reporting limits raised due to dilution necessary for analysis. Sample contains high levels of reported analyte, non-target analyte, and/or matrix interference.
S-01	-	The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
S-09	-	Surrogate recovery is outside control limits due to matrix interference.
T-02	-	The RPD between results from different column or detector exceeded 40%. The data has been evaluated and the higher result has been reported.
U	-	Analyte included in the analysis but not detected.

Laboratory Reporting Conventions:

DET	-	Analyte DETECTED at or above the Reporting Limit. Qualitative Analyses only.
ND	-	Analyte NOT DETECTED at or above the reporting limit (MDL or MRL, as appropriate).
NR/NA	-	Not Reported / Not Available
dry	-	Sample results reported on a Dry Weight Basis. Results and Reporting Limits have been corrected for Percent Dry Weight.
wet	-	Sample results and reporting limits reported on a Wet Weight Basis (as received). Results with neither 'wet' or 'dry' are reported on a Wet Weight Basis.
RPD	-	RELATIVE PERCENT DIFFERENCE (RPDs calculated using Results, not Percent Recoveries).
MRL	-	METHOD REPORTING LIMIT. Reporting Level at, or above, the lowest level standard of the Calibration Table.

Amended Report

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AMEC- Portland	Project Name:	**RP Sludge Sampling**	
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MDL* - METHOD DETECTION LIMIT. Reporting Level at, or above, the statistically derived limit based on 40CFR, Part 136, Appendix B. *MDLs are listed on the report only if the data has been evaluated below the MRL. Results between the MDL and MRL are reported as Estimated Results.

Dil - Dilutions are calculated based on deviations from the standard dilution performed for an analysis, and may not represent the dilution found on the analytical raw data.

Reporting Limits - Reporting limits (MDLs and MRLs) are adjusted based on variations in sample preparation amounts, analytical dilutions and percent solids, where applicable.

Electronic Signature - Electronic Signature added in accordance with TestAmerica's *Electronic Reporting and Electronic Signatures Policy.* Application of electronic signature indicates that the report has been reviewed and approved for release by the laboratory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Amended Report

Joy D. Chang, Project Manager

August 31, 2006

0-61M-107030/Phase 34F

Thomas E. Roick
Project Manager, Cleanup & Portland Harbor
Oregon Department of Environmental Quality
2020 S.W. 4th Avenue, Suite 400
Portland, Oregon 97201

Dear Mr. Roick:

Re: Disposal of Accumulated Sediment from
Water Treatment Plant Stormwater Collection Sump
Corrective Action Management Unit (CAMU)-Eligibility
RP - Portland Site

Introduction

On behalf of SLLI, AMEC Earth & Environmental, Inc. (AMEC) is providing the Oregon Department of Environmental Quality (DEQ) with a status summary for planned removal and disposal of accumulated sediment from a stormwater collection sump associated with the water treatment plant (WTP) at the former Rhône-Poulenc (RP) manufacturing facility (Site) located at 6200 NW St. Helens Road in Portland, Oregon. The sediment is generated from implementation of the stormwater collection and treatment cleanup measure conducted pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07 pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07. The discharge of treated stormwater is governed by National Pollutant Discharge Elimination System (NPDES) Permit No. 101180. The periodic removal, stabilization, and off-site disposal of accumulated sediment from the collection sump are part of a normal WTP operation and maintenance cycle.

In January 2006, SLLI removed accumulated sediment from the stormwater collection sump to ensure continued optimum operation of the WTP. The sediment has been dewatered and is stored in steel drums pending disposal. SLLI requests approval from DEQ for off-site disposal of this accumulated sump sediment at a secure Subtitle C facility using the criteria for a Corrective Action Management Unit (CAMU)-eligible waste, as discussed below. The information required for DEQ to determine that the sediment may be managed as a CAMU-eligible waste is included in this letter. It is important to note that the DEQ previously approved the disposal of spent granular activated carbon from the WTP at a Subtitle C landfill (Chemical Waste Management of the Northwest [CWMNW] in Arlington, Oregon) as CAMU-eligible waste.

Stormwater Treatment and Sediment Generation

As indicated, the WTP treats captured stormwater from the former herbicide and insecticide manufacturing area. Collected stormwater is routed to a below-ground concrete basin (stormwater collection sump) located in the lower WTP, and then combined with treated groundwater prior to passage through granular activated carbon. Suspended/entrained

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inorganic solids (fine sand and clay) are settled out within the stormwater collection sump. A layout of the WTP and description of the various water treatment stages are provided in the attached Process and Instrumentation Diagram (P&ID) (Figure 1).

Solids settled out of the collected stormwater inside the collection sump must periodically be removed for off-site disposal. On January 26, 2006, approximately 5 cubic yards of accumulated sediment was removed from the stormwater collection sump and temporarily placed into a 20-yard steel dewatering bin. At the onset of the dewatering process, the solid content of the sediment was measured at 22.1%. Over an approximately 20-day period, free liquids were drained from the steel bin, within the secondary containment of the WTP, and routed to the primary biological reactor for treatment. Following these dewatering efforts, free liquid was not detected by the paint filter test.

Corrective Action Management Unit Rule

On January 22, 2002, the United States Environmental Protection Agency (EPA) published additional regulations regarding disposal of remediation waste in the Federal Register (Amendments to the CAMU Rule; Final Rule, 67, *Federal Regulation* 2962). These regulations were promulgated to encourage expeditious cleanups at contaminated sites by reducing obstacles to disposal of remediation waste. The regulations provide alternatives to the Resource Conservation and Recovery Act (RCRA), Land Disposal Restrictions (LDRs), and Universal Treatment Standards (UTS) for off-site disposal, provided that the remediation waste meets the requirements outlined in the regulations. Waste that meets the off-site disposal criteria in the new regulations is identified as "CAMU-eligible waste". The sediment from the stormwater collection sump meets the criteria for CAMU-eligible waste, as described further in this letter.

The January 2002 CAMU Rule amendment includes provisions that authorize the DEQ to implement the regulations without further amendment to the existing DEQ RCRA program authorization. SLLI requests that DEQ authorize the management of the stormwater collection sump sediment from the WTP as a CAMU-eligible waste to facilitate its disposal at the CWMNW Subtitle C landfill in Arlington, Oregon.

Sampling and Laboratory Analyses

On February 15, 2006, AMEC collected one representative composite sample of dewatered sediment from the steel containment bin for physical and chemical characterization. The composite sample was drawn from three separate discrete sample locations inside the steel bin. The discrete samples of the soft, cohesive solids were retrieved under suction lock using disposable 2-inch-diameter Teflon® tubes manually pushed through the entire sediment column. The discrete samples were then homogenized in a stainless steel mixing bowl and transferred to laboratory-prepared sample containers. All disposable sampling equipment (i.e., Nitrile gloves and Teflon® tubes) was replaced and non-disposable handling utensils (i.e., stainless steel mixing bowl and spoons) were decontaminated between discrete sampling to prevent cross contamination.

The composite sample was submitted to TestAmerica (TA) for the following physical and/or chemical parameters:

- Total solids by EPA Method 160.3m;
- pH by EPA Method 9045B;
- Flashpoint by EPA Method 1010;
- Free Liquid by EPA Method 9095;
- Total and toxicity characteristic leaching procedure (TCLP) RCRA 8 Metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury) by EPA Methods 1311, 6010B, 6020, 7471A, and/or 7470A;
- Total organochlorine pesticides and chlorinated herbicides by EPA Methods 8081A and 8151A, respectively;
- Total volatile organic compounds (VOCs) by EPA Method 8260B;
- Total semivolatile organic compounds (SVOCs) by EPA Method 8270; and
- Total and TCLP polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDFs) by EPA Method 8280 (tetra- through octa-chlorinated PCDD and PCDF congeners and homologs).

The liquid generated during laboratory filtration was not analyzed. Pace Analytical Services, Inc. (Pace) performed the total PCDD/PCDF chemical analyses and Severn Trent Laboratories, Inc. (STL) performed the TCLP PCDD/FCDF chemical analysis.

The TCLP methods were chosen based upon the recognition that protection of the environment within a landfill setting is closely aligned to the leaching potential of hazardous constituents. For those constituents whose concentrations within contaminated media exceed 10 times UTS (10 x UTS) values, the constituent leaching potentials are a valuable parameter in assessing the protectiveness of land disposal.

Analytical Results

The attached tables summarize the analytical results and compare the results to RCRA UTS concentrations. As shown in the attached tables, the detected levels of principal hazardous constituents in the sludge generally meet the 10 x UTS standard applicable to CAMU-eligible waste.

A review of the analytical data from TA indicate that lead, chromium, and 2,4-dichlorophenol were detected in the composite sediment sample at total concentrations above their respective RCRA UTS, but less than respective CAMU-eligible waste alternative treatment standards (10 x UTS)(Table 1).

The analytical results from Pace show that concentrations of three dioxin homologs (total tetrachlorodibenzo-p-dioxin [TCDD], total tetrachlorodi-benzofuran [TCDF], and total pentachlorodibenzofuran-p-dioxin [PeCDF]) were greater than the RCRA UTS (1.0 micrograms per kilogram [µg/kg]) in the sediment sample. The concentration of

total TCDD in the sample was less than the CAMU-eligible waste alternative treatment standard (10 x UTS, or 10 µg/kg). The concentrations of total TCDF and total PeCDF were greater than the 10 µg/kg CAMU-eligible waste alternate treatment standard (Table 2).

A TCLP analysis of a composite sediment sample for leachable dioxin homologs was conducted by STL. Leachable concentrations of dioxin homologs, including total TCDD, total TCDF, and total PeCDF were not detected.

The analytical results from this sampling event were reviewed for conformance with the project's data quality objectives. Some minor data quality anomalies were encountered during the sump sediment analyses and select analytical results were qualified on Tables 1 and 2. The quality of the chemical analytical data used to form conclusions in this letter is acceptable for its intended use based on our review of the TA, STL and Pace results and associated quality control parameters. A detailed discussion of the data quality anomalies is provided in Attachment A.

Waste Codes

The waste codes that apply to the detected constituents include: K043 (2,4-dichlorophenol); K099 and U240 (2,4-D); and X001 (Bromoxynil).

Based on waste codes currently applied at the RP - Portland Site, and types of wastes that may have been discharged into the stormwater collection sump, the following RCRA and Oregon waste codes may be applicable to the waste:

1. RCRA Waste Codes: F002, F003, F005, F027, K043, K099, P004, P037, P050, P051, P059, P123, U031, U036, U052, U060, U061, U070, U080, U129, U140, U188, U239, U240, U247; and
2. DEQ Waste Code: X001.

The waste codes listed above have been assigned based on process knowledge, waste analytical results, and analytical results for groundwater samples taken in the area that this waste was generated. As a result, the waste codes identified are likely conservative and may be over-inclusive. In addition, SLLI and DEQ are currently not in agreement on the proper waste determination under RCRA and Oregon's hazardous waste laws for certain waste generated at the RP - Portland Site containing 2,4-D. However, based on direction from DEQ, SLLI has included the waste codes K043, K099 and U240 in its waste determination. The conservative assignment of waste codes including the assignment of K043, K099, and U240 shall not be deemed an admission by SLLI of the applicability of these waste codes nor a waiver of any right of RP. SLLI specifically reserves the right to revise these waste codes upon resolution of the existing disagreement between SLLI and the DEQ.

Principal Hazardous Constituents

The waste will not be available to the environment during generation, treatment, storage, or disposal. The risk scenarios as described in 40 CFR § 264.552(e)(4)(i)(A) do not apply in this context. Therefore, the principal hazardous constituents (PHCs) within the waste will be designated as those constituents present in the waste at concentrations exceeding land

disposal restrictions. Thus, the PHCs include: total TCDD, total TCDF, total PeCDF, and 2,4-dichlorophenol.

Treatment and Disposal Options

SLLI has reviewed treatment and disposal options for the sump sediment using the January 2002 alternative treatment standards for remediation waste and has determined that the material is a "remediation waste" and qualifies as CAMU-eligible waste.[1] The treatment standards for CAMU-eligible waste are stated in 40 CFR Part 264.552(e)(4)(iv). The "Regional Administrator" (in this instance, the DEQ) for the RCRA CAMU program can modify the disposal standards for CAMU-eligible remediation waste [2] as long as the modified treatment standards do not represent an unacceptable risk.

We understand that the CWMNW Subtitle C landfill facility in Arlington, Oregon has been granted permission in the past to accept CAMU-eligible waste. In accordance with their operational permit, CWMNW is required to macroencapsulate this type of waste.

For a waste such as this solid, CWMNW uses high density polyethylene (HDPE) macroencapsulation devices. The waste is loaded into the device with a backhoe or excavator. Once the waste is loaded into the device (the device is filled at least 90% full), a filler material is added to fill any remaining void spaces. Typical filler material includes stabilization reagents such as kiln dust, Portland cement, bed ash, etc.; or, native soil. Filler materials are placed to within 2 inches of the upper flange around the outside perimeter of the device. After filler material has been added, the device lid is sealed by gluing and screwing of the lid to the device flange pursuant to the manufacturer's instructions. The sealed device is placed within the landfill cell, inspected, and repaired, if necessary. Backfill is placed over and around the device, as necessary, to support the weight of equipment and future layers of wastes.

As discussed above, the detected levels of the majority of the PHCs in the stormwater collection sediment generally meet the 10 x UTS standard applicable to CAMU-eligible waste, meaning that most constituents are already at the suitable treatment levels. The fact that detected concentrations of total TCDF and PeCDF homologs in the sample exceed the 10 x UTS standard should not bar disposal of the stormwater collection sump sediment at a Subtitle C facility. As allowed in 40 CFR § 264.552(e)(4)(v)(E)(1), DEQ can modify the disposal requirements for CAMU-eligible waste where the 10 x UTS standard is "substantially met" and

[1] "CAMU-eligible wastes" are defined as "all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup." 40 CFR § 264.552(a)(1). Because the stormwater collection sump is an integral part of the stormwater treatment process at the RP - Portland Site, it would be considered "managed for implementing cleanup." See 63 Fed. Reg. 65,874, 65,881 (Nov. 30, 1998).

[2] As indicated in 40 CFR Part 264.552(e)(4)(v), the Regional Administrator (DEQ) may adjust the treatment level or methods based on several factors identified in Part 264.552(e)(4)(v)(A-E). Based upon the analytical results and other factors stated above, off-site disposal of the sediment at an authorized Subtitle C landfill is consistent with these factors.

the remaining PHCs are of "very low mobility." Please note that results of the TCLP analysis indicate no leaching potential for TCDD/TCDFs or PeCDF, demonstrating that off-site land disposal in a Subtitle C facility is appropriate under the CAMU-eligible waste criteria. Macroencapsulation of the waste will further ensure that the waste will meet the immobility criteria set out in 40 CFR § 264.552(e)(4)(v)(E)(1). The waste meets the criteria for disposal in a permitted hazardous waste landfill as laid out in 40 CFR § 264.555(a).

Therefore, SLLI requests authorization from DEQ to allow disposal of this stormwater collection sump sediment at the CWMNW Subtitle C landfill facility in Arlington, Oregon. SLLI further requests prompt action on this proposal, and is prepared to meet with you and DEQ RCRA Division staff, if necessary, to expedite this request.

If you have any questions regarding the information presented or wish to discuss further the CAMU-eligible option, please contact Kurt Harrington or Roger Gresh at (503) 639-3400.

Sincerely,

AMEC Earth & Environmental, Inc.

Kurt Harrington, P.E.
Task Leader

Roger T. Gresh, P.G.
Project Manager

Attachments:

	Table 1	Summary of Detected Analytes in Water Treatment Plant Stormwater Collection Sump Sediment
	Table 2	Summary of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans in Water Treatment Plant Stormwater Collection Sump Sediment
	Figure 1	Groundwater/Stormwater Treatment System P&ID
	Attachment A	Data Quality Review

JKH/JTS/jd

c: S. Dearden, sanofi aventis US, Inc.
R. Ferguson, SLLI
J. Benedict, CHBH&L
J. Kincaid, CHBH&L

TABLES

TABLE 1
Summary of Detected Analytes in Water Treatment Plant Stormwater Collection Sump Sediment
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sediment Result (µg/Kg)	Universal Treatment Standard (µg/Kg) [1]	10x Universal Treatment Standard (µg/Kg) [1]	Exceed 10x Universal Treatment Standard?	TCLP Result (mg/L)	Toxicity Characteristic Standard (mg/L)	Exceed Toxicity Characteristic Standard?
Sump Sediment	02/15/2006	SW6020	**Mercury**	**1,500**	4,000	40,000	No	0.0002 U	0.2	No
Sump Sediment	02/15/2006	SW6020	**Lead**	**40,300**	15,000	150,000	No	0.200 U	5.0	No
Sump Sediment	02/15/2006	SW6020	**Silver**	**281**	2,800	28,000	No	0.200 U	5.0	No
Sump Sediment	02/15/2006	SW6020	**Arsenic**	**10,300**	100,000	1,000,000	No	1.00 U	5.0	No
Sump Sediment	02/15/2006	SW6020	**Barium**	**127,000**	420,000	4,200,000	No	2.00 U	100	No
Sump Sediment	02/15/2006	SW6020	**Cadmium**	**1,570**	2,200	22,000	No	0.200 U	1.0	No
Sump Sediment	02/15/2006	SW6020	**Chromium**	**25,300**	12,000	120,000	No	0.200 U	5.0	No
Sump Sediment	02/15/2006	SW8270C	**2,4-Dichlorophenol**	**23,400**	14,000	140,000	No	NT	NL	---
Sump Sediment	02/15/2006	SW8270C	**3 & 4-Methylphenol**	**3,640**	5,600	56,000	No	NT	200	---
Sump Sediment	02/15/2006	SW8270C	**2,4,6-Trichlorophenol**	**3,450**	7,400	74,000	No	NT	2.0	---
Sump Sediment	02/15/2006	SW8151	**2,4,5-T**	**104**	7,900	79,000	No	NT	NL	---
Sump Sediment	02/15/2006	SW8151	**2,4-DB**	**607**	NL	NL	---	NT	NL	---
Sump Sediment	02/15/2006	SW8151	**Bromoxynil**	**1,920**	NL	NL	---	NT	NL	---
Sump Sediment	02/15/2006	SW8151	**2,4-D**	**5,540**	10,000	100,000	No	NT	10.0	---

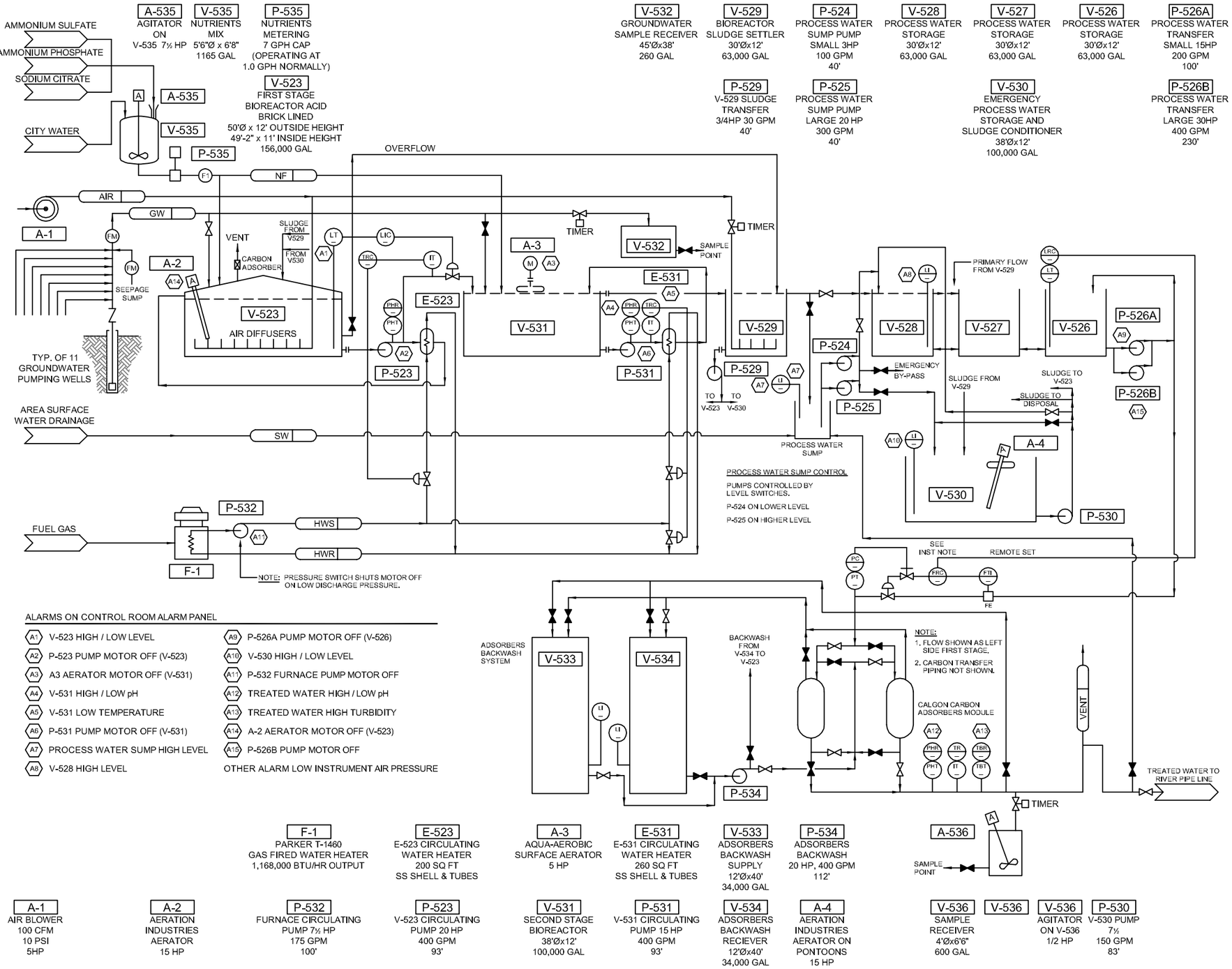
Notes:
Universal Treatment Standard (UTS) values are reported from RCRA 40 CFR 268.48
Toxicity Characteristic Standard values are reported from RCRA 40 CFR 261.22
TCLP = Toxicity Characteristics Leaching Procedure
[1] The metal UTS values (presented here as µg/kg) were derived by multiplying the metal TCLP UTS (presented as mg/L in 40 CFR § 268.48) by 20 (20X rule) and then by 1,000
NL = no listing; NT = not tested; --- = not applicable
BOLD = analyte detected above the method reporting limit for sediment
= Sludge Result exceeds the 10x Universal Treatment Standard
U = not detected at or above the method reporting limit
mg/L = milligrams per liter; µg/Kg = micrograms per kilogram

TABLE 2
Summary of Polychlorinated Dibenzo-p-Dioxins and Dibenzofurans
in Water Treatment Plant Stormwater Collection Sump Sediment
RP - Portland Site

Sample ID	Date	Analytical Method	Analyte	Sediment Result (µg/kg)	Universal Treatment Standard (µg/kg)	10x Universal Treatment Standard (µg/kg)	Exceed 10x Universal Treatment Standard?	Analytical Method	TCLP Result* (µg/L)	Toxicity Characteristic Standard (mg/L)
Sump Sediment	03/17/2006	SW8280A	**1,2,3,4,6,7,8-HpCDD**	2.5 U	2.5	25	No	SW8290	**0.000033 U**	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,4,6,7,8-HpCDF**	2.5 U	2.5	25	No	SW8290	**0.000032 U**	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,4,7,8,9-HpCDF**	2.5 U	2.5	25	No	SW8290	0.0000038 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,4,7,8-HxCDD**	2.5 U	NL	NL	---	SW8290	0.0000036 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,4,7,8-HxCDF**	2.5 U	NL	NL	---	SW8290	0.0000098 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,6,7,8-HxCDD**	2.5 U	NL	NL	---	SW8290	0.0000033 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,6,7,8-HxCDF**	2.5 U	NL	NL	---	SW8290	0.0000056 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,7,8,9-HxCDD**	2.5 U	NL	NL	---	SW8290	0.0000032 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,7,8,9-HxCDF**	2.5 U	NL	NL	---	SW8290	0.0000028 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,7,8-PeCDD**	2.5 U	NL	NL	---	SW8290	0.0000052 U	NL
Sump Sediment	03/17/2006	SW8280A	**1,2,3,7,8-PeCDF**	2.5 U	NL	NL	---	SW8290	0.0000029 U	NL
Sump Sediment	03/17/2006	SW8280A	**2,3,4,6,7,8-HxCDF**	2.5 U	NL	NL	---	SW8290	0.0000053 U	NL
Sump Sediment	03/17/2006	SW8280A	**2,3,4,7,8-PeCDF**	2.5 U	NL	NL	---	SW8290	0.0000028 U	NL
Sump Sediment	03/17/2006	SW8280A	**2,3,7,8-TCDD**	**3.5**	NL	NL	---	SW8290	0.0000024 U	NL
Sump Sediment	03/17/2006	SW8280A	**2,3,7,8-TCDF**	1.0 U	NL	NL	---	SW8290	0.0000018 U	NL
Sump Sediment	03/17/2006	SW8280A	**OCDD**	5.0 U	5	50	No	SW8290	**0.000059 U**	NL
Sump Sediment	03/17/2006	SW8280A	**OCDF**	5.0 U	5	50	No	SW8290	0.000022 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total HpCDD**	2.5 U	NL	NL	---	SW8290	**0.000033 U**	NL
Sump Sediment	03/17/2006	SW8280A	**Total HpCDF**	2.5 U	NL	NL	---	SW8290	**0.000032 U**	NL
Sump Sediment	03/17/2006	SW8280A	**Total HxCDD**	2.5 U	1	10	No	SW8290	0.0000053 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total HxCDF**	2.5 U	1	10	No	SW8290	0.0000098 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total PeCDD**	2.5 U	1	10	No	SW8290	0.0000089 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total PeCDF**	**28.0**	1	10	Exceed	SW8290	0.0000029 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total TCDD**	**7.0**	1	10	No	SW8290	0.0000024 U	NL
Sump Sediment	03/17/2006	SW8280A	**Total TCDF**	**71.0**	1	10	Exceed	SW8290	0.0000018 U	NL

Notes:
Universal Treatment Standard (UTS) values are reported from 40 CFR 268
Toxicity Characteristic Standard values are reported from RCRA 40 CFR 261.22
TCLP = Toxicity Characteristics Leaching Procedure
NL = no listing; --- = Not applicable (UTS does not apply)
BOLD = analytical detection
= Sludge Result exceeds the 10XUniversal Treatment Standard
U = not detected at or above the reported detection limit
µg/Kg = micrograms per kilogram; mg/L = milligrams per liter
*There are no applicable dioxin/furan TCLP regulatory standards.

FIGURE



EQUIPMENT LEGEND

A	AGITATOR OR AERATOR
E	HEAT EXCHANGER
P	PUMP
V	VESSEL
⋈	NORMALLY CLOSED VALVE (NC)
⋈	NORMALLY OPEN VALVE (NO)
⟋	CHECK VALVE
(X)	ALARM POINT

PROCESS LEGEND

AIR	BLOWER AIR
GWI	GROUNDWATER INFLUENT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
NF	NUTRIENT FEED
SW	SURFACE WATER
VENT	VENT TO ATMOSPHERE

INSTRUMENT LEGEND

FE	FLOW ELEMENT (FOXBORO MAG FLOW METER)
FI	FLOW INDICATOR (ROTAMETER)
FM	TOTALIZING FLOW METER
FRC	FLOW RECORDER CONTROLLER
FTT	FLOW TRANSMITTER TOTALIZER
LI	LEVEL INDICATOR
LIC	LEVEL INDICATOR CONTROLLER
LRC	LEVEL RECORDER CONTROLLER
LT	LEVEL TRANSMITTER
PC	PRESSURE CONTROLLER
PHT	pH TRANSMITTER
PHR	pH RECORDER
PT	PRESSURE TRANSMITTER
TBT	TURBIDITY TRANSMITTER
TBR	TURBIDITY RECORDER
TRC	TEMPERATURE RECORDER CONTROLLER
IT	TEMPERATURE TRANSMITTER

PIPING / SIGNAL LEGEND

- PRIMARY
- SECONDARY
- PHEUMATIC
- (PHT) FIELD
- (PHR) CONTROL ROOM PANEL

INSTRUMENT NOTE

HIGH PRESSURE OVERRIDES FLOW CONTROL VIA A 1 TO 1 RELAY - LOWER OUTPUT PRESSURE OF PC OR FRC APPLIED TO FLOW CONTROL VALVE.

SOURCE:
GROUNDWATER/SURFACEWATER TREATMENT SYSTEM P&ID, SJO CONSULTING ENGINEERS, PORTLAND, OREGON, REVISED SEPT. 18, 1997

FIGURE 1
GROUNDWATER / STORMWATER TREATMENT SYSTEM P&ID
RP - PORTLAND SITE

W.O. 0-61M-10703-0 P-34F
DESIGN JKH
DRAWN DD
DATE MAY 2006
SCALE NOT TO SCALE

amec
7376 S.W. Durham Road
Portland, OR, U.S.A. 97224

ATTACHMENT A

Data Quality Review

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List of Tables

1.0 INTRODUCTION

Three sump sediment samples were collected at the same location and submitted to TestAmerica Analytical Testing Corporation (TA) in Portland, Oregon on February 16, April 7, and April 17, 2006. TA extracted aliquots of the sump sediment using the toxicity characterization leaching procedure (TCLP) specified in United States Environmental Protection Agency (EPA) Method 1311. TA analyzed both the bulk sample and TCLP extract for metals using EPA 6000/7000-Series methods; organochlorine pesticides using EPA Method 8081A; chlorinated herbicides using EPA Method 8151A Modified; volatile organic compounds (VOCs) using EPA Method 8260B; semivolatile organic compounds (SVOCs) using EPA Method 8270C; conventional chemistry parameters by EPA Methods 160.3 and 9045A; and physical parameters by EPA Methods 1010 and 9095. TA subcontracted polychlorinated dibenzo-p-dioxins (PCDDs) and dibenzofurans (PCDFs) analysis to Pace Analytical Services, Inc. (Pace) located in Minneapolis, Minnesota and to Severn Trent Laboratories, Inc. (STL) located in West Sacramento, California. Pace received the bulk sample on April 21, 2006 and analyzed it for PCDDs and PCDFs using EPA Method 8280. STL received the bulk sample on May 8, 2006, preformed the TCLP extraction, and analyzed it for PCDDs and PCDFs using the EPA Method 8290. A list of these samples by field sample identification (ID), sample matrix, TA sample ID, Pace sample ID and STL sample ID is presented below.

Field Sample ID	Sample Matrix	TA Sample ID	Pace Sample ID	STL Sample ID	Analytical Method
IDW-202	Sediment	P6B0615-01	-	-	EPA 6000 / 7471A / 8081A / 8151A / 8260B / 8270C %Solids
IDW-206	Sediment	PPD0700-01	-	-	EPA 1311 / 6000 / 7470
		-	1031039001	-	EPA 8280
		PPD0334-01	-	-	EPA 9045B / 9095
IDW-220	Sediment	PPE0340-01	-	G6E120184	EPA 1311 / 8290

2.0 DATA QUALITY REVIEW METHODOLOGY

This data quality review has been performed with reference to EPA guidelines as given in the April 1992 final version of Guidance for Data Usability in Risk Assessment, the current EPA functional guidelines for organic and inorganic data review, and the EPA Office of Solid Waste and Emergency Response standard operating procedures (SOPs) for inorganic and organic data review. The EPA guidelines listed above were

written specifically for the Contract Laboratory Program, and have been modified for the purposes of this data quality review where they differ from EPA Method SW-846 quality control requirements and those specified in the Department of Environmental Quality-approved Revised Quality Assurance Project Plan (QAPP), dated June 13, 2001 (AMEC, 2001) and the QAPP Addendum No. 1 dated August 1, 2002 (AMEC, 2002).

The laboratory's certified analytical report and supporting documentation were reviewed to assess the following: chain of custody (COC) compliance; holding time compliance; presence or absence of laboratory contamination as demonstrated by method and field blanks; accuracy and bias as demonstrated by recovery of surrogate spikes, laboratory control samples (LCS), and matrix spikes (MS); analytical precision as relative percent difference (RPD) of analyte concentration between replicate samples (i.e., laboratory duplicates) or MS and matrix spike duplicates (MSD); sampling precision as RPD of analyte concentration between field duplicates; calibration performance; and insofar as possible, the degree of conformance to method requirements and good laboratory practices. Data from all analytical methods has undergone a data quality review, which does not include the review or validation of the raw analytical data.

In general, it is important to recognize that no analytical data are guaranteed to be correct, even if all quality control (QC) audits are passed. Strict QC serves to increase confidence in data, but any reported value may contain error.

3.0 EXPLANATION OF DATA QUALITY INDICATORS AND EVALUATION CRITERIA

The following is a discussion of data quality indicators reviewed during the data quality review.

Laboratory Control Sample Recoveries

LCS and laboratory control sample duplicates (LCSD), also known as blank spike (BS) and blank spike duplicates (BSD), are aliquots of analyte-free sand or water that are spiked with the analytes of interest for an analytical method or a representative subset of those analytes. The spiked sand or water is then processed through the same extraction, concentration, cleanup, and analytical procedures as the samples they accompany. LCS recovery and precision are an indication of a laboratory's ability to successfully perform an analytical method in an interference-free matrix.

Matrix Spike Recoveries

MS and MSD are prepared by adding known amounts of the analytes of interest for an analytical method, or a representative subset of those analytes, to an aliquot of sample. The spiked sample is then processed through the same extraction, concentration, cleanup, and analytical procedures as the unspiked samples in an analytical batch.

MS recovery and precision are an indication of a laboratory's ability to successfully recover an analyte in the matrix of a specific sample or closely related sample matrices. It is important not to apply MS results for any specific sample to other samples without understanding how the sample matrices are related.

Surrogate Spike Recoveries

Surrogate spikes are used to evaluate accuracy, method performance, and extraction efficiency in each individual sample. Surrogate compounds are compounds not normally found in environmental samples, but which are similar to target analytes in chemical composition and behavior in the analytical process.

Blank Concentrations

Method blanks are aliquots of analyte free water or sand that are processed by the laboratory using exactly the same procedures as the field samples. Method blanks are used to monitor for contamination introduced by the laboratory during sample preparation and analysis. Analytes detected in method blanks would be qualified, if detected, in all samples processed with the method blank; based on the ratio of sample concentration versus blank concentration.

4.0 CHAIN OF CUSTODY AND SAMPLE RECEIPT CONDITION DOCUMENTATION

Samples should be received by the laboratory at a temperature of 4.0 degrees Celsius (°C) ± 2.0°C. The lower limit of 2.0°C is meant to prevent aqueous samples from freezing and possibly breaking the sample containers.

STL received the sample to be analyzed for TCLP Dioxins/Furans on May 10, 2006 at the documented temperature of 9°C and in good condition. PCDDs and PCDFs are very stable and in AMEC's professional opinion data usability is not adversely affected by the slight temperature exceedence.

5.0 DEFINITIONS OF QUALIFIERS THAT MAY BE ADDED AS A RESULT OF DATA QUALITY REVIEW

The U qualifier indicates that an analyte must be considered to be nondetected at the concentration listed. U qualifiers added during data quality review are typically a result of detection of target analytes in blanks.

The J qualifier indicates that the associated result is quantitatively uncertain and is an estimated value. J qualifiers added during data quality review may indicate a data limitation related to a QC element that exceeds required acceptance limits or an analyte concentration between the method detection limit (MDL) and method reporting limit (MRL).

The N qualifier indicates an analyte has been presumptively identified. Presumptive detection means that a chromatographic peak was detected at the correct retention time for an analyte, but that not all required identification criteria were met. The associated result is both qualitatively and quantitatively uncertain.

The UJ qualifier indicates that the analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

The R qualifier indicates that a result has been rejected due to serious QC problems. It is not possible to definitively determine whether the analyte is present or absent in the sample.

6.0 SPECIFIC DATA QUALITY REVIEW FINDINGS FOR EACH ANALYTICAL METHOD

Sections 6.1 to 6.7 contain narrative descriptions of data quality review findings and data quality limitations.

6.1 Metals by EPA 6000/7000 Series

Metals results generated by TA may be considered usable with the limitations and exceptions described below.

6.1.1 Holding Time

The sample was analyzed for mercury within the recommended technical holding time of 28 days and for all other metals within the recommended technical holding time of 6 months.

6.1.2 Blanks

Metals were not detected in the preparation blanks associated with this sample.

6.1.3 Laboratory Control Sample Recoveries

All LCS recoveries were within method-specified 80 to 120% acceptance limits, except for arsenic, as described in Table A-2.

6.1.4 Matrix Spikes

TA preformed MS on samples IDW-202 and IDW-206 sump sediment. Recoveries were within method-specified 75 to 125% acceptance limits, except for barium, chromium, lead, and mercury, as described in Table A-3.

6.1.5 Laboratory Duplicates

Laboratory duplicates were performed on sample IDW-202 Sump Sediment. Precision values were less than the method-specified 20% RPD, except for arsenic and silver, as described in Table A-4.

6.1.6 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.2 Organochlorine Pesticides by EPA Method 8081A

Pesticide results generated by TA may be considered usable with the limitations and exceptions described below.

6.2.1 Holding Times

The sump sediment sample was extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction. The extract was analyzed within recommended maximum 40 day holding time.

6.2.2 Method Blanks

Target analytes were not detected in the method blank associated with the analysis of this sample.

6.2.3 Laboratory Control Sample Recoveries

LCS recoveries were within QAPP-specified 70 to 130% acceptance limits.

6.2.4 Surrogate Recoveries

Surrogate recovery was outside QAPP-specified acceptance limits of 60 to 140%, at 514% in sample IDW-202. The high recovery may be due to matrix interference from non target analytes. Target analytes were not detected in sample IDW-202 and data usability is not adversely affected.

6.2.5 Matrix Spikes

Matrix spikes were performed on the sump sediment sample, but were not reported. The sump sediment sample used for MS/MSD required dilution due to the sample matrix and the spike compounds were diluted to concentrations below the analytical detection limit.

6.2.6 Data Reporting

The method reporting limits (MRLs) for the sump sediment sample were raised because of dilution necessary for analysis. The sample contained high levels of non target analyte and/or matrix interference.

6.3 Chlorinated Herbicides by EPA Method 8151 Modified

Herbicide results generated by TA may be considered usable with the limitations and exceptions described below.

6.3.1 Holding Times

The sump sediment sample was extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and analyzed within recommended maximum 40 day holding time.

6.3.2 Method Blanks

Target analytes were not detected in the method blank associated with the analysis of this sample.

6.3.3 Laboratory Control Sample Recoveries

LCS recoveries were within QAPP-specified 70 to 130% acceptance limits, except as described in Table A-2.

6.3.4 Surrogate Recoveries

Surrogate recovery was within QAPP-specified 60 to 140% acceptance limits.

6.3.5 Matrix Spikes

MS/MSD was performed on sample IDW-202 Sump Sediment. Recoveries were within QAPP-specified 60 to 140% acceptance limits, except as described in Table A-3.

6.3.6 Data Reporting

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.4 Volatile Organic Compounds by EPA Method 8260B

VOC results generated by TA may be considered usable with the limitations and exceptions described below.

6.4.1 Holding Times

The samples were analyzed for VOCs within the EPA-recommended maximum holding time of 14 days.

6.4.2 Method Blanks

Target analytes were not detected in the method blanks associated with the analysis of these samples.

6.4.3 Laboratory Control Sample Recoveries

LCS recoveries were within EPA-specified or QAPP-specified 80 to 120% acceptance limits, except as described in Table A-2.

6.4.4 Surrogate Recoveries

Surrogate recoveries were within QAPP-specified 60 to 140% acceptance limits.

6.4.5 Matrix Spikes

MS/MSD was performed on a sample associated with a different SDG and the results are not applicable to this sample.

6.5 Semivolatile Organic Compounds by EPA Method 8270C

SVOC results generated by TA may be considered usable with the limitations and exceptions described below.

6.5.1 Holding Times

The sump sample was extracted within the EPA recommended maximum holding time of 14 days from sample collection until extraction and analyzed within recommended maximum 40 day holding time.

6.5.2 Blanks

SVOCs were not detected in the method blank associated with this sample.

6.5.3 Laboratory Control Sample Recoveries

All reported LCS recoveries were within QAPP-specified 70 to 130% acceptance limits for organic compounds, except as described in Table A-2.

6.5.4 Surrogate Recoveries

Surrogate recoveries were within method-specified acceptance limits, except as described below.

- p-Terphenyl-d14 in sample IDW-202 yielded a recovery of 23.30%. Because up to 1 surrogate from each fraction can be outside of acceptance limits without affecting data quality, therefore data usability is not adversely affected.

6.5.5 Matrix Spike Recoveries

MS were performed on sample IDW-202 Sump Sediment. Recoveries were within QAPP-specified 60 to 140% acceptance criteria for all analytes, except as described in Table A-3.

6.5.6 Data Reporting and Analytical Procedures

AMEC retained TA's J qualifiers, indicating that the detected concentrations were less than the MRL, but greater than the MDL, and should be considered estimated values (J-DL).

6.6 Conventional and Physical Chemistry Parameters by EPA Methods 9045B and 9095

pH and Free Liquid results generated by TA for this sample may be considered usable.

6.6.1 Holding Times

The sump sediment sample was processed within the method-recommended holding time.

6.6.2 Blanks

EPA Methods 9045B for pH does not require the analysis of a method blank.

6.6.3 Laboratory duplicate

TA analyzed as duplicate a sample from a different SDG and the results are not applicable to this sample.

6.7 Polychlorinated Dibenzo-p-dioxins and Dibenzofurans by EPA Methods 8280 and 8290

PCDDs and PCDFs results generated by Pace and STL may be considered usable with the limitations and exceptions described below.

6.7.1 Holding Times

The sump sediment sample was extracted within the EPA recommended maximum holding time of 30 days from sample collection until extraction and the TCLP extracts were extracted within the EPA recommended maximum holding time of 7 days from preparation to extraction. All extracts were analyzed within recommended maximum 45 days holding time.

6.7.2 Blanks

PCDDs and PCDFs were not detected in the method blanks associated with these samples, except as described in Table A-1.

6.7.3 Laboratory Control Sample Recoveries

All reported LCS recoveries were within method-specified 70 to 130% acceptance limits.

6.7.4 Internal Standards Recoveries

Internal standard recoveries were within method-specified 25 to 150% for the sample analyzed by Method 8280 and 40 to 135% for the sample analyzed by Method 8290.

7.0 SUMMARY AND CONCLUSIONS

Overall laboratory performance and data quality appear to be acceptable and the data are usable for with the addition of the qualifiers summarized in Table A-5.

TABLES

TABLE A-1
Analytes Detected in Laboratory Blanks
WTP Sump Sediment
RP - Portland Site

Associated Samples	EPA Method	Detected Analyte	Detected Concentration	U Qualify Results Below the Following Concentrations (5x or 10x Rule)	Notes
Method Blank G6E210000-053					
IDW-220(TCLP)	8290	1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,4,6,7,8-HpCDF	28 54 26	140 270 130	AMEC U qualified the TCLP dioxin analyte results from sump sediment sample because the concentration detected in the sample was less than 5 times the concentration detected in the blank. (U-MB)

Notes:
WTP = water treatment plant
EPA = United States Environmental Protection Agency

TABLE A-2
Laboratory Control Sample Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sump Sediment
RP - Portland Site

Associated Samples	EPA Method	Analyte Outside Acceptance Limits	LCS Recovery	LCSD Recovery	Notes
LCS 6040940-BS1					
IDW-206 (TCLP)	6010B	Arsenic	138%	-	Arsenic was not detected in the associated sample and data usability is not adversely affected.
LCS/LCSD 6020915-BS1/6020915-BSD1					
IDW-202	8151A	Bromoxynil	48.9%	71.4%	AMEC J qualified the detected results for these analytes in the associated samples because of possible low bias in the analytical results. (J-LL)
		2,4,5-T	54.7%	75.0%	
		2,4-D	66.7%	75.6%	The average recoveries are within acceptance limits and in AMEC's profesional opinion data usability is not adversely affected.
		2,4-DB	61.9%	80.4%	
		2,4,5-TP	53.6%	71.2%	AMEC UJ qualified the nondetected results for these analytes in the associated sample because of possible low bias in the analytical results. (UJ-LL)
		Dalapon	56.3%	65.5%	
		Dicamba	58.3%	79.0%	
		Dichlorprop	65.5%	82.8%	
		Dinoseb	42.8%	57.1%	
		MCPA	136%	138%	Recoveries were high and these analytes were not detected in the associated sample therefore data usability is not adversely affected.
		MCPP	141%	123%	
LCS 6020798-BS1					
IDW-202	8260B	Acetone	50.5%	-	UJ qualify the nondetected analyte results from the associated sample because of a possible low bias in the analytical results. (UJ-LL)
		Bromoform	63.5%	-	
		2-Butanone	61.0%	-	
		1,2-Dibromo-3-chloropropane	56.5%	-	
		2-Ethyl-1-hexanol	58.0%	-	
		2-Hexanone	50.5%	-	
		Isobutyl alcohol	41.5%	-	
		4-Methyl-2-pentanone	69.5%	-	
		Naphthalene	69.0%	-	
		1,1,2,2-Tetrachloroethane	69.5%	-	
LCS/ LCSD6021027-BS1/6021027-BSD1					
IDW-202	8270C	Benzoic acid	64.6%	67.2%	AMEC UJ qualified the nondetected results for these analytes in the associated sample because of possible low bias in the analytical results. (UJ-LL)
		4-Chloroaniline	40.7%	43.0%	
		3,3-Dichlorobenzidine	59.5%	61.5%	
		2,4-Dinitrophenol	58.2%	63.2%	
		Hexachlorocyclopentadiene	61.1%	62.0%	
		3-Nitroaniline	45.3%	49.5%	

Notes:
EPA = United States Environmental Protection Agency
LCS = laboratory control sample
LCSD = laboratory control sample duplicate
QAPP = Quality Assurance Project Plan
WTP = water treatment plant

TABLE A-3
Matrix Spike Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sump Sediment
RP - Portland Site

Spiked Sample	EPA Method	Analyte Outside Acceptance Limits	MS Recovery	MSD Recovery	Notes
Matrix Spike (6020981-MS1)					
IDW-202	6020	Barium	>300%	-	Background analyte concentration in the unspiked sample was more than 4 times the spike concentration of 9.80 mg/kg. Data usability is not adversely affected.
		Chromium	54.1%	-	AMEC J qualified the detected results for these analytes in the associated sample because of possible low bias in the analytical results. (J-LM)
		Lead	73.5%	-	
IDW-202	7471A	Mercury	85.6%	71.0%	Recoveries were slightly low in the MSD but acceptable in the MS. In AMEC's professional opinion data usability is not adversely affected.
Matrix Spikes 6020915-MS1/6020915-MSD1					
IDW-202	8151A	2,4-D	-	-	Background analyte concentration in the unspiked sample was more than 4 times the spike concentration of 452 µg/kg. Data usability is not adversely affected.
		Bromoxynil	-	-	
		MCPP	>300%	263%	Recoveries were high but this analyte was not detected in the associated samples. Data usability is not adversely affected.
		Dicamba			AMEC R qualified and rejected the nondetected results for these analytes in the associated sample because the analytes were not recovered in ms. (R-MS)
		Dichloroprop		45.8%	
Matrix Spikes 6021027-MS1/6021027-MSD1					
IDW-202	8270C	Anthracene	35.00%	35.80%	AMEC UJ qualified the nondetected results for these analytes in this sample because of possible low bias in the analytical results. (UJ-LM)
		Benzo(a)anthracene	11.4%	9.77%	
		Benzo(b)fluoranthene	11.1%	8.45%	
		Benzoic acid	58.6%	56.4%	
		4-Chloroaniline	30.5%	30.0%	
		Chrysene	12.2%	11.9%	
		3,3-Dichlorobenzidine	13.7%	10.4%	
		2,4-Dinitrophenol	20.2%	16.7%	
		Fluoranthene	31.8%	31.6%	
		Hexachlorocyclopentadiene	33.4%	25.5%	
		3-Nitroaniline	53.4%	56.1%	
		4-Nitroaniline	49.0%	45.5%	
		Penthachlorophenol	31.4%	29.8%	
		Phenanthrene	51.4%	52.7%	
		Pyrene	30.8%	30.5%	
		Tetrachlorophenols(2)	57.2%	54.5%	
		Benzo(k)fluotanthene	9.55%	6.95%	AMEC R qualified and rejected the nondetected results for these analytes in the associated sample because of less than 10% recovery. (R-MS)
		Benzo(ghi)perylene	4.55%	3.95%	
		Benzo(a)pyrene	6.62%	5.59%	
		Dibenzo(a,h)anthracene	4.82%	3.24%	
		Indeno(1,2,3-cd)pyrene	4.55%	2.94%	

Notes:
EPA = United States Environmental Protection Agency
mg/kg = milligrams per kilogram
MSD = matrix spike duplicate
QAPP = Quality Assurance Project Plan
WTP = water treatment plant

TABLE A-4
Surrogate Recoveries Outside QAPP-Specified Acceptance Limits
WTP Sump Sediment
RP - Portland Site

Sample ID	EPA Method	Surrogate	Recovery	Notes
IDW-202	8270C	p-Terphenyl-d14	23.30%	Up to 1 surrogate from each fraction can be outside of acceptance limits without affecting data quality and data usability is not adversely affected.

Notes:
QAPP = Quality Assurance Project Plan
WTP = water treatment plant
EPA = United States Environmental Protection Agency

TABLE A-5
Laboratory Duplicate RPDs Outside QAPP-Specified Acceptance Limits
WTP Sump Sediment
RP - Portland Site

Sample Analyzed in Duplicate	Analyte with >20% RPD	RPD	Notes
IDW-202	Arsenic	22.4%	AMEC J qualified the detected result for this analyte in the associated sample because of high RPD. (J-HD)
	Silver	34.5%	Silver concentrations detected in the primary analysis and in the duplicate were less than the MRL of 0.485 mg/kg and data usability is not adversely affected.

Notes:
mg/kg = milligrams per Kilogram
MRL = method reporting limit
QAPP = Quality Assurance Project Plan
WTP = water treatment plant

TABLE A-6
Qualified Data Summary
WTP Sump Sediment
RP - Portland Site

Sample ID	EPA Analytical Method	Analysis Date	Analyte	Result Value	Result Unit	Qualifier	Reason Code
IDW-220	1311/8290	22-May-06	1,2,3,4,6,7,8,9-OCDD	59	pg/l	U	MB
IDW-220	1311/8290	22-May-06	1,2,3,4,6,7,8-HpCDD	33	pg/l	U	MB
IDW-220	1311/8290	22-May-06	1,2,3,4,6,7,8-HpCDF	32	pg/l	U	MB
IDW-202	6020	22-Feb-06	Lead	40.3	mg/kg	J	LM
IDW-202	6020	22-Feb-06	Silver	0.281	mg/kg	J	DL
IDW-202	6020	22-Feb-06	Arsenic	10.3	mg/kg	J	HD
IDW-202	6020	22-Feb-06	Chromium	25.3	mg/kg	J	LM
IDW-202	8151A	24-Feb-06	Dichlorprop		µg/kg	R	LL, MS
IDW-202	8151A	24-Feb-06	Dicamba		µg/kg	R	LL, MS
IDW-202	8151A	24-Feb-06	Dalapon		µg/kg	UJ	LL
IDW-202	8151A	24-Feb-06	2,4,5-TP (Silvex)		µg/kg	UJ	LL
IDW-202	8151A	24-Feb-06	2,4,5-T	104	µg/kg	J	DL, LL
IDW-202	8151A	24-Feb-06	Bromoxynil	1920	µg/kg	J	LL
IDW-202	8151A	24-Feb-06	Dinoseb		µg/kg	UJ	LL
IDW-202	8270C	28-Feb-06	4-Nitroaniline		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	4-Chloroaniline		mg/kg	UJ	LL, LM
IDW-202	8270C	28-Feb-06	Anthracene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Pyrene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Benzo(ghi)perylene		mg/kg	R	MS
IDW-202	8270C	28-Feb-06	Indeno(1,2,3-cd)pyrene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Benzo(b)fluoranthene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Fluoranthene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Benzo(k)fluoranthene		mg/kg	R	MS
IDW-202	8270C	28-Feb-06	Chrysene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Benzo(a)pyrene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	2,4-Dinitrophenol		mg/kg	UJ	LL, LM
IDW-202	8270C	28-Feb-06	Dibenzo(a,h)anthracene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Benzo(a)anthracene		mg/kg	R	MS
IDW-202	8270C	28-Feb-06	Benzoic acid		mg/kg	UJ	LL, LM
IDW-202	8270C	28-Feb-06	Phenanthrene		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	Pentachlorophenol		mg/kg	UJ	LM
IDW-202	8270C	28-Feb-06	3,3'-Dichlorobenzidine		mg/kg	UJ	LL, LM
IDW-202	8270C	28-Feb-06	3-Nitroaniline		mg/kg	R	LL, MS

Notes
HD = Hugh laboratory duplicate RPD
DL = Analyte concentration was between the MDL and MRL
LL = Low laboratory control sample recovery
LS = Low surrogate recovery. Analytical results may be biased low.
LM = Low MS/MSD recovery
MB = Method blank contamination
MS = MS recovery is less than 10%
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
pg/l = picograms per liter
EPA = United States Environmental Protection Agency

April 20, 2007

0-61M-107030/Phase 34F

Mr. Tom Roick
Project Manager, Cleanup & Portland Harbor
Oregon Department of Environmental Quality
2020 S.W. 4th Avenue
Portland, OR 97201-4987

Dear Mr. Roick:

Re: Disposal of Water Treatment Plant Sludge
Corrective Action Management Unit (CAMU)-Eligibility
RP - Portland Site

On behalf of SLLI, AMEC Earth & Environmental, Inc. (AMEC) is providing the Oregon Department of Environmental Quality (DEQ) with a status summary for planned removal and disposal of accumulated solids (sludge) from the water treatment plant (WTP) at the former Rhône-Poulenc (RP) manufacturing facility (Site) located at 6200 NW St. Helens Road in Portland, Oregon. The sludge is generated from implementation of an interim remedial measure for the extraction and treatment of groundwater, stormwater runoff, and other remedial action derived waters pursuant to Order on Consent DEQ No. WMCSR-NWR-99-07. The discharge of treated groundwater is governed by National Pollutant Discharge Elimination System (NPDES) Permit No. 101180.

The WTP includes a suspended film biological reactor in which microorganisms absorb and metabolize organic matter and nutrients from recovered groundwater. Subsequent stages of the WTP include sedimentation tanks where suspended microorganisms and inorganic solids (fine sand and clay) are settled out before the clarified supernatant is mixed with the collected stormwater and passed through granular activated carbon. The sediment to be removed from the sedimentation tank and disposed is a relatively small volume residue from the treatment, by the WTP, of large volumes of water (several million gallons each year). A layout of the WTP and description of the various water treatment stages are provided in the attached Process and Instrumentation Diagram - Figure 1.

Solids are primarily removed from the treated groundwater effluent by gravity separation inside Tank V-531 (capacity of 100,000 gallons). SLLI plans to remove an estimated 60 cubic yards of accumulated solids from Tank V-531 in May 2007 to ensure optimum continued WTP operation. The periodic removal, stabilization, and off-site disposal of sludge from the sedimentation tank are part of a normal WTP operation and maintenance cycle.

A representative composite sample of settled sludge from the base of this tank was collected on February 19, 2007. Consistent with previous WTP sludge samples (from Tanks V529/V530),

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the leaching potential of hazardous constituents in the Tank V-531 sludge was evaluated using the Toxicity Characteristic Leaching Procedure (TCLP). The results are summarized on the attached Table 1. Leachable concentrations of only a few constituents of interest were detected: 2,4-dichlorophenoxyacetic acid (2,4-D) at a concentration of 0.0353 milligrams per liter (mg/L), 2,4-dichorophenoxybutyric acid (2,4-DB) at 0.00922 mg/L, m,p-xylene at 0.0697 mg/L and 1,2,3,4,6,7,8,9-octachlorodibenzo-p-dioxin (OCDD) at 0.7 nanograms per liter (ng/L).

Solids inside Tank V-531 will be removed and then dewatered to a residual water content of 20 to 50% using gravity drainage vessels. The dewatered sludge, referred to as sludge cake, will then be treated for free liquids, if necessary, by amendment with absorbents as required in 40 Code of Federal Regulations (C.F.R.) § 264.552(a)(3). A free liquid analysis (United States Environmental Protection Agency [EPA] Method SW 9095) will be performed on a representative treated sludge cake sample prior to shipment to the landfill. Free water collected during the sludge transfer and dewatering will be routed to the WTP bioreactor.

The Chemical Waste Management of Northwest (CWMNW) Subtitle C landfill facility in Arlington, Oregon will receive the dewatered sludge. In accordance with their operational permit, CWMNW will macroencapsulate this type of waste in high density polyethylene (HDPE) macroencapsulation devices. Each sealed device is placed within a landfill cell.

Please note that results of the TCLP analysis indicate very low leaching potentials for hazardous constituents in the Tank V-531 sludge. These Tank V-531 results are consistent with prior results for WTP sludge generated in a similar manner and already accepted for off-site land disposal under appropriate CAMU-eligible waste criteria. Macroencapsulation of the waste will further ensure that the waste will meet the immobility criteria set out in 40 C.F.R. § 264.552(e)(4)(v)(E)(1). The waste meets the criteria for disposal in a permitted hazardous waste landfill as laid out in 40 C.F.R. § 264.555(a).

By letter dated August 17, 2006, the DEQ approved disposal of solids generated in the Water Treatment Plant as CAMU-eligible waste, to be shipped to the Subtitle C landfill operated by CWMNW in Arlington, Oregon. SLLI requests approval from DEQ to dispose of Tank V-531 sludge at the CWMNW Subtitle C landfill in Arlington, Oregon, as CAMU-eligible waste pursuant to the August 17, 2006 DEQ letter. SLLI is prepared to meet with you, if necessary, to expedite this request.

If you have any questions regarding the information presented please contact Jack Spadaro or Roger Gresh at (503) 639-3400.

Sincerely,

AMEC Earth & Environmental, Inc.

Jack Spadaro, PhD, CHMM
Task Manager

Roger Gresh, R.G.
Project Manager

Attachment: Table 1 Toxicity Characterization Leaching Results for Sludge from Water Treatment Plant Tank V-531
Figure 1 Groundwater/Stormwater Treatment System P&ID

JTS/lp

c: S. Dearden, sanofi-aventis US, Inc.
R. Ferguson, SLLI
J. Benedict, CHBH&L

REFERENCE

Oregon Department of Environmental Quality, 2006. *CAMU Eligibility for Hazardous Waste, Rhône Poulenc Site*, letter to Stuart Dearden, August 17, 2006.

ATTACHMENTS

TABLE 1
Summary of Constituent Detections in Tank V531 Sludge
RP - Portland Site

Analyte Detected in Tank V531 Totals Analysis	CAS Number	Tank V531 TCLP Result (2007)	Tanks V529/V530 Maximum TCLP Result (2006)	Units
Metals by EPA Method 6000/7000 Series				
Arsenic	7440-38-2	0.00664 U	0.0535	mg/L
Barium	7440-39-3	0.00180 U	0.0570	mg/L
Chromium	7440-47-3	0.00121 U	0.0169	mg/L
Lead	7439-92-1	0.000553 U	0.0110	mg/L
Mercury	7439-97-6	0.0000230 U	0.0000241	mg/L
Silver	7440-22-4	0.00121 U	0.00938	mg/L
Volatile Organic Compounds by EPA Method 8260B				
m,p-Xylene	1330-20-7	0.0697	0.0100 U	mg/L
Chlorinated Herbicides by EPA Method 8151A				
2,4-D*	94-75-7	0.0361	0.00600	mg/L
2,4-DB*	94-82-6	0.00922	NT	mg/L
Semivolatile Organic Compounds by EPA Method 8270C				
2,4-Dichlorophenol	120-83-2	0.0595 U	0.0500 U	mg/L
Dioxin and Furan Compounds by EPA Method 8280A				
1,2,3,4,6,7,8,9-OCDD	3268-87-9	0.700	50.0 U	ng/L
1,2,3,4,6,7,8,9-OCDF	39001-02-0	0.290 U	50.0 U	ng/L
1,2,3,4,6,7,8-HpCDD	35822-46-9	0.230 U	25.0 U	ng/L
1,2,3,4,6,7,8-HpCDF	67562-39-4	0.220 U	25.0 U	ng/L
1,2,3,4,7,8-HxCDF	70648-26-9	0.0730 U	25.0 U	ng/L
1,2,3,6,7,8-HxCDD	57653-85-7	0.160 U	25.0 U	ng/L
1,2,3,7,8-PeCDD	40321-76-4	0.190 U	25.0 U	ng/L
1,2,3,7,8-PeCDF	57117-41-6	0.150 U	25.0 U	ng/L
2,3,4,7,8-PeCDF	57117-31-4	0.140 U	25.0 U	ng/L
2,3,7,8-TCDD	1746-01-6	0.110 U	10.0 U	ng/L
2,3,7,8-TCDF	51207-31-9	0.0640 U	10.0 U	ng/L
Total HpCDD	37871-00-4	0.230 U	25.0 U	ng/L
Total HpCDF	38998-75-3	0.840 U	25.0 U	ng/L
Total HxCDD	34465-46-8	0.320 U	25.0 U	ng/L
Total HxCDF	55684-94-1	0.200 U	25.0 U	ng/L
Total PeCDD	36088-22-9	0.610 U	25.0 U	ng/L
Total PeCDF	30402-15-4	0.230 U	25.0 U	ng/L
Total TCDD	41903-57-5	0.110 U	10.0 U	ng/L
Total TCDF	30402-14-3	0.110 U	10.0 U	ng/L

Notes:

Totals Analysis: Total recovery from sludge using United States Environmental Protection Agency Standard Methods

TCLP: Toxicity Characteristic Leaching Procedure

U: Not detected at or above the method detection limit

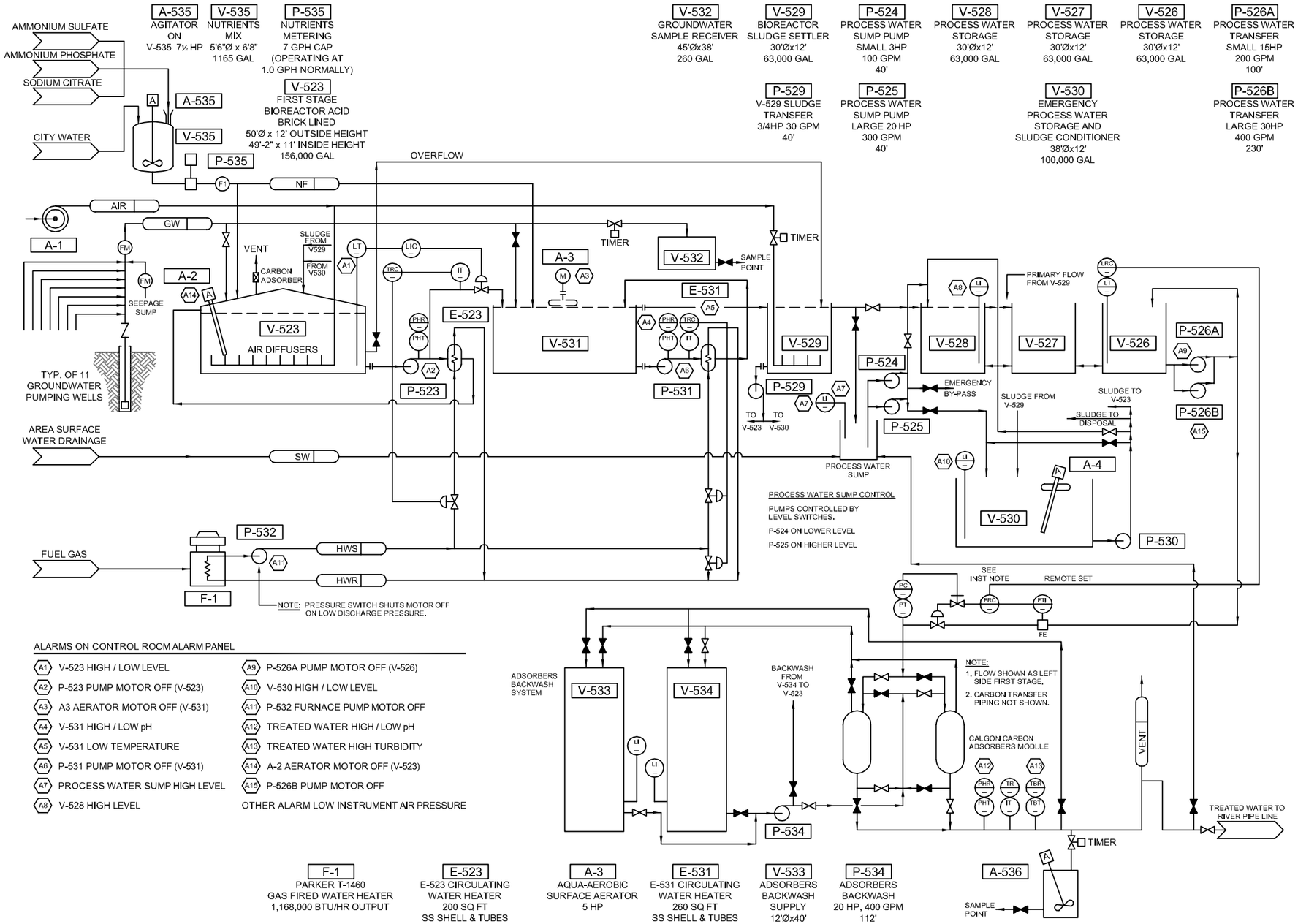
* : No totals analysis performed for analyte

EPA = United States Environmental Protection Agency

NT = Not tested

mg/L = milligrams per liter

ng/L = nanograms per liter



EQUIPMENT LEGEND

A	AGITATOR OR AERATOR
E	HEAT EXCHANGER
P	PUMP
V	VESSEL
⋈	NORMALLY CLOSED VALVE (NC)
⋈	NORMALLY OPEN VALVE (NO)
⟋	CHECK VALVE
(X)	ALARM POINT

PROCESS LEGEND

AIR	BLOWER AIR
GWI	GROUNDWATER INFLUENT
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
NF	NUTRIENT FEED
SW	SURFACE WATER
VENT	VENT TO ATMOSPHERE

INSTRUMENT LEGEND

FE	FLOW ELEMENT (FOXBORO MAG FLOW METER)
FI	FLOW INDICATOR (ROTAMETER)
FM	TOTALIZING FLOW METER
FRC	FLOW RECORDER CONTROLLER
FTT	FLOW TRANSMITTER TOTALIZER
LI	LEVEL INDICATOR
LIC	LEVEL INDICATOR CONTROLLER
LRC	LEVEL RECORDER CONTROLLER
LT	LEVEL TRANSMITTER
PC	PRESSURE CONTROLLER
PHT	pH TRANSMITTER
PHR	pH RECORDER
PT	PRESSURE TRANSMITTER
TBT	TURBIDITY TRANSMITTER
TBR	TURBIDITY RECORDER
TRC	TEMPERATURE RECORDER CONTROLLER
IT	TEMPERATURE TRANSMITTER

PIPING / SIGNAL LEGEND

- PRIMARY
- SECONDARY
- PHEUMATIC
- (PHT) FIELD
- (PHR) CONTROL ROOM PANEL

INSTRUMENT NOTE

HIGH PRESSURE OVERRIDES FLOW CONTROL VIA A 1 TO 1 RELAY - LOWER OUTPUT PRESSURE OF PC OR FRC APPLIED TO FLOW CONTROL VALVE.

ALARMS ON CONTROL ROOM ALARM PANEL

A1 V-523 HIGH / LOW LEVEL	A9 P-526A PUMP MOTOR OFF (V-526)
A2 P-523 PUMP MOTOR OFF (V-523)	A10 V-530 HIGH / LOW LEVEL
A3 A3 AERATOR MOTOR OFF (V-531)	A11 P-532 FURNACE PUMP MOTOR OFF
A4 V-531 HIGH / LOW pH	A12 TREATED WATER HIGH / LOW pH
A5 V-531 LOW TEMPERATURE	A13 TREATED WATER HIGH TURBIDITY
A6 P-531 PUMP MOTOR OFF (V-531)	A14 A-2 AERATOR MOTOR OFF (V-523)
A7 PROCESS WATER SUMP HIGH LEVEL	A15 P-526B PUMP MOTOR OFF
A8 V-528 HIGH LEVEL	OTHER ALARM LOW INSTRUMENT AIR PRESSURE

F-1 PARKER T-1460 GAS FIRED WATER HEATER 1,168,000 BTU/HR OUTPUT

E-523 E-523 CIRCULATING WATER HEATER 200 SQ FT SS SHELL & TUBES

A-3 AQUA-AEROBIC SURFACE AERATOR 5 HP

E-531 E-531 CIRCULATING WATER HEATER 260 SQ FT SS SHELL & TUBES

V-533 ADSORBERS BACKWASH SUPPLY 12'Ø x40' 34,000 GAL

P-534 ADSORBERS BACKWASH 20 HP, 400 GPM 112'

A-536 SAMPLE RECEIVER 4'Ø x6'6" 600 GAL

A-1 AIR BLOWER 100 CFM 10 PSI 5HP

A-2 AERATION INDUSTRIES AERATOR 15 HP

P-532 FURNACE CIRCULATING PUMP 7½ HP 175 GPM 100'

P-523 V-523 CIRCULATING PUMP 20 HP 400 GPM 93'

V-531 SECOND STAGE BIOREACTOR 38'Ø x12' 100,000 GAL

P-531 V-531 CIRCULATING PUMP 15 HP 400 GPM 93'

V-534 ADSORBERS BACKWASH RECIEVER 12'Ø x40' 34,000 GAL

A-4 AERATION INDUSTRIES AERATOR ON PONTOONS 15 HP

V-536 SAMPLE RECEIVER 4'Ø x6'6" 600 GAL

V-536 AGITATOR ON V-536 1/2 HP

P-530 V-530 PUMP 7½ 150 GPM 83'

SOURCE:
GROUNDWATER/SURFACEWATER TREATMENT SYSTEM P&ID, SJO CONSULTING ENGINEERS, PORTLAND, OREGON, REVISED SEPT. 18, 1997

FIGURE 1
GROUNDWATER / STORMWATER TREATMENT SYSTEM P&ID
RP - PORTLAND SITE

W.O. 0-61M-10703-0 P-34F
DESIGN JKH
DRAWN DD
DATE MAY 2006
SCALE NOT TO SCALE

amec
7376 S.W. Durham Road
Portland, OR, U.S.A. 97224

...making excellence a habit.™

June 24, 2019

David Lacey
Oregon Department of Environmental Quality
Northwest Region
700 NE Multnomah St., Suite 600
Portland, Oregon 97232-4100

Subject: Disposal of Water Treatment Plant Sweepings
Request for Corrective Action Management Unit Eligibility Approval
Former Rhône-Poulenc - Portland Site

Dear Mr. Lacey:

On behalf of StarLink Logistics Inc. (StarLink), BSI EHS Services and Solutions (BSI) is providing this revised letter and enclosed information to the Oregon Department of Environmental Quality (DEQ) regarding the planned disposal of accumulated solids (floor sweepings) currently stored at the former Rhône-Poulenc site located at 6193 NW 61st Avenue, Portland, Oregon (Site). StarLink is currently storing this material at the Waste Storage Facility (WSF) pursuant to and in accordance with DEQ Order on Consent No. WMCSR-NWR-99-07. StarLink submitted the initial WTP Sweepings corrective action management unit (CAMU)-eligibility request to DEQ in a letter dated November 6, 2018. DEQ replied with an additional information request in a letter dated December 11, 2018.

This letter has been revised to address DEQ's information request and provides the details needed to support a determination by DEQ that water treatment plant (WTP) floor sweepings currently stored onsite or generated in the future during routine maintenance may be managed and disposed off-site as CAMU- eligible. StarLink requests approval from DEQ to dispose at the secure Chemical Waste Management Subtitle C facility in Arlington, Oregon the WTP floor sweepings generated during operation of the groundwater and storm water treatment interim remedial measure using the criteria for disposal of CAMU-eligible wastes in permitted hazardous waste landfills (40 C.F.R. §264.555). DEQ previously approved CAMU-eligibility and disposal of spent granular activated carbon and dewatered sludges from the Site's WTP at the Chemical Waste Management Subtitle C landfill.

CORRECTIVE ACTION MANAGEMENT RULE

On January 22, 2002, the United States Environmental Protection Agency (EPA) published additional regulations regarding disposal of remediation waste in the *Federal Register* (Amendments to the CAMU Rule; Final Rule, 67, *Federal Register* 2962). EPA adopted these regulations to encourage expeditious

cleanups at contaminated sites by reducing obstacles to disposal of remediation waste. The regulations provide alternatives to the Resource Conservation and Recovery Act (RCRA) Land Disposal Restrictions (LDRs) and Universal Treatment Standards (UTS) for off-site disposal, provided that the remediation waste meets the requirements outlined in the regulations. The regulations for offsite disposal of CAMU-eligible waste in permitted hazardous waste landfills are set forth in §264.555. For waste to meet the offsite disposal criteria in the new regulations, it must be identified as "CAMU-eligible waste." EPA defines CAMU eligible waste in §264.552(a)(1) as “all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup.” The remediation waste stored at the Site meets the criteria for CAMU-eligible waste, as described further in this letter.

The January 2002 CAMU rule amendment includes provisions that authorize the DEQ to implement the regulations without further amendment to the existing DEQ RCRA program authorization.

WASTEWATER TREATMENT AND REMEDIATION WASTE GENERATION

The WTP is operated as an interim remedial measure implemented to treat extracted groundwater and storm water pursuant to DEQ Order on Consent No. WMCSR-NWR-99-07. DEQ defines remediation waste as all solid and hazardous waste and all media and debris that contain listed hazardous waste or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup. Therefore, any hazardous waste material generated from the maintenance of the WTP meets both DEQ’s definition of remediation waste and EPA’s definition of CAMU-eligible waste.

WTP maintenance includes periodic removal of accumulated dirt, moss, leaves and debris from within the upper and lower WTP secondary containment areas to avoid accumulation in WTP sumps. The material generated in June 2018 from this maintenance activity is stored in five 55-gallon steel drums. The material includes sediments and moss primarily accumulated in and around channels that drain to secondary containment sumps and leaves and wind-blown debris collected along containment walls and under pipe racks. Most of the waste sweeping material was generated from a drainage channel that receives V-523 (bioreactor) recirculation pump cooling water and directs it to the V-523 secondary containment sump (Figure 1 and Attachment A). This drainage channel has a gentle slope and stays wet year-round due to the constant trickle of cooling water. The other primary source of material was sediment and debris that accumulates around the sump at the upper brick secondary containment for the carbon adsorbers as well as moss growing in the drainage channel that flows back into the WTP from this sump.

The material was collected by washing dirt and debris toward sumps and collecting solids with filter bags. This process homogenized material as it was generated. The wet material was scooped into drums and free water was decanted into the WTP and routed to the biological reactor for treatment. Perlite was added to each drum to absorb excess moisture following sampling.

SAMPLING AND LABORATORY ANALYSIS

One representative composite sample was collected in accordance with the Site standard operating procedure (SOP-20) for waste container sampling methodology. The sampling procedure included collection of discrete samples from the top 12 inches of material in each drum, homogenizing the material and filling the laboratory-provided sample containers. The discrete volatile organic compounds (VOCs) sample was collected from a random drum and not homogenized.

The following laboratory analytical methods were utilized to characterize the chemical and physical parameters of the waste characterization sample. Laboratory reports are provided in Attachment B.

- VOCs by EPA Method 5035A/8260C
- Semivolatile organic compounds (SVOCs) by EPA Method 8270D
- Total metals by EPA Method 6020A
- TCLP metals by EPA Method 6010C
- Total mercury by EPA Method 7471B
- TCLP mercury by EPA Method 7470A
- Organochlorine insecticides (OCIs) by EPA Method 8081B
- TCLP OCIs by EPA Method 8081B
- Chlorinated herbicides by EPA Method 8151A
- Dioxins and furans by EPA Method 8290A
- TCLP dioxins and furans by EPA Method 1613B
- Polychlorinated biphenyls by EPA Method 8082A
- pH by EPA Method 9045C
- Total solids percent by EPA Method E160.3
- Total solids percent by weight by EPA Method 8000C

Analytical Results

Table 1 summarizes detected constituents and compares results to applicable UTS, toxicity characteristic standards and Site-specific groundwater preliminary remediation goals (PRGs) where applicable. Table 2 provides a comparison of laboratory detection limits to the UTS. Follow-up

toxicity characteristic leaching procedure (TCLP) analysis of OCIs was performed because the laboratory was unable to achieve detection limits below the UTS for more than half of the analytes in the initial solids sample. Dioxins and furans were also analyzed using the TCLP method because Total pentachlorodibenzofuran (PeCDF) and Total tetrachlorodibenzo-p-dioxin (TCDD) were detected at concentrations greater than 10 times the UTS. The TCLP methods were chosen based upon the recognition that protection of the environment within a landfill setting is closely aligned to the leaching potential of hazardous constituents.

In accordance with DEQ's request, groundwater PRGs are presented on Table 1 for compounds detected in TCLP leachate. Site-specific PRGs for Shallow Groundwater are provided because the risk scenarios associated with shallow groundwater are the most applicable with respect to the generation and disposal of the waste. It is important to note that the waste does not contain free liquid and will not contact liquids once disposed because it will be buried in a sealed macro box within the Subtitle C landfill. Additionally, no constituents were detected in TCLP leachate above PRGs.

Golder Associates Inc. performed a Tier II data validation quality assurance/quality control (QA/QC) review with reference to EPA guidelines (Attachment C). The laboratories' certified analytical reports and supporting documentation were reviewed to assess the following: chain of custody (COC) compliance; holding time compliance; presence or absence of laboratory contamination as demonstrated by method and field blanks; accuracy and bias as demonstrated by recovery of surrogate spikes, laboratory control samples (LCS), and matrix spikes (MS); analytical precision as relative percent difference (RPD) of analyte concentration between replicate samples (i.e., laboratory duplicates) or MS and matrix spike duplicates (MSD); sampling precision as RPD of analyte concentration between field duplicates; calibration performance; and insofar as possible, the degree of conformance to method requirements and good laboratory practices. Data from all analytical methods has undergone a data quality review, which does not include review or validation of the raw analytical data. Overall laboratory performance and data quality appear to be acceptable and the data are usable for the intended purpose and data quality needs.

WASTE CHARACTERIZATION

Waste Codes

StarLink performed comprehensive chemical analysis on the constituents potentially present in the WTP Sweepings material. The EPA contained-in principal for mixtures of environmental media states that media contaminated with listed hazardous wastes are not wastes themselves, but they contain hazardous waste and must therefore be managed as hazardous waste until they no longer contain the

waste. Laboratory analytical results indicate what constituents are, or are not, present in the media. The following EPA listed hazardous waste codes were applied based upon detected constituents and StarLink process knowledge. These waste codes potentially include: F002 (1,2-dichlorobenzene), F003 (ethylbenzene), F005 (benzene, toluene), K043, K099, U188 (phenol), U239 (xylenes), U240 (2,4-D) and U247 (methoxychlor). In accordance with Oregon state regulation, no state-only hazardous waste codes are applied because the waste carries federally listed hazardous waste codes.

The waste codes listed have been assigned based on process knowledge and remediation waste analytical results. The number of waste codes listed in this application is smaller than in some earlier waste characterizations because of the representativeness of the samples collected of the waste. However, the waste codes identified are likely conservative and overly inclusive. In addition, StarLink and DEQ are currently not in agreement on the proper waste determination under RCRA and Oregon's hazardous waste laws for certain waste generated at the former Rhone-Poulenc Site containing 2,4-D. However, based on direction from DEQ, StarLink has included the waste codes K043, K099 and U240 in its waste determination. The conservative assignment of waste codes including assignment of K043, K099 and U240 shall not be deemed an admission by StarLink of the applicability of these waste codes nor a waiver of any right of StarLink. StarLink specifically reserves the right to revise these waste codes upon resolution of the existing disagreement between StarLink and DEQ.

Principal Hazardous Constituents

The WTP sweepings will be disposed in an off-site hazardous waste landfill, and site-specific clean-up goals and risk levels are not applicable in this context. However, principal hazardous constituents (PHCs) must still be identified in accordance with §264.555(a)(2), and the Regional Administrator must consider all constituents, which absent section §264.552(e)(4), would be subject to the treatment requirements of 40 CFR part 268. StarLink proposes a more conservative approach to identifying PHCs by evaluating all detected constituents and carrying forward those which exceed the CAMU alternative treatment standard (10 times the UTS) land disposal restriction rather than identifying PHCs based upon site-specific cleanup goals. Therefore, Total PeCDF and Total TCDD are applicable PHCs.

TREATMENT AND DISPOSAL OPTIONS

CAMU-eligible waste that will be disposed in a permitted hazardous waste landfill must meet one of the treatment standards specified in §264.555(a)(2). The applicable standard for the WTP sweepings follows §264.555(a)(2)(ii) which refers to treatment standards adjusted in accordance with §264.552(e)(4)(v)(A), (C), (D), or (E)(1). The "Regional Administrator" (DEQ) for the RCRA CAMU program can modify the treatment level for CAMU-eligible remediation waste if the modified treatment

standards do not represent an unacceptable risk. Several factors are applicable to the adjustment of treatment levels or methods including the availability of cost-effective treatment technologies, the long-term protection offered by the engineering design of the CAMU, related engineering controls and the mobility of the constituents in the waste. These are further described below.

Cost-effective treatment technologies to reduce concentrations of the applicable PHCs are not reasonably available for the remediation waste being requested for disposal because there are currently no commercial facilities in the United States permitted to treat listed waste containing dioxins. Additionally, the PHCs exhibit very low mobility based on TCLP analytical data and the TCLP leachate results are below Site-specific shallow groundwater PRGs (Table 1). Furthermore, StarLink proposes to encapsulate the waste in a sealed high-density polyethylene (HDPE) macro box which will be placed in the Chemical Waste Management Subtitle C landfill. Sealing the waste in a macro box will effectively isolate the waste from landfill leachate and provide additional long-term protection via engineering controls.

As stated above, Chemical Waste Management is permitted to accept CAMU-eligible waste in their Subtitle C facility in Arlington, Oregon. StarLink contacted Chemical Waste Management for disposal options, and they proposed macro encapsulation for waste containing dioxins. Chemical Waste Management provided the following details on their macro encapsulation disposal process planned for the WTP Sweepings waste: They will first ship the drums to their Subtitle C facility in Arlington, Oregon. At the facility, they will place the drums, sealed and closed as they were for shipment, into a 20 cubic yard HDPE macro box specially formulated to resist contaminants and leachate. The remaining capacity will be filled with other compatible macro waste (including soil) until the box is full and free of voids. The lid will then be chemically welded on. Finally, the macro box will be buried in the landfill.

CLOSING

StarLink requests authorization from DEQ to allow disposal of the current and future WTP sweepings remediation waste at the Chemical Waste Management Arlington facility and prompt action on this proposal considering the above and additional factors DEQ applies. StarLink is prepared to meet with you and DEQ RCRA Division staff, if necessary, to expedite this request.

If you have any questions regarding the information presented or wish to discuss further the CAMU-eligible option, please contact Joan Underwood at (503) 278-1837 or Ryan Stringfellow at (503) 451-5586.

Sincerely,

BSI EHS SERVICES AND SOLUTIONS

Ryan Stringfellow, RG
Site Manager

Attachments:	Table 1	Summary of Detected Analytes in WTP Sweepings
	Table 2	Laboratory Detection Limits Comparison to UTS
	Figure 1	Water Treatment Plant Layout
	Attachment A	Photo Table
	Attachment B	Laboratory Analytical Reports
	Attachment C	Data Validation and QA/QC Review

c: M. Bogdan, StarLink Logistics Inc.
J. Benedict, Cable Huston
J. Underwood, BSI

TABLES

TABLE 1
Summary of Detected Analytes in WTP Sweepings
Former Rhône-Poulenc Portland Site

Sample ID	Date	Analytical Method[1]	Analyte	Solids Result (mg/kg)	TCLP Result (mg/L)	UTS	UTS units	10x UTS	Exceed 10x UTS?[2]	GW PRG if detected in TCLP[3]	TCLP Result Exceed PRG?	Toxicity Characteristic Standard (mg/L)	TCLP Exceed Toxicity Standard?
Volatiles													
IDW-407	7/12/2018	8260C	1,2,4-Trimethylbenzene	1.17 J	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8260C	Benzene	0.188 J	--	10	mg/kg	100	No	--	--	0.5	**
IDW-407	7/12/2018	8260C	Ethylbenzene	**0.89**	--	10	mg/kg	100	No	--	--	--	--
IDW-407	7/12/2018	8260C	m,p-Xylene	**2.91**	--	30	mg/kg	300	No	--	--	--	--
IDW-407	7/12/2018	8260C	n-Propylbenzene	0.459 J	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8260C	o-Xylene	**0.983**	--	30	mg/kg	300	No	--	--	--	--
IDW-407	7/12/2018	8260C	Toluene	**1.9**	--	10	mg/kg	100	No	--	--	--	--
Semivolatiles													
IDW-407	7/12/2018	8270D	1,2-Dichlorobenzene	0.589 J	--	6	mg/kg	60	No	--	--	--	--
IDW-407	7/12/2018	8270D	1-Methylnaphthalene	0.429 J	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	2,3,5,6-Tetrachlorophenol	0.77 J	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	2,4,6-Trichlorophenol	1.18 J	--	7.4	mg/kg	74	No	--	--	2.0	**
IDW-407	7/12/2018	8270D	2,4-Dichlorophenol	**7.71 J**	--	14	mg/kg	140	No	--	--	--	--
IDW-407	7/12/2018	8270D	2-Methylnaphthalene	**0.888**	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	3&4-Methylphenol	**2.41 J**	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	Acenaphthene	0.183 J	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Benzo(a)anthracene	**0.303 J**	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Benzo(a)pyrene	0.302 J	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Benzo(b)fluoranthene	**0.704 J**	--	6.8	mg/kg	68	No	--	--	--	--
IDW-407	7/12/2018	8270D	Benzo(g,h,i)Perylene	0.281 J	--	1.8	mg/kg	18	No	--	--	--	--
IDW-407	7/12/2018	8270D	Benzyl Alcohol	1.11 J	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	bis(2-Ethylhexyl)phthalate	**9.03 J**	--	28	mg/kg	280	No	--	--	--	--
IDW-407	7/12/2018	8270D	Chrysene	**0.584 J**	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Dibenzofuran	**0.415**	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	8270D	Fluoranthene	**1.18**	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Fluorene	0.151 J	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Indeno(1,2,3-cd)pyrene	0.272 J	--	3.4	mg/kg	34	No	--	--	--	--
IDW-407	7/12/2018	8270D	Naphthalene	**1.28**	--	5.6	mg/kg	56	No	--	--	--	--
IDW-407	7/12/2018	8270D	Pentachlorophenol	1.64 J	--	7.4	mg/kg	74	No	--	--	100.0	**
IDW-407	7/12/2018	8270D	Phenanthrene	**1.15**	--	5.6	mg/kg	56	No	--	--	--	--
IDW-407	7/12/2018	8270D	Phenol	**1.06**	--	6.2	mg/kg	62	No	--	--	--	--
IDW-407	7/12/2018	8270D	Pyrene	**0.834**	--	8.2	mg/kg	82	No	--	--	--	--

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Summary of Detected Analytes in WTP Sweepings
Former Rhône-Poulenc Portland Site

Sample ID	Date	Analytical Method[1]	Analyte	Solids Result (mg/kg)	TCLP Result (mg/L)	UTS	UTS units	10x UTS	Exceed 10x UTS?[2]	GW PRG if detected in TCLP[3]	TCLP Result Exceed PRG?	Toxicity Characteristic Standard (mg/L)	TCLP Exceed Toxicity Standard?
Inorganics													
IDW-407	7/12/2018	SW6020A	Arsenic	**27.7**	<0.025 U	5	mg/L	50	No	--	--	5.0	No
IDW-407	7/12/2018	SW6020A	Barium	**189**	0.7 J	21	mg/L	210	No	NL	--	100	No
IDW-407	7/12/2018	SW6020A	Cadmium	**2.44**	0.013 J	0.11	mg/L	1.1	No	NL	--	1.0	No
IDW-407	7/12/2018	SW6020A	Chromium	**74 J**	<0.004 U	0.6	mg/L	6	No	--	--	5.0	No
IDW-407	7/12/2018	SW6020A	Lead	**101 J**	<0.020 U	0.75	mg/L	7.5	No	--	--	5.0	No
IDW-407	7/12/2018	SW6020A	Selenium	0.7 J	<0.03 U	5.7	mg/L	57	No	--	--	1.0	No
IDW-407	7/12/2018	SW6020A	Silver	**0.54 J**	<0.004 U	0.14	mg/L	1.4	No	--	--	5.0	No
IDW-407	7/12/2018	SW7471	Mercury	**0.192**	<0.0001 U	0.025	mg/L	0.25	No	--	--	0.2	No
Herbicides													
IDW-407	7/12/2018	SW8151A	2,4-D	**20**	--	10	mg/kg	100	No	--	--	10	**
IDW-407	7/12/2018	SW8151A	2,4-DB	**32**	--	NL	--	--	--	--	--	--	--
IDW-407	7/12/2018	SW8151A	Dicloroprop	8.4 J	--	NL	--	--	--	--	--	--	--
PCDDs/PCDFs													
IDW-407	7/12/2018	SW8290	1,2,3,4,6,7,8-HpCDD	0.00103 J	<0.00000000337 U	0.0025	mg/kg	0.025	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,4,6,7,8-HpCDF	0.000634 J	<0.00000000145 U	0.0025	mg/kg	0.025	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,4,7,8,9-HpCDF	0.0000237 J	<0.00000000214 U	0.0025	mg/kg	0.025	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,4,7,8-HxCDD	0.0000281 J	<0.00000000180 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,4,7,8-HxCDF	0.0000611 J	<0.00000000115 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,6,7,8-HxCDD	0.000155 J	<0.00000000170 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,6,7,8-HxCDF	0.0000342 J	<0.00000000115 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,7,8,9-HxCDD	**0.000082**	<0.00000000181 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,7,8,9-HxCDF	0.0000143 J	<0.00000000171 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,7,8-PeCDD	0.000133 J	<0.00000000199 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	1,2,3,7,8-PeCDF	0.0000693 J	<0.00000000165 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	2,3,4,6,7,8-HxCDF	0.0000561 J	<0.00000000113 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	2,3,4,7,8-PeCDF	0.000291 J	<0.00000000145 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	2,3,7,8-TCDD	**0.00575**	0.00000000518 J	0.001	mg/kg	0.01	No	1.6E-08	No	--	--
IDW-407	7/12/2018	SW8290	2,3,7,8-TCDF	0.000477 J	<0.0000000194 EMPC,U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	OCDD	**0.0212**	0.000000034 J	0.005	mg/kg	0.05	No	5.3E-05	No	--	--
IDW-407	7/12/2018	SW8290	OCDF	**0.00256**	<0.00000000537 U	0.005	mg/kg	0.05	No	--	--	--	--
IDW-407	7/12/2018	SW8290	Total HpCDD	**0.00121**	<0.00000000337 U	NL	mg/kg	--	--	--	--	--	--
IDW-407	7/12/2018	SW8290	Total HpCDF	**0.000784**	<0.00000000145 U	NL	mg/kg	--	--	--	--	--	--

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Summary of Detected Analytes in WTP Sweepings
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Sample ID	Date	Analytical Method[1]	Analyte	Solids Result (mg/kg)	TCLP Result (mg/L)	UTS	UTS units	10x UTS	Exceed 10x UTS?[2]	GW PRG if detected in TCLP[3]	TCLP Result Exceed PRG?	Toxicity Characteristic Standard (mg/L)	TCLP Exceed Toxicity Standard?
IDW-407	7/12/2018	SW8290	Total HxCDD	**0.00121**	<0.00000000266 EMPC,U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	Total HxCDF	**0.00325**	<0.00000000113 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	Total PeCDD	**0.00193**	<0.00000000199 U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	Total PeCDF	**0.0101**	<0.0000000177 EMPC,U	0.001	mg/kg	0.01	Yes	--	--	--	--
IDW-407	7/12/2018	SW8290	Total TCDD	**0.0132**	0.00000000518 J	0.001	mg/kg	0.01	Yes	NL	--	--	--
IDW-407	7/12/2018	SW8290	Total TCDF	**0.00964**	<0.0000000474 EMPC,U	0.001	mg/kg	0.01	No	--	--	--	--
IDW-407	7/12/2018	SW8290	Total TEQ[4]	**0.00609**	0.00000000892	NL	mg/kg	--	--	1.6E-08	No	--	--

Notes:

Universal Treatment Standard (UTS) values are reported from 40 CFR 268.48.

Toxicity Characteristic Standard values are reported from 40 CFR 261.22.

[1] TCLP analytical methods include SW6010C for inorganics, 7470A for mercury, and 1613B for PCDDs/PCDFs.

[2] Constituents that exceed 10 times the UTS are identified as PHCs.

[3] Preliminary Remediation Goal (PRG) values (converted to mg/L) presented are the lowest value of the three Shallow Groundwater Receptors presented in Appendix B of the Draft 2018 Preliminary Hot Spot Evaluation (Golder, 2018). Dioxin/furan congener PRG concentrations have been adjusted by multiplying them by the appropriate 2005 WHO toxicity equivalency factor (TEF) value for humans and mammals.

[4] Total TEQ result for TCLP sample: TEQ WHO2005 ND=0.5 pg/L with Estimated Maximum Potential Concentrations (EMPCs)

= Result exceeds 10x Universal Treamtent Standard

**Constituent concentration less than 20 times the Toxicity Characteristic Standard value and TCLP sample not analyzed.

-- = Not applicable

BOLD = results detected above the method reporting limit.

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NL = no UTS listing or no PRG value established

PCDDs/PCDFs= polychlorinated dibenzodioxins/polychlorinated dibenzofurans

TCLP = Toxicity Characteristic Leaching Procedure

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
PCDDs/PCDFs							
1,2,3,4,6,7,8-HpCDD	35822-46-9	SW8290	0.00000145	mg/kg	0.0025	mg/kg	No
1,2,3,4,6,7,8-HpCDF	67562-39-4	SW8290	0.00000167	mg/kg	0.0025	mg/kg	No
1,2,3,4,7,8,9-HpCDF	55673-89-7	SW8290	0.00000607	mg/kg	0.0025	mg/kg	No
1,2,3,4,7,8-HxCDD	39227-28-6	SW8290	0.00000107	mg/kg	0.001	mg/kg	No
1,2,3,4,7,8-HxCDF	70648-26-9	SW8290	0.00000543	mg/kg	0.001	mg/kg	No
1,2,3,6,7,8-HxCDD	57653-85-7	SW8290	0.00000113	mg/kg	0.001	mg/kg	No
1,2,3,6,7,8-HxCDF	57117-44-9	SW8290	0.0000113	mg/kg	0.001	mg/kg	No
1,2,3,7,8,9-HxCDD	19408-74-3	SW8290	0.00000101	mg/kg	0.001	mg/kg	No
1,2,3,7,8,9-HxCDF	72918-21-9	SW8290	0.00000318	mg/kg	0.001	mg/kg	No
1,2,3,7,8-PeCDD	40321-76-4	SW8290	0.00000036	mg/kg	0.001	mg/kg	No
1,2,3,7,8-PeCDF	57117-41-6	SW8290	0.00000057	mg/kg	0.001	mg/kg	No
2,3,4,6,7,8-HxCDF	60851-34-5	SW8290	0.00000218	mg/kg	0.001	mg/kg	No
2,3,4,7,8-PeCDF	57117-31-4	SW8290	0.00000058	mg/kg	0.001	mg/kg	No
2,3,7,8-TCDD	1746-01-6	SW8290	0.0000692	mg/kg	0.001	mg/kg	No
2,3,7,8-TCDF	51207-31-9	SW8290	0.00000034	mg/kg	0.001	mg/kg	No
OCDD	3268-87-9	SW8290	0.0000675	mg/kg	0.005	mg/kg	No
OCDF	39001-02-0	SW8290	0.000000627	mg/kg	0.005	mg/kg	No
Total HpCDD	37871-00-4	SW8290	0.00000145	mg/kg	NL	--	--
Total HpCDF	38998-75-3	SW8290	0.00000270	mg/kg	NL	--	--
Total HxCDD	34465-46-8	SW8290	0.00000107	mg/kg	0.001	mg/kg	No
Total HxCDF	55684-94-1	SW8290	0.00000801	mg/kg	0.001	mg/kg	No
Total PeCDD	36088-22-9	SW8290	0.000000361	mg/kg	0.001	mg/kg	No
Total PeCDF	30402-15-4	SW8290	0.00000949	mg/kg	0.001	mg/kg	No
Total TCDD	41903-57-5	SW8290	0.000000332	mg/kg	0.001	mg/kg	No
Total TCDF	30402-14-3	SW8290	0.000000339	mg/kg	0.001	mg/kg	No
TCLP PCDDs/PCDFs							
1,2,3,4,6,7,8-HpCDD	35822-46-9	1613	0.00000000337	mg/L	NL	--	--
1,2,3,4,6,7,8-HpCDF	67562-39-4	1613	0.00000000145	mg/L	NL	--	--
1,2,3,4,7,8,9-HpCDF	55673-89-7	1613	0.00000000214	mg/L	NL	--	--
1,2,3,4,7,8-HxCDD	39227-28-6	1613	0.00000000180	mg/L	NL	--	--
1,2,3,4,7,8-HxCDF	70648-26-9	1613	0.00000000115	mg/L	NL	--	--
1,2,3,6,7,8-HxCDD	57653-85-7	1613	0.00000000170	mg/L	NL	--	--
1,2,3,6,7,8-HxCDF	57117-44-9	1613	0.00000000115	mg/L	NL	--	--
1,2,3,7,8,9-HxCDD	19408-74-3	1613	0.00000000181	mg/L	NL	--	--
1,2,3,7,8,9-HxCDF	72918-21-9	1613	0.00000000171	mg/L	NL	--	--
1,2,3,7,8-PeCDD	40321-76-4	1613	0.00000000199	mg/L	NL	--	--
1,2,3,7,8-PeCDF	57117-41-6	1613	0.00000000165	mg/L	NL	--	--
2,3,4,6,7,8-HxCDF	60851-34-5	1613	0.00000000113	mg/L	NL	--	--
2,3,4,7,8-PeCDF	57117-31-4	1613	0.00000000145	mg/L	NL	--	--
2,3,7,8-TCDD	1746-01-6	1613	0.00000000211	mg/L	NL	--	--
2,3,7,8-TCDF	51207-31-9	1613	0.0000000194	mg/L	NL	--	--
OCDD	3268-87-9	1613	0.00000000860	mg/L	NL	--	--
OCDF	39001-02-0	1613	0.00000000537	mg/L	NL	--	--
Total HpCDD	37871-00-4	1613	0.00000000337	mg/L	NL	--	--
Total HpCDF	38998-75-3	1613	0.00000000145	mg/L	NL	--	--
Total HxCDD	34465-46-8	1613	0.00000000226	mg/L	NL	--	--
Total HxCDF	55684-94-1	1613	0.00000000113	mg/L	NL	--	--

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Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
Total PeCDD	36088-22-9	1613	0.00000000199	mg/L	NL	--	--
Total PeCDF	30402-15-4	1613	0.0000000177	mg/L	NL	--	--
Total TCDD	41903-57-5	1613	0.00000000211	mg/L	NL	--	--
Total TCDF	30402-14-3	1613	0.0000000474	mg/L	NL	--	--
Volatiles							
1,1,1,2-Tetrachloroethane	630-20-6	8260	0.334	mg/kg	6	mg/kg	No
1,1,1-Trichloroethane	71-55-6	8260	0.334	mg/kg	6	mg/kg	No
1,1,2,2-Tetrachloroethane	79-34-5	8260	0.668	mg/kg	6	mg/kg	No
1,1,2-Trichloroethane	79-00-5	8260	0.334	mg/kg	6	mg/kg	No
1,1-Dichloroethane	75-34-3	8260	0.334	mg/kg	6	mg/kg	No
1,1-Dichloroethene	75-35-4	8260	0.334	mg/kg	6	mg/kg	No
1,1-Dichloropropene	563-58-6	8260	0.668	mg/kg	NL	--	--
1,2,3-Trichlorobenzene	87-61-6	8260	3.34	mg/kg	NL	--	--
1,2,3-Trichloropropane	96-18-4	8260	0.668	mg/kg	30	mg/kg	No
1,2,4-Trichlorobenzene	120-82-1	8260	3.34	mg/kg	19	mg/kg	No
1,2,4-Trimethylbenzene	95-63-6	8260	0.668	mg/kg	NL	--	--
1,2-Dibromo-3-Chloropropane	96-12-8	8260	3.34	mg/kg	15	mg/kg	No
1,2-Dibromoethane	106-93-4	8260	0.668	mg/kg	15	mg/kg	No
1,2-Dichlorobenzene	95-50-1	8260	0.334	mg/kg	6	mg/kg	No
1,2-Dichloroethane	107-06-2	8260	0.334	mg/kg	6	mg/kg	No
1,2-Dichloropropane	78-87-5	8260	0.334	mg/kg	18	mg/kg	No
1,3,5-Trimethylbenzene	108-67-8	8260	0.668	mg/kg	NL	--	--
1,3-Dichlorobenzene	541-73-1	8260	0.334	mg/kg	6	mg/kg	No
1,3-Dichloropropane	142-28-9	8260	0.668	mg/kg	NL	--	--
1,4-Dichlorobenzene	106-46-7	8260	0.334	mg/kg	6	mg/kg	No
2,2-Dichloropropane	594-20-7	8260	0.668	mg/kg	NL	--	--
2-Butanone (MEK)	78-93-3	8260	6.68	mg/kg	36	mg/kg	No
2-Chlorotoluene	95-49-8	8260	0.668	mg/kg	NL	--	--
2-Hexanone	591-78-6	8260	6.68	mg/kg	NL	--	--
4-Chlorotoluene	106-43-4	8260	0.668	mg/kg	NL	--	--
4-Isopropyltoluene	99-87-6	8260	0.668	mg/kg	NL	--	--
4-Methyl-2-pentanone (MIBK)	108-10-1	8260	6.68	mg/kg	33	mg/kg	No
Acetone	67-64-1	8260	13.4	mg/kg	160	mg/kg	No
Acrylonitrile	107-13-1	8260	1.34	mg/kg	84	mg/kg	No
Benzene	71-43-2	8260	0.134	mg/kg	10	mg/kg	No
Bromobenzene	108-86-1	8260	0.334	mg/kg	NL	--	--
Bromochloromethane	74-97-5	8260	0.668	mg/kg	NL	--	--
Bromodichloromethane	75-27-4	8260	0.668	mg/kg	15	mg/kg	No
Bromoform	75-25-2	8260	1.34	mg/kg	15	mg/kg	No
Bromomethane	74-83-9	8260	13.4	mg/kg	15	mg/kg	No
Carbon Disulfide	75-15-0	8260	6.68	mg/kg	4.8	mg/L	--
Carbon Tetrachloride	56-23-5	8260	0.668	mg/kg	6	mg/kg	No
Chlorobenzene	108-90-7	8260	0.334	mg/kg	6	mg/kg	No
Chloroethane	75-00-3	8260	6.68	mg/kg	6	mg/kg	**Yes**
Chloroform	67-66-3	8260	0.668	mg/kg	6	mg/kg	No
Chloromethane	74-87-3	8260	3.34	mg/kg	30	mg/kg	No
cis-1,2-Dichloroethene	156-59-2	8260	0.334	mg/kg	NL	--	--
cis-1,3-Dichloropropene	10061-01-5	8260	0.668	mg/kg	18	mg/kg	No

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
Dibromochloromethane	124-48-1	8260	1.34	mg/kg	15	mg/kg	No
Dibromomethane	74-95-3	8260	0.668	mg/kg	15	mg/kg	No
Dichlorodifluoromethane (Freon 1	75-71-8	8260	1.34	mg/kg	7.2	mg/kg	No
Ethylbenzene	100-41-4	8260	0.334	mg/kg	10	mg/kg	No
Hexachlorobutadiene	87-68-3	8260	1.34	mg/kg	5.6	mg/kg	No
Isopropylbenzene	98-82-8	8260	0.668	mg/kg	NL	--	--
m,p-Xylene	179601-23-1	8260	0.668	mg/kg	30	mg/kg	No
Methyl tert-Butyl Ether (MTBE)	1634-04-4	8260	0.668	mg/kg	NL	--	--
Methylene Chloride	75-09-2	8260	3.34	mg/kg	30	mg/kg	No
Naphthalene	91-20-3	8260	1.34	mg/kg	5.6	mg/kg	No
n-Butylbenzene	104-51-8	8260	0.668	mg/kg	NL	--	--
n-Propylbenzene	103-65-1	8260	0.334	mg/kg	NL	--	--
o-Xylene	95-47-6	8260	0.334	mg/kg	30	mg/kg	No
sec-Butylbenzene	135-98-8	8260	0.668	mg/kg	NL	--	--
Styrene	100-42-5	8260	0.668	mg/kg	NL	--	--
tert-Butylbenzene	98-06-6	8260	0.668	mg/kg	NL	--	--
Tetrachloroethene	127-18-4	8260	0.334	mg/kg	6	mg/kg	No
Toluene	108-88-3	8260	0.668	mg/kg	10	mg/kg	No
trans-1,2-Dichloroethene	156-60-5	8260	0.334	mg/kg	30	mg/kg	No
trans-1,3-Dichloropropene	10061-02-6	8260	0.668	mg/kg	18	mg/kg	No
Trichloroethene	79-01-6	8260	0.334	mg/kg	6	mg/kg	No
Trichlorofluoromethane (Freon 11	75-69-4	8260	1.34	mg/kg	30	mg/kg	No
Vinyl Chloride	75-01-4	8260	0.334	mg/kg	6	mg/kg	No
OCIs							
2,4'-DDD	53-19-0	8081B	2.52	mg/kg	0.087	mg/kg	**Yes**
2,4'-DDE	3424-82-6	8081B	0.211	mg/kg	0.087	mg/kg	**Yes**
2,4'-DDT	789-02-6	8081B	0.517	mg/kg	0.087	mg/kg	**Yes**
4,4'-DDD	72-54-8	8081B	0.57	mg/kg	0.087	mg/kg	**Yes**
4,4'-DDE	72-55-9	8081B	0.211	mg/kg	0.087	mg/kg	**Yes**
4,4'-DDT	50-29-3	8081B	0.327	mg/kg	0.087	mg/kg	**Yes**
Aldrin	309-00-2	8081B	0.0528	mg/kg	0.066	mg/kg	No
alpha-BHC	319-84-6	8081B	0.0528	mg/kg	0.066	mg/kg	No
alpha-Chlordane	5103-71-9	8081B	0.211	mg/kg	0.26	mg/kg	No
beta-BHC	319-85-7	8081B	0.153	mg/kg	0.066	mg/kg	**Yes**
beta-Chlordane	5103-74-2	8081B	0.285	mg/kg	NL	--	--
Chlordane (technical)	12789-03-6	8081B	1.58	mg/kg	0.26	mg/kg	**Yes**
cis-Nonachlor	5103-73-1	8081B	0.348	mg/kg	NL	--	--
delta-BHC	319-86-8	8081B	0.106	mg/kg	0.066	mg/kg	**Yes**
Dieldrin	60-57-1	8081B	0.274	mg/kg	0.13	mg/kg	**Yes**
Endosulfan I	959-98-8	8081B	0.211	mg/kg	0.066	mg/kg	**Yes**
Endosulfan II	33213-65-9	8081B	0.222	mg/kg	0.13	mg/kg	**Yes**
Endosulfan Sulfate	1031-07-8	8081B	0.475	mg/kg	0.13	mg/kg	**Yes**
Endrin	72-20-8	8081B	0.285	mg/kg	0.13	mg/kg	**Yes**
Endrin Aldehyde	7421-93-4	8081B	0.211	mg/kg	0.13	mg/kg	**Yes**
Endrin Ketone	53494-70-5	8081B	0.106	mg/kg	NL	--	--
gamma-BHC (Lindane)	58-89-9	8081B	0.106	mg/kg	0.066	mg/kg	**Yes**
Heptachlor	76-44-8	8081B	0.106	mg/kg	0.066	mg/kg	**Yes**
Heptachlor Epoxide	1024-57-3	8081B	0.211	mg/kg	0.066	mg/kg	**Yes**

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
Hexachlorobenzene	118-74-1	8081B	0.264	mg/kg	10	mg/kg	No
Hexachlorobutadiene	87-68-3	8081B	0.211	mg/kg	5.6	mg/kg	No
Methoxychlor	72-43-5	8081B	0.633	mg/kg	0.18	mg/kg	**Yes**
Mirex	2385-85-5	8081B	0.211	mg/kg	NL	--	--
Oxychlordane	27304-13-8	8081B	0.106	mg/kg	NL	--	--
Toxaphene	8001-35-2	8081B	1.58	mg/kg	2.6	mg/kg	No
trans-Nonachlor	39765-80-5	8081B	0.443	mg/kg	NL	--	--
TCLP OCIs							
2,4'-DDD	53-19-0	8081B	0.00015	mg/L	NL	--	--
2,4'-DDE	3424-82-6	8081B	0.00015	mg/L	NL	--	--
2,4'-DDT	789-02-6	8081B	0.00015	mg/L	NL	--	--
4,4'-DDD	72-54-8	8081B	0.00015	mg/L	NL	--	--
4,4'-DDE	72-55-9	8081B	0.00015	mg/L	NL	--	--
4,4'-DDT	50-29-3	8081B	0.00015	mg/L	NL	--	--
Aldrin	309-00-2	8081B	0.00015	mg/L	NL	--	--
alpha-BHC	319-84-6	8081B	0.00015	mg/L	NL	--	--
alpha-Chlordane	5103-71-9	8081B	0.00015	mg/L	NL	--	--
beta-BHC	319-85-7	8081B	0.00015	mg/L	NL	--	--
Chlordane (technical)	12789-03-6	8081B	0.00188	mg/L	NL	--	--
cis-Nonachlor	5103-73-1	8081B	0.00015	mg/L	NL	--	--
delta-BHC	319-86-8	8081B	0.00015	mg/L	NL	--	--
Dieldrin	60-57-1	8081B	0.00015	mg/L	NL	--	--
Endosulfan I	959-98-8	8081B	0.00015	mg/L	NL	--	--
Endosulfan II	33213-65-9	8081B	0.00015	mg/L	NL	--	--
Endosulfan Sulfate	1031-07-8	8081B	0.00015	mg/L	NL	--	--
Endrin	72-20-8	8081B	0.00015	mg/L	NL	--	--
Endrin Aldehyde	7421-93-4	8081B	0.00015	mg/L	NL	--	--
Endrin Ketone	53494-70-5	8081B	0.00015	mg/L	NL	--	--
gamma-BHC (Lindane)	58-89-9	8081B	0.00015	mg/L	NL	--	--
gamma-Chlordane	5566-34-7	8081B	0.00015	mg/L	NL	--	--
Heptachlor	76-44-8	8081B	0.00015	mg/L	NL	--	--
Heptachlor Epoxide	1024-57-3	8081B	0.00015	mg/L	NL	--	--
Hexachlorobenzene	118-74-1	8081B	0.0003	mg/L	NL	--	--
Hexachlorobutadiene	87-68-3	8081B	0.00015	mg/L	NL	--	--
Methoxychlor	72-43-5	8081B	0.00040	mg/L	NL	--	--
Mirex	2385-85-5	8081B	0.00015	mg/L	NL	--	--
Oxychlordane	27304-13-8	8081B	0.00015	mg/L	NL	--	--
Toxaphene	8001-35-2	8081B	0.005	mg/L	NL	--	--
trans-Nonachlor	39765-80-5	8081B	0.00015	mg/L	NL	--	--
PCBs							
Aroclor 1016	12674-11-2	8082A	0.703	mg/kg	NL	--	--
Aroclor 1221	11104-28-2	8082A	1.41	mg/kg	NL	--	--
Aroclor 1232	11141-16-5	8082A	1.41	mg/kg	NL	--	--
Aroclor 1242	53469-21-9	8082A	0.703	mg/kg	NL	--	--
Aroclor 1248	12672-29-6	8082A	0.703	mg/kg	NL	--	--
Aroclor 1254	11097-69-1	8082A	1.41	mg/kg	NL	--	--
Aroclor 1260	11096-82-5	8082A	0.703	mg/kg	NL	--	--
Total PCBs	1336-36-3	8082A	7.04*	mg/kg	10	mg/kg	--

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
Semivolatiles							
1,2,4-Trichlorobenzene	120-82-1	8270D	0.353	mg/kg	19	mg/kg	No
1,2-Dichlorobenzene	95-50-1	8270D	0.353	mg/kg	6	mg/kg	No
1,2-Dinitrobenzene	528-29-0	8270D	3.53	mg/kg	NL	--	--
1,3-Dichlorobenzene	541-73-1	8270D	0.353	mg/kg	6	mg/kg	No
1,3-Dinitrobenzene	99-65-0	8270D	3.53	mg/kg	NL	--	--
1,4-Dichlorobenzene	106-46-7	8270D	0.353	mg/kg	6	mg/kg	No
1,4-Dinitrobenzene	100-25-4	8270D	3.53	mg/kg	2.3	mg/kg	**Yes**
1-Methylnaphthalene	90-12-0	8270D	0.283	mg/kg	NL	--	--
2,3,4,6-Tetrachlorophenol	58-90-2	8270D	0.708	mg/kg	7.4	mg/kg	No
2,3,5,6-Tetrachlorophenol	935-95-5	8270D	0.708	mg/kg	NL	--	--
2,4,5-Trichlorophenol	95-95-4	8270D	0.708	mg/kg	7.4	mg/kg	No
2,4,6-Trichlorophenol	88-06-2	8270D	0.708	mg/kg	7.4	mg/kg	No
2,4-Dichlorophenol	120-83-2	8270D	0.708	mg/kg	14	mg/kg	No
2,4-Dimethylphenol	105-67-9	8270D	0.708	mg/kg	14	mg/kg	No
2,4-Dinitrophenol	51-28-5	8270D	3.53	mg/kg	160	mg/kg	No
2,4-Dinitrotoluene	121-14-2	8270D	1.41	mg/kg	140	mg/kg	No
2,6-Dinitrotoluene	606-20-2	8270D	1.41	mg/kg	28	mg/kg	No
2-Chloronaphthalene	91-58-7	8270D	0.141	mg/kg	5.6	mg/kg	No
2-Chlorophenol	95-57-8	8270D	0.708	mg/kg	5.7	mg/kg	No
2-Methyl-4,6-Dinitrophenol	534-52-1	8270D	3.53	mg/kg	160	mg/kg	No
2-Methylnaphthalene	91-57-6	8270D	0.283	mg/kg	NL	--	--
2-Methylphenol	95-48-7	8270D	0.353	mg/kg	5.6	mg/kg	No
2-Nitroaniline	88-74-4	8270D	2.83	mg/kg	14	mg/kg	No
2-Nitrophenol	88-75-5	8270D	1.41	mg/kg	13	mg/kg	No
3&4-Methylphenol	15831-10-4	8270D	0.353	mg/kg	NL	--	--
3,3'-Dichlorobenzidine	91-94-1	8270D	7.06	mg/kg	NL	--	--
3-Nitroaniline	99-09-2	8270D	2.83	mg/kg	NL	--	--
4-Bromophenyl phenyl ether	101-55-3	8270D	0.353	mg/kg	15	mg/kg	No
4-Chloro-3-Methylphenol	59-50-7	8270D	1.41	mg/kg	14	mg/kg	No
4-Chloroaniline	106-47-8	8270D	0.353	mg/kg	16	mg/kg	No
4-Chlorophenyl phenyl ether	7005-72-3	8270D	0.353	mg/kg	NL	--	--
4-Nitroaniline	100-01-6	8270D	2.83	mg/kg	28	mg/kg	No
4-Nitrophenol	100-02-7	8270D	1.41	mg/kg	29	mg/kg	No
Acenaphthene	83-32-9	8270D	0.141	mg/kg	3.4	mg/kg	No
Acenaphthylene	208-96-8	8270D	0.141	mg/kg	3.4	mg/kg	No
Aniline	62-53-3	8270D	4.66	mg/kg	14	mg/kg	No
Anthracene	120-12-7	8270D	0.141	mg/kg	3.4	mg/kg	No
Azobenzene	103-33-3	8270D	0.353	mg/kg	NL	--	--
Benzo(a)anthracene	56-55-3	8270D	0.141	mg/kg	3.4	mg/kg	No
Benzo(a)pyrene	50-32-8	8270D	0.212	mg/kg	3.4	mg/kg	No
Benzo(b)fluoranthene	205-99-2	8270D	0.212	mg/kg	6.8	mg/kg	No
Benzo(g,h,i)Perylene	191-24-2	8270D	0.141	mg/kg	1.8	mg/kg	No
Benzo(k)Fluoranthene	207-08-9	8270D	0.212	mg/kg	6.8	mg/kg	No
Benzoic Acid	65-85-0	8270D	17.7	mg/kg	NL	--	--
Benzyl Alcohol	100-51-6	8270D	0.708	mg/kg	NL	--	--
bis(2-Chloroethoxy)methane	111-91-1	8270D	0.353	mg/kg	7.2	mg/kg	No
bis(2-Chloroethyl)ether	111-44-4	8270D	0.353	mg/kg	6	mg/kg	No

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
bis(2-Chloroisopropyl)ether	108-60-1	8270D	0.353	mg/kg	NL	--	--
Bis(2-Ethylhexyl)adipate (Dioctyl	103-23-1	8270D	3.53	mg/kg	NL	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	8270D	2.12	mg/kg	28	mg/kg	No
Butylbenzylphthalate	85-68-7	8270D	1.41	mg/kg	28	mg/kg	No
Carbazole	86-74-8	8270D	0.212	mg/kg	NL	--	--
Chrysene	218-01-9	8270D	0.141	mg/kg	3.4	mg/kg	No
Dibenzo(a,h)anthracene	53-70-3	8270D	0.141	mg/kg	8.2	mg/kg	No
Dibenzofuran	132-64-9	8270D	0.141	mg/kg	NL	--	--
Diethylphthalate	84-66-2	8270D	1.41	mg/kg	28	mg/kg	No
Dimethylphthalate	131-11-3	8270D	1.41	mg/kg	28	mg/kg	No
Di-n-butylphthalate	84-74-2	8270D	1.41	mg/kg	28	mg/kg	No
di-n-Octyl Phthalate	117-84-0	8270D	1.41	mg/kg	28	mg/kg	No
Fluoranthene	206-44-0	8270D	0.141	mg/kg	3.4	mg/kg	No
Fluorene	86-73-7	8270D	0.141	mg/kg	3.4	mg/kg	No
Hexachlorobenzene	118-74-1	8270D	0.141	mg/kg	10	mg/kg	No
Hexachlorobutadiene	87-68-3	8270D	0.353	mg/kg	5.6	mg/kg	No
Hexachlorocyclopentadiene	77-47-4	8270D	0.708	mg/kg	2.4	mg/kg	No
Hexachloroethane	67-72-1	8270D	0.353	mg/kg	30	mg/kg	No
Indeno(1,2,3-cd)pyrene	193-39-5	8270D	0.141	mg/kg	3.4	mg/kg	No
Isophorone	78-59-1	8270D	0.353	mg/kg	NL	--	--
Naphthalene	91-20-3	8270D	0.283	mg/kg	5.6	mg/kg	No
Nitrobenzene	98-95-3	8270D	1.41	mg/kg	14	mg/kg	No
N-Nitrosodimethylamine	62-75-9	8270D	0.353	mg/kg	2.3	mg/kg	No
N-Nitrosodi-n-propylamine	621-64-7	8270D	0.353	mg/kg	14	mg/kg	No
N-Nitrosodiphenylamine	86-30-6	8270D	0.353	mg/kg	13	mg/kg	No
Pentachlorophenol	87-86-5	8270D	1.41	mg/kg	7.4	mg/kg	No
Phenanthrene	85-01-8	8270D	0.141	mg/kg	5.6	mg/kg	No
Phenol	108-95-2	8270D	0.283	mg/kg	6.2	mg/kg	No
Pyrene	129-00-0	8270D	0.141	mg/kg	8.2	mg/kg	No
Pyridine	110-86-1	8270D	0.708	mg/kg	16	mg/kg	No
Inorganics							
Arsenic	7440-38-2	SW6020	0.07	mg/kg	NL	--	--
Barium	7440-39-3	SW6020	0.035	mg/kg	NL	--	--
Cadmium	7440-43-9	SW6020	0.012	mg/kg	NL	--	--
Chromium	7440-47-3	SW6020	0.1	mg/kg	NL	--	--
Lead	7439-92-1	SW6020	0.03	mg/kg	NL	--	--
Selenium	7782-49-2	SW6020	0.1	mg/kg	NL	--	--
Silver	7440-22-4	SW6020	0.007	mg/kg	NL	--	--
Mercury	7439-97-6	SW7471B	0.002	mg/kg	NL	--	--
TCLP Inorganics							
Arsenic	7440-38-2	SW6010C	0.025	mg/L	5	mg/L	No
Barium	7440-39-3	SW6010C	0.5	mg/L	21	mg/L	No
Cadmium	7440-43-9	SW6010C	0.001	mg/L	0.11	mg/L	No
Chromium	7440-47-3	SW6010C	0.004	mg/L	0.6	mg/L	No
Lead	7439-92-1	SW6010C	0.02	mg/L	0.75	mg/L	No
Selenium	7782-49-2	SW6010C	0.03	mg/L	5.7	mg/L	No
Silver	7440-22-4	SW6010C	0.004	mg/L	0.14	mg/L	No
Mercury	7439-97-6	SW7470	0.0001	mg/L	0.025	mg/L	No

TABLE 2
Laboratory Detection Limits Comparison to UTS
Former Rhône-Poulenc Portland Site

Analyte	CAS	Method	MDL	unit	UTS	unit	MDL>UTS?
Herbicides							
2,4,5-T	93-76-5	SW8151A	0.77	mg/kg	7.9	mg/kg	No
2,4,5-TP (Silvex)	93-72-1	SW8151A	0.46	mg/kg	7.9	mg/kg	No
2,4-D	94-75-7	SW8151A	1.5	mg/kg	10	mg/kg	No
2,4-DB	94-82-6	SW8151A	1.1	mg/kg	NL	--	--
Dalapon	75-99-0	SW8151A	1.1	mg/kg	NL	--	--
Dicamba	1918-00-9	SW8151A	0.83	mg/kg	NL	--	--
Dichlorprop	120-36-5	SW8151A	0.65	mg/kg	NL	--	--
Dinoseb	88-85-7	SW8151A	0.52	mg/kg	2.5	mg/kg	No
MCPA	94-74-6	SW8151A	62	mg/kg	NL	--	--
MCPP	93-65-2	SW8151A	88	mg/kg	NL	--	--

Notes:

* Detection limit shown is the sum of the method detection limits for the reported Aroclors.

-- = Not applicable

CAS = Chemical Abstracts Service registry number

mg/kg = milligrams per kilogram

mg/L = milligrams per liter

NL = no listing

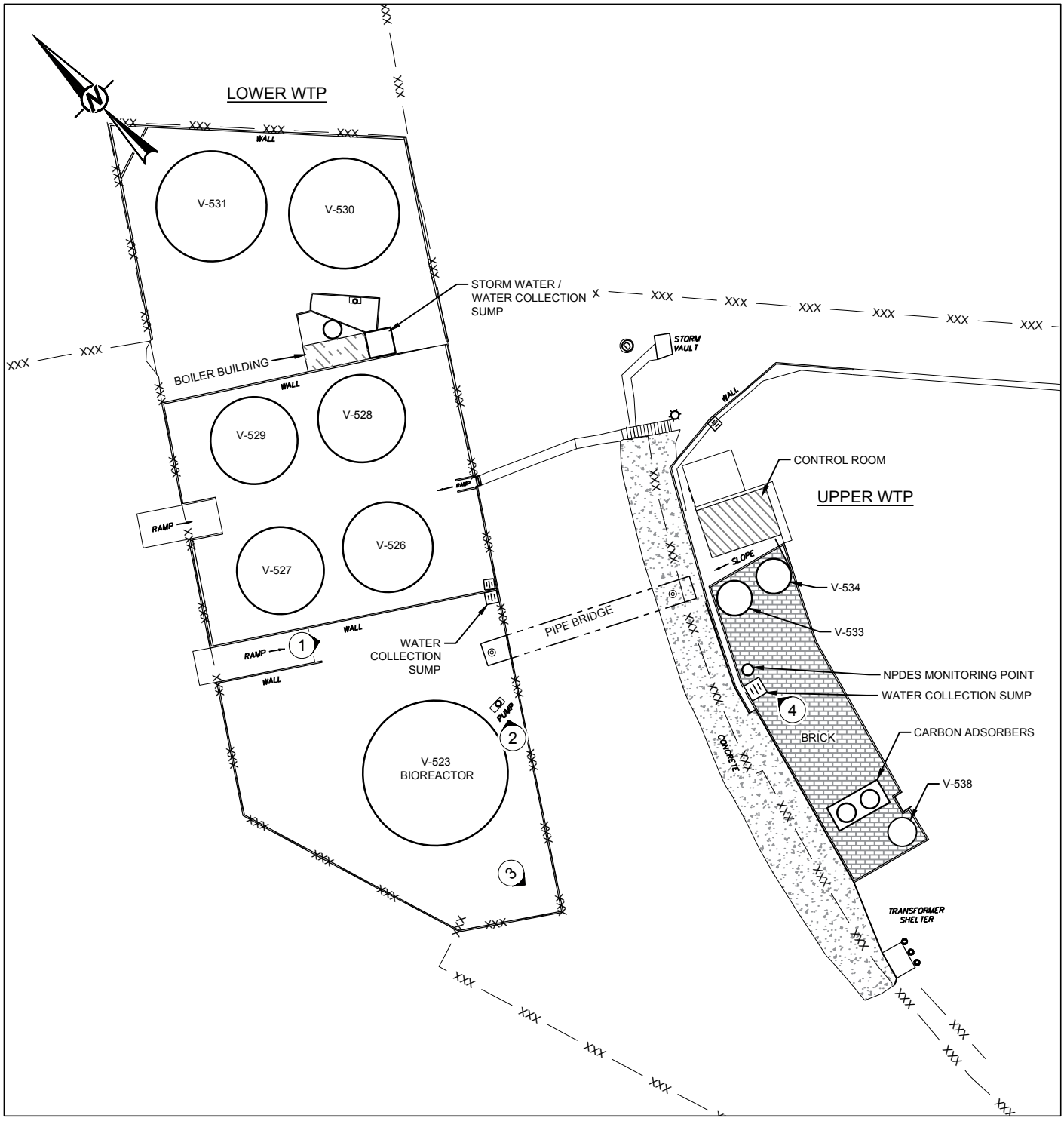
OCIs = organochlorine insecticides

PCBs = polychlorinated biphenyls

TCLP = Toxicity Characteristic Leaching Procedure

UTS = Universal Treatment Standard (40 CFR §268.48)

FIGURES



LEGEND

1 PHOTOGRAPH ID, LOCATION AND ORIENTATION

0 25 50
1" = 50' FEET

REFERENCE(S)

BASE MAP TAKEN FROM CENTERLINE CONCEPTS LAND SURVEYING, INC. DRAWING TITLED "ALTA.dwg" DATED OCTOBER 1, 2018. RECEIVED BY GOLDER ASSOCIATES ON MARCH 7, 2019.

CLIENT

PROJECT
WTP Sweepings CAMU Eligibility Request
Former Rhône-Poulenc Portland Site

CONSULTANT

GOLDER

YYYY-MM-DD	2019-03-27
DESIGNED	R Stringfellow, BSI Group
PREPARED	RWC
REVIEWED	CDS
APPROVED	TJN

TITLE
WATER TREATMENT PLANT LAYOUT

PROJECT NO.	CONTROL	REV.	FIGURE
		0	1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A
0 1in

ATTACHMENT A

PHOTO TABLE

Attachment A
Photos of WTP Sweepings Removal Areas
WTP Sweepings CAMU Eligibility Approval Request
Former Rhône-Poulenc Portland Site

Photo 1 Leaves and debris accumulating along V-523 secondary containment wall. Date: 3/21/2019	
Photo 2 V-523 drainage channel to secondary containment sump. Date: 3/21/2019	

Attachment A
Photos of WTP Sweepings Removal Areas
WTP Sweepings CAMU Eligibility Approval Request
Former Rhône-Poulenc Portland Site

Photo 3 Leaves and debris accumulating along V-523 secondary containment wall below pipe. Date: 3/21/2019	
Photo 4 Upper brick secondary containment sump and drainage channel. Date: 3/12/2019	

ATTACHMENT B

LABORATORY ANALYTICAL REPORTS

February 28, 2019 Service Request No:K1806627.01

Ryan Stringfellow
BSI EHS Services and Solutions
6193 NW 61st Ave
Portland, OR 97210

Laboratory Results for: StarLink RCRA

Dear Ryan,

Enclosed is the revised report for the sample(s) submitted to our laboratory July 13, 2018. For your reference, these analyses have been assigned our service request number **K1806627.**

The results have been reported to the MDL per Client request.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3350. You may also contact me via email at Kelley.Lovejoy@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Kelley Lovejoy
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

REVISED
10:40 am, Feb 28, 2019

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Environmental

Client: BSI EHS Services and Solutions (West) Inc
Project: StarLink RCRA
Sample Matrix: Soil

Service Request: K1806627
Date Received: 07/13/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt:

One soil sample was received for analysis at ALS Environmental on 07/13/2018. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4ºC upon receipt at the laboratory.

Semivoa GC:

Method 8151A, Chlorinated Herbicides by GC 08/07/2018: The matrix spike recovery of all analytes for sample IDW-407 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

Method 8151A, Chlorinated Herbicides by GC 08/07/2018: The control criteria for 2,4-Dichlorophenylacetic Acid in sample IDW-407 and associated matrix spikes were not applicable. The chromatogram indicated the presence of non-target background components that masked the surrogate, which prevented adequate resolution for quantitation. No corrective action was appropriate.

Metals:

Method 6020A, 07/31/2018: The Relative Percent Difference (RPD) for the replicate analysis of Silver in sample IDW-407 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 6020A, 07/31/2018: The matrix spike recovery of Chromium and Lead for sample IDW-407 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

General Chemistry:

No significant anomalies were noted with this analysis.

Subcontracted Analytical Parameters:

No significant anomalies were noted with this analysis.

Approved by Kelley Lovejoy Date 02/28/2019

SAMPLE DETECTION SUMMARY

CLIENT ID: IDW-407			Lab ID: K1806627-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
pH	6.51				pH Units	9045C
Arsenic	27.7		0.07	0.87	mg/Kg	6020A
Barium	189		0.035	0.087	mg/Kg	6020A
Cadmium	2.44		0.012	0.035	mg/Kg	6020A
Chromium	74.0		0.10	0.35	mg/Kg	6020A
Lead	101		0.03	0.17	mg/Kg	6020A
Mercury	0.192		0.002	0.025	mg/Kg	7471B
Selenium	0.7	J	0.1	1.7	mg/Kg	6020A
Silver	0.540		0.007	0.035	mg/Kg	6020A
Barium	0.7	J	0.5	1.0	mg/L	6010C
Cadmium	0.013	J	0.001	0.050	mg/L	6010C
2,4-D	20000		1500	9500	ug/Kg	8151A
2,4-DB	32000		1100	9500	ug/Kg	8151A
Dichlorprop	8400	JP	650	9500	ug/Kg	8151A
Solids, Total	51.7				Percent	160.3 Modified

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: BSI EHS Services and Solutions (West) Inc **Service Request:**K1806627
Project: StarLink RCRA

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1806627-001	IDW-407	7/12/2018	1200

Chain of Custody

ALS Environmental
ADDRESS 1317 South 13th Ave., Kelso, WA 98626
PHONE 1 360 577 7222 FAX 1 360 636 1068

Work Order No.: 1C1806627

Project Manager:	Ryan Stringfellow	**Bill to:**	Ryan Stringfellow
Client Name:	BSI EHS Services and Solutions	**Company:**	BSI EHS Services and Solutions
Address:	PO Box 10224	**Address:**	
City, State ZIP:	Portland, OR 97296	**City, State ZIP:**	
Email:	ryan.stringfellow@bsigroup.com	**Phone:** 503-607-1820	**Email:** EHSEastInvoicing@bsigroup.com
Project Name:	StarLink RCRA		
Project Number:			
P.O. Number:			
Sampler's Name:	R. Stringfellow		

SAMPLE RECEIPT

Temperature (°C):			Temp Blank Present:		
Received Intact:	Yes	No	N/A	Wet Ice / Blue Ice	
Cooler Custody Seals:	Yes	No	N/A	Total Containers:	
Sample Custody Seals:	Yes	No	N/A		

REQUESTED ANALYSIS

TAT
- [X] Routine
- [ ] Same Day ***
- [ ] Next Day ***
- [ ] 5 Day
- [ ] 7 Day

*** Please call for availability

Due Date:

Sample Identification	Matrix	Date Sampled	Time Sampled	Lab ID	No. of Containers	Herbicides EPA 8151	RCRA 8 Metals EPA 6020	TCLP RCRA 8 Metals EPA 6020	pH	Dioxins and Furans EPA 8290	Comments
IDW - 407	S	7/12/2018	12:00 PM		7	X	X	X	X	X	

Dissolved	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr
Total	Ag, Al, As, B, Ba, Be, Ca, Cd, Co, Cr, Cu, Fe, K, Li, Mg, Mn, Mo, Na, Ni, P, Pb, Sb, Se, Si, Sn, Sr, Tl, V, Zn, Zr

Additional Methods Available Upon Request

RELINQUISHED BY			RECEIVED BY		
Print Name	Signature	Date/Time	Print Name	Signature	Date/Time
Ryan Stringfellow		07/13/18			7/13/18 1340

Cooler Receipt and Preservation Form

Client BSL Service Request K18 066627 PC Kelly

Received: 7/13/18 Opened: 7/13/18 By: BR Unloaded: 7/13/18 By: BR

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
   If present, were custody seals intact? Y (N) If present, were they signed and dated? Y (N)

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID	Tracking Number
0.3	0.2	2.5	2.6	-0.1	30R	(NA)	NA Filed

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *(Wet Ice)* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed* NA (Y) N
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

7/25/16

Miscellaneous Forms

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Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: BSI EHS Services and Solutions (West) Inc **Service Request:** K1806627
Project: StarLink RCRA/

Sample Name: IDW-407 **Date Collected:** 07/12/18
Lab Code: K1806627-001 **Date Received:** 07/13/18
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
160.3 Modified		DMADDEN
6010C	JHINSON	EMCALLISTER
6020A	ISTENERSEN	GJASPER
7470A	KLINN	KLINN
7471B	KLINN	KLINN
8151A	KPRESCOTT	JDUNFIELD
8290A	ALOPEZ	LLUONG
9045C		ACHEATLEY

Sample Name: IDW-407 **Date Collected:** 07/12/18
Lab Code: K1806627-001.R01 **Date Received:** 07/13/18
Sample Matrix: Soil

Analysis Method	Extracted/Digested By	Analyzed By
8151A	KPRESCOTT	JDUNFIELD
8290A	ALOPEZ	LLUONG

Sample Results

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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REVISED
10:40 am, Feb 28, 2019

Semivolatile Organic Compounds by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Units:**	ug/Kg
Lab Code:	K1806627-001	**Basis:**	Dry

Chlorinated Herbicides by GC

Analysis Method: 8151A
Prep Method: Method

Analyte Name	Result		MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4,5-T	ND	U	9500	770	100	08/07/18 19:07	7/25/18	
2,4,5-TP (Silvex)	ND	U	9500	460	100	08/07/18 19:07	7/25/18	
2,4-D	**20000**		9500	1500	100	08/07/18 19:07	7/25/18	
2,4-DB	**32000**		9500	1100	100	08/07/18 19:07	7/25/18	
Dalapon	ND	U	9500	1100	100	08/07/18 19:07	7/25/18	
Dicamba	ND	U	9500	830	100	08/07/18 19:07	7/25/18	
Dichlorprop	**8400**	**JP**	9500	650	100	08/07/18 19:07	7/25/18	
Dinoseb	ND	U	9500	520	100	08/07/18 19:07	7/25/18	
MCPA	ND	U	950000	62000	100	08/07/18 19:07	7/25/18	
MCPP	ND	U	950000	88000	100	08/07/18 19:07	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4-Dichlorophenylacetic Acid	167	26 - 127	08/07/18 19:07	*

Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Basis:**	Dry
Lab Code:	K1806627-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	**27.7**	mg/Kg	0.87	0.07	5	07/31/18 08:47	07/25/18	
Barium	6020A	**189**	mg/Kg	0.087	0.035	5	07/31/18 08:47	07/25/18	
Cadmium	6020A	**2.44**	mg/Kg	0.035	0.012	5	07/31/18 08:47	07/25/18	
Chromium	6020A	**74.0**	mg/Kg	0.35	0.10	5	07/31/18 08:47	07/25/18	
Lead	6020A	**101**	mg/Kg	0.17	0.03	5	07/31/18 08:47	07/25/18	
Mercury	7471B	**0.192**	mg/Kg	0.025	0.002	1	07/31/18 08:41	07/30/18	
Selenium	6020A	**0.7**	mg/Kg	1.7	0.1	5	07/31/18 08:47	07/25/18	**J**
Silver	6020A	**0.540**	mg/Kg	0.035	0.007	5	07/31/18 08:47	07/25/18	

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Basis:**	NA
Lab Code:	K1806627-001		

Toxicity Characteristics Leachate Procedure (TCLP)

TCLP Metals

Pre-Prep Method: EPA 1311

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	mg/L	0.050	0.025	5	07/24/18 19:20	07/20/18	
Barium	6010C	**0.7 J**	mg/L	1.0	0.5	5	07/24/18 19:20	07/20/18	
Cadmium	6010C	**0.013 J**	mg/L	0.050	0.001	5	07/24/18 19:20	07/20/18	
Chromium	6010C	ND U	mg/L	0.050	0.004	5	07/24/18 19:20	07/20/18	
Lead	6010C	ND U	mg/L	0.050	0.020	5	07/24/18 19:20	07/20/18	
Mercury	7470A	ND U	mg/L	0.0010	0.0001	1	07/21/18 08:23	07/19/18	
Selenium	6010C	ND U	mg/L	0.20	0.03	5	07/24/18 19:20	07/20/18	
Silver	6010C	ND U	mg/L	0.050	0.004	5	07/24/18 19:20	07/20/18	

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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www.alsglobal.com

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Basis:**	As Received
Lab Code:	K1806627-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
pH	9045C	**6.51**	pH Units	-	1	07/25/18 09:46	H
Solids, Total	160.3 Modified	**51.7**	Percent	-	1	07/24/18 16:50	

QC Summary Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Semivolatile Organic Compounds by GC

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
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Client: BSI EHS Services and Solutions (West) Inc **Service Request:** K1806627
Project: StarLink RCRA
Sample Matrix: Soil

SURROGATE RECOVERY SUMMARY
Chlorinated Herbicides by GC

Analysis Method: 8151A
Extraction Method: Method

Sample Name	Lab Code	2,4-Dichlorophenylacetic Acid 26-127
IDW-407	K1806627-001	167*
Method Blank	KQ1809998-04	55
Lab Control Sample	KQ1809998-03	58
IDW-407	KQ1809998-01	0*
IDW-407	KQ1809998-02	1*

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	08/1/18
		Date Extracted:	07/25/18

Duplicate Matrix Spike Summary
Chlorinated Herbicides by GC

Sample Name:	IDW-407	**Units:**	ug/Kg
Lab Code:	K1806627-001	**Basis:**	Dry
Analysis Method:	8151A		
Prep Method:	Method		

		Matrix Spike KQ1809998-01			**Duplicate Matrix Spike** KQ1809998-02					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,4,5-T	ND U	42.5 JP	320	13 *	15.2 JP	321	5 *	21-137	95*	40
2,4,5-TP (Silvex)	ND U	ND U	320	0 *	ND U	321	0 *	34-129	NC	40
2,4-D	20000	400	320	-6038 #	595	321	-5948 #	35-129	39	40
2,4-DB	32000	303	320	-9961 #	479 P	321	-9858 #	20-131	45*	40
Dalapon	ND U	ND U	320	0 *	ND U	321	0 *	14-100	NC	40
Dicamba	ND U	ND U	320	0 *	ND U	321	0 *	32-129	NC	40
Dichlorprop	8400 J	ND Ui	320	-2621 #	ND Ui	321	-2608 #	23-140	NC	40
Dinoseb	ND U	ND Ui	320	0 *	ND U	321	0 *	10-121	NC	40
MCPA	ND U	233000 EP	32000	730 *	234000 EP	32100	730 *	13-130	<1	40
MCPP	ND U	342000 EP	32000	1069 *	343000 EP	32100	1068 *	10-169	<1	40

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ug/Kg
Lab Code:	KQ1809998-04	**Basis:**	Dry

Chlorinated Herbicides by GC

Analysis Method: 8151A
Prep Method: Method

Analyte Name	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2,4,5-T	ND U	49	4.0	1	08/01/18 10:52	7/25/18	
2,4,5-TP (Silvex)	ND U	49	2.4	1	08/01/18 10:52	7/25/18	
2,4-D	ND U	49	7.7	1	08/01/18 10:52	7/25/18	
2,4-DB	ND U	49	5.4	1	08/01/18 10:52	7/25/18	
Dalapon	ND U	49	5.5	1	08/01/18 10:52	7/25/18	
Dicamba	ND U	49	4.3	1	08/01/18 10:52	7/25/18	
Dichlorprop	ND U	49	3.4	1	08/01/18 10:52	7/25/18	
Dinoseb	ND U	49	2.7	1	08/01/18 10:52	7/25/18	
MCPA	ND U	4900	320	1	08/01/18 10:52	7/25/18	
MCPP	ND U	4900	460	1	08/01/18 10:52	7/25/18	

Surrogate Name	% Rec	Control Limits	Date Analyzed	Q
2,4-Dichlorophenylacetic Acid	55	26 - 127	08/01/18 10:52	

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Analyzed:**	08/01/18
Sample Matrix:	Soil	**Date Extracted:**	07/25/18

Lab Control Sample Summary
Chlorinated Herbicides by GC

Analysis Method:	8151A	**Units:**	ug/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	601128

Lab Control Sample
KQ1809998-03

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
2,4,5-T	134	167	80	44-125
2,4,5-TP (Silvex)	96.5	167	58	46-125
2,4-D	138	167	83	46-120
2,4-DB	198	167	119	30-126
Dalapon	71.3	167	43	13-100
Dicamba	85.9	167	52	43-119
Dichlorprop	91.5	167	55	47-108
Dinoseb	55.0	167	33	25-110
MCPA	11400	16700	68	40-128
MCPP	8260	16700	50	49-134

Metals

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Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1809751-01		

Toxicity Characteristics Leachate Procedure (TCLP)

TCLP Metals

Pre-Prep Method: EPA 1311

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7470A	ND U	mg/L	0.001	0.0001	1	07/21/18 08:20	07/19/18	

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1809777-02		

Toxicity Characteristics Leachate Procedure (TCLP)

TCLP Metals

Pre-Prep Method: EPA 1311

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6010C	ND U	mg/L	0.05	0.025	5	07/24/18 19:15	07/20/18	
Barium	6010C	ND U	mg/L	1	0.5	5	07/24/18 19:15	07/20/18	
Cadmium	6010C	ND U	mg/L	0.05	0.001	5	07/24/18 19:15	07/20/18	
Chromium	6010C	ND U	mg/L	0.05	0.004	5	07/24/18 19:15	07/20/18	
Lead	6010C	ND U	mg/L	0.05	0.020	5	07/24/18 19:15	07/20/18	
Selenium	6010C	ND U	mg/L	0.2	0.03	5	07/24/18 19:15	07/20/18	
Silver	6010C	ND U	mg/L	0.05	0.004	5	07/24/18 19:15	07/20/18	

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ1810000-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Arsenic	6020A	ND U	mg/Kg	0.5	0.04	5	07/31/18 08:42	07/25/18	
Barium	6020A	ND U	mg/Kg	0.05	0.020	5	07/31/18 08:42	07/25/18	
Cadmium	6020A	ND U	mg/Kg	0.020	0.007	5	07/31/18 08:42	07/25/18	
Chromium	6020A	ND U	mg/Kg	0.20	0.06	5	07/31/18 08:42	07/25/18	
Lead	6020A	**0.07 J**	mg/Kg	0.10	0.02	5	07/31/18 08:42	07/25/18	
Selenium	6020A	ND U	mg/Kg	1.0	0.07	5	07/31/18 08:42	07/25/18	
Silver	6020A	ND U	mg/Kg	0.020	0.004	5	07/31/18 08:42	07/25/18	

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ1810020-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	**0.003 J**	mg/Kg	0.02	0.002	1	07/31/18 08:34	07/30/18	

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/21/18
		Date Extracted:	07/19/18

Matrix Spike Summary
TCLP Metals

Sample Name:	IDW-407	**Units:**	mg/L
Lab Code:	K1806627-001	**Basis:**	NA
Analysis Method:	7470A		
Prep Method:	Method		

Matrix Spike
KQ1809751-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	ND U	0.0050	0.0050	100	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/24/18
		Date Extracted:	07/20/18

Matrix Spike Summary
TCLP Metals

Sample Name:	IDW-407	**Units:**	mg/L
Lab Code:	K1806627-001	**Basis:**	NA
Analysis Method:	6010C		
Prep Method:	EPA 3010A		

Matrix Spike
KQ1809777-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	ND U	5.21	5.00	104	75-125
Barium	0.7 J	11.3	10.0	106	75-125
Cadmium	0.013 J	1.01	1.00	100	75-125
Chromium	ND U	5.32	5.00	106	75-125
Lead	ND U	4.88	5.00	98	75-125
Selenium	ND U	1.01	1.00	101	75-125
Silver	ND U	0.979	1.00	98	75-125

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/31/18
		Date Extracted:	07/25/18

Matrix Spike Summary
Total Metals

Sample Name:	IDW-407	**Units:**	mg/Kg
Lab Code:	K1806627-001	**Basis:**	Dry
Analysis Method:	6020A		
Prep Method:	EPA 3050B		

Matrix Spike
KQ1810000-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	27.7	186	146	108	75-125
Barium	189	487	292	102	75-125
Cadmium	2.44	16.5	14.6	96	75-125
Chromium	74.0	172	58.6	167 N	75-125
Lead	101	387	146	195 N	75-125
Selenium	0.7 J	148	146	101	75-125
Silver	0.540	15.0	14.6	99	75-125

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ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/21/18

Replicate Sample Summary
TCLP Metals

Sample Name:	IDW-407	**Units:**	mg/L
Lab Code:	K1806627-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1809751-03 Result	Average	RPD	RPD Limit
Mercury	7470A	0.001	0.0001	ND U	ND U	ND	-	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/24/18

Replicate Sample Summary
TCLP Metals

Sample Name:	IDW-407	**Units:**	mg/L
Lab Code:	K1806627-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1809777-03 Result	Average	RPD	RPD Limit
Arsenic	6010C	0.05	0.025	ND U	ND U	ND	-	20
Barium	6010C	1	0.5	0.7 J	0.7 J	0.7	<1	20
Cadmium	6010C	0.05	0.001	0.013 J	0.014 J	0.014	7	20
Chromium	6010C	0.05	0.004	ND U	0.004 J	NC	NC	20
Lead	6010C	0.05	0.020	ND U	ND U	ND	-	20
Selenium	6010C	0.2	0.03	ND U	ND U	ND	-	20
Silver	6010C	0.05	0.004	ND U	ND U	ND	-	20

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Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/31/18

Replicate Sample Summary
Total Metals

Sample Name:	IDW-407	**Units:**	mg/Kg
Lab Code:	K1806627-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1810000-01 Result	Average	RPD	RPD Limit
Arsenic	6020A	0.80	0.06	27.7	30.5	29.1	10	20
Barium	6020A	0.080	0.032	189	182	186	4	20
Cadmium	6020A	0.032	0.011	2.44	2.39	2.42	2	20
Chromium	6020A	0.32	0.10	74.0	85.7	79.9	15	20
Lead	6020A	0.16	0.03	101	110	106	8	20
Selenium	6020A	1.6	0.1	0.7 J	0.8 J	0.8	15	20
Silver	6020A	0.032	0.006	0.540	0.834	0.687	43 *	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: BSI EHS Services and Solutions (West) Inc
Project: StarLink RCRA
Sample Matrix: Soil

Service Request: K1806627
Date Analyzed: 07/21/18

Lab Control Sample Summary
TCLP Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ1809751-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7470A	0.0050	0.0050	100	80-120

Client: BSI EHS Services and Solutions (West) Inc
Project: StarLink RCRA
Sample Matrix: Soil

Service Request: K1806627
Date Analyzed: 07/24/18

Lab Control Sample Summary
TCLP Metals

Units:mg/L
Basis:NA

Lab Control Sample
KQ1809777-01

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6010C	5.29	5.00	106	80-120
Barium	6010C	10.7	10.0	107	80-120
Cadmium	6010C	1.02	1.00	102	80-120
Chromium	6010C	5.30	5.00	106	80-120
Lead	6010C	4.92	5.00	98	80-120
Selenium	6010C	1.02	1.00	102	80-120
Silver	6010C	1.00	1.00	100	80-120

Client: BSI EHS Services and Solutions (West) Inc
Project: StarLink RCRA
Sample Matrix: Soil

Service Request: K1806627
Date Analyzed: 07/31/18

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ1810000-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Arsenic	6020A	164	161	102	66-122
Barium	6020A	271	272	100	72-119
Cadmium	6020A	217	225	96	70-117
Chromium	6020A	132	144	91	66-123
Lead	6020A	117	111	106	71-129
Selenium	6020A	195	206	95	64-122
Silver	6020A	43.7	45.5	96	66-124

Client: BSI EHS Services and Solutions (West) Inc
Project: StarLink RCRA
Sample Matrix: Soil

Service Request: K1806627
Date Analyzed: 07/31/18

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ1810020-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	11.9	12.0	99	60-139

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/25/18

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	IDW-407	**Units:**	pH Units
Lab Code:	K1806627-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1806627-001DUP Result	Average	RPD	RPD Limit
pH	9045C	-	6.51	6.55	6.53	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

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ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project	StarLink RCRA	**Date Collected:**	07/12/18
Sample Matrix:	Soil	**Date Received:**	07/13/18
		Date Analyzed:	07/24/18

Replicate Sample Summary
Inorganic Parameters

Sample Name:	IDW-407	**Units:**	Percent
Lab Code:	K1806627-001	**Basis:**	As Received

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1806627-001DUP Result	Average	RPD	RPD Limit
Solids, Total	160.3 Modified	-	51.7	61.8	56.8	18	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Analyzed:**	07/25/18
Sample Matrix:	Soil	**Date Extracted:**	NA

Lab Control Sample Summary
pH

Analysis Method:	9045C	**Units:**	pH Units
Prep Method:	None	**Basis:**	As Received
		Analysis Lot:	599874

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K1806627-LCS	8.58	8.64	99	85-115

Subcontracted Analytical Parameters

ALS Environmental—Kelso Laboratory
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Phone (360) 577-7222 Fax (360) 425-9096
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August 13, 2018. Service Request No K1806627

Kelley Lovejoy.
ALS Group USA, Corp.
1317 South 13th Avenue
Kelso, WA 98626

Laboratory Results for: BSI EHS Services and Solutions.

Dear Kelley,

Enclosed are the results of the samples submitted to our laboratory July 17, 2018.
For your reference these analyses have been assigned our service request number **K1806627.**

Analyses were performed according to our laboratory's NELAP approved quality assurance program The test results meet requirements of the current TNI standards where applicable and except as noted in the laboratory case narrative provided All results are intended to be considered in their entirety and ALS Environmental is not responsible for use of less than the final complete report Results apply only to the items submitted to the laboratory for analysis and individual items samples analyzed as listed in the report In accordance to the TNI 2009 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request

Respectfully submitted

ALS Group USA Corp dba ALS Environmental

Nicole Brown
Project Manager

ADDRESS Stancliff Rd Suite Houston TX
PHONE 281 530 5656 |
ALS Group USA Corp
dba ALS Environmental

Certificate of Analysis

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1806627-001	IDW-407	7/12/2018	1200

Service Request Summary

Folder #: **K1806627**
Client Name: BSI EHS Services and Solutions (West) Inc
Project Name: StarLink RCRA
Project Number:

Report To: Ryan Stringfellow
BSI EHS Services and Solutions
6193 NW 61st Ave
Portland, OR 97210
USA
Phone Number: 503-451-5586
Cell Number: 336-601-4386
Fax Number:
E-mail: ryan.stringfellow@bsigroup.com

Project Chemist: Kelley Lovejoy
Originating Lab: KELSO
Logged By: FADAIR
Date Received: 07/13/18
Internal Due Date: 7/30/2018
QAP: LAB QAP
Qualifier Set: Lab Standard
Formset: Lab Standard
Merged?: Y
Report to MDL?: N, Y
P.O. Number:
EDD: Equis EZ Golder

7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved
Location: K-DELILAH, EHRMS-WIC 2B
Pressure Gas:

				KELSO	KELSO				KELSO	HOUSTON	KELSO
				pH/9045C	Hg TCLP/7470A	Hg/7471B	Metals T/6020A	Metals TCLP/6010C	HERB/8151A	PCDD PCDF/8290A	TS/160.3 Modified
Lab Samp No.	**Client Samp No**	**Matrix**	**Collected**								
K1806627-001	IDW-407	Soil	07/12/18 1200	II	II	II	II	II	II	II	II

Service Request Summary

Folder #:	**K1806627**
Client Name:	BSI EHS Services and Solutions (West) Inc
Project Name:	StarLink RCRA
Project Number:	
Report To:	Ryan Stringfellow BSI EHS Services and Solutions 6193 NW 61st Ave Portland, OR 97210 USA
Phone Number:	503-451-5586
Cell Number:	336-601-4386
Fax Number:	
E-mail:	ryan.stringfellow@bsigroup.com

Project Chemist:	Kelley Lovejoy
Originating Lab:	KELSO
Logged By:	FADAIR
Date Received:	07/13/18
Internal Due Date:	7/30/2018
QAP:	LAB QAP
Qualifier Set:	Lab Standard
Formset:	Lab Standard
Merged?:	Y
Report to MDL?:	N, Y
P.O. Number:	
EDD:	Equis EZ Golder

7 8 oz-Glass Jar WM CLEAR Teflon Liner Unpreserved

Location: K-DELILAH, EHRMS-WIC 2B

Pressure Gas:

Test Comments:

Group	Test/Method	Samples	Comments
Metals	Hg/7471B	1	Mercury
Metals	Hg TCLP/7470A	1	Mercury
Metals	Metals T/6020A	1	As, Ba, Cd, Cr, Pb, Se, Ag
Metals	Metals TCLP/6010C	1	As, Ba, Cd, Cr, Pb, Se, Ag
Semivoa GCMS	PCDD PCDF/8290A	2	Dioxins and Furans

Data Qualifiers

HRMS Qualifier Set

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

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

H Sample extracted and/or analyzed out of suggested holding time.

J Estimated value. The reported concentration is below the MRL.

K The ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits.The concentration of this analyte should be considered as an estimate.

P Chlorodiphenyl ether interference was present at the retention time of the target analyte. Reported result should be considered an estimate.

Q Monitored lock-mass indicates matrix-interference. Reported result is estimated.

S Signal saturated detector. Result reported from dilution.

U Compound was analyzed for, but was not detected (ND).

X See Case Narrative.

Y Isotopically Labeled Standard recovery outside of acceptance limits. In all cases, the signal-to-nois ratios are greater than 10:1, making the recoveries acceptable.

i The MDL/MRL have been elevated due to a matrix interference.

ALS Laboratory Group

Acronyms

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

ALS Environmental

State Certifications, Accreditations, and Licenses

Agency	Number	Expire Date
American Association for Laboratory Accreditation	2897.01	11/30/2019
Arizona Department of Health Services	AZ0793	5/27/2019
Arkansas Department of Environmental Quality	17-027-0	3/27/2019
California Department of Health Services	2452	4/30/2019
Illinois Environmental Protection Agency	004112	5/29/2019
Louisiana Department of Environmental Quality	03048	6/30/2019
Louisiana Department of Health and Hospitals	LA150026	12/31/2018
Maine Center for Disease Control and Prevention	2014019	6/5/2020
Minnesota Department of Health	840911	12/31/2018
New Jersey Department of Environmental Protection	NLC140001	6/30/2019
New York Department of Health	11707	4/1/2019
Oklahoma Department of Environmental Quality	2014 124	8/31/2018
Texas Commision on Environmental Quality	TX104704231-17-18	4/30/2019
Washington Department of Health	c819	11/14/2018

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: 1K1806627 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
08/10/18	JC	-001

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
08/10/18	LKL	001

ALS ENVIRONMENTAL – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: K1806627 | DB-5MSUI | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
08/13/18	TC	-001DL

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
08/13/18	LKL	001DL

Chain of Custody

ALS Environmental - Houston HRMS
10450 Stancliff Rd, Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Intra-Network Chain of Custody

1317 South 13th Avenue • Kelso, WA 98626 • 1-360-577-7222 • FAX 1-360-636-1068

ALS Contact: Kelley Lovejoy

Project Name: StarLink RCRA
Project Number:
Project Manager: Ryan Stringfellow
Company: BSI EHS Services and Solutions
QAP: LAB QAP

K1806627 5
BSI EHS Services and Solutions
StarLink RCRA

Lab Code	Client Sample ID	# of Cont.	Matrix	Sample Date	Sample Time	Date Received	Send To	PCDD PCDF 8290A
K1806627-001	IDW-407	1	Soil	7/12/18	1200	7/13/18	HOUSTON	II

Test Comments

PCDD PCDF - 8290A K1806627-001 Dioxins and Furans

Special Instructions/Comments
Please provide the electronic (PDF and EDD) report to the following e-mail address: ALKLS.Data@alsglobal.com.

pH Checked _____

Turnaround Requirements
____**RUSH** (Surcharges Apply)
PLEASE CIRCLE WORK DAYS
1 2 3 4 5
✓ **STANDARD**
Requested FAX Date: _____
Requested Report Date: 07/30/18

Report Requirements
____ I. Results Only
✓ II. Results + QC Summaries
____ III. Results + QC and Calibration Summaries
____ IV. Data Validation Report with Raw Data
PQL/MDL/J N
EDD Y

Invoice Information
PO# 51K1806627
Bill to

Relinquished By: _____ 7/16/18 Received By: Nicole Brown 07/17/18 0845 Airbill Number: _____

Cooler Receipt Form

ALS Environmental

Project Chemist NB

Client/Project ACS Kelso

Thermometer ID SM09

Date/Time Received: 7/7/18 0845 Initials: NB

Date/Time Logged in: 7/8/18 1300 Initials NB

1. Method of delivery: ○ US Mail ● Fed Ex ○ UPS ○ DHL ○ Courier ○ Client

2. Samples received in: ● Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ● Yes ○ No

Were they intact? ● Yes ○ No ○ N/A

Were they signed and dated? ● Yes ○ No ○ N/A

If yes, how many and where? 1 - front

4. Packing Material: ● Inserts ○ Baggies ○ Bubble Wrap ● Gel Packs ○ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ● No Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?
7272443 1103		7/7/18	1345	NB	0.8/1.2	☐
						☐
						☐
						☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ● Yes ○ No

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ● Yes ○ No

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ● Yes ○ No

9. Were appropriate bottles/containers and volumes received for the requested tests? ● Yes ○ No

10. Did sample labels and tags agree with custody documents? ● Yes ○ No

Notes, Discrepancies, & Resolutions:

Service request Label:

K1806627 5

BSI EHS Services and Solutions

StarLink RCRA

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SAMPLE ACCEPTANCE POLICY

This policy outlines the criteria samples must meet to be accepted by ALS Environmental – Houston HRMS.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sampleThe COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, the COC will be requested from the client.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6ºC.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10ºC.
- ✓ Air samples are shipped and stored cold, at 0 to 6ºC
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder. Data associated with samples received outside of this acceptance policy will be qualified on the case narrative of the final report

Preparation Information Benchsheets

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 318690 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 7/30/18 09:00 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Cl	Matrix	Amt. Ext.	Sample Description
1	E1800616-001	Filter Cake	.01	8290/PCDD PCDF			Soil	10.391g	Brown Mud
2	E1800658-001	Filter Cake	.01	8290/PCDD PCDF			Solid	10.746g	Dark Red Clay
3	E1800659-001	AOC1	.01	8290/PCDD PCDF			Sediment	10.748g	Black Mud + Water
4	E1800659-002	MB01	.01	8290/PCDD PCDF			Sediment	10.146g	Black Mud
5	E1800659-003	MB02	.01	8290/PCDD PCDF			Sediment	10.063g	Black Mud + Water
6	E1800659-004	MB03	.01	8290/PCDD PCDF			Sediment	10.094g	Black Mud + Water
7	E1800659-005	MB04	.01	8290/PCDD PCDF			Sediment	10.115g	Black Mud + Water
8	E1800659-006	GC02	.01	8290/PCDD PCDF			Sediment	10.225g	Black Mud + Water
9	E1800659-007	GC01	.01	8290/PCDD PCDF			Sediment	10.100g	Black Mud + Water
10	EQ1800301-01	MB		8290A/PCDD PCDF			Solid	10.249g	
11	EQ1800301-02	LCS		8290A/PCDD PCDF			Solid	10.473g	
12	EQ1800301-03	Filter Cake MS	.01	8290/PCDD PCDF			Solid	10.232g	
13	EQ1800301-04	Filter Cake DMS	.01	8290/PCDD PCDF			Solid	10.160g	
14	K1805960-003	Composite	.01	8290/PCDD PCDF			Paperboard	10.282g	Brown Paper Strips
15	K1806627-001	IDW-407	.02	8290A/PCDD PCDF			Soil	10.357g	Brown Dirt + Grass + Leaves
16	R1806603-002	003R Lead Bed Carbon Sample	.01	8290A/PCDD PCDF			Soil	10.541g	Moist Black Gravel

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 191659 Logbook Ref: 191659 AL 7/13/18 2-20 ng/mL Expires On: 01/09/2019

EQ1800301-02	100.00µL	EQ1800301-02	100.00µL	EQ1800301-03	100.00µL	EQ1800301-04	100.00µL

Name: 1613B Labeled Working Standard Inventory ID 191941 Logbook Ref: 191941 AL 7/25/18 2-4 ng/mL Expires On: 01/09/2019

E1800616-001	1,000.00µL	E1800616-001.R01	1,000.00µL	E1800658-001	1,000.00µL	E1800659-001	1,000.00µL	E1800659-002	1,000.00µL	E1800659-003	1,000.00µL
E1800659-004	1,000.00µL	E1800659-005	1,000.00µL	E1800659-006	1,000.00µL	E1800659-007	1,000.00µL	EQ1800301-01	1,000.00µL	EQ1800301-01	1,000.00µL
EQ1800301-02	1,000.00µL	EQ1800301-02	1,000.00µL	EQ1800301-03	1,000.00µL	EQ1800301-04	1,000.00µL	K1805960-003	1,000.00µL	K1806627-001	1,000.00µL
R1806603-002	1,000.00µL										

Name: 8290/1613B Cleanup Working Standard Inventory ID 191999 Logbook Ref: tw 07/27/18 8ng/ml Expires On: 10/27/2018

E1800616-001	100.00µL	E1800616-001.R01	100.00µL	E1800658-001	100.00µL	E1800659-001	100.00µL	E1800659-002	100.00µL	E1800659-003	100.00µL
E1800659-004	100.00µL	E1800659-005	100.00µL	E1800659-006	100.00µL	E1800659-007	100.00µL	EQ1800301-01	100.00µL	EQ1800301-01	100.00µL
EQ1800301-02	100.00µL	EQ1800301-02	100.00µL	EQ1800301-03	100.00µL	EQ1800301-04	100.00µL	K1805960-003	100.00µL	K1806627-001	100.00µL
R1806603-002	100.00µL										

Preparation Information Benchsheet

Prep Run#: 318690 **Prep WorkFlow:** OrgExtDioxS(30) **Status:** Prepped
Team: Semivoa GCMS/ALOPEZ **Prep Method:** Method **Prep Date/Time:** 7/30/18 09:00 AM

Preparation Materials

Carbon, High Purity	tw carbon 7/31/18 (192126)	Ethyl Acetate 99.9% Minimum EtOAc	AL 4/13/18 (189332)	Glass Wool	GLASS WOOL (190875)
Hexanes 95%	tw 07/18/18 hexanes (191772)	Dichloromethane (Methylene Chloride) 99.9% MeCl2	AL 6/28/18 (191236)	Sodium Hydroxide 1N NaOH	TW 6/14/18 (191093)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	AL 5/23/18 (190453)	Tridecane (n-Tridecane)	AL 6/29/18 (191263)	Silica Gel	tw 07/26/18 (191987)
sulfuric acid	SULFURIC ACID (190871)	Toluene 99.9% Minimum	AL 7/25/18 (191930)		

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	7/30/18 09:00	Started:	8/2/18 14:00	Started:	8/3/18 09:00	Started:	8/3/18 12:00
Finished:	7/31/18 07:30	Finished:	8/2/18 15:00	Finished:	8/3/18 12:00	Finished:	8/3/18 15:00
By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ	By:	ALOPEZ
Comments		Comments		Comments		Comments	

Comments: _____

Reviewed By: _____ Date: _____

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Analytical Results

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston, TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Units:**	ng/Kg
Lab Code:	K1806627-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/12/18 12:53
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P613975	**Blank File Name:**	P516751
ICAL Date:	03/29/18	**Cal Ver. File Name:**	P613971

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	5750		69.2	69.2	0.79	1.001	20
1,2,3,7,8-PeCDD	133		0.361	4.67	1.55	1.001	1
1,2,3,6,7,8-HxCDD	155		1.13	4.67	1.24	1.000	1
1,2,3,4,7,8-HxCDD	28.1		1.07	4.67	1.06	1.000	1
1,2,3,7,8,9-HxCDD	82.0		1.01	4.67	1.27	1.007	1
1,2,3,4,6,7,8-HpCDD	1030		1.45	4.67	1.05	1.000	1
OCDD	21200		67.5	187	0.90	1.000	20
2,3,7,8-TCDF	477		0.339	0.934	0.83	1.000	1
1,2,3,7,8-PeCDF	69.3		0.574	4.67	1.55	1.001	1
2,3,4,7,8-PeCDF	291		0.581	4.67	1.56	1.002	1
1,2,3,6,7,8-HxCDF	34.2		11.3	11.3	1.39	1.000	1
1,2,3,7,8,9-HxCDF	14.3		3.18	4.67	1.13	1.001	1
1,2,3,4,7,8-HxCDF	61.1		5.43	5.43	1.27	1.000	1
2,3,4,6,7,8-HxCDF	56.1		2.18	4.67	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	634		1.67	4.67	1.06	1.000	1
1,2,3,4,7,8,9-HpCDF	23.7		6.07	6.07	1.19	1.000	1
OCDF	2560		0.627	9.34	0.89	1.005	1

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Units:**	ng/Kg
Lab Code:	K1806627-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/12/18 12:53
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P613975	**Blank File Name:**	P516751
ICAL Date:	03/29/18	**Cal Ver. File Name:**	P613971

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	13200		0.332	0.934	0.78		1
Total Penta-Dioxins	1930		0.361	4.67	1.56		1
Total Hexa-Dioxins	1210		1.07	4.67	1.24		1
Total Hepta-Dioxins	1210		1.45	4.67	1.07		1
Total Tetra-Furans	9640		0.339	0.934	0.79		1
Total Penta-Furans	10100		9.49	9.49	1.57		1
Total Hexa-Furans	3250		8.01	8.01	1.26		1
Total Hepta-Furans	784		2.70	4.67	1.06		1

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Units:**	Percent
Lab Code:	K1806627-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/10/18 00:46
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.357g	**Instrument Name:**	E-HRMS-08
		GC Column:	DB-5MSUI
Data File Name:	P613908	**Blank File Name:**	P516751
ICAL Date:	03/29/18	**Cal Ver. File Name:**	P613902

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	559.714	28	**Y**	40-135	0.80	1.021
13C-1,2,3,7,8-PeCDD	2000	677.119	34	**Y**	40-135	1.56	1.194
13C-1,2,3,4,7,8-HxCDD	2000	610.112	31	**Y**	40-135	1.25	0.991
13C-1,2,3,6,7,8-HxCDD	2000	742.430	37	**Y**	40-135	1.26	0.993
13C-1,2,3,4,6,7,8-HpCDD	2000	405.725	20	**Y**	40-135	1.07	1.068
13C-OCDD	4000	568.000	14	**Y**	40-135	0.91	1.143
13C-2,3,7,8-TCDF	2000	718.805	36	**Y**	40-135	0.79	0.991
13C-1,2,3,7,8-PeCDF	2000	672.774	34	**Y**	40-135	1.59	1.150
13C-2,3,4,7,8-PeCDF	2000	693.158	35	**Y**	40-135	1.60	1.183
13C-1,2,3,4,7,8-HxCDF	2000	274.845	14	**Y**	40-135	0.53	0.970
13C-1,2,3,6,7,8-HxCDF	2000	111.808	6	**Y**	40-135	0.54	0.973
13C-1,2,3,7,8,9-HxCDF	2000	583.367	29	**Y**	40-135	0.55	1.009
13C-2,3,4,6,7,8-HxCDF	2000	689.727	34	**Y**	40-135	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	539.592	27	**Y**	40-135	0.46	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	209.205	10	**Y**	40-135	0.45	1.080
37Cl-2,3,7,8-TCDD	800	344.493	43		40-135	NA	1.022

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	07/12/18 12:00
Sample Matrix:	Soil	**Date Received:**	07/13/18 13:40
Sample Name:	IDW-407	**Units:**	ng/Kg
Lab Code:	K1806627-001	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method: 8290A
Prep Method: Method

Toxicity Equivalency Quotient

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**5750**	69.2	69.2	20	1	5750
1,2,3,7,8-PeCDD	**133**	0.361	4.67	1	1	133
1,2,3,6,7,8-HxCDD	**155**	1.13	4.67	1	0.1	15.5
1,2,3,4,7,8-HxCDD	**28.1**	1.07	4.67	1	0.1	2.81
1,2,3,7,8,9-HxCDD	**82.0**	1.01	4.67	1	0.1	8.20
1,2,3,4,6,7,8-HpCDD	**1030**	1.45	4.67	1	0.01	10.3
OCDD	**21200**	67.5	187	20	0.0003	6.36
2,3,7,8-TCDF	**477**	0.339	0.934	1	0.1	47.7
1,2,3,7,8-PeCDF	**69.3**	0.574	4.67	1	0.03	2.08
2,3,4,7,8-PeCDF	**291**	0.581	4.67	1	0.3	87.3
1,2,3,6,7,8-HxCDF	**34.2**	11.3	11.3	1	0.1	3.42
1,2,3,7,8,9-HxCDF	**14.3**	3.18	4.67	1	0.1	1.43
1,2,3,4,7,8-HxCDF	**61.1**	5.43	5.43	1	0.1	6.11
2,3,4,6,7,8-HxCDF	**56.1**	2.18	4.67	1	0.1	5.61
1,2,3,4,6,7,8-HpCDF	**634**	1.67	4.67	1	0.01	6.34
1,2,3,4,7,8,9-HpCDF	**23.7**	6.07	6.07	1	0.01	0.237
OCDF	**2560**	0.627	9.34	1	0.0003	0.768
		Total TEQ				6090

2005 WHO TEFs, ND = 0

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800301-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/04/18 00:07
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516751	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516748

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.456	0.488			1
1,2,3,7,8-PeCDD	ND	U	0.105	2.44			1
1,2,3,6,7,8-HxCDD	ND	U	0.0654	2.44			1
1,2,3,4,7,8-HxCDD	ND	U	0.0610	2.44			1
1,2,3,7,8,9-HxCDD	ND	U	0.0618	2.44			1
1,2,3,4,6,7,8-HpCDD	ND	U	0.0395	2.44			1
OCDD	0.472**J**		0.0665	4.88	0.96	1.001	1
2,3,7,8-TCDF	ND	U	0.152	0.488			1
1,2,3,7,8-PeCDF	0.276**J**		0.0935	2.44	1.57	1.000	1
2,3,4,7,8-PeCDF	ND	U	0.0951	2.44			1
1,2,3,6,7,8-HxCDF	ND	U	0.0563	2.44			1
1,2,3,7,8,9-HxCDF	ND	U	0.0668	2.44			1
1,2,3,4,7,8-HxCDF	0.140**JK**		0.0590	2.44	1.76	1.000	1
2,3,4,6,7,8-HxCDF	ND	U	0.0573	2.44			1
1,2,3,4,6,7,8-HpCDF	0.0888**JK**		0.0701	2.44	1.90	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.0877	2.44			1
OCDF	0.690**J**		0.198	4.88	0.85	1.005	1

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	ng/Kg
Lab Code:	EQ1800301-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/04/18 00:07
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516751	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516748

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	ND	U	0.456	0.488			1
Total Penta-Dioxins	ND	U	0.105	2.44			1
Total Hexa-Dioxins	ND	U	0.0628	2.44			1
Total Hepta-Dioxins	ND	U	0.0395	2.44			1
Total Tetra-Furans	ND	U	0.152	0.488			1
Total Penta-Furans	0.276**J**		0.0943	2.44	1.57		1
Total Hexa-Furans	ND	U	0.0597	2.44			1
Total Hepta-Furans	ND	U	0.0782	2.44			1

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1800301-01	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/04/18 00:07
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.249g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516751	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516748

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	877.200	44		40-135	0.81	1.020
13C-1,2,3,7,8-PeCDD	2000	1440.762	72		40-135	1.60	1.185
13C-1,2,3,4,7,8-HxCDD	2000	1145.084	57		40-135	1.31	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1197.770	60		40-135	1.28	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1352.595	68		40-135	1.07	1.066
13C-OCDD	4000	2171.904	54		40-135	0.92	1.140
13C-2,3,7,8-TCDF	2000	985.863	49		40-135	0.79	0.992
13C-1,2,3,7,8-PeCDF	2000	1292.977	65		40-135	1.62	1.142
13C-2,3,4,7,8-PeCDF	2000	1273.148	64		40-135	1.59	1.174
13C-1,2,3,4,7,8-HxCDF	2000	997.090	50		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1045.361	52		40-135	0.51	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1154.955	58		40-135	0.51	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1074.578	54		40-135	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1074.040	54		40-135	0.44	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1208.362	60		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	541.165	68		40-135	NA	1.021

Accuracy & Precision

ALS Environmental - Houston HRMS
10450 Stancliff Rd., Suite 210, Houston TX 77099
Phone (713)266-1599 Fax (713)266-0130
www.alsglobal.com

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Analyzed:**	08/06/18
Sample Matrix:	Soil	**Date Extracted:**	07/30/18

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Units:**	ng/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	601512

Lab Control Sample
EQ1800301-02

Analyte Name	Result	Spike Amount	% Rec	% Rec Limits
1,2,3,4,6,7,8-HpCDD	73.5	95.5	77	70-130
1,2,3,4,7,8-HxCDD	87.1	95.5	91	70-130
1,2,3,6,7,8-HxCDD	94.3	95.5	99	70-130
1,2,3,7,8,9-HxCDD	88.2	95.5	92	70-130
1,2,3,7,8-PeCDD	91.2	95.5	96	70-130
2,3,7,8-TCDD	24.0	19.1	126	70-130
OCDD	181	191	95	70-130
1,2,3,4,6,7,8-HpCDF	91.7	95.5	96	70-130
1,2,3,4,7,8,9-HpCDF	90.6	95.5	95	70-130
1,2,3,4,7,8-HxCDF	91.8	95.5	96	70-130
1,2,3,6,7,8-HxCDF	91.4	95.5	96	70-130
1,2,3,7,8,9-HxCDF	94.9	95.5	99	70-130
1,2,3,7,8-PeCDF	73.9	95.5	77	70-130
2,3,4,6,7,8-HxCDF	92.0	95.5	96	70-130
2,3,4,7,8-PeCDF	97.7	95.5	102	70-130
2,3,7,8-TCDF	19.4	19.1	102	70-130
OCDF	183	191	96	70-130

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800301-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/06/18 17:51
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516786	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516776

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	24.0		0.724	0.724	0.75	1.001	1
1,2,3,7,8-PeCDD	91.2		0.252	2.39	1.64	1.000	1
1,2,3,6,7,8-HxCDD	94.3		0.288	2.39	1.29	1.000	1
1,2,3,4,7,8-HxCDD	87.1		0.276	2.39	1.25	1.000	1
1,2,3,7,8,9-HxCDD	88.2		0.256	2.39	1.31	1.006	1
1,2,3,4,6,7,8-HpCDD	73.5		0.602	2.39	1.03	1.000	1
OCDD	181		1.86	4.77	0.86	1.000	1
2,3,7,8-TCDF	19.4		0.522	0.522	0.78	1.001	1
1,2,3,7,8-PeCDF	73.9		0.465	2.39	1.56	1.000	1
2,3,4,7,8-PeCDF	97.7		0.465	2.39	1.47	1.001	1
1,2,3,6,7,8-HxCDF	91.4		0.594	2.39	1.19	1.000	1
1,2,3,7,8,9-HxCDF	94.9		0.822	2.39	1.19	1.000	1
1,2,3,4,7,8-HxCDF	91.8		0.624	2.39	1.18	1.000	1
2,3,4,6,7,8-HxCDF	92.0		0.611	2.39	1.20	1.000	1
1,2,3,4,6,7,8-HpCDF	91.7		1.45	2.39	1.03	1.000	1
1,2,3,4,7,8,9-HpCDF	90.6		1.74	2.39	1.02	1.000	1
OCDF	183		1.60	4.77	0.84	1.005	1

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	ng/Kg
Lab Code:	EQ1800301-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/06/18 17:51
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516786	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516776

Native Analyte Results

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
Total Tetra-Dioxins	24.9		0.724	0.724	0.75		1
Total Penta-Dioxins	91.7		0.252	2.39	1.64		1
Total Hexa-Dioxins	270		0.273	2.39	1.25		1
Total Hepta-Dioxins	73.5		0.602	2.39	1.03		1
Total Tetra-Furans	19.6		0.522	0.522	0.83		1
Total Penta-Furans	172		0.466	2.39	1.56		1
Total Hexa-Furans	371		0.654	2.39	1.18		1
Total Hepta-Furans	182		1.59	2.39	1.03		1

ALS Group USA, Corp. dba ALS Environmental

Analytical Report

Client:	BSI EHS Services and Solutions (West) Inc	**Service Request:**	K1806627
Project:	StarLink RCRA	**Date Collected:**	NA
Sample Matrix:	Soil	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1800301-02	**Basis:**	Dry

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analysis Method:	8290A	**Date Analyzed:**	08/06/18 17:51
Prep Method:	Method	**Date Extracted:**	7/30/18
Sample Amount:	10.473g	**Instrument Name:**	E-HRMS-07
		GC Column:	DB-5MSUI
Data File Name:	P516786	**Blank File Name:**	P516751
ICAL Date:	01/24/18	**Cal Ver. File Name:**	P516776

Labeled Standard Results

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	% Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	922.296	46		40-135	0.78	1.020
13C-1,2,3,7,8-PeCDD	2000	1472.565	74		40-135	1.59	1.186
13C-1,2,3,4,7,8-HxCDD	2000	1517.377	76		40-135	1.29	0.991
13C-1,2,3,6,7,8-HxCDD	2000	1377.385	69		40-135	1.27	0.994
13C-1,2,3,4,6,7,8-HpCDD	2000	1533.337	77		40-135	1.07	1.066
13C-OCDD	4000	1808.861	45		40-135	0.93	1.139
13C-2,3,7,8-TCDF	2000	1211.416	61		40-135	0.80	0.991
13C-1,2,3,7,8-PeCDF	2000	1646.155	82		40-135	1.34	1.143
13C-2,3,4,7,8-PeCDF	2000	1435.456	72		40-135	1.50	1.175
13C-1,2,3,4,7,8-HxCDF	2000	1438.710	72		40-135	0.52	0.971
13C-1,2,3,6,7,8-HxCDF	2000	1328.571	66		40-135	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1444.983	72		40-135	0.52	1.008
13C-2,3,4,6,7,8-HxCDF	2000	1387.012	69		40-135	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1200.265	60		40-135	0.43	1.042
13C-1,2,3,4,7,8,9-HpCDF	2000	1476.712	74		40-135	0.44	1.079
37Cl-2,3,7,8-TCDD	800	555.296	69		40-135	NA	1.021

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

Wednesday, August 8, 2018

Ryan Stringfellow
BSI Services and Solutions East Inc.
1187 Main Ave, Ste 2B
Clifton, NJ 07011

RE: A8G0332 - StarLink RCRA - [none]

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8G0332, which was received by the laboratory on 7/13/2018 at 10:13:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IDW-407	A8G0332-01	Soil	07/12/18 12:00	07/13/18 10:13

Apex Laboratories

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**			**Batch: 8070695**	**V-13, V-15**
Acetone	ND	13400	26700	ug/kg dry	200	07/16/18	5035A/8260C	
Acrylonitrile	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
Benzene	**188**	134	267	ug/kg dry	200	07/16/18	5035A/8260C	**J**
Bromobenzene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Bromochloromethane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Bromodichloromethane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Bromoform	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
Bromomethane	ND	13400	13400	ug/kg dry	200	07/16/18	5035A/8260C	
2-Butanone (MEK)	ND	6680	13400	ug/kg dry	200	07/16/18	5035A/8260C	
n-Butylbenzene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
sec-Butylbenzene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
tert-Butylbenzene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Carbon disulfide	ND	6680	13400	ug/kg dry	200	07/16/18	5035A/8260C	
Carbon tetrachloride	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Chlorobenzene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Chloroethane	ND	6680	13400	ug/kg dry	200	07/16/18	5035A/8260C	
Chloroform	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Chloromethane	ND	3340	6680	ug/kg dry	200	07/16/18	5035A/8260C	
2-Chlorotoluene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
4-Chlorotoluene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Dibromochloromethane	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
1,2-Dibromo-3-chloropropane	ND	3340	6680	ug/kg dry	200	07/16/18	5035A/8260C	
1,2-Dibromoethane (EDB)	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Dibromomethane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
1,2-Dichlorobenzene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,3-Dichlorobenzene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,4-Dichlorobenzene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Dichlorodifluoromethane	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
1,1-Dichloroethane	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,2-Dichloroethane (EDC)	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,1-Dichloroethene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
cis-1,2-Dichloroethene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
trans-1,2-Dichloroethene	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**			**Batch: 8070695**	**V-13, V-15**
1,2-Dichloropropane	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,3-Dichloropropane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
2,2-Dichloropropane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
1,1-Dichloropropene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
cis-1,3-Dichloropropene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
trans-1,3-Dichloropropene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Ethylbenzene	**890**	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Hexachlorobutadiene	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
2-Hexanone	ND	6680	13400	ug/kg dry	200	07/16/18	5035A/8260C	
Isopropylbenzene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
4-Isopropyltoluene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Methylene chloride	ND	3340	6680	ug/kg dry	200	07/16/18	5035A/8260C	
4-Methyl-2-pentanone (MiBK)	ND	6680	13400	ug/kg dry	200	07/16/18	5035A/8260C	
Methyl tert-butyl ether (MTBE)	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Naphthalene	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
n-Propylbenzene	**459**	334	668	ug/kg dry	200	07/16/18	5035A/8260C	**J**
Styrene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
1,1,1,2-Tetrachloroethane	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,1,2,2-Tetrachloroethane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Tetrachloroethene (PCE)	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Toluene	**1900**	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
1,2,3-Trichlorobenzene	ND	3340	6680	ug/kg dry	200	07/16/18	5035A/8260C	
1,2,4-Trichlorobenzene	ND	3340	6680	ug/kg dry	200	07/16/18	5035A/8260C	
1,1,1-Trichloroethane	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
1,1,2-Trichloroethane	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Trichloroethene (TCE)	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
Trichlorofluoromethane	ND	1340	2670	ug/kg dry	200	07/16/18	5035A/8260C	
1,2,3-Trichloropropane	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
1,2,4-Trimethylbenzene	**1170**	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	**J**
1,3,5-Trimethylbenzene	ND	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
Vinyl chloride	ND	334	668	ug/kg dry	200	07/16/18	5035A/8260C	
m,p-Xylene	**2910**	668	1340	ug/kg dry	200	07/16/18	5035A/8260C	
o-Xylene	**983**	334	668	ug/kg dry	200	07/16/18	5035A/8260C	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**			**Batch: 8070695**	**V-13, V-15**
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery:*	*100 %*	*Limits: 80-120 %*	*1*	*07/16/18*	*5035A/8260C*	
Toluene-d8 (Surr)			*98 %*	*80-120 %*	*1*	*07/16/18*	*5035A/8260C*	
4-Bromofluorobenzene (Surr)			*102 %*	*80-120 %*	*1*	*07/16/18*	*5035A/8260C*	

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**			**Batch: 8080391**	**C-07**
Aroclor 1016	ND	703	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1221	ND	1410	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1232	ND	1410	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1242	ND	703	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1248	ND	703	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1254	ND	1410	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Aroclor 1260	ND	703	1410	ug/kg dry	100	08/02/18	EPA 8082A	
Surrogate: Decachlorobiphenyl (Surr)		*Recovery: 118 %*		*Limits: 53-120 %*	*100*	*08/02/18*	*EPA 8082A*	*S-05*

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE2)				**Matrix: Soil**			**Batch: 8070760**	**C-05, R-04**
cis-Chlordane	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
trans-Chlordane	ND	285	285	ug/kg dry	20	07/18/18	EPA 8081B	
4,4'-DDD	ND	570	570	ug/kg dry	20	07/18/18	EPA 8081B	
4,4'-DDE	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
4,4'-DDT	ND	327	327	ug/kg dry	20	07/18/18	EPA 8081B	
Dieldrin	ND	274	274	ug/kg dry	20	07/18/18	EPA 8081B	
Endosulfan I	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
Endosulfan II	ND	222	222	ug/kg dry	20	07/18/18	EPA 8081B	
Endosulfan sulfate	ND	475	475	ug/kg dry	20	07/18/18	EPA 8081B	
Endrin	ND	285	285	ug/kg dry	20	07/18/18	EPA 8081B	
Endrin Aldehyde	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
Endrin ketone	ND	106	211	ug/kg dry	20	07/18/18	EPA 8081B	
Heptachlor	ND	106	211	ug/kg dry	20	07/18/18	EPA 8081B	
Heptachlor epoxide	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
Methoxychlor	ND	633	633	ug/kg dry	20	07/18/18	EPA 8081B	
cis-Nonachlor	ND	348	348	ug/kg dry	20	07/18/18	EPA 8081B	
2,4'-DDD	ND	2520	2520	ug/kg dry	20	07/18/18	EPA 8081B	
2,4'-DDE	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
2,4'-DDT	ND	517	517	ug/kg dry	20	07/18/18	EPA 8081B	
Hexachlorobenzene	ND	264	528	ug/kg dry	20	07/18/18	EPA 8081B	
Hexachlorobutadiene	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
Mirex	ND	211	211	ug/kg dry	20	07/18/18	EPA 8081B	
Oxychlordane	ND	106	211	ug/kg dry	20	07/18/18	EPA 8081B	
trans-Nonachlor	ND	443	443	ug/kg dry	20	07/18/18	EPA 8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*276 %*	*Limits: 42-129 %*	*20*	*07/18/18*	*EPA 8081B*	*S-05*
Decachlorobiphenyl (Surr)			*231 %*	*65-151 %*	*20*	*07/18/18*	*EPA 8081B*	*S-05*
IDW-407 (A8G0332-01RE3)				**Matrix: Soil**			**Batch: 8070760**	**C-05**
Aldrin	ND	52.8	106	ug/kg dry	10	07/27/18	EPA 8081B	
alpha-BHC	ND	52.8	106	ug/kg dry	10	07/27/18	EPA 8081B	
beta-BHC	ND	153	153	ug/kg dry	10	07/27/18	EPA 8081B	R-02
delta-BHC	ND	106	106	ug/kg dry	10	07/27/18	EPA 8081B	
gamma-BHC (Lindane)	ND	106	106	ug/kg dry	10	07/27/18	EPA 8081B	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE3)				**Matrix: Soil**			**Batch: 8070760**	**C-05**
Chlordane (Technical)	ND	1580	3170	ug/kg dry	10	07/27/18	EPA 8081B	
Toxaphene (Total)	ND	1580	3170	ug/kg dry	10	07/27/18	EPA 8081B	

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**		**Batch: 8070710**		
Acenaphthene	**183**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
Acenaphthylene	ND	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Anthracene	ND	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Benz(a)anthracene	**303**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**M-05**
Benzo(a)pyrene	**302**	212	424	ug/kg dry	20	07/17/18	EPA 8270D	**J**
Benzo(b)fluoranthene	**704**	212	424	ug/kg dry	20	07/17/18	EPA 8270D	**M-05**
Benzo(k)fluoranthene	ND	212	424	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
Benzo(g,h,i)perylene	**281**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**J**
Chrysene	**584**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**M-05**
Dibenz(a,h)anthracene	ND	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Fluoranthene	**1180**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Fluorene	**151**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**J**
Indeno(1,2,3-cd)pyrene	**272**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
1-Methylnaphthalene	**429**	283	566	ug/kg dry	20	07/17/18	EPA 8270D	**J**
2-Methylnaphthalene	**888**	283	566	ug/kg dry	20	07/17/18	EPA 8270D	
Naphthalene	**1280**	283	566	ug/kg dry	20	07/17/18	EPA 8270D	
Phenanthrene	**1150**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Pyrene	**834**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
Carbazole	ND	212	424	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
Dibenzofuran	**415**	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
4-Chloro-3-methylphenol	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
2-Chlorophenol	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
2,4-Dichlorophenol	**7710**	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	**Q-42**
2,4-Dimethylphenol	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	
2,4-Dinitrophenol	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
4,6-Dinitro-2-methylphenol	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
2-Methylphenol	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
3+4-Methylphenol(s)	**2410**	353	708	ug/kg dry	20	07/17/18	EPA 8270D	**Q-42**
2-Nitrophenol	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
4-Nitrophenol	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Pentachlorophenol (PCP)	**1640**	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
Phenol	**1060**	283	566	ug/kg dry	20	07/17/18	EPA 8270D	
2,3,4,6-Tetrachlorophenol	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**		**Batch: 8070710**		
2,3,5,6-Tetrachlorophenol	**770**	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	**J**
2,4,5-Trichlorophenol	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	
2,4,6-Trichlorophenol	**1180**	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
Bis(2-ethylhexyl)phthalate	**9030**	2120	4240	ug/kg dry	20	07/17/18	EPA 8270D	**Q-42**
Butyl benzyl phthalate	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Diethylphthalate	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Dimethylphthalate	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Di-n-butylphthalate	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Di-n-octyl phthalate	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
N-Nitrosodimethylamine	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
N-Nitroso-di-n-propylamine	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
N-Nitrosodiphenylamine	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Bis(2-Chloroethoxy) methane	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Bis(2-Chloroethyl) ether	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
2,2'-Oxybis(1-Chloropropane)	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Hexachlorobenzene	ND	141	283	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
Hexachlorobutadiene	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Hexachlorocyclopentadiene	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	
Hexachloroethane	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
2-Chloronaphthalene	ND	141	283	ug/kg dry	20	07/17/18	EPA 8270D	
1,2-Dichlorobenzene	**589**	353	708	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
1,3-Dichlorobenzene	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
1,4-Dichlorobenzene	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	Q-42
1,2,4-Trichlorobenzene	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
4-Bromophenyl phenyl ether	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
4-Chlorophenyl phenyl ether	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Aniline	ND	4660	4660	ug/kg dry	20	07/17/18	EPA 8270D	R-02
4-Chloroaniline	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
2-Nitroaniline	ND	2830	5660	ug/kg dry	20	07/17/18	EPA 8270D	
3-Nitroaniline	ND	2830	5660	ug/kg dry	20	07/17/18	EPA 8270D	
4-Nitroaniline	ND	2830	5660	ug/kg dry	20	07/17/18	EPA 8270D	
Nitrobenzene	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
2,4-Dinitrotoluene	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01RE1)				**Matrix: Soil**			**Batch: 8070710**	
2,6-Dinitrotoluene	ND	1410	2830	ug/kg dry	20	07/17/18	EPA 8270D	
Benzoic acid	ND	17700	35300	ug/kg dry	20	07/17/18	EPA 8270D	
Benzyl alcohol	**1110**	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	**J, Q-42**
Isophorone	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Azobenzene (1,2-DPH)	ND	353	708	ug/kg dry	20	07/17/18	EPA 8270D	
Bis(2-Ethylhexyl) adipate	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
3,3'-Dichlorobenzidine	ND	7060	14200	ug/kg dry	20	07/17/18	EPA 8270D	Q-52
1,2-Dinitrobenzene	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
1,3-Dinitrobenzene	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
1,4-Dinitrobenzene	ND	3530	7080	ug/kg dry	20	07/17/18	EPA 8270D	
Pyridine	ND	708	1410	ug/kg dry	20	07/17/18	EPA 8270D	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*51 %*	*Limits: 37-122 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*
2-Fluorobiphenyl (Surr)			*65 %*	*44-115 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*
Phenol-d6 (Surr)			*31 %*	*33-122 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*
p-Terphenyl-d14 (Surr)			*59 %*	*54-127 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*
2-Fluorophenol (Surr)			*30 %*	*35-115 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*
2,4,6-Tribromophenol (Surr)			*243 %*	*39-132 %*	*20*	*07/17/18*	*EPA 8270D*	*S-05*

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (A8G0332-01)				**Matrix: Soil**			**Batch: 8070697**	
% Solids	**70.4**	1.00	1.00	% by Weight	1	07/17/18	EPA 8000C	

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070666 - EPA 5035A							**Soil**					
Blank (8070666-BLK1)			Prepared: 07/13/18 12:00 Analyzed: 07/13/18 14:16									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070666 - EPA 5035A							**Soil**					
Blank (8070666-BLK1)			Prepared: 07/13/18 12:00 Analyzed: 07/13/18 14:16									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070666 - EPA 5035A							**Soil**					
Blank (8070666-BLK1)				Prepared: 07/13/18 12:00 Analyzed: 07/13/18 14:16								
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*101 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*98 %*	*80-120 %*			*"*					
LCS (8070666-BS1)				Prepared: 07/13/18 12:00 Analyzed: 07/13/18 13:23								
5035A/8260C												
Acetone	1650	500	1000	ug/kg wet	50	2000	---	83	80-120%	---	---	
Acrylonitrile	900	50.0	100	ug/kg wet	50	1000	---	90	80-120%	---	---	
Benzene	1040	5.00	10.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Bromobenzene	1080	12.5	25.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Bromochloromethane	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Bromodichloromethane	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Bromoform	1140	50.0	100	ug/kg wet	50	1000	---	114	80-120%	---	---	
Bromomethane	1080	500	500	ug/kg wet	50	1000	---	108	80-120%	---	---	
2-Butanone (MEK)	1680	250	500	ug/kg wet	50	2000	---	84	80-120%	---	---	
n-Butylbenzene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
sec-Butylbenzene	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
tert-Butylbenzene	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Carbon disulfide	806	250	500	ug/kg wet	50	1000	---	81	80-120%	---	---	
Carbon tetrachloride	1250	25.0	50.0	ug/kg wet	50	1000	---	**125**	**80-120%**	---	---	Q-56
Chlorobenzene	1070	12.5	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Chloroethane	1170	250	500	ug/kg wet	50	1000	---	117	80-120%	---	---	
Chloroform	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Chloromethane	842	125	250	ug/kg wet	50	1000	---	84	80-120%	---	---	
2-Chlorotoluene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
4-Chlorotoluene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Dibromochloromethane	1260	50.0	100	ug/kg wet	50	1000	---	**126**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	1070	125	250	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,2-Dibromoethane (EDB)	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Dibromomethane	974	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,2-Dichlorobenzene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,3-Dichlorobenzene	1090	12.5	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,4-Dichlorobenzene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Dichlorodifluoromethane	1010	50.0	100	ug/kg wet	50	1000	---	101	80-120%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070666 - EPA 5035A							**Soil**					
LCS (8070666-BS1)			Prepared: 07/13/18 12:00		Analyzed: 07/13/18 13:23							
1,1-Dichloroethane	997	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dichloroethane (EDC)	1170	12.5	25.0	ug/kg wet	50	1000	---	117	80-120%	---	---	
1,1-Dichloroethene	1130	12.5	25.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
cis-1,2-Dichloroethene	976	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
trans-1,2-Dichloroethene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,2-Dichloropropane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,3-Dichloropropane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
2,2-Dichloropropane	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
1,1-Dichloropropene	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
cis-1,3-Dichloropropene	935	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
trans-1,3-Dichloropropene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Ethylbenzene	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Hexachlorobutadiene	1180	50.0	100	ug/kg wet	50	1000	---	118	80-120%	---	---	
2-Hexanone	1660	250	500	ug/kg wet	50	2000	---	83	80-120%	---	---	
Isopropylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
4-Isopropyltoluene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Methylene chloride	990	125	250	ug/kg wet	50	1000	---	99	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1680	250	500	ug/kg wet	50	2000	---	84	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	934	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Naphthalene	912	50.0	100	ug/kg wet	50	1000	---	91	80-120%	---	---	
n-Propylbenzene	1100	12.5	25.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Styrene	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1130	12.5	25.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1130	25.0	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
Tetrachloroethene (PCE)	1060	12.5	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Toluene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,2,3-Trichlorobenzene	1030	125	250	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2,4-Trichlorobenzene	962	125	250	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,1,1-Trichloroethane	1160	12.5	25.0	ug/kg wet	50	1000	---	116	80-120%	---	---	
1,1,2-Trichloroethane	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Trichloroethene (TCE)	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Trichlorofluoromethane	1940	50.0	100	ug/kg wet	50	1000	---	**194**	**80-120%**	---	---	Q-56
1,2,3-Trichloropropane	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,2,4-Trimethylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070666 - EPA 5035A							**Soil**					
LCS (8070666-BS1)			Prepared: 07/13/18 12:00 Analyzed: 07/13/18 13:23									
1,3,5-Trimethylbenzene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Vinyl chloride	835	12.5	25.0	ug/kg wet	50	1000	---	84	80-120%	---	---	
m,p-Xylene	2120	25.0	50.0	ug/kg wet	50	2000	---	106	80-120%	---	---	
o-Xylene	998	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*99 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*95 %*		*80-120 %*		*"*					

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070695 - EPA 5035A							**Soil**					
Blank (8070695-BLK1)			Prepared: 07/16/18 09:00 Analyzed: 07/16/18 10:26									
5035A/8260C												
Acetone	ND	333	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	3.33	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	333	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070695 - EPA 5035A							**Soil**					
Blank (8070695-BLK1)			Prepared: 07/16/18 09:00 Analyzed: 07/16/18 10:26									
1,2-Dichloropropane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	167	333	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	83.3	167	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	33.3	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	16.7	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	8.33	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070695 - EPA 5035A							**Soil**					
Blank (8070695-BLK1)				Prepared: 07/16/18 09:00 Analyzed: 07/16/18 10:26								
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*				*Dilution: 1x*				
Toluene-d8 (Surr)			*98 %*	*80-120 %*				*"*				
4-Bromofluorobenzene (Surr)			*104 %*	*80-120 %*				*"*				
LCS (8070695-BS1)				Prepared: 07/16/18 09:00 Analyzed: 07/16/18 09:32								
5035A/8260C												
Acetone	1740	500	1000	ug/kg wet	50	2000	---	87	80-120%	---	---	
Acrylonitrile	1010	50.0	100	ug/kg wet	50	1000	---	101	80-120%	---	---	
Benzene	992	5.00	10.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Bromobenzene	1060	12.5	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Bromochloromethane	992	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Bromodichloromethane	955	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Bromoform	1120	50.0	100	ug/kg wet	50	1000	---	112	80-120%	---	---	
Bromomethane	868	500	500	ug/kg wet	50	1000	---	87	80-120%	---	---	
2-Butanone (MEK)	1930	250	500	ug/kg wet	50	2000	---	97	80-120%	---	---	
n-Butylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
sec-Butylbenzene	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
tert-Butylbenzene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Carbon disulfide	1000	250	500	ug/kg wet	50	1000	---	100	80-120%	---	---	
Carbon tetrachloride	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Chlorobenzene	979	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Chloroethane	796	250	500	ug/kg wet	50	1000	---	80	80-120%	---	---	
Chloroform	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Chloromethane	842	125	250	ug/kg wet	50	1000	---	84	80-120%	---	---	
2-Chlorotoluene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
4-Chlorotoluene	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Dibromochloromethane	1000	50.0	100	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dibromo-3-chloropropane	1030	125	250	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2-Dibromoethane (EDB)	1120	25.0	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Dibromomethane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dichlorobenzene	1060	12.5	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,3-Dichlorobenzene	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,4-Dichlorobenzene	985	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Dichlorodifluoromethane	858	50.0	100	ug/kg wet	50	1000	---	86	80-120%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070695 - EPA 5035A							**Soil**					
LCS (8070695-BS1)			Prepared: 07/16/18 09:00		Analyzed: 07/16/18 09:32							
1,1-Dichloroethane	984	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,2-Dichloroethane (EDC)	966	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
1,1-Dichloroethene	933	12.5	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
cis-1,2-Dichloroethene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
trans-1,2-Dichloroethene	995	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,2-Dichloropropane	979	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,3-Dichloropropane	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
2,2-Dichloropropane	1220	25.0	50.0	ug/kg wet	50	1000	---	**122**	**80-120%**	---	---	Q-56
1,1-Dichloropropene	986	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
cis-1,3-Dichloropropene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
trans-1,3-Dichloropropene	1110	25.0	50.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
Ethylbenzene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Hexachlorobutadiene	991	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
2-Hexanone	2050	250	500	ug/kg wet	50	2000	---	103	80-120%	---	---	
Isopropylbenzene	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
4-Isopropyltoluene	1070	25.0	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
Methylene chloride	922	125	250	ug/kg wet	50	1000	---	92	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	2160	250	500	ug/kg wet	50	2000	---	108	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Naphthalene	1110	50.0	100	ug/kg wet	50	1000	---	111	80-120%	---	---	
n-Propylbenzene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Styrene	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Tetrachloroethene (PCE)	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
Toluene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,2,3-Trichlorobenzene	1100	125	250	ug/kg wet	50	1000	---	110	80-120%	---	---	
1,2,4-Trichlorobenzene	1110	125	250	ug/kg wet	50	1000	---	111	80-120%	---	---	
1,1,1-Trichloroethane	1000	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,1,2-Trichloroethane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Trichloroethene (TCE)	992	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Trichlorofluoromethane	904	50.0	100	ug/kg wet	50	1000	---	90	80-120%	---	---	
1,2,3-Trichloropropane	1050	25.0	50.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
1,2,4-Trimethylbenzene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	

Apex Laboratories

Philip Nerenberg, Lab Director

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 5035A/8260C

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070695 - EPA 5035A							**Soil**					
LCS (8070695-BS1)			Prepared: 07/16/18 09:00 Analyzed: 07/16/18 09:32									
1,3,5-Trimethylbenzene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
Vinyl chloride	916	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
m,p-Xylene	2030	25.0	50.0	ug/kg wet	50	2000	---	101	80-120%	---	---	
o-Xylene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 99 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*100 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*103 %*		*80-120 %*			*"*				

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8080391 - EPA 3546							**Soil**					
Blank (8080391-BLK1)			Prepared: 08/01/18 14:11		Analyzed: 08/02/18 08:28							**C-07**
EPA 8082A												
Aroclor 1016	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	4.17	8.33	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 93 %*		*Limits: 53-120 %*			*Dilution: 1x*				
LCS (8080391-BS1)			Prepared: 08/01/18 14:11		Analyzed: 08/02/18 08:46							**C-07**
EPA 8082A												
Aroclor 1016	197	5.00	10.0	ug/kg wet	1	250	---	79	47-134%	---	---	
Aroclor 1260	243	5.00	10.0	ug/kg wet	1	250	---	97	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 97 %*		*Limits: 53-120 %*			*Dilution: 1x*				
Duplicate (8080391-DUP1)			Prepared: 08/01/18 14:11		Analyzed: 08/02/18 11:45							**C-07**
QC Source Sample: IDW-407 (A8G0332-01)												
EPA 8082A												
Aroclor 1016	ND	707	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1221	ND	1410	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1232	ND	1410	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1242	ND	707	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1248	ND	707	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1254	ND	707	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Aroclor 1260	ND	707	1410	ug/kg dry	100	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 112 %*		*Limits: 53-120 %*			*Dilution: 100x*				S-05

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070760 - EPA 3546/3640A (GPC)							**Soil**					
Blank (8070760-BLK1)			Prepared: 07/16/18 07:48		Analyzed: 07/18/18 12:07							**C-05**
EPA 8081B												
Aldrin	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
alpha-BHC	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
beta-BHC	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
delta-BHC	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
cis-Chlordane	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
trans-Chlordane	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDD	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDE	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
4,4'-DDT	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Dieldrin	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan I	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan II	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endosulfan sulfate	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endrin	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endrin Aldehyde	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Endrin ketone	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Heptachlor	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Heptachlor epoxide	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Methoxychlor	ND	2.50	5.00	ug/kg wet	1	---	---	---	---	---	---	
Chlordane (Technical)	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
Toxaphene (Total)	ND	25.0	50.0	ug/kg wet	1	---	---	---	---	---	---	
cis-Nonachlor	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
2,4'-DDD	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
2,4'-DDE	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
2,4'-DDT	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	2.08	4.17	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	1.67	1.67	ug/kg wet	1	---	---	---	---	---	---	
Mirex	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Oxychlordane	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
trans-Nonachlor	ND	0.833	1.67	ug/kg wet	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 67 %*		*Limits: 42-129 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*79 %*		*65-151 %*			*"*				

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070760 - EPA 3546/3640A (GPC)							**Soil**					
LCS (8070760-BS1)			Prepared: 07/16/18 07:48		Analyzed: 07/18/18 12:24							**C-05**
EPA 8081B												
Aldrin	39.0	1.00	2.00	ug/kg wet	1	50.0	---	78	45-136%	---	---	
alpha-BHC	42.4	1.00	2.00	ug/kg wet	1	50.0	---	85	45-137%	---	---	
beta-BHC	41.5	1.00	2.00	ug/kg wet	1	50.0	---	83	50-136%	---	---	
delta-BHC	46.2	1.00	2.00	ug/kg wet	1	50.0	---	92	47-139%	---	---	
gamma-BHC (Lindane)	41.2	1.00	2.00	ug/kg wet	1	50.0	---	82	49-135%	---	---	Q-41
cis-Chlordane	42.2	1.00	2.00	ug/kg wet	1	50.0	---	84	54-133%	---	---	
trans-Chlordane	41.7	1.00	2.00	ug/kg wet	1	50.0	---	83	53-135%	---	---	
4,4'-DDD	43.4	1.00	2.00	ug/kg wet	1	50.0	---	87	56-139%	---	---	
4,4'-DDE	41.2	1.00	2.00	ug/kg wet	1	50.0	---	82	56-134%	---	---	
4,4'-DDT	54.0	1.00	2.00	ug/kg wet	1	50.0	---	108	50-141%	---	---	
Dieldrin	43.1	1.00	2.00	ug/kg wet	1	50.0	---	86	56-136%	---	---	
Endosulfan I	42.8	1.00	2.00	ug/kg wet	1	50.0	---	86	52-132%	---	---	
Endosulfan II	45.9	1.00	2.00	ug/kg wet	1	50.0	---	92	53-134%	---	---	
Endosulfan sulfate	48.5	1.00	2.00	ug/kg wet	1	50.0	---	97	55-136%	---	---	
Endrin	46.0	1.00	2.00	ug/kg wet	1	50.0	---	92	56-140%	---	---	
Endrin Aldehyde	45.7	1.00	2.00	ug/kg wet	1	50.0	---	91	35-137%	---	---	
Endrin ketone	50.0	1.00	2.00	ug/kg wet	1	50.0	---	100	55-136%	---	---	
Heptachlor	41.5	1.00	2.00	ug/kg wet	1	50.0	---	83	47-136%	---	---	
Heptachlor epoxide	41.8	1.00	2.00	ug/kg wet	1	50.0	---	84	52-136%	---	---	
Methoxychlor	55.3	3.00	6.00	ug/kg wet	1	50.0	---	111	52-143%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 75 %*		*Limits: 42-129 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*86 %*		*65-151 %*				*"*			
LCS (8070760-BS2)			Prepared: 07/16/18 07:49		Analyzed: 07/18/18 12:41							**C-05**
EPA 8081B												
cis-Nonachlor	42.2	1.00	2.00	ug/kg wet	1	50.0	---	84	58-142%	---	---	
2,4'-DDD	41.1	1.00	2.00	ug/kg wet	1	50.0	---	82	75-130%	---	---	
2,4'-DDE	40.3	1.00	2.00	ug/kg wet	1	50.0	---	81	74-131%	---	---	
2,4'-DDT	49.9	1.00	2.00	ug/kg wet	1	50.0	---	100	64-136%	---	---	
Hexachlorobenzene	35.8	2.50	5.00	ug/kg wet	1	50.0	---	72	57-126%	---	---	
Hexachlorobutadiene	30.2	2.00	2.00	ug/kg wet	1	50.0	---	60	38-109%	---	---	
Mirex	39.9	1.00	2.00	ug/kg wet	1	50.0	---	80	65-128%	---	---	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070760 - EPA 3546/3640A (GPC)							**Soil**					
LCS (8070760-BS2)			Prepared: 07/16/18 07:49		Analyzed: 07/18/18 12:41							**C-05**
Oxychlordane	39.6	1.00	2.00	ug/kg wet	1	50.0	---	79	61-132%	---	---	
trans-Nonachlor	39.1	1.00	2.00	ug/kg wet	1	50.0	---	78	58-134%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 75 %*		*Limits: 42-129 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*84 %*		*65-151 %*				*"*			
Duplicate (8070760-DUP2)			Prepared: 07/16/18 07:48		Analyzed: 07/18/18 17:03							**C-05, R-04**
QC Source Sample: IDW-407 (A8G0332-01RE2)												
EPA 8081B												
Aldrin	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
alpha-BHC	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
beta-BHC	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
delta-BHC	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
gamma-BHC (Lindane)	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
cis-Chlordane	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
trans-Chlordane	ND	297	297	ug/kg dry	20	---	ND	---	---	---	30%	
4,4'-DDD	ND	583	583	ug/kg dry	20	---	ND	---	---	---	30%	
4,4'-DDE	ND	106	212	ug/kg dry	20	---	137	---	---	***	30%	
4,4'-DDT	ND	307	307	ug/kg dry	20	---	326	---	---	***	30%	
Dieldrin	ND	212	212	ug/kg dry	20	---	267	---	---	***	30%	
Endosulfan I	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
Endosulfan II	ND	244	244	ug/kg dry	20	---	ND	---	---	---	30%	
Endosulfan sulfate	ND	435	435	ug/kg dry	20	---	471	---	---	***	30%	
Endrin	ND	424	424	ug/kg dry	20	---	ND	---	---	---	30%	
Endrin Aldehyde	ND	106	212	ug/kg dry	20	---	106	---	---	***	30%	
Endrin ketone	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
Heptachlor	ND	265	265	ug/kg dry	20	---	ND	---	---	---	30%	
Heptachlor epoxide	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
Methoxychlor	ND	636	636	ug/kg dry	20	---	ND	---	---	---	30%	
Chlordane (Technical)	ND	3180	6360	ug/kg dry	20	---	ND	---	---	---	30%	
Toxaphene (Total)	ND	3180	6360	ug/kg dry	20	---	ND	---	---	---	30%	
cis-Nonachlor	ND	360	360	ug/kg dry	20	---	ND	---	---	---	30%	
2,4'-DDD	ND	2290	2290	ug/kg dry	20	---	2510	---	---	***	30%	
2,4'-DDE	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
2,4'-DDT	ND	763	763	ug/kg dry	20	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Organochlorine Pesticides by EPA 8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070760 - EPA 3546/3640A (GPC)							**Soil**					
Duplicate (8070760-DUP2)			Prepared: 07/16/18 07:48		Analyzed: 07/18/18 17:03							**C-05, R-04**
QC Source Sample: IDW-407 (A8G0332-01RE2)												
Hexachlorobenzene	ND	265	530	ug/kg dry	20	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
Mirex	ND	212	212	ug/kg dry	20	---	ND	---	---	---	30%	
Oxychlordane	ND	106	212	ug/kg dry	20	---	ND	---	---	---	30%	
trans-Nonachlor	ND	498	498	ug/kg dry	20	---	ND	---	---	---	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 251 %*		*Limits: 42-129 %*		*Dilution: 20x*					S-05
Decachlorobiphenyl (Surr)			*223 %*		*65-151 %*		*"*					S-05

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Philip Nerenberg, Lab Director

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Blank (8070710-BLK2)			Prepared: 07/16/18 12:29 Analyzed: 07/16/18 18:28									
EPA 8270D												
Acenaphthene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	2.73	5.45	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	2.73	5.45	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	2.73	5.45	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	3.64	7.27	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	3.64	7.27	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	3.64	7.27	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	2.73	5.45	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	3.64	7.27	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	

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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Blank (8070710-BLK2)			Prepared: 07/16/18 12:29		Analyzed: 07/16/18 18:28							
2,3,5,6-Tetrachlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	27.3	54.5	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Dimethylphthalate	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.81	3.64	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	36.4	72.7	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	36.4	72.7	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	36.4	72.7	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	18.1	36.4	ug/kg wet	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Blank (8070710-BLK2)			Prepared: 07/16/18 12:29		Analyzed: 07/16/18 18:28							
Benzoic acid	ND	228	454	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Azobenzene (1,2-DPH)	ND	4.54	9.10	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	90.7	182	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	45.4	91.0	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	9.10	18.1	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 78 %*		*Limits: 37-122 %*				*Dilution: 1x*			
2-Fluorobiphenyl (Surr)			*79 %*		*44-115 %*				*"*			
Phenol-d6 (Surr)			*76 %*		*33-122 %*				*"*			
p-Terphenyl-d14 (Surr)			*88 %*		*54-127 %*				*"*			
2-Fluorophenol (Surr)			*75 %*		*35-115 %*				*"*			
2,4,6-Tribromophenol (Surr)			*76 %*		*39-132 %*				*"*			
LCS (8070710-BS2)			Prepared: 07/16/18 12:29		Analyzed: 07/16/18 19:03							**Q-18**
EPA 8270D												
Acenaphthene	687	3.99	8.01	ug/kg wet	2	800	---	86	40-122%	---	---	
Acenaphthylene	730	3.99	8.01	ug/kg wet	2	800	---	91	32-132%	---	---	
Anthracene	685	3.99	8.01	ug/kg wet	2	800	---	86	47-123%	---	---	
Benz(a)anthracene	757	3.99	8.01	ug/kg wet	2	800	---	95	49-126%	---	---	
Benzo(a)pyrene	838	6.00	12.0	ug/kg wet	2	800	---	105	45-129%	---	---	
Benzo(b)fluoranthene	831	6.00	12.0	ug/kg wet	2	800	---	104	45-132%	---	---	
Benzo(k)fluoranthene	823	6.00	12.0	ug/kg wet	2	800	---	103	47-132%	---	---	
Benzo(g,h,i)perylene	798	3.99	8.01	ug/kg wet	2	800	---	100	43-134%	---	---	
Chrysene	758	3.99	8.01	ug/kg wet	2	800	---	95	50-124%	---	---	
Dibenz(a,h)anthracene	771	3.99	8.01	ug/kg wet	2	800	---	96	45-134%	---	---	
Fluoranthene	749	3.99	8.01	ug/kg wet	2	800	---	94	50-127%	---	---	
Fluorene	641	3.99	8.01	ug/kg wet	2	800	---	80	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	754	3.99	8.01	ug/kg wet	2	800	---	94	45-133%	---	---	
1-Methylnaphthalene	717	8.01	16.0	ug/kg wet	2	800	---	90	40-120%	---	---	
2-Methylnaphthalene	751	8.01	16.0	ug/kg wet	2	800	---	94	38-122%	---	---	

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
LCS (8070710-BS2)			Prepared: 07/16/18 12:29		Analyzed: 07/16/18 19:03							**Q-18**
Naphthalene	677	8.01	16.0	ug/kg wet	2	800	---	85	35-123%	---	---	
Phenanthrene	668	3.99	8.01	ug/kg wet	2	800	---	83	50-121%	---	---	
Pyrene	732	3.99	8.01	ug/kg wet	2	800	---	92	47-127%	---	---	
Carbazole	740	6.00	12.0	ug/kg wet	2	800	---	92	50-122%	---	---	
Dibenzofuran	677	3.99	8.01	ug/kg wet	2	800	---	85	44-120%	---	---	
4-Chloro-3-methylphenol	783	39.9	80.1	ug/kg wet	2	800	---	98	45-122%	---	---	
2-Chlorophenol	728	20.0	39.9	ug/kg wet	2	800	---	91	34-121%	---	---	
2,4-Dichlorophenol	765	20.0	39.9	ug/kg wet	2	800	---	96	40-122%	---	---	
2,4-Dimethylphenol	804	20.0	39.9	ug/kg wet	2	800	---	101	30-127%	---	---	
2,4-Dinitrophenol	456	99.9	200	ug/kg wet	2	800	---	57	5-137%	---	---	Q-31
4,6-Dinitro-2-methylphenol	627	99.9	200	ug/kg wet	2	800	---	78	29-132%	---	---	Q-31
2-Methylphenol	749	9.99	20.0	ug/kg wet	2	800	---	94	32-122%	---	---	
3+4-Methylphenol(s)	765	9.99	20.0	ug/kg wet	2	800	---	96	34-120%	---	---	
2-Nitrophenol	742	39.9	80.1	ug/kg wet	2	800	---	93	36-123%	---	---	
4-Nitrophenol	704	39.9	80.1	ug/kg wet	2	800	---	88	30-132%	---	---	
Pentachlorophenol (PCP)	625	39.9	80.1	ug/kg wet	2	800	---	78	25-133%	---	---	
Phenol	753	8.01	16.0	ug/kg wet	2	800	---	94	34-120%	---	---	
2,3,4,6-Tetrachlorophenol	715	20.0	39.9	ug/kg wet	2	800	---	89	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	689	20.0	39.9	ug/kg wet	2	800	---	86	40-120%	---	---	
2,4,5-Trichlorophenol	766	20.0	39.9	ug/kg wet	2	800	---	96	41-124%	---	---	
2,4,6-Trichlorophenol	769	20.0	39.9	ug/kg wet	2	800	---	96	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	820	60.0	120	ug/kg wet	2	800	---	102	51-133%	---	---	
Butyl benzyl phthalate	812	39.9	80.1	ug/kg wet	2	800	---	101	48-132%	---	---	
Diethylphthalate	707	39.9	80.1	ug/kg wet	2	800	---	88	50-124%	---	---	
Dimethylphthalate	738	39.9	80.1	ug/kg wet	2	800	---	92	48-124%	---	---	
Di-n-butylphthalate	794	39.9	80.1	ug/kg wet	2	800	---	99	51-128%	---	---	
Di-n-octyl phthalate	807	39.9	80.1	ug/kg wet	2	800	---	101	44-140%	---	---	
N-Nitrosodimethylamine	726	9.99	20.0	ug/kg wet	2	800	---	91	23-120%	---	---	
N-Nitroso-di-n-propylamine	724	9.99	20.0	ug/kg wet	2	800	---	90	36-120%	---	---	
N-Nitrosodiphenylamine	687	9.99	20.0	ug/kg wet	2	800	---	86	38-127%	---	---	
Bis(2-Chloroethoxy) methane	731	9.99	20.0	ug/kg wet	2	800	---	91	36-121%	---	---	
Bis(2-Chloroethyl) ether	724	9.99	20.0	ug/kg wet	2	800	---	91	31-120%	---	---	Q-41
2,2'-Oxybis(1-Chloropropane)	703	9.99	20.0	ug/kg wet	2	800	---	88	33-131%	---	---	
Hexachlorobenzene	705	3.99	8.01	ug/kg wet	2	800	---	88	44-122%	---	---	

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Philip Nerenberg

Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
LCS (8070710-BS2)			Prepared: 07/16/18 12:29		Analyzed: 07/16/18 19:03							**Q-18**
Hexachlorobutadiene	692	9.99	20.0	ug/kg wet	2	800	---	87	32-123%	---	---	
Hexachlorocyclopentadiene	833	20.0	39.9	ug/kg wet	2	800	---	104	5-140%	---	---	
Hexachloroethane	698	9.99	20.0	ug/kg wet	2	800	---	87	28-120%	---	---	
2-Chloronaphthalene	726	3.99	8.01	ug/kg wet	2	800	---	91	41-120%	---	---	
1,2-Dichlorobenzene	670	9.99	20.0	ug/kg wet	2	800	---	84	33-120%	---	---	
1,3-Dichlorobenzene	670	9.99	20.0	ug/kg wet	2	800	---	84	30-120%	---	---	
1,4-Dichlorobenzene	656	9.99	20.0	ug/kg wet	2	800	---	82	31-120%	---	---	
1,2,4-Trichlorobenzene	691	9.99	20.0	ug/kg wet	2	800	---	86	34-120%	---	---	
4-Bromophenyl phenyl ether	741	9.99	20.0	ug/kg wet	2	800	---	93	46-124%	---	---	
4-Chlorophenyl phenyl ether	677	9.99	20.0	ug/kg wet	2	800	---	85	45-121%	---	---	
Aniline	654	20.0	39.9	ug/kg wet	2	800	---	82	7-120%	---	---	
4-Chloroaniline	623	9.99	20.0	ug/kg wet	2	800	---	78	16-120%	---	---	
2-Nitroaniline	739	80.1	160	ug/kg wet	2	800	---	92	44-127%	---	---	
3-Nitroaniline	747	80.1	160	ug/kg wet	2	800	---	93	33-120%	---	---	
4-Nitroaniline	712	80.1	160	ug/kg wet	2	800	---	89	35-120%	---	---	
Nitrobenzene	672	39.9	80.1	ug/kg wet	2	800	---	84	34-122%	---	---	
2,4-Dinitrotoluene	834	39.9	80.1	ug/kg wet	2	800	---	104	48-126%	---	---	
2,6-Dinitrotoluene	782	39.9	80.1	ug/kg wet	2	800	---	98	46-124%	---	---	
Benzoic acid	868	501	501	ug/kg wet	2	1600	---	54	5-140%	---	---	
Benzyl alcohol	743	20.0	39.9	ug/kg wet	2	800	---	93	29-122%	---	---	
Isophorone	771	9.99	20.0	ug/kg wet	2	800	---	96	30-122%	---	---	
Azobenzene (1,2-DPH)	708	9.99	20.0	ug/kg wet	2	800	---	89	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	835	99.9	200	ug/kg wet	2	800	---	104	60-121%	---	---	
3,3'-Dichlorobenzidine	3820	200	400	ug/kg wet	2	1600	---	**239**	**22-121%**	---	---	Q-29, Q-41
1,2-Dinitrobenzene	808	99.9	200	ug/kg wet	2	800	---	101	44-120%	---	---	
1,3-Dinitrobenzene	773	99.9	200	ug/kg wet	2	800	---	97	42-127%	---	---	
1,4-Dinitrobenzene	742	99.9	200	ug/kg wet	2	800	---	93	37-132%	---	---	
Pyridine	641	20.0	39.9	ug/kg wet	2	800	---	80	5-120%	---	---	

Surr: Nitrobenzene-d5 (Surr)	*Recovery: 76 %*	*Limits: 37-122 %*	*Dilution: 2x*
2-Fluorobiphenyl (Surr)	*88 %*	*44-115 %*	*"*
Phenol-d6 (Surr)	*88 %*	*33-122 %*	*"*
p-Terphenyl-d14 (Surr)	*96 %*	*54-127 %*	*"*
2-Fluorophenol (Surr)	*84 %*	*35-115 %*	*"*
2,4,6-Tribromophenol (Surr)	*87 %*	*39-132 %*	*"*

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Philip Nerenberg, Lab Director

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EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Duplicate (8070710-DUP3)			Prepared: 07/16/18 12:29 Analyzed: 07/17/18 10:32									
QC Source Sample: IDW-407 (A8G0332-01RE1)												
EPA 8270D												
Acenaphthene	**263**	141	283	ug/kg dry	20	---	183	---	---	**36**	**30%**	Q-04, J
Acenaphthylene	ND	141	283	ug/kg dry	20	---	ND	---	---	---	30%	
Anthracene	ND	141	283	ug/kg dry	20	---	ND	---	---	---	30%	
Benz(a)anthracene	**295**	141	283	ug/kg dry	20	---	303	---	---	3	30%	M-05
Benzo(a)pyrene	**252**	212	424	ug/kg dry	20	---	302	---	---	18	30%	J
Benzo(b)fluoranthene	**568**	212	424	ug/kg dry	20	---	704	---	---	21	30%	M-05
Benzo(k)fluoranthene	**217**	212	424	ug/kg dry	20	---	ND	---	---		**30%**	Q-04, J
Benzo(g,h,i)perylene	**223**	141	283	ug/kg dry	20	---	281	---	---	23	30%	J
Chrysene	**593**	141	283	ug/kg dry	20	---	584	---	---	2	30%	M-05
Dibenz(a,h)anthracene	ND	141	283	ug/kg dry	20	---	ND	---	---	---	30%	
Fluoranthene	**1170**	141	283	ug/kg dry	20	---	1180	---	---	0.9	30%	
Fluorene	**154**	141	283	ug/kg dry	20	---	151	---	---	2	30%	J
Indeno(1,2,3-cd)pyrene	**186**	141	283	ug/kg dry	20	---	272	---	---	**38**	**30%**	Q-04, J
1-Methylnaphthalene	**424**	283	564	ug/kg dry	20	---	429	---	---	1	30%	J
2-Methylnaphthalene	**785**	283	564	ug/kg dry	20	---	888	---	---	12	30%	
Naphthalene	**1300**	283	564	ug/kg dry	20	---	1280	---	---	2	30%	
Phenanthrene	**1180**	141	283	ug/kg dry	20	---	1150	---	---	2	30%	
Pyrene	**888**	141	283	ug/kg dry	20	---	834	---	---	6	30%	
Carbazole	**212**	212	424	ug/kg dry	20	---	ND	---	---		**30%**	Q-04, J
Dibenzofuran	**384**	141	283	ug/kg dry	20	---	415	---	---	8	30%	
4-Chloro-3-methylphenol	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
2-Chlorophenol	**956**	706	1410	ug/kg dry	20	---	ND	---	---		**30%**	Q-04, J
2,4-Dichlorophenol	**15600**	706	1410	ug/kg dry	20	---	7710	---	---	**67**	**30%**	Q-04
2,4-Dimethylphenol	ND	706	1410	ug/kg dry	20	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
2-Methylphenol	**2970**	353	706	ug/kg dry	20	---	ND	---	---		**30%**	Q-04
3+4-Methylphenol(s)	**3650**	353	706	ug/kg dry	20	---	2410	---	---	**41**	**30%**	Q-04
2-Nitrophenol	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
4-Nitrophenol	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	1410	2830	ug/kg dry	20	---	1640	---	---	***	**30%**	Q-04

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Philip Nerenberg, Lab Director

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Duplicate (8070710-DUP3)			Prepared: 07/16/18 12:29		Analyzed: 07/17/18 10:32							
QC Source Sample: IDW-407 (A8G0332-01RE1)												
Phenol	**903**	283	564	ug/kg dry	20	---	1060	---	---	16	30%	
2,3,4,6-Tetrachlorophenol	ND	706	1410	ug/kg dry	20	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	**759**	706	1410	ug/kg dry	20	---	770	---	---	2	30%	J
2,4,5-Trichlorophenol	ND	706	1410	ug/kg dry	20	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	**1860**	706	1410	ug/kg dry	20	---	1180	---	---	**45**	**30%**	Q-04
Bis(2-ethylhexyl)phthalate	**47700**	2120	4240	ug/kg dry	20	---	9030	---	---	**136**	**30%**	Q-04
Butyl benzyl phthalate	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Diethylphthalate	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Dimethylphthalate	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Hexachlorobenzene	**148**	141	283	ug/kg dry	20	---	ND	---	---		**30%**	Q-04, J
Hexachlorobutadiene	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	706	1410	ug/kg dry	20	---	ND	---	---	---	30%	
Hexachloroethane	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	141	283	ug/kg dry	20	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	**1010**	353	706	ug/kg dry	20	---	589	---	---	**53**	**30%**	Q-04
1,3-Dichlorobenzene	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	**456**	353	706	ug/kg dry	20	---	ND	---	---		**30%**	Q-04, J
1,2,4-Trichlorobenzene	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Aniline	ND	1410	1410	ug/kg dry	20	---	4550	---	---	***	30%	
4-Chloroaniline	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
2-Nitroaniline	ND	2830	5640	ug/kg dry	20	---	ND	---	---	---	30%	
3-Nitroaniline	ND	2830	5640	ug/kg dry	20	---	ND	---	---	---	30%	
4-Nitroaniline	ND	2830	5640	ug/kg dry	20	---	ND	---	---	---	30%	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8070710 - EPA 3546							**Soil**					
Duplicate (8070710-DUP3)			Prepared: 07/16/18 12:29		Analyzed: 07/17/18 10:32							
QC Source Sample: IDW-407 (A8G0332-01RE1)												
Nitrobenzene	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	1410	2830	ug/kg dry	20	---	ND	---	---	---	30%	
Benzoic acid	ND	35300	35300	ug/kg dry	20	---	ND	---	---	---	30%	
Benzyl alcohol	**15700**	706	1410	ug/kg dry	20	---	1110	---	---	**174**	**30%**	Q-04
Isophorone	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	353	706	ug/kg dry	20	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	7040	14100	ug/kg dry	20	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	3530	7060	ug/kg dry	20	---	ND	---	---	---	30%	
Pyridine	ND	706	1410	ug/kg dry	20	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 58 %*		*Limits: 37-122 %*		*Dilution: 20x*					S-05
2-Fluorobiphenyl (Surr)			*65 %*		*44-115 %*		*"*					S-05
Phenol-d6 (Surr)			*33 %*		*33-122 %*		*"*					S-05
p-Terphenyl-d14 (Surr)			*61 %*		*54-127 %*		*"*					S-05
2-Fluorophenol (Surr)			*36 %*		*35-115 %*		*"*					S-05
2,4,6-Tribromophenol (Surr)			*371 %*		*39-132 %*		*"*					S-05

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Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 5035A/8260C

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8070695							
A8G0332-01RE1	Soil	5035A/8260C	07/12/18 12:00	07/13/18 12:47	2.27g/10mL	5g/5mL	4.41

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8080391							
A8G0332-01RE1	Soil	EPA 8082A	07/12/18 12:00	08/01/18 14:11	10.11g/5mL	10g/5mL	0.99

Organochlorine Pesticides by EPA 8081B

Prep: EPA 3546/3640A (GPC)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8070760							
A8G0332-01RE2	Soil	EPA 8081B	07/12/18 12:00	07/16/18 07:48	10.77g/40mL	10g/5mL	7.43
A8G0332-01RE3	Soil	EPA 8081B	07/12/18 12:00	07/16/18 07:48	10.77g/40mL	10g/5mL	7.43

Semivolatile Organic Compounds by EPA 8270D

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8070710							
A8G0332-01RE1	Soil	EPA 8270D	07/12/18 12:00	07/16/18 12:31	10.04g/5mL	15g/2mL	3.74

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8070697							
A8G0332-01	Soil	EPA 8000C	07/12/18 12:00	07/16/18 08:42			NA

Apex Laboratories

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EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

C-05	Extract has undergone a GPC (Gel-Permeation Chromatography) cleanup per EPA 3640A. Reporting levels may be raised due to dilution necessary for cleanup. Sample Final Volume includes the GPC dilution factor, see the Prep page for details.
C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-18	Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source sample.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
Q-52	Due to erratic or low blank spike recoveries, results for this analyte are considered Estimated Values.
Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260C
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
R-04	Reporting levels elevated due to dilution necessary for analysis.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
TEMP	Sample(s) received outside of recommended temperature. See Case Narrative.
V-13	Reporting levels raised due to dilution necessary for analysis due to sample foaming in sparge vessel.
V-15	Sample aliquot was subsampled from the sample container. The subsampled aliquot was preserved in the laboratory within 48 hours of sampling.
V-16	Sample aliquot was subsampled from the sample container in the laboratory. The subsampled aliquot was not preserved within 48 hours of sampling.
V-21	Sample aliquot was subsampled from a sample container that had been previously opened and had sample removed for another analysis.

Apex Laboratories

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

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AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC
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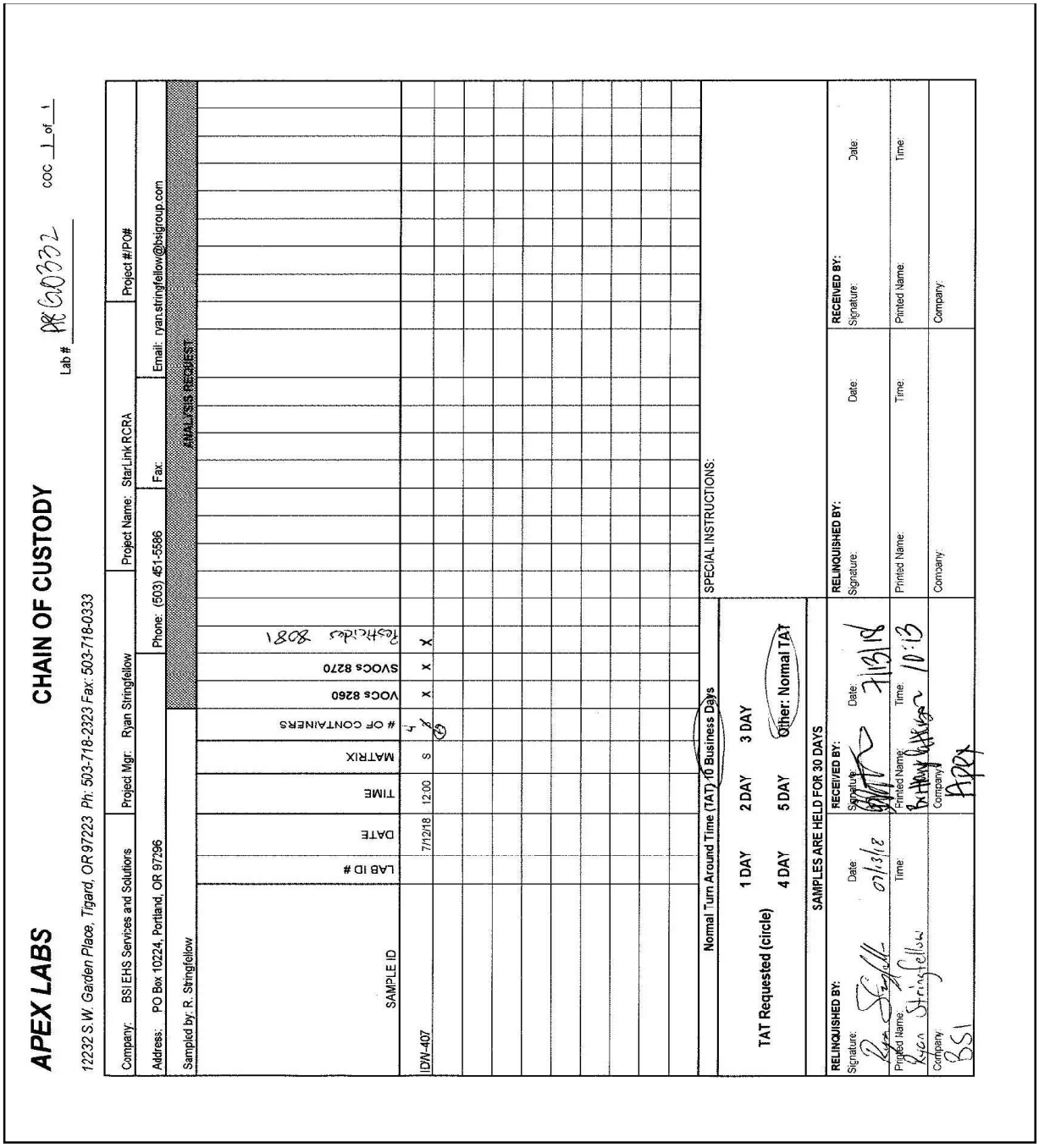
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.
1187 Main Ave, Ste 2B
Clifton, NJ 07011

Project: **StarLink RCRA**
Project Number: **[none]**
Project Manager: **Ryan Stringfellow**

Report ID:
A8G0332 - 08 08 18 1650



APEX LABS
CHAIN OF CUSTODY
Lab # A8G0332 COC 1 of 1
12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Company: BSI EHS Services and Solutions
Project Mgr: Ryan Stringfellow
Project Name: StarLink RCRA
Project #/PO#
Address: PO Box 10224, Portland, OR 97296
Phone: (503) 451-5586
Fax:
Email: ryan.stringfellow@bsigroup.com
Sampled by: R. Stringfellow
ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	VOCs 8260	SVOCs 8270	Pesticides 8081
IDW-407		7/12/18	12:00	S	4	X	X	X

Normal Turn Around Time (TAT) 10 Business Days
SPECIAL INSTRUCTIONS:
TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: Normal TAT
SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Date: 07/13/18 Printed Name: Time: Company: BSI
RECEIVED BY: Signature: Date: 7/13/18 Printed Name: Time: 10:13 Company: APEX
RELINQUISHED BY: Signature: Date: Printed Name: Time: Company:
RECEIVED BY: Signature: Date: Printed Name: Time: Company:

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Laboratories, LLC
12232 S.W. Garden Place
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503-718-2323
EPA ID: OR01039

AMENDED REPORT

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8G0332 - 08 08 18 1650**

APEX LABS COOLER RECEIPT FORM

Client: BSI EHS Services & Solutions Elcmcnt WO#: A8 G0332

Project/Project #: StarLink RCRA

Delivery info:

Date/Time Received: 7/13/18 @ 10:13 By: BLP

Delivered by: Apex X Client ___ ESS ___ FedEx ___ UPS ___ Swift ___ Senvoy ___ SDS ___ Other ___

Cooler Inspection Inspected by: BLP : 7/13/18 @ 1115

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)							
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)	1.1						
Ice Type: (Gel/Real/Other)							
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why: ___

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: AKV : 7/13/18 @ 1124

All Samples Intact? Yes X No ___ Comments: ___

Bottle Labels/COCs agree? Yes X No ___ Comments: ___

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments ___

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA X

Comments: ___

Additional Information: ___

Labeled by: AKV Witness: W Cooler Inspected by: AKV See Project Contact Form: Y

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

Monday, October 29, 2018

Ryan Stringfellow
BSI Services and Solutions East Inc.
1187 Main Ave, Ste 2B
Clifton, NJ 07011

RE: A8I0825 - StarLink RCRA - [none]

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A8I0825, which was received by the laboratory on 9/28/2018 at 10:54:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of final reporting, unless prior arrangements have been made.

Cooler Receipt Info (See Cooler Receipt Form for Details)

Default Cooler 1.4 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

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EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
IDW-407 (As Received)	A8I0825-01	Solid	07/12/18 12:00	09/28/18 10:54
IDW-407 (After Processing)-1311/8081B TCLP Pesticides + Add (All)	A8I0825-02	Water	07/12/18 12:00	09/28/18 10:54
IDW-407 (After Processing)-1613B Dioxins and Furans	A8I0825-03	Water	07/12/18 12:00	09/28/18 10:54

Apex Laboratories

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BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

ANALYTICAL SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (After Processing)-1311/8081B TCLP Pesticides + Add (All)				**Matrix: Water**			**Batch: 8101310**	**H-02**
(A8I0825-02)								
Aldrin	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
alpha-BHC	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
beta-BHC	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
delta-BHC	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
gamma-BHC (Lindane)	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
cis-Chlordane	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
trans-Chlordane	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
4,4'-DDD	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
4,4'-DDE	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
4,4'-DDT	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Dieldrin	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endosulfan I	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endosulfan II	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endosulfan sulfate	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endrin	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endrin Aldehyde	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Endrin ketone	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Heptachlor	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Heptachlor epoxide	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Methoxychlor	ND	---	0.000400	mg/L	1	10/25/18	1311/8081B	
Chlordane (Technical)	ND	---	0.00188	mg/L	1	10/25/18	1311/8081B	
Toxaphene (Total)	ND	---	0.00500	mg/L	1	10/25/18	1311/8081B	
cis-Nonachlor	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
trans-Nonachlor	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
2,4'-DDD	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
2,4'-DDE	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
2,4'-DDT	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Hexachlorobenzene	ND	---	0.000300	mg/L	1	10/25/18	1311/8081B	
Hexachlorobutadiene	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Mirex	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Oxychlordane	ND	---	0.000150	mg/L	1	10/25/18	1311/8081B	
Surrogate: 2,4,5,6-TCMX (Surr)		*Recovery:*	*59 %*	*Limits: 44-124 %*	*1*	*10/25/18*	*1311/8081B*	
Decachlorobiphenyl (Surr)			*51 %*	*47-129 %*	*1*	*10/25/18*	*1311/8081B*	

Apex Laboratories

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Philip Nerenberg, Lab Director

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

ANALYTICAL SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes

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Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

ANALYTICAL SAMPLE RESULTS

TCLP Extraction by EPA 1311

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
IDW-407 (As Received) (A8I0825-01)				**Matrix: Solid**			**Batch: 8100469**	
TCLP Extraction	PREP	---		N/A	1	10/01/18	EPA 1311	H-06, H-10

Apex Laboratories

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QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8101310 - EPA 1311/3510C (Neutral Ext.)												**Water**
Blank (8101310-BLK1)			Prepared: 10/24/18 11:15		Analyzed: 10/25/18 12:57							
1311/8081B												
Aldrin	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
alpha-BHC	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
beta-BHC	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
delta-BHC	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
gamma-BHC (Lindane)	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
cis-Chlordane	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
trans-Chlordane	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
4,4'-DDD	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
4,4'-DDE	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
4,4'-DDT	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Dieldrin	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endosulfan I	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endosulfan II	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endosulfan sulfate	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endrin	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endrin Aldehyde	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Endrin ketone	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Heptachlor	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Heptachlor epoxide	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Methoxychlor	ND	---	0.000400	mg/L	1	---	---	---	---	---	---	
Chlordane (Technical)	ND	---	0.00188	mg/L	1	---	---	---	---	---	---	
Toxaphene (Total)	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
cis-Nonachlor	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
trans-Nonachlor	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
2,4'-DDD	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
2,4'-DDE	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
2,4'-DDT	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	---	0.000300	mg/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Mirex	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Oxychlordane	ND	---	0.000150	mg/L	1	---	---	---	---	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 73 %*		*Limits: 44-124 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*71 %*		*47-129 %*			*"*				

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1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8101310 - EPA 1311/3510C (Neutral Ext.)							**Water**					
LCS (8101310-BS1)			Prepared: 10/24/18 11:15 Analyzed: 10/25/18 13:14									
1311/8081B												
Aldrin	0.00177	---	0.000150	mg/L	1	0.00250	---	71	45-134%	---	---	
alpha-BHC	0.00196	---	0.000150	mg/L	1	0.00250	---	78	54-138%	---	---	
beta-BHC	0.00220	---	0.000150	mg/L	1	0.00250	---	88	56-136%	---	---	
delta-BHC	0.00228	---	0.000150	mg/L	1	0.00250	---	91	52-142%	---	---	
gamma-BHC (Lindane)	0.00205	---	0.000150	mg/L	1	0.00250	---	82	59-134%	---	---	
cis-Chlordane	0.00204	---	0.000150	mg/L	1	0.00250	---	82	60-129%	---	---	
trans-Chlordane	0.00202	---	0.000150	mg/L	1	0.00250	---	81	56-136%	---	---	
4,4'-DDD	0.00219	---	0.000150	mg/L	1	0.00250	---	88	56-143%	---	---	
4,4'-DDE	0.00214	---	0.000150	mg/L	1	0.00250	---	86	57-135%	---	---	
4,4'-DDT	0.00237	---	0.000150	mg/L	1	0.00250	---	95	51-143%	---	---	
Dieldrin	0.00214	---	0.000150	mg/L	1	0.00250	---	85	60-136%	---	---	
Endosulfan I	0.00209	---	0.000150	mg/L	1	0.00250	---	84	62-126%	---	---	
Endosulfan II	0.00222	---	0.000150	mg/L	1	0.00250	---	89	52-135%	---	---	
Endosulfan sulfate	0.00226	---	0.000150	mg/L	1	0.00250	---	90	62-133%	---	---	
Endrin	0.00246	---	0.000150	mg/L	1	0.00250	---	99	60-138%	---	---	
Endrin Aldehyde	0.00226	---	0.000150	mg/L	1	0.00250	---	90	51-132%	---	---	
Endrin ketone	0.00222	---	0.000150	mg/L	1	0.00250	---	89	58-134%	---	---	
Heptachlor	0.00205	---	0.000150	mg/L	1	0.00250	---	82	54-130%	---	---	
Heptachlor epoxide	0.00207	---	0.000150	mg/L	1	0.00250	---	83	61-133%	---	---	
Methoxychlor	0.00257	---	0.000400	mg/L	1	0.00250	---	103	54-144%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 68 %*		*Limits: 44-124 %*			*Dilution: 1x*				
Decachlorobiphenyl (Surr)			*71 %*		*47-129 %*			*"*				
LCS (8101310-BS2)			Prepared: 10/24/18 11:15 Analyzed: 10/25/18 13:49									
1311/8081B												
cis-Nonachlor	0.00256	---	0.000150	mg/L	1	0.00250	---	102	25-120%	---	---	
trans-Nonachlor	0.00240	---	0.000150	mg/L	1	0.00250	---	96	25-120%	---	---	
2,4'-DDD	0.00264	---	0.000150	mg/L	1	0.00250	---	106	30-135%	---	---	
2,4'-DDE	0.00256	---	0.000150	mg/L	1	0.00250	---	102	50-140%	---	---	
2,4'-DDT	0.00266	---	0.000150	mg/L	1	0.00250	---	106	45-140%	---	---	
Hexachlorobenzene	0.00219	---	0.000300	mg/L	1	0.00250	---	88	28-136%	---	---	
Hexachlorobutadiene	0.00183	---	0.000150	mg/L	1	0.00250	---	73	25-120%	---	---	

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EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8101310 - EPA 1311/3510C (Neutral Ext.)												**Water**
LCS (8101310-BS2)			Prepared: 10/24/18 11:15		Analyzed: 10/25/18 13:49							
Mirex	0.00231	---	0.000150	mg/L	1	0.00250	---	92	51-127%	---	---	
Oxychlordane	0.00227	---	0.000150	mg/L	1	0.00250	---	91	25-120%	---	---	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 72 %*		*Limits: 44-124 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*79 %*		*47-129 %*				*"*			
LCS Dup (8101310-BSD1)			Prepared: 10/24/18 11:15		Analyzed: 10/25/18 13:32							**Q-19**
1311/8081B												
Aldrin	0.00188	---	0.000150	mg/L	1	0.00250	---	75	45-134%	6	30%	
alpha-BHC	0.00208	---	0.000150	mg/L	1	0.00250	---	83	54-138%	6	30%	
beta-BHC	0.00231	---	0.000150	mg/L	1	0.00250	---	92	56-136%	5	30%	
delta-BHC	0.00236	---	0.000150	mg/L	1	0.00250	---	94	52-142%	3	30%	
gamma-BHC (Lindane)	0.00216	---	0.000150	mg/L	1	0.00250	---	87	59-134%	5	30%	
cis-Chlordane	0.00221	---	0.000150	mg/L	1	0.00250	---	89	60-129%	8	30%	
trans-Chlordane	0.00215	---	0.000150	mg/L	1	0.00250	---	86	56-136%	7	30%	
4,4'-DDD	0.00239	---	0.000150	mg/L	1	0.00250	---	96	56-143%	9	30%	
4,4'-DDE	0.00218	---	0.000150	mg/L	1	0.00250	---	87	57-135%	2	30%	
4,4'-DDT	0.00258	---	0.000150	mg/L	1	0.00250	---	103	51-143%	9	30%	
Dieldrin	0.00226	---	0.000150	mg/L	1	0.00250	---	90	60-136%	6	30%	
Endosulfan I	0.00212	---	0.000150	mg/L	1	0.00250	---	85	62-126%	1	30%	
Endosulfan II	0.00242	---	0.000150	mg/L	1	0.00250	---	97	52-135%	8	30%	
Endosulfan sulfate	0.00237	---	0.000150	mg/L	1	0.00250	---	95	62-133%	5	30%	
Endrin	0.00258	---	0.000150	mg/L	1	0.00250	---	103	60-138%	5	30%	
Endrin Aldehyde	0.00235	---	0.000150	mg/L	1	0.00250	---	94	51-132%	4	30%	
Endrin ketone	0.00240	---	0.000150	mg/L	1	0.00250	---	96	58-134%	8	30%	
Heptachlor	0.00217	---	0.000150	mg/L	1	0.00250	---	87	54-130%	6	30%	
Heptachlor epoxide	0.00214	---	0.000150	mg/L	1	0.00250	---	86	61-133%	3	30%	
Methoxychlor	0.00275	---	0.000400	mg/L	1	0.00250	---	110	54-144%	7	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 70 %*		*Limits: 44-124 %*				*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*73 %*		*47-129 %*				*"*			
LCS Dup (8101310-BSD2)			Prepared: 10/24/18 11:15		Analyzed: 10/25/18 14:07							**Q-19**
1311/8081B												
cis-Nonachlor	0.00249	---	0.000150	mg/L	1	0.00250	---	99	25-120%	3	30%	
trans-Nonachlor	0.00242	---	0.000150	mg/L	1	0.00250	---	97	25-120%	0.8	30%	

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BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Organochlorine Pesticides by EPA 1311/8081B

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 8101310 - EPA 1311/3510C (Neutral Ext.)							**Water**					
LCS Dup (8101310-BSD2)			Prepared: 10/24/18 11:15			Analyzed: 10/25/18 14:07						**Q-19**
2,4'-DDD	0.00265	---	0.000150	mg/L	1	0.00250	---	106	30-135%	0.4	30%	
2,4'-DDE	0.00257	---	0.000150	mg/L	1	0.00250	---	103	50-140%	0.6	30%	
2,4'-DDT	0.00250	---	0.000150	mg/L	1	0.00250	---	100	45-140%	6	30%	
Hexachlorobenzene	0.00222	---	0.000300	mg/L	1	0.00250	---	89	28-136%	1	30%	
Hexachlorobutadiene	0.00193	---	0.000150	mg/L	1	0.00250	---	77	25-120%	6	30%	
Mirex	0.00236	---	0.000150	mg/L	1	0.00250	---	94	51-127%	2	30%	
Oxychlordane	0.00232	---	0.000150	mg/L	1	0.00250	---	93	25-120%	2	30%	
Surr: 2,4,5,6-TCMX (Surr)			*Recovery: 74 %*			*Limits: 44-124 %*			*Dilution: 1x*			
Decachlorobiphenyl (Surr)			*74 %*			*47-129 %*			*"*			

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1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

SAMPLE PREPARATION INFORMATION

TCLP Organochlorine Pesticides by EPA 1311/8081B

Prep: EPA 1311/3510C (Neutral Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8101310							
A8I0825-02	Water	1311/8081B	07/12/18 12:00	10/24/18 11:15	200mL/5mL	200mL/5mL	1.00

TCLP Extraction by EPA 1311

Prep: EPA 1311 (TCLP)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 8100469							
A8I0825-01	Solid	EPA 1311	07/12/18 12:00	10/01/18 16:07	40g/800mL	100g/2000mL	NA

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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

H-02	This sample was extracted outside of the recommended holding time.
H-06	This sample was received, or the analysis requested, outside the recommended holding time.
H-10	This sample was TCLP extracted (leached) outside of the recommended holding time.
Q-19	Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.

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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

DET Analyte DETECTED at or above the detection or reporting limit.
ND Analyte NOT DETECTED at or above the detection or reporting limit.
NR Result Not Reported
RPD Relative Percent Difference

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.

" dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.

" wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.

" " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

" --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

" *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).
-For Blank hits falling between ½ the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.

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Philip Nerenberg, Lab Director

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1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the blank results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

LABORATORY ACCREDITATION INFORMATION

TNI Certification ID: OR100062 (Primary Accreditation) - EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation

All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation.
Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories, LLC

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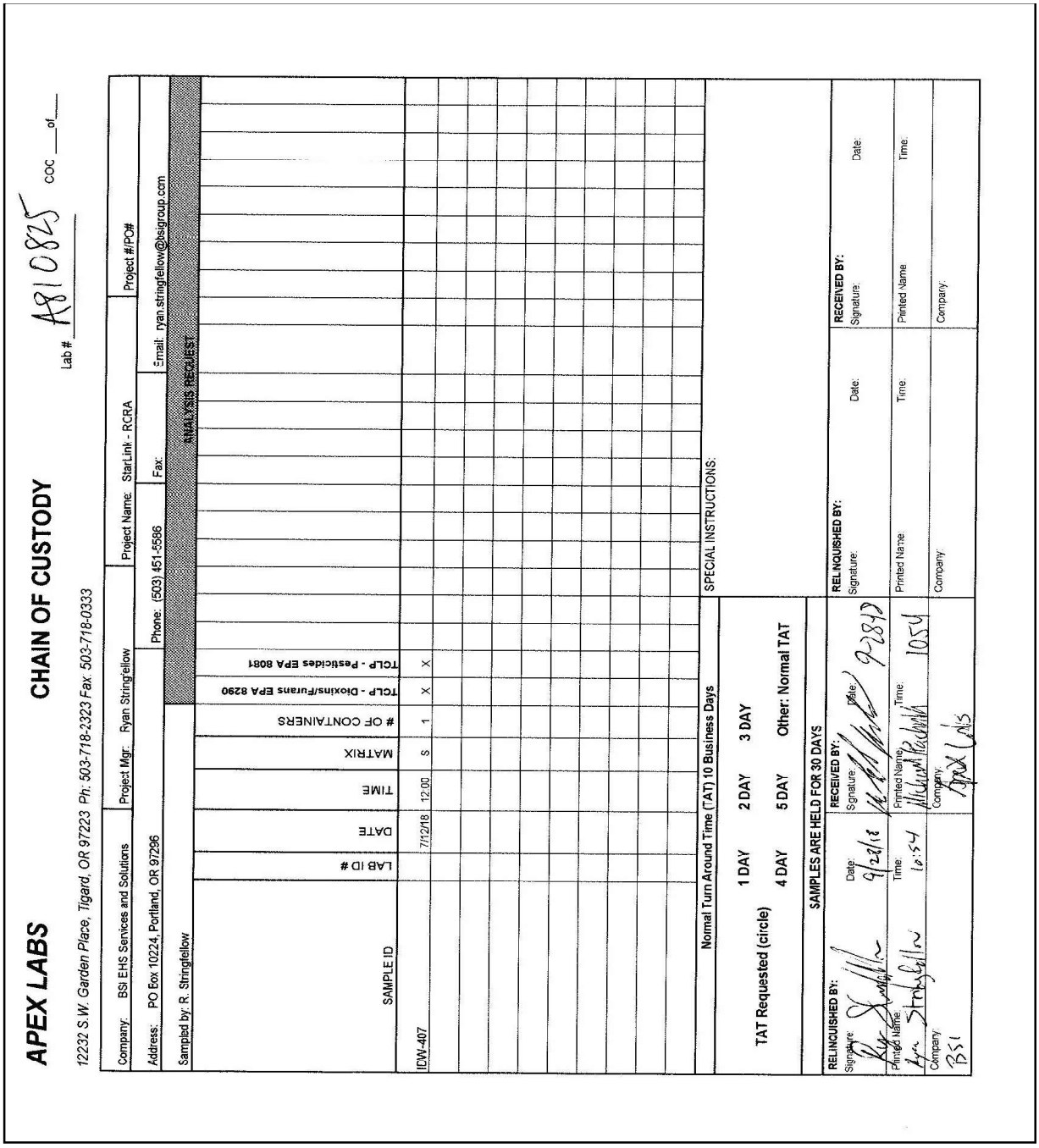
BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**



APEX LABS — CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A810825 COC ___ of ___

Company: BSI EHS Services and Solutions | Project Mgr: Ryan Stringfellow | Project Name: StarLink - RCRA | Project #/PO#

Address: PO Box 10224, Portland, OR 97296 | Phone: (503) 451-5586 | Fax: | Email: ryan.stringfellow@bsigroup.com

Sampled by: R. Stringfellow

ANALYSIS REQUEST

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	TCLP - Dioxins/Furans EPA 8290	TCLP - Pesticides EPA 8081
IDW-407		7/12/18	12:00	S	1	X	X

Normal Turn Around Time (TAT) 10 Business Days

TAT Requested (circle): 1 DAY 2 DAY 3 DAY 4 DAY 5 DAY Other: Normal TAT

SPECIAL INSTRUCTIONS:

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: Ryan Stringfellow Date: 9/23/18 Time: 16:54 Printed Name: Ryan Stringfellow Company: BSI

RECEIVED BY: Signature: Date: 9/23/18 Printed Name: Time: 1054 Company: APEX LABS

RELINQUISHED BY: Signature: Date: Time: Printed Name: Company:

RECEIVED BY: Signature: Date: Time: Printed Name: Company:

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Apex Laboratories, LLC

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

APEX LABS COOLER RECEIPT FORM

Client: BSI EHS Services + Solutions Element WO#: A8 10825

Project/Project #: StarLink-RCRA

Delivery info:

Date/Time Received: 9-28-18 @ 1054 By: MM

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: MM : 9-28-18 @ 1200

Chain of Custody Included? Yes X No Custody Seals? Yes No X

Signed/Dated by Client? Yes X No

Signed/Dated by Apex? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.4						
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	Y						
Ice Type: (Gel/Real/Other)	Gel						
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: CB : 9/28/18 @ 1720

All Samples Intact? Yes X No Comments:

Bottle Labels/COCs agree? Yes X No Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No Comments:

Do VOA Vials have Visible Headspace? Yes No NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes No NA ✓

Comments:

Additional Information:

Labeled by: CB Witness: CFH Cooler Inspected by: MK See Project Contact Form: Y

Apex Laboratories, LLC
12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323
EPA ID: OR01039

BSI Services and Solutions East Inc.	Project: **StarLink RCRA**	
1187 Main Ave, Ste 2B	Project Number: **[none]**	**Report ID:**
Clifton, NJ 07011	Project Manager: **Ryan Stringfellow**	**A8I0825 - 10 29 18 1602**

APEX LABS COOLER RECEIPT FORM

Client: BSI EHS Services + Solutions Element WO#: A8 10825

Project/Project #: StarLink-RCRA

Delivery info:

Date/Time Received: 9-28-18 @ 1054 By: MM

Delivered by: Apex X Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Inspected by: MM : 9-28-18 @ 1200

Chain of Custody Included? Yes X No ___ Custody Seals? Yes ___ No X

Signed/Dated by Client? Yes X No ___

Signed/Dated by Apex? Yes X No ___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	1.4						
Received on Ice? (Y/N)	Y						
Temp. Blanks? (Y/N)	Y						
Ice Type: (Gel/Real/Other)	Gel						
Condition:	good						

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: OB : 9/28/18 @ 1720

All Samples Intact? Yes X No ___ Comments:

Bottle Labels/COCs agree? Yes X No ___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No ___ Comments:

Do VOA Vials have Visible Headspace? Yes ___ No ___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes ___ No ___ NA ✓

Comments:

Additional Information:

Subsampler: AKF

Witness: TAG

Labeled by: OB Witness: CFH Cooler Inspected by: MK See Project Contact Form: Y

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg

CFA | Cape Fear Analytical LLC
an affiliate of The GEL Group INC

3306 Kitty Hawk Road, Suite 120 Wilmington, NC 28405
P 910.795.0421
www.capefearanalytical.com

October 22, 2018

Mr. Philip Nerenberg
Apex Laboratories
12232 S.W. Garden Place
Portland, Oregon 97223

Re: Dioxin & PCB's subcontract
Work Order: 14017
SDG: A8I0825

Dear Mr. Nerenberg:

Cape Fear Analytical LLC (CFA) appreciates the opportunity to provide the enclosed analytical results for the sample(s) we received on October 05, 2018. This original data report has been prepared and reviewed in accordance with CFA'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 910-795-0421.

Sincerely,

Cynde Larkins

Cynde Larkins
Project Manager

Enclosures

NT 10-1-18

SUBCONTRACT ORDER

Apex Laboratories

A8I0825

CFA WO#14017

SENDING LABORATORY:

Apex Laboratories
12232 S.W. Garden Place
Tigard, OR 97223
Phone: (503) 718-2323
Fax: (503) 718-0333
Project Manager: Philip Nerenberg

RECEIVING LABORATORY:

Cape Fear Analytical, LLC
3306 Kitty Hawk Rd Suite 120
Wilmington, NC 28405
Phone :(910) 795-0421
Fax: -

Sample Name: IDW-407 (After Processing)-1613B Dioxins and Water **Sampled: 07/12/18 12:00** (A8I0825-03)

Analysis	Due	Expires	Comments
1613B Dioxins and Furans (SUB)	10/11/18 17:00	01/08/19 12:00	
Containers Supplied:			
(A)1 L Amber Glass - Non Preserved			

Standard TAT

TCLP Extract (Matrix)

temp. = 3.9°C

Released By	Date	Received By	Date
	10/4/18	Fed Ex (Shipper)	
Fed Ex (Shipper)	050CT18	Cynde Larkins	050CT18 @ 1445
Released By	Date	Received By	Date

SAMPLE RECEIPT CHECKLIST

Cape Fear Analytical

Client: APEX	Work Order: 14017
Shipping Company: FedEx	Date/Time Received: 05OCT18 1445

Suspected Hazard Information	Yes	NA	No
Shipped as DOT Hazardous?			✓
Samples identified as Foreign Soil?			✓

DOE Site Sample Packages	Yes	NA	No*
Screened <0.5 mR/hr?		✓	
Samples < 2x background?		✓	

* Notify RSO of any responses in this column immediately.

Air Sample Receipt Specifics	Yes	NA	No
Air sample in shipment?			✓

Air Witness: _____

	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	Chain of Custody documents included with shipment?	✓			
3	Samples requiring cold preservation within 0-6°C?	✓			Preservation Method: (ice bags) blue ice dry ice none other (describe) 4.0° − 0.1 = 3.9°C
4	Aqueous samples found to have visible solids?			✓	Sample IDs, containers affected:
5	Samples requiring chemical preservation at proper pH?		✓		Sample IDs, containers affected and pH observed: pH = 5 If preservative added, Lot#:
6	Samples requiring preservation have no residual chlorine?	✓			Sample IDs, containers affected: If preservative added, Lot#:
7	Samples received within holding time?	✓			Sample IDs, tests affected:
8	Sample IDs on COC match IDs on containers?	✓			Sample IDs, containers affected:
9	Date & time of COC match date & time on containers?	✓			Sample IDs, containers affected:
10	Number of containers received match number indicated on COC?	✓			List type and number of containers / Sample IDs, containers affected: 1-1L NM glass bottle (< half full)
11	COC form is properly signed in relinquished/received sections?	✓			

Comments:

Very Limited Volume.

Checklist performed by: Initials: CF Date: 05OCT18

High Resolution Dioxins and Furans Analysis

Case Narrative

HDOX Case Narrative
Apex Laboratories (APEX)
SDG A8I0825
Work Order 14017

Method/Analysis Information

Product:	**Dioxins/Furans by EPA Method 1613B in Liquids**
Analytical Method:	EPA Method 1613B
Extraction Method:	SW846 3520C
Analytical Batch Number:	38856
Clean Up Batch Number:	38853
Extraction Batch Number:	38852

Sample Analysis

The following samples were analyzed using the analytical protocol as established in EPA Method 1613B:

Sample ID	Client ID
12022316	Method Blank (MB)
12022317	Laboratory Control Sample (LCS)
12022318	Laboratory Control Sample Duplicate (LCSD)
14017001	IDW-407 (After Processing)

The samples in this SDG were analyzed on an "as received" basis.

SOP Reference
Procedure for preparation, analysis and reporting of analytical data are controlled by Cape Fear Analytical LLC (CFA) as Standard Operating Procedure (SOP). The data discussed in this narrative has been analyzed in accordance with CF-OA-E-002 REV# 15.

Raw data reports are processed and reviewed by the analyst using the TargetLynx software package.

Calibration Information

Initial Calibration
All initial calibration requirements have been met for this sample delivery group (SDG).

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

Quality Control (QC) Information

Certification Statement
The test results presented in this document are certified to meet all requirements of the 2009 TNI Standard.

Method Blank (MB) Statement
The MB(s) analyzed with this SDG met the acceptance criteria.

Surrogate Recoveries
All surrogate recoveries were within the established acceptance criteria for this SDG.

Laboratory Control Sample (LCS) Recovery
The LCS spike recoveries met the acceptance limits.

Laboratory Control Sample Duplicate (LCSD) Recovery
The LCSD spike recoveries met the acceptance limits.

LCS/LCSD Relative Percent Difference (RPD) Statement
The RPD(s) between the LCS and LCSD met the acceptance limits.

QC Sample Designation
A matrix spike and matrix spike duplicate analysis was not required for this SDG.

Technical Information

Holding Time Specifications
CFA assigns holding times based on the associated methodology, which assigns the date and time from sample collection. Those holding times expressed in hours are calculated in the AlphaLIMS system. Those holding times expressed as days expire at midnight on the day of expiration. All samples in this SDG met the specified holding time.

Preparation/Analytical Method Verification
All procedures were performed as stated in the SOP.

Sample Dilutions
The samples in this SDG did not require dilutions.

Sample Re-extraction/Re-analysis
Re-extractions or re-analyses were not required in this SDG.

Miscellaneous Information

Nonconformance (NCR) Documentation
A NCR was not required for this SDG.

Manual Integrations
Certain standards and QC samples required manual integrations to correctly position the baseline as set in the calibration standard injections. Where manual integrations were performed, copies of all manual integration peak profiles are included in the raw data section of this fraction. Manual integrations were required for data files in this SDG.

System Configuration
This analysis was performed on the following instrument configuration:

Instrument ID	Instrument	System Configuration	Column ID	Column Description
HRP750_2	Primary Dioxin Analysis	Dioxin Analysis	DB-5MS	60m x 0.25mm, 0.25um

Electronic Packaging Comment

This data package was generated using an electronic data processing program referred to as virtual packaging. In an effort to increase quality and efficiency, the laboratory has developed systems to generate all data packages electronically. The following change from traditional packages should be noted: Analyst/peer reviewer initials and dates are not present on the electronic data files. Presently, all initials and dates are present on the original raw data. These hard copies are temporarily stored in the laboratory. An electronic signature page inserted after the case narrative will include the data validator's signature and title. The signature page also includes the data qualifiers used in the fractional package. Data that are not generated electronically, such as hand written pages, will be scanned and inserted into the electronic package.

Sample Data Summary

Cape Fear Analytical, LLC

3306 Kitty Hawk Road Suite 120, Wilmington, NC 28405 - (910) 795-0421 - www.capefearanalytical.com

Qualifier Definition Report
for

APEX001 Apex Laboratories

Client SDG: A8I0825 CFA Work Order: 14017

The Qualifiers in this report are defined as follows:

* A quality control analyte recovery is outside of specified acceptance criteria

** Analyte is a surrogate compound

J Value is estimated

K Estimated Maximum Possible Concentration

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

DL Indicates that sample is diluted.
RA Indicates that sample is re-analyzed without re-extraction.
RE Indicates that sample is re-extracted.

Review/Validation

Cape Fear Analytical requires all analytical data to be verified by a qualified data reviewer.

The following data validator verified the information presented in this case narrative:

Signature:  **Name: Heather Patterson**

Date: 22 OCT 2018 **Title: Group Leader**

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**14017001**	**Date Collected:**	**07/12/2018 12:00**	**Matrix:**	**WATER**
Client Sample:	**1613B Water**	**Date Received:**	**10/05/2018 14:45**		
Client ID:	**IDW-407 (After Processing)**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/16/2018 14:19**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A15OCT18B_2-13**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**421.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	J	5.18	pg/L	2.11	23.7
40321-76-4	1,2,3,7,8-PeCDD	U	1.99	pg/L	1.99	119
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.8	pg/L	1.80	119
57653-85-7	1,2,3,6,7,8-HxCDD	U	1.7	pg/L	1.70	119
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.81	pg/L	1.81	119
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	3.37	pg/L	3.37	119
3268-87-9	1,2,3,4,6,7,8,9-OCDD	J	34.0	pg/L	8.60	237
51207-31-9	2,3,7,8-TCDF	JK	19.4	pg/L	3.26	23.7
57117-41-6	1,2,3,7,8-PeCDF	U	1.65	pg/L	1.65	119
57117-31-4	2,3,4,7,8-PeCDF	U	1.45	pg/L	1.45	119
70648-26-9	1,2,3,4,7,8-HxCDF	U	1.15	pg/L	1.15	119
57117-44-9	1,2,3,6,7,8-HxCDF	U	1.15	pg/L	1.15	119
60851-34-5	2,3,4,6,7,8-HxCDF	U	1.13	pg/L	1.13	119
72918-21-9	1,2,3,7,8,9-HxCDF	U	1.71	pg/L	1.71	119
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	1.45	pg/L	1.45	119
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	2.14	pg/L	2.14	119
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	5.37	pg/L	5.37	237
41903-57-5	Total TeCDD	J	5.18	pg/L	2.11	23.7
36088-22-9	Total PeCDD	U	1.99	pg/L	1.99	119
34465-46-8	Total HxCDD	JK	2.66	pg/L	1.70	119
37871-00-4	Total HpCDD	U	3.37	pg/L	3.37	119
30402-14-3	Total TeCDF	K	47.4	pg/L	3.26	23.7
30402-15-4	Total PeCDF	JK	17.7	pg/L	0.779	119
55684-94-1	Total HxCDF	U	1.13	pg/L	1.13	119
38998-75-3	Total HpCDF	U	1.45	pg/L	1.45	119
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		7.12	pg/L		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		8.92	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		3780	4750	pg/L	79.6	(25%-164%)
13C-1,2,3,7,8-PeCDD		4410	4750	pg/L	92.8	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		3650	4750	pg/L	76.8	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		3360	4750	pg/L	70.7	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		3970	4750	pg/L	83.5	(23%-140%)
13C-OCDD		7990	9500	pg/L	84.1	(17%-157%)
13C-2,3,7,8-TCDF		2710	4750	pg/L	57.1	(24%-169%)
13C-1,2,3,7,8-PeCDF		4270	4750	pg/L	90.0	(24%-185%)
13C-2,3,4,7,8-PeCDF		4210	4750	pg/L	88.7	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		3410	4750	pg/L	71.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		3160	4750	pg/L	66.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		3410	4750	pg/L	71.8	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		3560	4750	pg/L	75.0	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**14017001**	**Date Collected:**	**07/12/2018 12:00**	**Matrix:**	**WATER**
Client Sample:	**1613B Water**	**Date Received:**	**10/05/2018 14:45**		
Client ID:	**IDW-407 (After Processing)**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/16/2018 14:19**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A15OCT18B_2-13**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**421.1 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		3440	4750	pg/L	72.4	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		3790	4750	pg/L	79.8	(26%-138%)
37Cl-2,3,7,8-TCDD		485	475	pg/L	102	(35%-197%)

Comments:

J Value is estimated

K Estimated Maximum Possible Concentration

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

Quality Control Summary

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A8I0825

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
12022317	LCS for batch 38852	13C-2,3,7,8-TCDD		81.5	(20%-175%)
		13C-1,2,3,7,8-PeCDD		90.6	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		74.6	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		82.6	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		81.3	(22%-166%)
		13C-OCDD		77.5	(13%-199%)
		13C-2,3,7,8-TCDF		57.1	(22%-152%)
		13C-1,2,3,7,8-PeCDF		89.7	(21%-192%)
		13C-2,3,4,7,8-PeCDF		86.4	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		72.6	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		78.3	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		76.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		74.6	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		74.5	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		77.9	(20%-186%)
		37Cl-2,3,7,8-TCDD		88.9	(31%-191%)
12022318	LCSD for batch 38852	13C-2,3,7,8-TCDD		96.4	(20%-175%)
		13C-1,2,3,7,8-PeCDD		97.2	(21%-227%)
		13C-1,2,3,4,7,8-HxCDD		76.3	(21%-193%)
		13C-1,2,3,6,7,8-HxCDD		85.8	(25%-163%)
		13C-1,2,3,4,6,7,8-HpCDD		84.3	(22%-166%)
		13C-OCDD		79.1	(13%-199%)
		13C-2,3,7,8-TCDF		62.7	(22%-152%)
		13C-1,2,3,7,8-PeCDF		95.5	(21%-192%)
		13C-2,3,4,7,8-PeCDF		92.2	(13%-328%)
		13C-1,2,3,4,7,8-HxCDF		76.5	(19%-202%)
		13C-1,2,3,6,7,8-HxCDF		77.2	(21%-159%)
		13C-2,3,4,6,7,8-HxCDF		77.0	(22%-176%)
		13C-1,2,3,7,8,9-HxCDF		79.0	(17%-205%)
		13C-1,2,3,4,6,7,8-HpCDF		76.1	(21%-158%)
		13C-1,2,3,4,7,8,9-HpCDF		78.9	(20%-186%)
		37Cl-2,3,7,8-TCDD		107	(31%-191%)
12022316	MB for batch 38852	13C-2,3,7,8-TCDD		88.2	(25%-164%)
		13C-1,2,3,7,8-PeCDD		90.2	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		69.9	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		77.3	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		76.6	(23%-140%)
		13C-OCDD		70.4	(17%-157%)
		13C-2,3,7,8-TCDF		58.8	(24%-169%)
		13C-1,2,3,7,8-PeCDF		87.7	(24%-185%)
		13C-2,3,4,7,8-PeCDF		84.6	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		67.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		72.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		70.5	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		71.3	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		70.6	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		71.2	(26%-138%)
		37Cl-2,3,7,8-TCDD		97.9	(35%-197%)
14017001	IDW-407 (After Processing)	13C-2,3,7,8-TCDD		79.6	(25%-164%)

Hi-Res Dioxins/Furans
Surrogate Recovery Report

SDG Number: A8I0825

Matrix Type: LIQUID

Sample ID	Client ID	Surrogate	QUAL	Recovery (%)	Acceptance Limits
14017001	IDW-407 (After Processing)	13C-1,2,3,7,8-PeCDD		92.8	(25%-181%)
		13C-1,2,3,4,7,8-HxCDD		76.8	(32%-141%)
		13C-1,2,3,6,7,8-HxCDD		70.7	(28%-130%)
		13C-1,2,3,4,6,7,8-HpCDD		83.5	(23%-140%)
		13C-OCDD		84.1	(17%-157%)
		13C-2,3,7,8-TCDF		57.1	(24%-169%)
		13C-1,2,3,7,8-PeCDF		90.0	(24%-185%)
		13C-2,3,4,7,8-PeCDF		88.7	(21%-178%)
		13C-1,2,3,4,7,8-HxCDF		71.8	(26%-152%)
		13C-1,2,3,6,7,8-HxCDF		66.6	(26%-123%)
		13C-2,3,4,6,7,8-HxCDF		71.8	(28%-136%)
		13C-1,2,3,7,8,9-HxCDF		75.0	(29%-147%)
		13C-1,2,3,4,6,7,8-HpCDF		72.4	(28%-143%)
		13C-1,2,3,4,7,8,9-HpCDF		79.8	(26%-138%)
		37Cl-2,3,7,8-TCDD		102	(35%-197%)

* Recovery outside Acceptance Limits
# Column to be used to flag recovery values
D Sample Diluted

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A8I0825 **Sample Type:** Laboratory Control Sample

Client ID: LCS for batch 38852 **Matrix:** WATER

Lab Sample ID: 12022317

Instrument: HRP750 **Analysis Date:** 10/14/2018 22:52 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 38852

Batch ID: 38856

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits
1746-01-6	LCS	2,3,7,8-TCDD	200	209	104	67-158
40321-76-4	LCS	1,2,3,7,8-PeCDD	1000	1050	105	70-142
39227-28-6	LCS	1,2,3,4,7,8-HxCDD	1000	1040	104	70-164
57653-85-7	LCS	1,2,3,6,7,8-HxCDD	1000	1060	106	74-134
19408-74-3	LCS	1,2,3,7,8,9-HxCDD	1000	1050	105	64-162
35822-46-9	LCS	1,2,3,4,6,7,8-HpCDD	1000	1040	104	70-140
3268-87-9	LCS	1,2,3,4,6,7,8,9-OCDD	2000	2050	103	78-144
51207-31-9	LCS	2,3,7,8-TCDF	200	205	103	75-158
57117-41-6	LCS	1,2,3,7,8-PeCDF	1000	1040	104	80-134
57117-31-4	LCS	2,3,4,7,8-PeCDF	1000	1030	103	68-160
70648-26-9	LCS	1,2,3,4,7,8-HxCDF	1000	1050	105	72-134
57117-44-9	LCS	1,2,3,6,7,8-HxCDF	1000	1060	106	84-130
60851-34-5	LCS	2,3,4,6,7,8-HxCDF	1000	1060	106	70-156
72918-21-9	LCS	1,2,3,7,8,9-HxCDF	1000	1060	106	78-130
67562-39-4	LCS	1,2,3,4,6,7,8-HpCDF	1000	1020	102	82-122
55673-89-7	LCS	1,2,3,4,7,8,9-HpCDF	1000	1040	104	78-138
39001-02-0	LCS	1,2,3,4,6,7,8,9-OCDF	2000	2040	102	63-170

Hi-Res Dioxins/Furans

Quality Control Summary
Spike Recovery Report

SDG Number: A8I0825 **Sample Type:** Laboratory Control Sample Duplicate

Client ID: LCSD for batch 38852 **Matrix:** WATER

Lab Sample ID: 12022318

Instrument: HRP750 **Analysis Date:** 10/14/2018 23:39 **Dilution:** 1

Analyst: MJC **Prep Batch ID:** 38852

Batch ID: 38856

CAS No.		Parmname	Amount Added pg/L	Spike Conc. pg/L	Recovery %	Acceptance Limits	RPD %	Acceptance Limits
1746-01-6	LCSD	2,3,7,8-TCDD	200	206	103	67-158	1.20	0-20
40321-76-4	LCSD	1,2,3,7,8-PeCDD	1000	1040	104	70-142	0.383	0-20
39227-28-6	LCSD	1,2,3,4,7,8-HxCDD	1000	1030	103	70-164	0.863	0-20
57653-85-7	LCSD	1,2,3,6,7,8-HxCDD	1000	1030	103	74-134	2.39	0-20
19408-74-3	LCSD	1,2,3,7,8,9-HxCDD	1000	1100	110	64-162	4.82	0-20
35822-46-9	LCSD	1,2,3,4,6,7,8-HpCDD	1000	1040	104	70-140	0.446	0-20
3268-87-9	LCSD	1,2,3,4,6,7,8,9-OCDD	2000	2040	102	78-144	0.449	0-20
51207-31-9	LCSD	2,3,7,8-TCDF	200	202	101	75-158	1.55	0-20
57117-41-6	LCSD	1,2,3,7,8-PeCDF	1000	999	99.9	80-134	3.65	0-20
57117-31-4	LCSD	2,3,4,7,8-PeCDF	1000	1000	100	68-160	2.74	0-20
70648-26-9	LCSD	1,2,3,4,7,8-HxCDF	1000	1040	104	72-134	1.05	0-20
57117-44-9	LCSD	1,2,3,6,7,8-HxCDF	1000	1070	107	84-130	1.15	0-20
60851-34-5	LCSD	2,3,4,6,7,8-HxCDF	1000	1090	109	70-156	1.99	0-20
72918-21-9	LCSD	1,2,3,7,8,9-HxCDF	1000	1050	105	78-130	0.736	0-20
67562-39-4	LCSD	1,2,3,4,6,7,8-HpCDF	1000	1060	106	82-122	4.03	0-20
55673-89-7	LCSD	1,2,3,4,7,8,9-HpCDF	1000	1050	105	78-138	0.630	0-20
39001-02-0	LCSD	1,2,3,4,6,7,8,9-OCDF	2000	1980	99.1	63-170	3.03	0-20

Method Blank Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Matrix:**	**WATER**
Client ID:	**MB for batch 38852**	**Instrument ID:**	**HRP750**	**Data File:**	**A12OCT18A_7-3**
Lab Sample ID:	**12022316**	**Prep Date:**	**10-OCT-18**	**Analyzed:**	**10/15/18 00:27**
Column:					

This method blank applies to the following samples and quality control samples:

	Client Sample ID	Lab Sample ID	File ID	Date Analyzed	Time Analyzed
01	LCS for batch 38852	12022317	A12OCT18A_7-1	10/14/18	2252
02	LCSD for batch 38852	12022318	A12OCT18A_7-2	10/14/18	2339
03	IDW-407 (After Processing)	14017001	A15OCT18B_2-13	10/16/18	1419

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**12022316**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 38852**				
Client ID:	**MB for batch 38852**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2018 00:27**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A12OCT18A_7-3**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD	U	1.28	pg/L	1.28	10.0
40321-76-4	1,2,3,7,8-PeCDD	U	1.21	pg/L	1.21	50.0
39227-28-6	1,2,3,4,7,8-HxCDD	U	1.67	pg/L	1.67	50.0
57653-85-7	1,2,3,6,7,8-HxCDD	U	1.6	pg/L	1.60	50.0
19408-74-3	1,2,3,7,8,9-HxCDD	U	1.7	pg/L	1.70	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD	U	2.64	pg/L	2.64	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD	U	4.18	pg/L	4.18	100
51207-31-9	2,3,7,8-TCDF	U	1.77	pg/L	1.77	10.0
57117-41-6	1,2,3,7,8-PeCDF	U	1.17	pg/L	1.17	50.0
57117-31-4	2,3,4,7,8-PeCDF	U	1.07	pg/L	1.07	50.0
70648-26-9	1,2,3,4,7,8-HxCDF	U	1.2	pg/L	1.20	50.0
57117-44-9	1,2,3,6,7,8-HxCDF	U	1.18	pg/L	1.18	50.0
60851-34-5	2,3,4,6,7,8-HxCDF	U	1.31	pg/L	1.31	50.0
72918-21-9	1,2,3,7,8,9-HxCDF	U	2.04	pg/L	2.04	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF	U	1.08	pg/L	1.08	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF	U	1.77	pg/L	1.77	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF	U	5.62	pg/L	5.62	100
41903-57-5	Total TeCDD	U	1.28	pg/L	1.28	10.0
36088-22-9	Total PeCDD	U	1.21	pg/L	1.21	50.0
34465-46-8	Total HxCDD	U	1.6	pg/L	1.60	50.0
37871-00-4	Total HpCDD	U	2.64	pg/L	2.64	50.0
30402-14-3	Total TeCDF	U	1.77	pg/L	1.77	10.0
30402-15-4	Total PeCDF	U	0.872	pg/L	0.872	50.0
55684-94-1	Total HxCDF	U	1.18	pg/L	1.18	50.0
38998-75-3	Total HpCDF	U	1.08	pg/L	1.08	50.0
3333-30-2	TEQ WHO2005 ND=0 with EMPCs		0.00	pg/L		
3333-30-3	TEQ WHO2005 ND=0.5 with EMPCs		2.08	pg/L		

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1760	2000	pg/L	88.2	(25%-164%)
13C-1,2,3,7,8-PeCDD		1800	2000	pg/L	90.2	(25%-181%)
13C-1,2,3,4,7,8-HxCDD		1400	2000	pg/L	69.9	(32%-141%)
13C-1,2,3,6,7,8-HxCDD		1550	2000	pg/L	77.3	(28%-130%)
13C-1,2,3,4,6,7,8-HpCDD		1530	2000	pg/L	76.6	(23%-140%)
13C-OCDD		2820	4000	pg/L	70.4	(17%-157%)
13C-2,3,7,8-TCDF		1180	2000	pg/L	58.8	(24%-169%)
13C-1,2,3,7,8-PeCDF		1750	2000	pg/L	87.7	(24%-185%)
13C-2,3,4,7,8-PeCDF		1690	2000	pg/L	84.6	(21%-178%)
13C-1,2,3,4,7,8-HxCDF		1360	2000	pg/L	67.8	(26%-152%)
13C-1,2,3,6,7,8-HxCDF		1450	2000	pg/L	72.6	(26%-123%)
13C-2,3,4,6,7,8-HxCDF		1410	2000	pg/L	70.5	(28%-136%)
13C-1,2,3,7,8,9-HxCDF		1430	2000	pg/L	71.3	(29%-147%)

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**12022316**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 38852**				
Client ID:	**MB for batch 38852**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/15/2018 00:27**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A12OCT18A_7-3**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-1,2,3,4,6,7,8-HpCDF		1410	2000	pg/L	70.6	(28%-143%)
13C-1,2,3,4,7,8,9-HpCDF		1420	2000	pg/L	71.2	(26%-138%)
37Cl-2,3,7,8-TCDD		196	200	pg/L	97.9	(35%-197%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**12022317**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 38852**				
Client ID:	**LCS for batch 38852**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2018 22:52**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A12OCT18A_7-1**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		209	pg/L	2.02	10.0
40321-76-4	1,2,3,7,8-PeCDD		1050	pg/L	4.16	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1040	pg/L	7.08	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1060	pg/L	6.52	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1050	pg/L	7.02	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		1040	pg/L	12.4	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2050	pg/L	23.8	100
51207-31-9	2,3,7,8-TCDF		205	pg/L	3.30	10.0
57117-41-6	1,2,3,7,8-PeCDF		1040	pg/L	4.38	50.0
57117-31-4	2,3,4,7,8-PeCDF		1030	pg/L	4.10	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1050	pg/L	7.78	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1060	pg/L	7.66	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1060	pg/L	8.08	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1060	pg/L	13.1	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1020	pg/L	11.7	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1040	pg/L	18.8	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		2040	pg/L	19.5	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1630	2000	pg/L	81.5	(20%-175%)
13C-1,2,3,7,8-PeCDD		1810	2000	pg/L	90.6	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1490	2000	pg/L	74.6	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1650	2000	pg/L	82.6	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1630	2000	pg/L	81.3	(22%-166%)
13C-OCDD		3100	4000	pg/L	77.5	(13%-199%)
13C-2,3,7,8-TCDF		1140	2000	pg/L	57.1	(22%-152%)
13C-1,2,3,7,8-PeCDF		1790	2000	pg/L	89.7	(21%-192%)
13C-2,3,4,7,8-PeCDF		1730	2000	pg/L	86.4	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1450	2000	pg/L	72.6	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1570	2000	pg/L	78.3	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1520	2000	pg/L	76.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1490	2000	pg/L	74.6	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1490	2000	pg/L	74.5	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1560	2000	pg/L	77.9	(20%-186%)
37Cl-2,3,7,8-TCDD		178	200	pg/L	88.9	(31%-191%)

Comments:

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

Hi-Res Dioxins/Furans
Certificate of Analysis
Sample Summary

SDG Number:	**A8I0825**	**Client:**	**APEX001**	**Project:**	**APEX00111**
Lab Sample ID:	**12022318**			**Matrix:**	**WATER**
Client Sample:	**QC for batch 38852**				
Client ID:	**LCSD for batch 38852**			**Prep Basis:**	**As Received**
Batch ID:	**38856**	**Method:**	**EPA Method 1613B**		
Run Date:	**10/14/2018 23:39**	**Analyst:**	**MJC**	**Instrument:**	**HRP750**
Data File:	**A12OCT18A_7-2**			**Dilution:**	**1**
Prep Batch:	**38852**	**Prep Method:**	**SW846 3520C**		
Prep Date:	**10-OCT-18**	**Prep Aliquot:**	**1000 mL**		

CAS No.	Parmname	Qual	Result	Units	EDL	PQL
1746-01-6	2,3,7,8-TCDD		206	pg/L	1.89	10.0
40321-76-4	1,2,3,7,8-PeCDD		1040	pg/L	4.24	50.0
39227-28-6	1,2,3,4,7,8-HxCDD		1030	pg/L	6.94	50.0
57653-85-7	1,2,3,6,7,8-HxCDD		1030	pg/L	6.72	50.0
19408-74-3	1,2,3,7,8,9-HxCDD		1100	pg/L	7.08	50.0
35822-46-9	1,2,3,4,6,7,8-HpCDD		1040	pg/L	8.30	50.0
3268-87-9	1,2,3,4,6,7,8,9-OCDD		2040	pg/L	18.0	100
51207-31-9	2,3,7,8-TCDF		202	pg/L	2.40	10.0
57117-41-6	1,2,3,7,8-PeCDF		999	pg/L	4.86	50.0
57117-31-4	2,3,4,7,8-PeCDF		1000	pg/L	4.36	50.0
70648-26-9	1,2,3,4,7,8-HxCDF		1040	pg/L	7.76	50.0
57117-44-9	1,2,3,6,7,8-HxCDF		1070	pg/L	7.56	50.0
60851-34-5	2,3,4,6,7,8-HxCDF		1090	pg/L	8.08	50.0
72918-21-9	1,2,3,7,8,9-HxCDF		1050	pg/L	12.9	50.0
67562-39-4	1,2,3,4,6,7,8-HpCDF		1060	pg/L	8.14	50.0
55673-89-7	1,2,3,4,7,8,9-HpCDF		1050	pg/L	12.9	50.0
39001-02-0	1,2,3,4,6,7,8,9-OCDF		1980	pg/L	33.0	100

Surrogate/Tracer recovery	Qual	Result	Nominal	Units	Recovery%	Acceptable Limits
13C-2,3,7,8-TCDD		1930	2000	pg/L	96.4	(20%-175%)
13C-1,2,3,7,8-PeCDD		1940	2000	pg/L	97.2	(21%-227%)
13C-1,2,3,4,7,8-HxCDD		1530	2000	pg/L	76.3	(21%-193%)
13C-1,2,3,6,7,8-HxCDD		1720	2000	pg/L	85.8	(25%-163%)
13C-1,2,3,4,6,7,8-HpCDD		1690	2000	pg/L	84.3	(22%-166%)
13C-OCDD		3160	4000	pg/L	79.1	(13%-199%)
13C-2,3,7,8-TCDF		1250	2000	pg/L	62.7	(22%-152%)
13C-1,2,3,7,8-PeCDF		1910	2000	pg/L	95.5	(21%-192%)
13C-2,3,4,7,8-PeCDF		1840	2000	pg/L	92.2	(13%-328%)
13C-1,2,3,4,7,8-HxCDF		1530	2000	pg/L	76.5	(19%-202%)
13C-1,2,3,6,7,8-HxCDF		1540	2000	pg/L	77.2	(21%-159%)
13C-2,3,4,6,7,8-HxCDF		1540	2000	pg/L	77.0	(22%-176%)
13C-1,2,3,7,8,9-HxCDF		1580	2000	pg/L	79.0	(17%-205%)
13C-1,2,3,4,6,7,8-HpCDF		1520	2000	pg/L	76.1	(21%-158%)
13C-1,2,3,4,7,8,9-HpCDF		1580	2000	pg/L	78.9	(20%-186%)
37Cl-2,3,7,8-TCDD		214	200	pg/L	107	(31%-191%)

Comments:

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

ATTACHMENT C

DATA VALIDATION AND QA/QC REVIEW

TECHNICAL MEMORANDUM

DATE May 10, 2019

TO WTP Sweepings Waste Characterization File
Golder Associates

CC Ted Norton

FROM Julie Lehrman and Youki Sato **EMAIL jlehrman@golder.com**

WTP SWEEPINGS WASTE CHARACTERIZATION DATA VALIDATION & QUALITY ASSURANCE/QUALITY CONTROL REVIEW

One primary investigation derived soil waste (IDW-S) sample was collected by BSI EHS Services and Solutions (BSI) on July 12, 2018 for waste characterization purposes as part of the Resource Conservation and Recovery Act (RCRA) corrective action management unit (CAMU) Investigation. The sample was collected from solid waste stored in metal drums at room temperature. A portion of the composite sample was submitted to the laboratory for analysis in July 2018. Additional aliquots of the waste characterization sample were stored on site in a refrigerator, then submitted for analysis in September 2018. The field sample identification, sampling date, laboratory sample identifications and analytical parameters associated with the July 2018 sampling event are summarized in Table 1 (attached). The samples were submitted to ALS Environmental (ALS) of Kelso, Washington and Houston, Texas and to Apex Labs (Apex) of Tigard, Oregon for chemical analysis.

ALS performed the following analyses:

- Chlorinated Herbicides by EPA 8151A
- Total and Toxicity Characteristics Leachate Procedure (TCLP) Metals including Mercury (Hg) by EPA 6020A/6010C and EPA 7471B/7470A, and TCLP extraction by EPA 1311
- pH by EPA 9045C
- Total Solids by Modified EPA 160.3
- Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans (PCDD/PCDFs) including Toxicity Equivalency Quotient (TEQ) concentration determination by EPA 8290A

Apex performed the following analyses:

- Volatile Organic Compounds (VOCs) by EPA 8260C
- Polychlorinated Biphenyl (PCB) Aroclor Mixtures by EPA 8082A
- Total and TCLP Organochlorine Pesticides by EPA 8081B following TCLP extraction by EPA 1311
- Semivolatile Organic Compounds (SVOCs) by EPA 8270D

- Percent Solids by EPA 8000C

The following analyses were subcontracted to Cape Fear Analytical, LLC of Wilmington, NC:

- TCLP PCDD/PCDFs by EPA 1613B following TCLP extraction by 1311

Samples were analyzed in accordance with procedures described in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) (USEPA 2018) and other recognized EPA methods.

Quality assurance/quality control (QA/QC) reviews of laboratory data were performed in the laboratory in accordance with the laboratory quality assurance program. The data validation QA/QC review, performed by Golder data validators independent from the laboratory, focused primarily on laboratory result summary sheets and QC summary sheets to ensure that work plan data quality objectives were met for the project. Data validation was conducted in accordance with the criteria outlined in the project-specific Quality Assurance Project Plan (QAPP) (AMEC 2009) in addition to the National Function Guidelines for Inorganic Review (USEPA 2017a), National Functional Guidelines for Organic Review (USEPA 2017b), and National Functional Guidelines for Chlorinated Dibenzo-p-Dioxins (CDDs) and Chlorinated Dibenzofurans (CDFs) (EPA 2016), modified to include method specific requirements of the laboratory analytical methods and laboratory standard operating procedures (SOPs).

The validation level for the data is Tier II, and included the following:

- Data Package Completeness
- Verification of required deliverables
- Evaluation of holding times
- Laboratory narrative evaluation
- Evaluation and qualification of QC elements for: Surrogates, Matrix Spikes, Laboratory Control samples, Laboratory Duplicates, Method Blanks, Field Blanks, and Field Duplicates, as applicable
- Evaluation of detection limits

As a Tier II data validation was to be performed, the laboratory provided a “Level II” data package, which does not include raw data. Deficiencies related to calibration elements including GC instrument tuning and performance checks, initial and continuing calibrations, internal standard performance, and compound identification were not evaluated unless information was provided by the lab in the case narratives. Data review and validation was performed by an experienced QA chemist independent of the analytical laboratory to identify quality issues which could affect the use of the data for decision making purposes. With the exception of laboratory applied U-qualifiers indicating non-detect results and J-qualifiers indicating that a result is estimated and detected below the lowest point of the calibration curve but above the specified MDL, laboratory applied data qualifiers have been removed from the data summary report sheets and superseded by data validation qualifiers. The qualifiers applied to the data based on the findings of the data validation review are summarized on Table 2.

Overall, the data review showed that the data are acceptable for their intended use, including estimated data, except where specifically indicated as being rejected. Based on the data validations, 100% of the analytical data,

including estimated (J/JN/U/UJ/EMPC) data and excluding rejected (UR) data was determined to be acceptable for their intended use. Refer to the Data Evaluation Checklists in Attachment A for details of the data validation.

Data Qualifier Definitions

J The constituent was positively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

JN The constituent was tentatively identified and detected; however, the concentration reported is an estimated value because the result is less than the quantitation limit or quality control criteria were not met.

K The ion abundance ratio between ions was outside of QC limits, and the result should be considered an EMPC.

U The constituent was not detected above the method detection limit.

UJ The constituent was not detected; the associated quantitation limit is an estimated value because quality control criteria were not met.

EMPC Not all identification criteria were met; the constituent was reported as an estimated maximum potential concentration.

Tables

Table 1 Sample Collection and Analysis Summary
Table 2 Qualifier Summary Table

Attachments

Attachment A Data Evaluation Checklists

References

AMEC Earth & Environmental, Inc. 2009. Quality Assurance Project Plan Update, RP – Portland Site. September.

United States Environmental Protection Agency (USEPA) 2016. USEPA Contract Laboratory Program, National Functional Guidelines for High Resolution Superfund Methods Data Review. OLEM 9200.3-125, EPA-542-B-16-0012, April

USEPA 2017a. USEPA Contract Laboratory Program, National Functional Guidelines for Inorganic Superfund Data Review. OLEM 9355.0-135, EPA-540-R-201 7-001, January

USEPA 2017b. USEPA Contract Laboratory Program, National Functional Guidelines for Superfund Organic Methods Data Review. OLEM 9355.0-136, EPA-540-R-2017-002, January

USEPA 2018. Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846. Washington DC: USEPA Office of Solid Waste. Current update available at URL: http://www.epa.gov/waste/hazard/testmethods/sw846/online/index.htm.

Tables

Table 1
Sample Collection and Analysis Summary
Former Rhône-Poulenc Portland Site
WTP Sweepings Waste Characterization

								Analyses														
Lab	**SDG**	**Field Identification**	**Collection Date**	**Location**	**Lab Identification**	**Matrix**	**QC Samples**	**Herbicides (EPA 8151A) - ALS**	**Total Metals (EPA 6020A/7471B) - ALS**	**TCLP RCRA 8 Metals (EPA 1311/6010C/7470A) - ALS**	**pH (EPA 9045C)- ALS**	**Total Solids (EPA 160.3 Mod.) - ALS**	**Dioxins and Furans (EPA 8290A) - ALS**	**VOCs (EPA 8260C) - Apex**	**PCBs (EPA 8082A) - Apex**	**SVOCs (8270D) - Apex**	**Pesticides (EPA 8081B)-Apex**	**TCLP Pesticides (EPA 1311/8081B) - Apex**	**Percent Solids (EPA 8000C) - Apex**	**TCLP Dioxins/Furans (EPA 1311/1613B) - Cape Fear Analytical**
ALS, Apex, Cape Fear Analytical	K1806627, A8G0332, A8I0825	IDW-407	7/12/2018	--	K1806627-001, A8G0332-01, 14017001	IDW-S	--	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
As detailed above, analyses were performed by ALS Environmental, Apex Laboratories, and Cape Fear Analytical.

Abbreviations:
EPA: United States Environmental Protection Agency
IDW-S: Investigation Derived Waste - Soils
PCBs: Polychlorinated Biphenyls
QC: Quality Control
RCRA: Resource Conservation and Recovery Act
SDG: Sample Delivery Group
SVOCs: Semi-Volatile Organic Compounds
TCLP: Toxic Characteristic Leaching Procedure
VOCs: Volatile Organic Compounds

Table 2
Qualifier Summary Table
Former Rhône-Poulenc Portland Site
WTP Sweepings Waste Characterization

SDG	Sample Name	Fraction	Constituent	New Result	New RL	Qualifier	Reason
K1806627	IDW-407	N	1,2,3,4,6,7,8-HpCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,6,7,8-HpCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8,9-HpCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8-HxCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8-HxCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,6,7,8-HcCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,6,7,8-HxCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8,9-HxCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8-PeCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8-PeCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,4,6,7,8-HcCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,4,7,8-PeCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,7,8-TCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,4-Dichlorophenol	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	2-Methylphenol	--	--	UJ	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	3+4-Methylphenol(s)	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	L	All TCLP Organochlorine Pesticides	--	--	UJ	Sample Analyzed Past Method HT
K1806627	IDW-407	N	Benzo(a)anthracene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Benzo(b)anthracene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Benzyl Alcohol	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	Bis(2-ethylhexyl)phthalate	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	T	Chromium	--	--	J	MS Recovery Above QC Criteria
K1806627	IDW-407	N	Chrysene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Dichlorprop	--	--	JN	Instrument Column %RPD outside QC Criteria
K1806627	IDW-407	T	Lead	--	--	J	MS Recovery Above QC Criteria
K1806627	IDW-407	N	pH	--	--	J	Sample Analyzed Past Method HT
K1806627	IDW-407	T	Silver	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	T	Total Solids	--	--	J	Sample Analyzed Past Method HT
K1806627	IDW-407	N	Any "JK" or "K" qualified results	--	--	EMPC, U	Result reported as JK or K in the pdf indicating that ion abundance ratio was outside QC limits and analyte identification was not confirmed, final qualifiers are EMPC, U in the EDD and project database
K1806627	IDW-407	T/D/N	All Results	--	--	--	All laboratory qualifiers are removed and replaced with validation qualifiers as indicated in this table. Laboratory applied U-qualifiers indicating non-detect results and J-qualifiers indicating estimated results detected below the lowest point of the calibration curve, but above the specified MDL, are retained unless other qualification is indicated in this table.

Abbreviations
HT - Hold Time
EDD - Electronic Data Deliverable
EMPC - Estimated Maximum Possible Concentrati
ID-IS - Isotope Dilution-Internal Standard
IDW - Investigation Derived Waste
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
QC - Quality Control
RCRA - Resource Conservation and Recovery Act
RL - Reporting Limit
RPD - Relative Percent Difference
SDG - Sample Delivery Group
TCLP: Toxicity Characteristics Leaching Procedure

Fractions
D - Dissolved
L - Leached
N - No Fraction
T - Total

Qualifiers
J - Estimated Result
JN: Analyte Tentatively Identified; Estimated Result
K - Ion abundance ratio between ions outside of QC limits; result should be considered an EMPC
U - Non-Detect Result
UJ - Non-Detect; RL is Estimated

GOLDER

ATTACHMENT A

Data Validation Checklists

QA LEVEL IIA – DATA EVALUATION CHECKLIST

Company Name: Golder Associates
Project Manager: Ted Norton
Project Name: Former Rhône-Poulenc Portland Site
Project Number:
Reviewer: Youki Sato
Validation Date: April 23, 20119
Reviewer: Julie Lehrman
Review Date: April 30, 2019
Laboratory: ALS, Apex Laboratories, and Cape Fear Analytical
SDG#: K1806627
Analytical Method (type and no.): See Table 1

Matrix: ☐ Air ☒ Soil/Sed. ☐ Water ☐ Waste ☐ Other:

Sample Names: See Table 1

Work Plan or QAPP Reference: Quality Assurance Project Plan Update, RP – Portland Site, AMEC Earth & Environmental, Inc. (September 2009)

Applicable Data Validation Guidance: National Functional Guidelines for Superfund Organic/Inorganic Methods Data (EPA 2017); National Functional Guidelines for High Resolution Superfund Methods Data Review (EPA, April 2016)

Field/COC Information	YES	NO	NA	COMMENTS
a) Sampling dates noted?	☒	☐	☐	
b) Sampling team indicated?	☒	☐	☐	
c) Sampling location noted?	☒	☐	☐	By project name
d) Sample type indicated (grab/composite)?	☐	☐	☒	Not indicated on COC
e) Field QC noted?	☐	☒	☐	No Field QC requested
f) Field parameters collected (note types)?	☐	☐	☒	
g) Was the COC signed by both field and laboratory personnel?	☒	☐	☐	
h) Were samples received in good condition?	☒	☐	☐	
i) Were the correct preservatives used?	☒	☐	☐	
j) Were the correct preservatives used?	☒	☐	☐	
k) Was the sample cooler temperature within QC limits?	☒	☐	☐	
Laboratory Case Narrative:				
a) Does the laboratory narrative note deficiencies?	☒	☐	☐	Laboratory qualifiers checked instead of narrative for Apex Laboratories data

- Certain MS recoveries were outside QC criteria.
- Select RPDs between herbicide instrument columns were greater than 40%.
- Certain surrogate recoveries were outside QC criteria.
- Certain laboratory duplicate RPDs were outside QC criteria.
- Certain sample extracts required cleanup prior to analysis.
- Certain sample results are considered estimates because the result was detected below the lowest point of the calibration curve but greater than the MDL.
- Certain results were considered estimated due to matrix interference.
- Certain reporting limits were raised due to interference.
- Certain sample peaks' separation for structural isomers were insufficient for sample quantitation.
- Certain LCS recoveries were outside QC criteria.
- Certain CCV recoveries were outside QC criteria.
- Certain samples required dilution prior to analysis.
- Certain samples were extracted or analyzed outside of the recommended holding time.
- The reporting limits of certain analytes were raised to account for interference from coeluting compounds.

These deficiencies are addressed in the sections below.

QA LEVEL II – ORGANIC DATA EVALUATION CHECKLIST

General (reference QAPP or Method)	YES	NO	NA	COMMENTS
a) Were the hold times met for sample pretreatment?	☐	☒	☐	See Note 1
b) Were the hold times met for sample analysis?	☐	☒	☐	See Note 1
c) Were the correct preservatives used?	☒	☐	☐	
d) Was the correct method used?	☒	☐	☐	
e) Were the appropriate reporting limits achieved?	☒	☐	☐	See Note 2
f) Were any sample dilutions noted?	☒	☐	☐	See Note 2
g) Were any matrix problems noted?	☒	☐	☐	See Note 2

Blanks	YES	NO	NA	COMMENTS
a) Were analytes detected in the method blank(s)?	☒	☐	☐	See Note 3
b) Were analytes detected in the field blank(s)?	☐	☐	☒	
c) Were analytes detected in the equipment blank(s)?	☐	☐	☒	
d) Were analytes detected in the trip blank(s)?	☐	☐	☒	
e) Were analytes detected in the storage blank(s)?	☐	☐	☒	

Surrogate (System Monitoring Compounds)	YES	NO	NA	COMMENTS
a) Were surrogate compounds added to all samples?	☒	☐	☐	
b) Were recoveries within control limits?	☐	☒	☐	See Note 4 and 5
c) Were surrogate recoveries not calculated due to dilutions?	☐	☒	☐	
d) Were recoveries not calculated due to interference?	☐	☒	☐	

Laboratory Control Sample	YES	NO	NA	COMMENTS
a) Was an LCS analyzed at the appropriate frequency?	☒	☐	☐	
b) Were the proper compounds included in the LCS?	☒	☐	☐	
c) Was the LCS accuracy criteria met?	☐	☒	☐	See Note 6

Matrix Spike/Matrix Spike Duplicate	YES	NO	NA	COMMENTS
a) Was MS accuracy criteria met?	☐	☒	☐	See Note 7
b) Recovery criteria could not be calculated since sample Contained high concentration of analyte?	☐	☒	☐	
c) Was MSD accuracy criteria met?	☐	☒	☐	See Note 7
d) Recovery criteria could not be calculated since sample contained high concentration of analyte?	☐	☒	☐	
e) Were MS/MSD precision criteria met?	☐	☒	☐	See Note 7

Duplicates	YES	NO	NA	COMMENTS
a) Were field duplicates collected?	☐	☒	☐	
b) Were field dup. precision criteria met (50%)?	☐	☐	☒	
c) Were lab duplicates analyzed?	☒	☐	☐	
d) Were lab dup. precision criteria met (30% for soils)?	☐	☒	☐	See Note 8

QA LEVEL II – ORGANIC DATA EVALUATION CHECKLIST

Blind Standards	YES	NO	NA	COMMENTS
a) Was a blind standard used?	☐	☐	☒	
b) Was the %D within control limits?	☐	☐	☒	

Overall Evaluation	YES	NO	NA	COMMENTS
a) Were any other technical problems not previously addressed?	☒	☐	☐	See Notes 9-14
b) Checked for transcription errors?	☒	☐	☐	
c) Do target analytes fall within calibration ranges?	☐	☒	☐	See Note 13
d) Data are acceptable and usable except as noted?	☒	☐	☐	

Comments/Notes:

1. The laboratory extracted and/or analyzed samples outside of the method-specified hold times, as shown in the table below. Following the Inorganic Guidelines, when a solid sample was analyzed outside of hold time, the associated detected results were qualified as estimated (J).

   The project manager was consulted regarding the significant time elapsed between sample collection and the TCLP Pesticides analysis via EPA 1311/8081B. It was noted via email on 5/8/2019 that the material represented by sample IDW-407 was collected from waste stored at room temperature in drums. An additional aliquot of the characterization sample was created on 7/12/2019 and was stored on Site in a refrigerated environment during the time between sample collection and submission to the laboratory for TCLP Pesticides analysis on 9/28/2019. Using professional judgement and informed by the guidelines established by the QAPP, while the holding time was exceeded by more than 2x the method-recommended hold time, the associated non-detect results were qualified as estimated (UJ) because there was evidence that the sample was properly preserved prior to TCLP extraction, and the laboratory extracted the sample on 10/1/2019, less than fourteen-days after receipt.

Sample Name	Parameter	Method-Specific Hold Time	Date Sampled	Date Extracted / Analyzed	Days Past Hold
IDW-407	pH (9045C)	ASAP (24 Hours)	7/12/2018	7/25/2018	12
IDW-407	Solids, Total (160.3 Mod.)	7 Days	7/12/2018	7/24/2018	5
IDW-407	TCLP Pesticides (1311/8081B)	14 Days (TCLP Extraction)	7/12/2018	10/01/2018 (TCLP Extraction) / 10/24/2018 (Method Prep) / 10/25/2018	67

** Days from sample collection until extraction / Days from extraction until analysis*

2. Select analytes and samples were analyzed at dilutions due to matrix interferences or to bring sample concentrations within the instrument calibration range. Reporting limits were elevated proportional to the dilution when undiluted results were not provided by the laboratory. The guidelines do not require qualification based on dilution, but the end user is alerted that the sensitivity of non-detect results should be considered as part of determining data usability.

   Apex Laboratories flagged the beta-BHC and Aniline results via EPA Method 8081B and 8270D, respectively, with a "R-02" qualifier to note that the reporting limit for these analytes were raised due to interference from coeluting organic compounds present in the sample. The end user is alerted that the sensitivity of these results should be considered as part of determining data usability.

   ALS Environmental and Cape Fear Analytical flagged certain results with a "K" qualifier because the ion abundance ratio between the primary and secondary ions were outside of theoretical acceptance limits. For consistency with historical project practice, these Estimated Maximum Potential Concentration (EMPCs) results will be flagged as EMPC, U prior to being uploaded to the database and the result should be treated as a non-detect with an elevated detection limit as the potential detection was not confirmed. The end user is alerted that the sensitivity of these results should be considered as part of determining data usability.

3. Analytes were detected in the method blank, as shown in the table below. Following the Inorganic Guidelines, when there was a blank result less than the RL, associated results greater than the RL did not require qualification. Following the NFG Dioxins/Furans Guidelines, when there was a blank result less than the RL, associated results greater than the RL did not require qualification.

Sample Name	Parameter	Analyte	Blank Result	Reporting Limit	Units
KQ18100000-03	6020A	Total Lead	0.07 J	0.10	mg/Kg
KQ1810020-03	7471B	Total Mercury	0.003 J	0.002	mg/Kg
EQ1800301-01	8290A	OCDD	0.472 J	4.88	ng/Kg
EQ1800301-01	8290A	1,2,3,7,8-PeCDF	0.276 J	2.44	ng/Kg
EQ1800301-01	8290A	1,2,3,4,7,8-HxCDF	0.140 JK	2.44	ng/Kg
EQ1800301-01	8290A	1,2,3,4,6,7,8-HpCDF	0.0888 JK	2.44	ng/Kg
EQ1800301-01	8290A	OCDF	0.690 J	4.88	ng/Kg
EQ1800301-01	8290A	Total Penta-Furans	0.276 J	2.44	ng/Kg

4. Surrogate recoveries were outside of acceptance criteria for select samples, as noted in the table below. Only primary and field duplicate sample surrogates are shown. Following Guidelines and using professional judgment, no qualifications were required for these surrogate recovery deficiencies as the associated sample dilution factors were all greater than or equal to 20x.

Sample Name	Parameter	Dilution Factor	Surrogate	Recovery (%)	QC Limits (%)
IDW-407	8151A	100	2,4-Dichlorophenylacetic Acid	**167**	26-127
IDW-407	8081B	20	2,4,5,6-TCMX	**276**	42-129
IDW-407	8081B	20	Decachlorobiphenyl	**231**	65-151
IDW-407	8270D	20	Phenol-d6	**31**	33-122
IDW-407	8270D	20	2-Fluorophenol	**30**	35-115
IDW-407	8270D	20	2,4,6-Tribromophenol	**243**	39-132

5. Isotope dilution methods, such as 8290A for dioxin/furan analysis, use pre-extraction internal standards, which are isotopically labelled compounds added to the sample prior to extraction that are used to quantify target analyte concentrations. Pre-extraction labelled standard recoveries outside the laboratory-developed QC limits are shown in the table below for primary and field duplicate samples. Using professional judgement, the following actions were applied to the associated target analytes when the sample dilution factor was less than 20x. Following the National Functional Guidelines for Chlorinated Dioxin/Furan Data Review (USEPA, August 2002), when the isotope dilution internal standard recovery was less than the lower acceptance limit, associated detected results were qualified as estimated (J).

Sample Name	Parameter	Dilution Factor	Isotope Dilution Internal Standard	Recovery (%)	QC Limits (%)
IDW-407	8290A	20	13C-2,3,7,8-TCDD	**28**	40-135
IDW-407	8290A	1	13C-1,2,3,7,8-PeCDD	**34**	40-135
IDW-407	8290A	1	13C-1,2,3,4,7,8-HxCDD	**31**	40-135
IDW-407	8290A	1	13C-1,2,3,6,7,8-HxCDD	**37**	40-135
IDW-407	8290A	1	13C-1,2,3,4,6,7,8-HpCDD	**20**	40-135
IDW-407	8290A	20	13C-OCDD	**14**	40-135
IDW-407	8290A	1	13C-2,3,7,8-TCDF	**36**	40-135
IDW-407	8290A	1	13C-1,2,3,7,8-PeCDF	**34**	40-135
IDW-407	8290A	1	13C-2,3,4,7,8-PeCDF	**35**	40-135

Sample Name	Parameter	Dilution Factor	Isotope Dilution Internal Standard	Recovery (%)	QC Limits (%)
IDW-407	8290A	1	13C-1,2,3,4,7,8-HxCDF	**14**	40-135
IDW-407	8290A	1	13C-1,2,3,6,7,8-HcCDF	**6**	40-135
IDW-407	8290A	1	13C-1,2,3,7,8,9-HxCDF	**29**	40-135
IDW-407	8290A	1	13C-2,3,4,6,7,8-HcCDF	**34**	40-135
IDW-407	8290A	1	13C-1,2,3,4,6,7,8-HpCDF	**27**	40-135
IDW-407	8290A	1	13C-1,2,3,4,7,8,9-HpCDF	**10**	40-135

6. LCS recoveries were outside QC criteria, as shown in the table below for project-specific LCSs. Following the guidelines established by the QAPP, when there was a LCS recovery above the upper acceptance limit, associated non-detect results did not require qualification.

Sample Name	Parameter	Analyte	LCS Recovery (%)	Recovery (%) Criteria
8070695-BS1	8260C	2,2-Dichloropropane	**122**	80-120
8070710-BS2	8270D	3,3'-Dichlorobenzidine	**239**	22-121

7. Matrix Spike recoveries were outside of acceptance criteria for select analytes, as summarized in the table below for project-specific samples. No sample qualifications were required when the initial sample concentration was 4 times greater than the matrix spike added or when the spiked sample did not come from the project site. Using professional judgement, no qualifications are required for MS/MSD recovery deficiencies associated with non-detect herbicide analytes as the spiking concentrations are not appropriate for a primary sample that was analyzed at a 100x dilution.

   Following the QAPP guidelines for metals, when the MS recovery was greater than or equal to 126%, associated detected results were qualified as estimated (J) and associated non-detect results did not require qualification.

Primary Sample Name	Parameter	Analyte	MS/MSD % Recovery	RPD	%Recovery / RPD Criteria
IDW-407	8151A	2,4,5-T	**13 / 5**	**95**	21-137 / 40
IDW-407	8151A	2,4,5-TP (Silvex)	**0 / 0**	NC	34-129 / 40
IDW-407	8151A	2,4-D *	**-6038 / -5945**	39	35-129 / 40
IDW-407	8151A	2,4-DB *	**-9961 / -9858**	**45**	20-131 / 40
IDW-407	8151A	Dalapon	**0 / 0**	NC	14-100 / 40
IDW-407	8151A	Dicamba	**0 / 0**	NC	32-129 / 40
IDW-407	8151A	Dichlorprop *	**-2621 / -2608**	NC	23-140 / 40
IDW-407	8151A	Dinoseb	**0 / 0**	NC	10-121 / 40
IDW-407	8151A	MCPA	**730 / 730**	< 1	13-130 / 40
IDW-407	8151A	MCPP	**1069 / 1068**	< 1	10-169 / 40
IDW-407	6020A	Total Chromium	**167 / -**	-	75-125
IDW-407	6020A	Total Lead	**195 / -**	-	75-125

*Initial sample result is greater than 4x the spike concentration

8. The laboratory duplicate RPDs were outside QC criteria, as shown in the table below. Following the guidelines established by the QAPP, when both the primary sample and laboratory duplicate results were greater than 5x the RL and the RPD was outside QC criteria, the associated result was qualified as estimated (J). When either the primary or laboratory duplicate sample concentration was less than 5x the RL and the absolute difference between the two results was greater than the RL, the associated result was qualified as estimated (J/UJ). When the absolute difference between the results was less than the RL, no qualifications were required.

Apex Laboratories did not calculate the RPD in cases where the sample or laboratory duplicate result was non-detect. As the qualification criteria for cases where one of the results is less than 5x the RL is based on the absolute difference between the sample and duplicate result, the laboratory duplicate precision was still able to be assessed.

The initial report from Apex included detects for several pesticides for the in the laboratory duplicate source sample which were previously reported as non-detect in the Analytical Sample Results section of the report. The laboratory was consulted and confirmed that these detections were a false positive reported due to an anomaly with their laboratory information management system. Golder received an amended report in which the source sample results reported in the QC section match the original sample results (i.e. all analytes non-detect for organochlorine pesticides). No further action was required other than to note.

Sample Name	Method	Analyte	Sample / Duplicate Results (ug/kg)	RL (ug/kg)	RPD (%)	RPD Limit
IDW-407	6020A	Total Silver	0.540 / 0.834 mg/kg	0.032 mg/kg	**43**	< 30%
IDW-407	8270D	Acenapthene	183 / 263	282	**36**	< 30%
IDW-407	8270D	Benzo(k)fluoranthene	- / 217	424	**NC**	< 30%
IDW-407	8270D	Indeno(1,2,3-cd)pyrene	272 / 186	283	**38**	< 30%
IDW-407	8270D	Carbazole	- / 212	424	**NC**	< 30%
IDW-407	8270D	2-Chlorophenol	- / 956	1410	**NC**	< 30%
IDW-407	8270D	2,4-Dichlorophenol	7710 / 15600	1410	**67**	< 30%
IDW-407	8270D	2-Methylphenol	- / 2970	706	**NC**	< 30%
IDW-407	8270D	3+4-Methylphenol(s)	2410 / 3650	706	**41**	< 30%
IDW-407	8270D	Pentachlorophenol	1640 / -	2830	**NC**	< 30%
IDW-407	8270D	2,4,6-Trichlorophenol	1180 / 1860	1410	**45**	< 30%
IDW-407	8270D	Bis(2-ethylhexyl)phthalate	9330 / 47700	4240	**136**	< 30%
IDW-407	8270D	Hexachlorobenzene	- / 148	283	**NC**	< 30%
IDW-407	8270D	1,2-Dichlorobenzene	589 / 1010	706	**53**	< 30%
IDW-407	8270D	1,4-Dichlorobenzene	- / 456	706	**NC**	< 30%
IDW-407	8270D	Benzyl alcohol	1110 / 15700	1410	**174**	< 30%

9. The laboratory noted that certain organic continuing calibration verification (CCV) percent recoveries were outside QC criteria for certain analytes. Review of calibration data is outside the scope of a level II validation, and the laboratory data packages do not include calibration results. Using professional judgment, no further action is necessary as the guidelines do not require rejection of data based on the CCV %D.

10. Apex Laboratories noted that the extracts of sample IDW-407 for the PCB analysis via EPA method 8082A and pesticides analysis via EPA method 8081B required cleanup prior to analysis to reduce matrix interference. No further action was required other than to note, as no issues were reported during cleanup.

11. Apex Laboratories noted that certain SVOC results are considered estimated in cases where the peak separation for structural isomers was insufficient for accurate quantification, and the “M-05” qualifier was added to denote that the results are estimated. Using professional judgement, results that are reported with a “M-05” qualifier in the PDF were qualified as estimated (J) due to the presence of co-eluting analytes.

12. Following project practice, all laboratory qualifiers are removed as part of the data validation process and replaced with validation qualifiers as indicated above. Laboratory applied U-qualifiers indicating non-detect results and J-qualifiers indicating estimated results detected below the lowest point of the calibration curve but above the specified detection limit were retained unless other qualification was indicated and described above.

13. ALS Environmental noted that the RPD between chlorinated herbicides columns were outside of QC criteria (40%) for the Dichlorprop result for sample IDW-407, and the “P” qualifier was added to this result. Review of column confirmation data is outside the scope of a Level IIA validation, and the laboratory data packages do not include the raw data to be reviewed to determine if any serious deficiencies were present. Following the guidelines established by the QAPP, when there is a greater than 40% RPD between the concentrations from the two analytical columns, the associated estimated result was qualified as presumptively identified (JN).

Qualifications: See Table 2

QA LEVEL II – ORGANIC DATA EVALUATION CHECKLIST

Definitions:

SDG: Sample Delivery Group
COC: Chain of Custody
VOC: Volatile Organic Compound
PCB: Polychlorinated Biphenyl
RPD: Relative Percent Difference
RSD: Relative Standard Deviation
MDL: Method Detection Limit
%R: Percent Recovery
QC: Quality Control
QAPP: Quality Assurance Project Plan
SVOC: Semivolatile Organic Compound
% D: Percent Difference
LCS: Laboratory Control Sample
MS/MSD: Matrix Spike/Matrix Spike Duplicate
RL: Reporting Limit

Table 1
Sample Collection and Analysis Summary
Former Rhône-Poulenc Portland Site
WTP Sweepings Waste Characterization

								Analyses													
Lab	**SDG**	**Field Identification**	**Collection Date**	**Location**	**Lab Identification**	**Matrix**	**QC Samples**	**Herbicides (EPA 8151A) - ALS**	**Total Metals (EPA 6020A/7471B) - ALS**	**TCLP RCRA 8 Metals (EPA 1311/6010C/7470A) - ALS**	**pH (EPA 9045C)- ALS**	**Total Solids (EPA 160.3 Mod.) - ALS**	**Dioxins and Furans (EPA 8290A) - ALS**	**VOCs (EPA 8260C) - Apex**	**PCBs (EPA 8082A) - Apex**	**SVOCs (8270D) - Apex**	**Pesticides (EPA 8081B)-Apex**	**TCLP Pesticides (EPA 1311/8081B) - Apex**	**Percent Solids (EPA 8000C) - Apex**	**TCLP Dioxins/Furans (EPA 1311/1613B) - Cape Fear Analytical**
ALS, Apex, Cape Fear Analytical	K1806627, A8G0332, A8I0825	IDW-407	7/12/2018	--	K1806627-001, A8G0332-01, 14017001	IDW-S	--	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Notes:
As detailed above, analyses were performed by ALS Environmental, Apex Laboratories, and Cape Fear Analytical.

Abbreviations:
EPA: United States Environmental Protection Agency
IDW-S: Investigation Derived Waste - Soils
PCBs: Polychlorinated Biphenyls
QC: Quality Control
RCRA: Resource Conservation and Recovery Act
SDG: Sample Delivery Group
SVOCs: Semi-Volatile Organic Compounds
TCLP: Toxic Characteristic Leaching Procedure
VOCs: Volatile Organic Compounds

Table 2
Qualifier Summary Table
Former Rhône-Poulenc Portland Site
WTP Sweepings Waste Characterization

SDG	Sample Name	Fraction	Constituent	New Result	New RL	Qualifier	Reason
K1806627	IDW-407	N	1,2,3,4,6,7,8-HpCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,6,7,8-HpCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8,9-HpCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8-HxCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,4,7,8-HxCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,6,7,8-HcCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,6,7,8-HxCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8,9-HxCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8-PeCDD	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	1,2,3,7,8-PeCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,4,6,7,8-HcCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,4,7,8-PeCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,3,7,8-TCDF	--	--	J	ID-IS Recovery Below QC Criteria
K1806627	IDW-407	N	2,4-Dichlorophenol	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	2-Methylphenol	--	--	UJ	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	3+4-Methylphenol(s)	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	D	All TCLP Organochlorine Pesticide Results	--	--	UJ	Sample Analyzed Past Method HT
K1806627	IDW-407	N	Benzo(a)anthracene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Benzo(b)anthracene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Benzyl Alcohol	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	Bis(2-ethylhexyl)phthalate	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	T	Chromium	--	--	J	MS Recovery Above QC Criteria
K1806627	IDW-407	N	Chrysene	--	--	J	Insufficient resolution between structural isomers
K1806627	IDW-407	N	Dichlorprop	--	--	JN	Instrument Column %RPD outside QC Criteria
K1806627	IDW-407	T	Lead	--	--	J	MS Recovery Above QC Criteria
K1806627	IDW-407	N	pH	--	--	J	Sample Analyzed Past Method HT
K1806627	IDW-407	T	Silver	--	--	J	Laboratory Duplicate RPD Outside QC Criteria
K1806627	IDW-407	N	2,3,7,8-TCDF (TCLP)	--	19.4	EMPC, U	Result reported as JK in the pdf, final qualifiers are EMPC,U in the EDD and project database. EDL raised to value of EMPC.
K1806627	IDW-407	N	Total HxCDD (TCLP)	--	2.66	EMPC, U	Result reported as JK in the pdf, final qualifiers are EMPC,U in the EDD and project database. EDL raised to value of EMPC.
K1806627	IDW-407	N	Total PeCDF (TCLP)	--	17.7	EMPC, U	Result reported as JK in the pdf, final qualifiers are EMPC,U in the EDD and project database. EDL raised to value of EMPC.
K1806627	IDW-407	N	Total TeCDF (TCLP)	--	47.4	EMPC, U	Result reported as K in the pdf, final qualifier is EMPC, U in the EDD and project database. EDL and RL raised to value of EMPC.
K1806627	IDW-407	T	Total Solids	--	--	J	Sample Analyzed Past Method HT
K1806627	IDW-407	T/D/N	All Results	--	--	--	All laboratory qualifiers are removed and replaced with validation qualifiers as indicated in this table. Laboratory applied U-qualifiers indicating non-detect results and J-qualifiers indicating estimated results detected below the lowest point of the calibration curve, but above the specified MDL, are retained unless other qualification is indicated in this table.