Oregon Department of Environmental Quality
Nov. 15-16, 2018
Oregon Environmental Quality Commission meeting
Agency Staff Report
Rulemaking, Action Item B

Selmet Delisting 2018

Table of Contents

DEQ recommendation to the EQC

DEQ recommends the Oregon Environmental Quality Commission adopt the proposed rule, seen on pages 17 through 19 of this report, as part of Chapter 340, Division 101 of the Oregon Administrative Rules.

Proposed EQC motion:

" I move that the Oregon Environmental Quality Commission approve the proposed rule, as seen on pages 17 through 19 of the report for this item, as part of Chapter 340, Division 101 of the Oregon Administrative Rules."

Introduction

Summary of proposed rule changes

DEQ proposes amending Oregon's hazardous waste regulations in Chapter 340, Division 101, of the Oregon Administrative Rules. The change will incorporate the delisting of Selmet's F006 hazardous waste.

Under this rule, Oregon would no longer consider Selmet's F006 waste to be a listed hazardous waste under the Code of Federal Regulations section 261.3 and Oregon Administrative Rules. Following the delisting, Selmet may send the delisted F006 waste to a permitted, non-hazardous landfill.

Background

Selmet Inc., located in Albany, Oregon, performs chemical etching and milling in manufacturing titanium alloy castings and machined parts. The U.S. Environmental Protection Agency defines chemical etching and milling as an electroplating process generating waste that is within the scope of the F006 hazardous waste listing.

Historically, Selmet managed chemical etching and milling sludge as a non-hazardous industrial waste disposed of at a non-hazardous waste Subtitle D landfill. However, in 2017, due to an updated review of chemical etching and milling operations at titanium-casting facilities in Oregon, DEQ notified Selmet that it must handle its chemical etching and milling sludge as F006 listed hazardous waste.

The United States Environmental Protection Agency has delegated authority to Oregon DEQ to manage the federal hazardous waste program, under the federal Resource

Conservation and Recovery Act. EPA also authorizes Oregon to change how specific substances are categorized as hazardous or non-hazardous waste in Oregon when specified conditions are met. The process of changing a waste from hazardous to non-hazardous is called "delisting." Under Oregon Administrative Rules 340-100-0020 and 340-100-0022, Selmet petitioned DEQ to exempt the etching and milling sludge from being classified as hazardous waste.

DEQ recommendation

DEQ recommends that the EQC approve Selmet's petition, which would have the effect of amend Oregon's hazardous waste regulations in Chapter 340, Division 101, of the Oregon Administrative Rules, to delist Selmet's F006 hazardous waste.

DEQ is recommending this action under the following authorities:

- 50 Federal Register 52629, Oct. 10, 1995 (EPA authority for Oregon to operate hazardous waste program)
- 40 Code of Federal Regulations. sections 260.20 and 260.22 (authority for petitions to delist a substance), incorporated by reference in OAR 340-100-0020, -0022
- Oregon Revised Statute 466.075(3) (authority to exempt substances from hazardous waste requirements)
- OAR 340-100-0020, -0022 (authority to petition for exclusion)

A petitioner who wants DEQ to delist a hazardous waste must comply with 40 C.F.R. sections 260.20 and 260.22, incorporated by reference in OAR 340-100-0020, -0022. To summarize, the petition must show the waste does not contain the hazardous constituents above EPA's risk-based standards. This is done using EPA's Delisting Risk Assessment Software. The risk-based evaluation must also determine that factors, including additional constituents other than those for which the waste was listed, do not warrant retaining the waste as a hazardous waste. In addition, the waste must not be a characteristic hazardous waste - for example, one which is ignitable or reactive.

In May 2018, Selmet petitioned DEQ to exclude its chemical etching and milling sludge from the F006 listing. This delisting petition includes chemical etching and milling sludge Selmet's current process generates, as well as sludge that Selmet historically accumulated in its on-site evaporation pond.

The hazardous waste constituents for which the EPA lists F006 sludge are cadmium, hexavalent chromium, nickel and complexed cyanide. Before submitting the delisting petition, Selmet worked with DEQ to develop a sampling and analysis plan to accurately characterize Selmet's chemical etching and milling operations and historically accumulated sludge. DEQ provides additional details about Selmet's sampling and analysis process in the attached Delisting Project Memorandum.

Based on its review of Selmet's sampling and analysis results, and taking the above analysis into consideration, DEQ is recommending that the EQC approve Selmet's petition delisting Selmet's chemical etching and milling sludge as hazardous waste.

Who does this affect?

This proposal is specific to the waste generated by Selmet's Albany facility.

Statement of Need

What need would the proposed rule address?
Selmet is currently managing its chemical etching and milling wastewater treatment sludge as F006 listed hazardous waste. Selmet has demonstrated that it does not need to manage its waste in this manner to protect human health and the environment.

How would the proposed rule address the need?
Selmet would be able to manage chemical etching and milling wastewater treatment sludge as non-hazardous industrial waste. The waste can be safely managed in a permitted, non-hazardous waste landfill. This would not increase risk to human health or the environment, while lowering costs to the company.

Rules affected, authorities, supporting documents

Lead division

Land Quality

Program or activity

Hazardous Waste Program

Chapter 340 action

Amend
OAR 340-101-0004

Statutory authority

ORS 466.020 and 466.180

Statute implemented

ORS 466.015 and 466.195

Documents relied on for rulemaking

Document title	Document location
Delisting Petition #DP-2018-001(a) & DP-2018-001(b)	Attached to this report.
Delisting Project Memorandum, June 26, 2018	Attached to this report

Fee Analysis

This rulemaking does not involve fees.

Statement of fiscal and economic impact

Fiscal and Economic Impact

The only negative fiscal impact from this rulemaking will affect DEQ. Following delisting, DEQ will not require Selmet to pay hazardous waste management fees for the F006 listed hazardous waste. However, DEQ will continue inspecting Selmet's facility and providing compliance assistance.

Selmet will receive positive fiscal benefits. Since November 2017, Selmet has managed its chemical etching and milling sludge as a F006 hazardous waste. This has cost Selmet approximately $25,000 per month. If the EQC adopts the proposed rule amendments, Selmet will reduce its costs in handling and disposal of the materials that are the subject of this rulemaking.

Statement of Cost of Compliance

State agencies

The proposed rule will reduce DEQ's hazardous waste program revenue. DEQ will no longer require the specific facility these rules affect to pay fees for hazardous waste disposal. In addition, DEQ will receive less fee revenue from the treatment, storage, and disposal facility that is currently receiving the hazardous waste.

Local governments

DEQ anticipates there will be no fiscal or economic impacts to local governments, as the rule impacts only one, site-specific facility.

Public

DEQ anticipates there will be no fiscal or economic impacts to the general public.

Large businesses - businesses with more than 50 employees

DEQ anticipates there will be a fiscal or economic impact to one large business that currently receives the F006 hazardous waste for disposal. DEQ is unable to quantify this impact. If EQC adopts the proposed rule amendments, Selmet will reduce its costs in handling and disposal of the materials that are the subject of this rulemaking.

Small businesses – businesses with 50 or fewer employees

a. Estimated number of small businesses and types of businesses and industries with small businesses subject to proposed rule.

DEQ anticipates there will not be adverse impacts on small businesses.

b. Projected reporting, recordkeeping, and other administrative activities, including costs of professional services, required for small businesses to comply with the proposed rule.

These rule changes will not require any additional reporting, recordkeeping or other administrative activities.

c. Projected equipment, supplies, labor and increased administration required for small businesses to comply with the proposed rule.

No additional equipment, supplies or labor will be required to comply with these rules.

d. Describe how DEQ involved small businesses in developing this proposed rule.

DEQ did not involve small businesses in developing these proposed rules because the rules do not affect small businesses.

Documents relied on for fiscal and economic impact

Document title	Document location
Delisting Petition #DP-2018-001(a) & DP-2018-001(b)	DEQ-HQ-HW Program 700 NE Multnomah Street, Suite 600 Portland, OR 97232-1400

Advisory committee

DEQ did not convene an advisory committee. The proposed rulemaking affects only one specific facility, does not affect any small businesses or the general public, and only has a fiscal impact on DEQ and the petitioner. There was a public hearing and public comment period to gather public comments on the rulemaking.

Housing cost

As ORS 183.534 requires, DEQ evaluated whether the proposed rules would have an effect on the development cost of a 6,000-square-foot parcel and construction of a 1,200-square-foot detached, single-family dwelling on that parcel. DEQ determined the proposed rules would have no effect on the development costs because the proposed rules do not have any bearing on housing.

Federal relationship

Relationship to federal requirements

ORS 183.332, 468A.327, and OAR 340-011-0029 require DEQ to attempt to adopt rules that correspond with existing equivalent federal laws and rules unless there are reasons not to do so.

In this case, there is no comparable federal requirement. The proposed rule amendments are not in addition to or different from federal requirements.

Under the state and federal rules cited above, the EPA authorizes DEQ to operate Oregon's hazardous waste program. The EPA also authorizes Oregon to exempt substances from being classified as F006 listed hazardous substances in Oregon if a petitioner meets the requirements stated in the state and federal rules listed above. This action is consistent with federal rules.

Land Use

Land-use considerations

In adopting new or amended rules, ORS 197.180 and OAR 340-018-0070 require DEQ to determine whether the proposed rules significantly affect land use. If so, DEQ must explain how the proposed rules comply with statewide land-use planning goals and local acknowledged comprehensive plans.

Under OAR 660-030-0005 and 340, division 18, DEQ considers that rules affect land use if:

- The statewide land use planning goals specifically refer to the rule or program, or
- The rule or program is reasonably expected to have significant effects on:
    - Resources, objectives or areas identified in the statewide planning goals, or
    - Present or future land uses identified in acknowledged comprehensive plans

DEQ determined whether the proposed rules involve programs or actions that affect land use by reviewing its Statewide Agency Coordination plan. This plan describes the DEQ programs that DEQ determined significantly affect land use. DEQ considers that its programs specifically relate to the following statewide goals:

Goal	Title
5	Open Spaces, Scenic and Historic Areas, and Natural Resources
6	Air, Water and Land Resources Quality
9	Ocean Resources
11	Public Facilities and Services
16	Estuarial Resources

Statewide goals also specifically reference the following DEQ programs:

- Nonpoint source discharge water quality program – Goal 16
- Water quality and sewage disposal systems – Goal 16
- Water quality permits and oil spill regulations – Goal 19

Determination

DEQ determined that these proposed rules do not affect land use under Oregon Administrative Rule 340-018-0030 or DEQ's State Agency Coordination Program.

Advisory Committee

Advisory committee

DEQ did not convene an advisory committee. The proposed rulemaking affects only one specific facility, does not affect any small businesses or the general public, and only has a fiscal impact on DEQ and the petitioner. DEQ held a public hearing Sept. 17, 2018, to gather public comments on the rulemaking.

Public Hearings

Public notice

DEQ provided notice of the proposed rulemaking and rulemaking hearing on Aug. 15, 2018, by:

- Filing notice with Oregon Secretary of State for publication in the September 2018 Oregon Bulletin
- Notifying EPA
- Posting the notice on the webpage for this rulemaking, located at: Delisting Rulemaking Web Page
- Emailing 10,633 interested parties on the following DEQ lists through these GovDelivery lists:
    - Rulemaking
    - Hazardous Waste
- Emailing the following key legislators required under Oregon Revised Statute 183.335:
    - Senator Michael Dembrow, Chair, Senate Interim Committee on Environment and Natural Resources
    - Representative Ken Helm, Chair, House Interim Committee on Energy and Environment
    - Senator Sara Gelser
    - Representative Andy Olson
- Postings on Twitter and Facebook
- Posting on the DEQ event calendar: DEQ Calendar
- Publishing notice in the following newspaper:
    - *The Albany Democrat Herald*

Request for other options

During the public comment period, DEQ requested public comment on whether to consider other options for achieving the rules' substantive goals while reducing the rules' negative fiscal or economic impact on business. This document includes a summary of comments and DEQ responses.

Public hearings

DEQ received no comments at the public hearing on Sept. 17, 2018. Later sections of this document include a summary of the two comments received during the open public comment period, DEQ's responses, and a list of the commenters. Original comments are on file with DEQ.

Presiding Officers' Record

Hearing	
Date	Sept. 17, 2018
Place	Linn-Benton Community College, Vineyard Mountain Room CC213, 6500 Southwest Pacific Blvd., Albany, OR
Start Time	6 p.m.
End Time	7 p.m.
Presiding Officer	Eileen Naples
Staff Presenters	Dan Lobato, Seth Sadofsky

The presiding officer convened the hearing, summarized procedures for the hearing, and explained that DEQ was recording the hearing. The presiding officer asked people who wanted to present verbal comments to sign the registration list, or if attending by phone, to indicate their intent to present comments. The presiding officer advised all attending parties interested in receiving future information about the rulemaking to sign up for GovDelivery email notices. The staff presenters gave a brief overview presentation of the proposed rulemaking, followed by a question and answer period.

As OAR 137-001-0030 requires, the presiding officer summarized the content of the rulemaking notice.

No person presented any oral testimony or written comments.

Public comment period

DEQ accepted public comment on the proposed rulemaking from Aug. 15, 2018, until 4 p.m. on Sept. 21, 2018.

Summary of comments and DEQ responses

DEQ received two public comments during the Aug. 15 to Sept. 21, 2018, public comment period. Both comments are included below and DEQ's response follows the comments.

DEQ did not change the proposed rules in response to comments.

Comment 1 – Frances Dunham
This delisting proposal is not in the public interest, nor is it justified under RCRA. DEQ was correct in its 2017 determination that Selmet must handle its chemical etching and milling waste, both currently generated and older stockpiled waste, as F006 hazardous waste. Cadmium, hexavalent chromium, nickel and complexed cyanide are highly toxic wastes, and they should be treated as such to protect public health and the environment. This delisting would be a dangerous precedent, likely to be employed by other generators of hazardous waste. The proposed rule change cites only this single "need": shielding Selmet from the costs of proper treatment and disposal. Beside the pollution threats, there is the issue of rewarding a company that seems to have no plans for pollution prevention. This slants the playing field to the advantage of polluters and irrationally punishes companies that implement sustainable production processes.

Comment 2 – Allan Peterson
Selmet's milling waste containing, among other things, cadmium, hexavalent chromium, nickel and complexed cyanide are all well-known toxics that should remain as DEQ determined, F006 hazardous waste. It is an affront that the company should seek an exemption on the basis of merely being costly. Such a delisting would put the risk to public health as secondary to profit, and encourage others to avoid their responsibility to handle hazardous waste responsibly, a dangerous precedent. I appreciate and support the 2017 review decision. Proper protection has its costs; Selmet should be denied an easy out. Thank you for the opportunity to comment.

Response
The following response addresses both comment 1 and comment 2.

The subject of this delisting, F006, is a hazardous waste derived from a variety of industrial operations. The waste, specific to the Selmet, Inc. petition, includes wastewater treatment sludge from current and historic chemical etching and milling operations.

Hazardous waste generators, including Selmet, have the option to petition DEQ to exclude or "delist" a facility's waste from being a federally-listed hazardous waste by

Oregon administrative rule. They do this by demonstrating the waste can be safely managed in a permitted non-hazardous waste landfill.

Prior to sampling and analysis, Selmet consulted with DEQ to review the materials that are currently used in all stages of the facility's chemical etching and milling process. They similarly examined historic processes resulting in wastes that Selmet deposited in its evaporation pond.

Based on DEQ's review of Selmet's current process, third party laboratories certified by the Oregon Environmental Laboratory Accreditation Program analyzed samples of the resulting chemical etching and milling sludge for: cadmium, manganese, molybdenum, nickel, silver, vanadium, zirconium, total chromium, hexavalent chromium, cyanide and fluoride. The laboratories also analyzed sludge from Selmet's evaporation pond for those chemicals. They also, based on historic variations in Selmet's chemical etching and milling process as well as past unknown practices, tested the evaporation pond sludge for the following chemicals: fluoride, cyanide, antimony, arsenic, beryllium, cobalt, copper, lead, mercury, selenium, zinc, and polychlorinated biphenyls. The laboratories also performed a scan for volatile organic compounds and semi-volatile organic compounds.

DEQ screened the analytical results from Selmet's current chemical etching and milling process and evaporation pond against concentrations from EPA's Delisting Risk Assessment Software. The software uses knowledge of the volume of wastes and final management along with toxicity information to determine an acceptable concentration for the waste to be placed in a permitted non-hazardous waste landfill. This screening based on sampling and analysis as approved by DEQ, showed that measured concentrations in this material does not exceed one-in-a-million excess cancer risk or a hazard index of one for human health receptors or ecological risk screening levels if it is disposed in a permitted, non-hazardous waste landfill..

The Selmet F006 delisting petition applies only to the specific waste streams identified in Selmet's 2018 delisting petition. This delisting does not apply to other facilities in Oregon. Selmet's wastewater treatment sludge delisting will remain in effect only as long as Selmet maintains the same operating conditions generating the identified waste streams described in the delisting petition.

DEQ encourages all Oregon businesses to responsibly manage hazardous waste by eliminating toxic waste and preventing pollution. Preventing waste and pollution makes sense for the economy and the environment.

Implementation

Notification

The proposed rules would become effective upon filing on approximately Nov. 19, 2018. DEQ will notify Selmet via email if the EQC approves of this proposed F006 wastewater treatment sludge delisting and agrees with DEQ's recommendation that it is safe to manage the material in a DEQ-approved permitted solid waste landfill.

Selmet's F006 wastewater treatment sludge delisting will remain in effect only as long as Selmet maintains the same operating conditions generating the identified waste streams described in the delisting petition. If Selmet makes any changes to the process, they must handle the waste generated after the process change as hazardous waste until DEQ is able to confirm in writing that the wastewater treatment sludge continues to meet the conditions described in the 2018 delisting. Selmet must also notify DEQ of this change within 30 days. Additionally, Selmet is required to test their wastewater treatment sludge annually to ensure that the waste does not exceed the specified delisting concentrations.

Five-year review

Requirement

Oregon law requires DEQ to review new rules within five years after EQC adopts them. The law also exempts some rules from review. DEQ determined whether the rules described in this report are subject to the five-year review. DEQ based its analysis on the law in effect when EQC adopted these rules.

Exemption from five-year rule review

The Administrative Procedures Act exempts the proposed rules from the five-year review because the proposed rule would amend or repeal an existing rule. ORS 183.405(4).

Draft Rules – With Edits Highlighted

Key to Identifying Changed Text (formatting applies regardless of color):
~~Strikethrough: Deleted Text~~
Underline: New/inserted text
~~Double strikethrough~~/underline: ~~Text deleted from one location~~/and moved to another location

DEPARTMENT OF ENVIRONMENTAL QUALITY

Division 101

IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

340-101-0004
Exclusions

(1) Residue described in 40 C.F.R. § 261.4(b)(9) is exempted from divisions 100-106 and 109.

(2) Dry cleaning wastewater subject to the requirements in OAR 340 division 124 is not excluded under 40 C.F.R. §§ 261.4(a)(1)(i) and (ii).

(3) The phrase "or labeled with equivalent wording describing the contents of the container and recognizing the exclusion" is added to the end of the first sentence in 40 C.F.R. § 261.4(a)(26)(i) and 40 C.F.R. § 261.4(b)(18)(i).

(4) The phrase "To a municipal solid waste landfill regulated under 40 C.F.R. part 258, including 40 C.F.R. § 258.40, or" is deleted from 40 C.F.R. § 261.4(b)(18)(vi)(A).

(5) The phrase "To a municipal waste combustor or other combustion facility regulated under section 129 of the Clean Air Act or" in 40 C.F.R. 261.4(b)(18)(vi)(B) is deleted.

(6) The following wastes are excluded under OAR 340-100-0020 and 340-100-0022:

(a) Wastewater treatment sludge, EPA Hazardous Waste No. F006, generated at Selmet, Inc., Albany, Oregon, and contained in an on-site surface impoundment, as described in the delisting petition Selmet, Inc. provided on May 22, 2018. This is a one-time exclusion.

(b) Wastewater treatment sludge, EPA Hazardous Waste No. F006, generated at Selmet, Inc., Albany, Oregon, as described in the delisting petition Selmet, Inc. provided on May 22, 2018. The exemption is limited to a maximum annual rate of 3120 cubic yards per year. Selmet must have the sludge disposed of in a~~n Oregon~~ Subtitle D landfill the department licenses, permits, or otherwise authorizes to accept the delisted wastewater treatment sludge.

(c) The exemption described in paragraph 6(b) of this rule remains in effect only as long as Selmet meets the following conditions:

(A) Delisting Levels: The constituent concentrations measured in a leachate extract may not exceed the following concentrations (mg/l): cadmium-0.2; chromium-4.9; nickel-32.7; cyanide-7.5 and fluoride-94.8.

(B) Annual Verification Testing: To verify that the waste does not exceed the specified delisting concentrations, Selmet, Inc. must collect and analyze one waste sample annually using methods with appropriate detection concentrations and elements of quality control. Selmet may use a total analysis of the waste to estimate the Toxicity Characteristic Leaching Procedure concentration as provided for in section 1.2 of Method 1311.

(d) Changes in Operation Conditions:

(A) If Selmet, Inc., significantly changes the manufacturing process or the chemicals used in the manufacturing process, or both, Selmet must notify the department not more than 30 days after making the change.

(B) Selmet, Inc. must handle the wastes generated after the process change as hazardous until the department notifies Selmet in writing the department has determined the wastes continue to meet the delisting concentrations in subparagraph (6)(c)(A), that Selmet has demonstrated that no new hazardous constituents listed in appendix VIII of 40 CFR part 261 have been introduced, and that the department approves Selmet's not handling the wastes as hazardous.

(e) Data Submittals: Selmet, Inc. must submit the data obtained through verification testing, or as required by other conditions of this rule, to the department. Selmet must submit the annual verification data and certification of proper disposal on the anniversary of the effective date of this exclusion. Selmet, Inc. must compile, summarize, and maintain on site, for a minimum of five years, records of operating conditions and analytical data. Selmet, Inc. must make these records available to the department for inspection. Selmet, Inc. must submit with all data a signed copy of the certification statement described in 40 C.F.R. § 260.22(i)(12).

(f) Reopener Language:

(A) If, at any time after the delisted waste is disposed of, Selmet, Inc., possesses, or is otherwise made aware of, any data, including but not limited to leachate data, about the delisted waste, indicating that any constituent is at a concentration in the leachate higher than the specified delisting concentration in subparagraph 6(c)(A), then Selmet, Inc., must report

such data, in writing, to the department, within 10 days of first possessing or being made aware of that data.

(B) Based on the information described in subsections (6)(d) and 6(e), and any other information received from any source, the department will make a preliminary determination as to whether the reported information requires department action to protect human health or the environment. Further action may include suspending or revoking the exclusion, or other appropriate response necessary to protect human health and the environment.

(C) If the department determines that the reported information does require department action, the department will notify Selmet, Inc. in writing, of the actions the department believes are necessary to protect human health and the environment. The notice will include a statement of the proposed action and a statement providing Selmet, Inc. with an opportunity to present information as to why the proposed department action is not necessary or to suggest an alternative action. Selmet, Inc. must provide to the department in writing its information in response to the notice within 30 days from the date the department mails its notice requesting the information.

(D) The department will issue a final written determination. The department will issue the written determination no sooner than 30 days after the department mailed its notice to Selmet. Before issuing its determination, the department will consider any additional information Selmet submitted to DEQ within 30 days after the department issued its notice. The written determination will describe the department actions that are necessary to protect human health and the environment. Any required action described in the department's determination is effective immediately, unless the department provides otherwise.

Statutory/Other Authority: ORS 192, 465.009, 466.015, 466.020, 466.075, 466.090, 466.180, 468.020 & 646
Statutes/Other Implemented: ORS 466.015, 466.075 & 466.195
History:
DEQ 5-2017, f. & cert. ef. 7-12-17
DEQ 7-1984, f. & ef. 4-26-84; Superseded by DEQ 8-1985; DEQ 8-1985, f. & ef. 7-25-85; DEQ 6-1994, f. & cert. ef. 3-22-94; DEQ 4-1999, f. & cert. ef. 3-19-99; DEQ 10-2000, f. & cert. ef. 7-21-00; DEQ 13-2003, f. & cert. ef. 10-24-03

Draft Rules – With Edits Included

DEPARTMENT OF ENVIRONMENTAL QUALITY

Division 101

IDENTIFICATION AND LISTING OF HAZARDOUS WASTE

340-101-0004
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(b) Wastewater treatment sludge, EPA Hazardous Waste No. F006, generated at Selmet, Inc., Albany, Oregon, as described in the delisting petition Selmet, Inc. provided on May 22, 2018. The exemption is limited to a maximum annual rate of 3120 cubic yards per year. Selmet must have the sludge disposed of in a Subtitle D landfill the department licenses, permits, or otherwise authorizes to accept the delisted wastewater treatment sludge.

(c) The exemption described in paragraph 6(b) of this rule remains in effect only as long as Selmet meets the following conditions:

(A) Delisting Levels: The constituent concentrations measured in a leachate extract may not exceed the following concentrations (mg/l): cadmium-0.2; chromium-4.9; nickel-32.7; cyanide-7.5 and fluoride-94.8.

(B) Annual Verification Testing: To verify that the waste does not exceed the specified delisting concentrations, Selmet, Inc. must collect and analyze one waste sample annually using methods with appropriate detection concentrations and elements of quality control. Selmet may use a total analysis of the waste to estimate the Toxicity Characteristic Leaching Procedure concentration as provided for in section 1.2 of Method 1311.

(d) Changes in Operation Conditions:

(A) If Selmet, Inc., significantly changes the manufacturing process or the chemicals used in the manufacturing process, or both, Selmet must notify the department not more than 30 days after making the change.

(B) Selmet, Inc. must handle the wastes generated after the process change as hazardous until the department notifies Selmet in writing the department has determined the wastes continue to meet the delisting concentrations in subparagraph (6)(c)(A), that Selmet has demonstrated that no new hazardous constituents listed in appendix VIII of 40 CFR part 261 have been introduced, and that the department approves Selmet's not handling the wastes as hazardous.

(e) Data Submittals: Selmet, Inc. must submit the data obtained through verification testing, or as required by other conditions of this rule, to the department. Selmet must submit the annual verification data and certification of proper disposal on the anniversary of the effective date of this exclusion. Selmet, Inc. must compile, summarize, and maintain on site, for a minimum of five years, records of operating conditions and analytical data. Selmet, Inc. must make these records available to the department for inspection. Selmet, Inc. must submit with all data a signed copy of the certification statement described in 40 C.F.R. § 260.22(i)(12).

(f) Reopener Language:

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(B) Based on the information described in subsections (6)(d) and 6(e), and any other information received from any source, the department will make a preliminary determination as to whether the reported information requires department action to protect human health or

the environment. Further action may include suspending or revoking the exclusion, or other appropriate response necessary to protect human health and the environment.

(C) If the department determines that the reported information does require department action, the department will notify Selmet, Inc. in writing, of the actions the department believes are necessary to protect human health and the environment. The notice will include a statement of the proposed action and a statement providing Selmet, Inc. with an opportunity to present information as to why the proposed department action is not necessary or to suggest an alternative action. Selmet, Inc. must provide to the department in writing its information in response to the notice within 30 days from the date the department mails its notice requesting the information.

(D) The department will issue a final written determination. The department will issue the written determination no sooner than 30 days after the department mailed its notice to Selmet. Before issuing its determination, the department will consider any additional information Selmet submitted to DEQ within 30 days after the department issued its notice. The written determination will describe the department actions that are necessary to protect human health and the environment. Any required action described in the department's determination is effective immediately, unless the department provides otherwise.

Statutory/Other Authority: ORS 192, 465.009, 466.015, 466.020, 466.075, 466.090, 466.180, 468.020 & 646
Statutes/Other Implemented: ORS 466.015, 466.075 & 466.195
History:
DEQ 5-2017, f. & cert. ef. 7-12-17
DEQ 7-1984, f. & ef. 4-26-84; Superseded by DEQ 8-1985; DEQ 8-1985, f. & ef. 7-25-85; DEQ 6-1994, f. & cert. ef. 3-22-94; DEQ 4-1999, f. & cert. ef. 3-19-99; DEQ 10-2000, f. & cert. ef. 7-21-00; DEQ 13-2003, f. & cert. ef. 10-24-03

Supporting Documents

1. Delisting petition
2. DEQ staff recommendation for delisting

May 22, 2018

Brian Fuller
Hazardous & Solid Waste Manager
Oregon Department of Environmental Quality
165 East Seventh Avenue, Suite 100
Eugene, Oregon 97401

Re: Delisting Petition for F006 Hazardous Waste
Selmet, Inc.
Albany, OR

Dear Mr. Fuller,

On behalf of Selmet, Inc. (Selmet), SLR International Corporation (SLR) is pleased to present this delisting petition to request exclusion for the sludge generated from the Chemical Milling (Chem Mill) process as F006 hazardous waste. Two hard copies of the petition are enclosed, one electronic copy will be submitted via email, and a full electronic copy with all appendices will be submitted via FedEx.

None of the constituents (cadmium, nickel, complexed cyanide, and hexavalent chromium) for which F006 waste is listed as hazardous are used in the Chem Mill process. The two wastes sampled to represent the Chem Mill process sludge were the evaporation pond sediment and zero-liquid discharge (ZLD) liquid recycling system filter press cake. Concentrations of constituents of potential concern (COPCs) in the wastes were below hazardous levels.

The enclosed document was prepared following the Environmental Protection Agency's (EPA's) Resource Conservation and Recovery Act (RCRA) delisting petition process and includes support information in attached tables and appendices. Some pages have been included separately as confidential business information.

If you have any questions regarding this letter, please contact us at 503-723-4423.

Sincerely,

SLR International Corporation, 1800 Blankenship Road, Suite 200, West Linn, OR 97068
503 723 4423 **slrconsulting.com**

SLR International Corporation

Tyler Weber, E.I.
Project Engineer

Steven R. Hammer, P.E.
Principal Engineer

cc Dan Lobato, DEQ
Seth Sadofsky, DEQ
Judy Turner, Selmet
Greg Sladcik, Selmet
Steve Locke, SLR

Enc Delisting Petition for F006 Hazardous Waste
Delisting Petition for F006 Hazardous Waste – Confidential Business Information

SELMET, INC., F006 WASTE DELISTING PROJECT

Delisting Petition for F006 Hazardous Waste

Prepared for: Selmet, Inc.

SLR Project No.: 108.00256.00029

May 2018

global environmental advisory solutions

Delisting Petition for F006 Hazardous Waste

Prepared for:

Selmet, Inc.

33992 7 Mile Ln SE
Albany, Oregon 97322

This document has been prepared by SLR International Corporation. The material and data in this report were prepared under the supervision and direction of the undersigned.

Tyler Weber, E.I.
Project Engineer

Steven R. Hammer, P.E., P.Eng
Principal Engineer

CONTENTS

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t 503 723 4423 w slrconsulting.com

TABLES

EMBEDDED TABLES

FIGURES

APPENDICES

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Pond Sludge Sample Collection

SLR collected evaporation pond sediment in accordance SW-846 field methods during events on April 12, 2018 and April 18, 2018. The pond was approximately half full of liquids during both sampling events. A random unbiased sampling strategy was used to characterize the sediment because the lateral spatial variability of the evaporation pond sediment was unknown. The lateral variability was expected to be minor. There was some vertical spatial variability expected as a result of chemistry changes to the pond throughout its existence. To capture the vertical spatial variability, samples were collected as complete sediment columns spanning from the water-sediment interface down to the sediment-native soil interface. Composite samples consisted of three aliquots. Each aliquot was collected randomly from a location on a two-dimensional grid. The grid consisted of 62, 20-foot square parcels laid over the pond footprint. The grid was divided into 4 sub-areas (north, north-central, south-central, and south) and a composite was taken from each sub-area to avoid random grouping for the aliquot locations.

Sediment samples were collected using a hand-core sediment sampler which allowed for a full sediment column to be captured. Four composite samples, each consisting of three aliquots, were collected and analyzed for total concentrations of COPCs which included metals, semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), fluoride, cyanide, and hexavalent chromium. To avoid volatilization during compositing, discrete (grab) samples were taken from the final aliquot in each composite and analyzed for total volatile organic compounds (VOCs).

Analytical Results

Laboratory analytical testing was performed by ESC and Specialty. The total COPC concentrations in the sludge samples were compared to relevant DRAS maximum allowable total concentrations and also to Oregon Risk-Based Concentrations (RBCs) (collectively referred to as benchmark levels). Where concentrations exceeded 20 times the DRAS concentration, follow-up testing using the toxicity characteristic leachate procedure (TCLP) was performed, and TCLP concentrations were compared to relevant DRAS maximum allowable TCLP concentrations and RCRA toxicity characteristic regulatory levels.

Analytical results reported that total and TCLP concentrations detected above the reportable detection limits (RDLs) were below benchmark levels. The RDLs for four SVOCs and total PCB concentrations in one composite sample was above the DRAS benchmark level, but none of these constituents were detected above the RDL. Total and TCLP concentrations for COPCs were relatively consistent across multiple samples (see Tables 4A and 4B).

Conclusions

The analytical data from the Chem Mill process sludge and evaporation pond sediment sampling events support the claim that these sludges generated from treatment of Chem Mill process liquids are not hazardous and should not be classified as F006 hazardous wastes.

This result is not unexpected. The wastewater treatment processes for which the F006 listing was developed treat wastewaters from electroplating operations that contain metals such as cadmium, hexavalent chromium, nickel, and cyanide (complexed). Selmet does not use these chemicals. Titanium and additional metals found in the alloys are the only metals that are subjected to the processes at Selmet.

PART 1: DELISTING ADMINISTRATIVE INFORMATION

1. Name of Petitioner.
   a. Name of individual or firm submitting petition:

      Selmet, Inc.

   b. Mailing address of individual or firm:

      P.O. Box 689
      33992 SE Seven Mile Lane
      Albany, Oregon 97322
      Telephone: (541) 926-7731 Fax: (541) 917-7401

2. People to contact for Additional Information Pertaining to this Petition.
   a. Name, Title, Telephone No.

      Judy Turner, Environmental Health & Safety Manager, (541) 917-6356

   b. Mailing address of contact(s) if different from petitioner.

      Not Applicable

3. Facility Responsible for Generating Petitioned Waste:

      Selmet, Inc.
      P.O. Box 689
      33992 SE Seven Mile Lane
      Albany, Oregon 97322
      Telephone: (541) 926-7731 Fax: (541) 917-7401

      RCRA ID number:

      ORD009421579

4. Location of Petitioned Waste.

Same as facility name and address given in item 3.

5. Describe the proposed delisting action.

Selmet, Inc. (Selmet) has used the investment casting process to produce parts for the aerospace, medical, and golf industries. The parts have primarily been made of titanium alloys. A number of processes are used to produce the parts including a Chemical Milling (Chem Mill) process, which generates spent liquids and associated sludge. In 2017, Oregon DEQ informed Selmet that the sludge would be regulated under the Resource Recovery and Conservation Act (RCRA) as a F006 hazardous Waste.

Historically, the Chem Mill liquids were treated and then stored for recycling in a process liquid evaporation pond resulting in a buildup of sediment sludge at the pond bottom. Liquids from the Chem Mill are currently treated in a zero liquid discharge (ZLD) process liquids recycling system.

Selmet proposes to delist the F006 sediment located at the bottom of the evaporation pond and the ongoing Chem Mill process liquid sludge. The Chem Mill process does not utilize the chemicals for which F006 was listed (cadmium, hexavalent chromium, nickel, or complexed cyanides). In addition, the sludges do not exhibit any characteristics of a hazardous waste.

6. Provide a statement of the need and justification for the proposed action.

Laboratory analytical results have shown that the waste does not contain constituents of potential concern at hazardous concentrations and does not pose an unacceptable risk to human health or the environment. Managing the material as hazardous waste is an economic hardship. Selmet currently ships the waste over 200 miles to the Chemical Waste Management facility in Arlington, Oregon at a monthly cost of approximately $18,000, or $0.55/lb. When the material is delisted, Selmet plans to ship the waste approximately 20 miles to the Coffin Butte Landfill in Corvallis, Oregon at a monthly cost of approximately $1,600, or $0.05/lb.

7. Signed Certification Statement.

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this demonstration and all attached documents, and that, based on my inquiry of those individuals immediately responsible for getting the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for sending false information, including the possibility of fine and imprisonment.

Signed by Authorized Representative*

Signature: _____
Typed Name: Greg Sladcik
Title: Facilities Manager

*Note: An "authorized representative" is a person responsible for the overall operation of a facility or an operational unit (i.e., part of a facility), for example, a plant manager, superintendent, or person of equivalent responsibility.

PART 2: DELISTING WASTE AND WASTE MANAGEMENT INFORMATION

BASIS FOR THE WASTE LISTING

1. Which of the following scenarios best describes the petitioned waste? (Choose the most appropriate scenario and provide the information requested for the chosen scenario.)

   a. Petitioned waste is <u>not</u> a mixture of two or more listed hazardous wastes.

      Common name of petitioned waste:

      Chem Mill Process Sludge. One waste stream sampled consisted of ZLD filter press cake, and a second waste stream sampled consisted of evaporation pond sediment.

      EPA Hazardous Waste Number:

      F006

      Hazardous waste description:

      Wastewater treatment sludges from electroplating operations except from the following processes: (1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.

   b. Petitioned waste is a mixture of two or more listed hazardous wastes.

      Not Applicable

   c. Petitioned waste is a mixture of one or more solid non-hazardous wastes and one or more listed hazardous wastes, as described in 40 CFR 261.3(a)(2)(iii-iv).

      Not Applicable

   d. Petitioned waste is generated from the treatment, storage, or disposal of one or more listed hazardous wastes (or solid non-hazardous and listed hazardous waste mixture), as described in 40 CFR 261.3(c)(2)(i)

      Not Applicable

2. Describe the physical form of the petitioned waste (e.g., solid, liquid)

The ZLD filter press cake is a solid; it is a dewatered sludge that has a clayey consistency. The evaporation pond sediment is also a solid; it is sediment with a silty-clay consistency. The evaporation pond will be drained and the sediment dewatered prior to disposal.

3. If the physical form is sludge or liquid, estimate based on waste analysis the percentage of solids (e.g., provide a range).

Analytical results indicate that the percent solids of the ZLD filter press cake range from 41.7% to 73.9% and the percent solids for the evaporation pond sediment range from 19.1% to 62.2%.

HISTORY OF WASTE GENERATION

4. Which of the following describes the generation of petitioned waste: (Indicate those that apply and provide the information requested for each item.)
   a. Waste has been generated in the past.
      Provide the year when waste was first generated:

      Not Applicable

      Provide the year when waste generation ended (if applicable):

      Not Applicable

   b. Waste is presently being generated.
      Provide the year when waste was first generated:

      2014 (ZLD filter press cake)

   c. Waste will be generated in the future:

      The evaporation pond sediment will be generated during a one-time pond closure, expected to be in 2018.
      The filter press cake will be generated for the foreseeable future.

VOLUME OF PETITIONED WASTE

5. Is the petition for a waste of fixed quantity (e.g. a discrete volume of waste contained in a unit)?

Yes (Evaporation pond sediment) [Answer item 5a]
No (Filter press cake) [Answer item 5b]

a. Petitioned waste is/will be a fixed quantity.

Estimated volume:

The estimated volume of the evaporation pond sediment is approximately 3,800 cubic yards.

Describe the method of volume estimate:

The volume of evaporation pond sediment was estimated by multiplying the surface area of pond footprint (25,500 square feet (ft)) by the observed sludge thickness (2 ft). The surface area of the pond was estimated using google earth and field measurements. The pond sediment thickness was based on measurements conducted during multiple pond sediment investigations and sampling events. A contingency factor of two has been added to account for the "fluff" factor between excavated and in-place material and uncertainty in the sediment depth in areas not observed during sampling events.

b. Petitioned waste is/will be generated on a routine or continuous basis.

The filter press cake will be generated on a routine basis. The approximate generation rate is shown below:

	Average Quantity	Maximum Quantity	Unit of measurement
Monthly Volume	87	260	Cubic yards
Annual Volume	1,040	3,120	Cubic yards

Describe the method of volume estimation:

The average annual volume was estimated by assuming one 20-cubic yard roll off will be generated at a maximum rate of once per week, i.e. 52 roll-offs per year. The average annual volume was multiplied by a contingency factor of three to account for increased process throughput. The Chem Mill process is not anticipated to change; however, Selmet plans to continue to expand production in the next decade.

The average and maximum monthly volumes were estimated by dividing the average and maximum annual quantities by 12, respectively. The maximum volume values were used as the input for DRAS when evaluating the analytical data compared to maximum allowable concentrations.

HISTORY OF WASTE MANAGEMENT

6. As appropriate, describe the present, past, and proposed waste management methods for the petitioned waste.

   a. Present waste management methods and off-site facility or facilities used (name, address, and waste management method).

      Filter press cake is removed mechanically from a frame filter press into a rolling waste dumpster inside the ZLD recycling building. This dumpster is then emptied into a nearby 20-cubic yard roll-off using a forklift. The 20-cubic yard roll-off is stored in the 90-day accumulation area on an asphalt road and shipped offsite approximately every 10 days. The waste is currently shipped to the Chemical Waste Management (CWM) facility located at 17629 Cedar Springs Lane in Arlington, Oregon, for disposal in a RCRA permitted hazardous waste landfill.

      Evaporation pond sediment has not previously been generated.

   b. Past waste management methods, if different from present, and off-site facility or facilities used (name, address, and waste management method).

      Prior to DEQ's reevaluation of Oregon's titanium casting facility processes, DEQ did not consider the sludge generated from the Selmet Chem Mill process to be an F006 listed hazardous waste. As such, Selmet shipped the filter press cake to the Coffin Butte landfill located at 28972 Coffin Butte Rd in Corvallis, Oregon for disposal as non-hazardous waste.

      Evaporation pond sediment has not previously been generated.

   c. Proposed waste management methods if delisting petition is granted and off-site facility or facilities to be used (name, address, and waste management method).

      If delisting is approved, Selmet will ship the filter press cake and evaporation pond sediment to the Coffin Butte landfill located at 28972 Coffin Butte Rd in Corvallis, Oregon or an equivalent Subtitle D landfill.

PART 3: GENERAL OPERATIONS AT THE GENERATING FACILITY

1. Describe facility business area(s) and operations. Include SIC code(s).

   SIC Code(s):

   3728

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(If the petitioned waste is managed in more than one unit, assign a number to each unit (e.g., Unit #1, Unit #2, etc.) and use the unit numbers to associate a description with a specific unit.)

a. Unit location/address (show if on- or off-site).

Not applicable. Landfill is not owned or operated by Selmet.

b. Description of unit construction (current design and materials).

Not applicable. Landfill is not owned or operated by Selmet.

c. History of unit design (e.g., chronological summary of any changes to original construction).

Not applicable. Landfill is not owned or operated by Selmet.

d. Purpose and description of any unit design and operating changes.

Not applicable. Landfill is not owned or operated by Selmet.

e. Estimated surface area.

Not applicable. Landfill is not owned or operated by Selmet.

f. Estimated unit capacity volume.

Not applicable. Landfill is not owned or operated by Selmet.

g. Listing of waste and material inputs which have occurred throughout the life of the unit, if known.

Not applicable. Landfill is not owned or operated by Selmet.

24. Provide detailed schematic(s) of the waste unit(s) showing (as appropriate) unit dimensions, influent point(s), effluent point(s), and waste thickness.

Not applicable. Landfill is not owned or operated by Selmet.

PROCESS MATERIALS

25. List all materials used in the operations that contribute to the petitioned waste. The list should include:

a. The name of the material(s).

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31. Describe the impact of those differences on the character of the petitioned waste.

Not applicable.

32. Are you requesting an exclusion for a waste generated by a multiple waste treatment facility (MWTF)?

Not applicable.

33. Describe your procedure for prescreening clients and wastes and how this procedure will be carried out should your waste be excluded.

Not applicable.

34. Describe the procedures by which you will make sure that: (1) treatment levels needed by an exclusion are maintained and (2) a hazardous waste is not disposed improperly as non-hazardous.

Not applicable.

PART 4: DELISTING ANALYTICAL PLAN DEVELOPMENT

1. Provide a complete list of the constituents and parameters of concern identified for your petitioned waste based on appropriate waste constituent analyses and the results of an engineering analysis. Identify those constituents quantitated by laboratory analysis and those quantitated using mass balance demonstrations.

SLR considered the following resources when developing a list of constituents and parameters of concern:

- **"RCRA Hazardous Waste Delisting Program - Useful Information for the Petitioner" (USEPA 2009) and referenced materials including:**
  - **Appendix IX of 40 CFR part 264 – Groundwater Monitoring List**
  - **Appendix VIII of 40 CFR part 261 – Hazardous Constituents List**
  - **Chemicals explicitly listed in USEPA 1993 guidance including acetone, ethylbenzene, isophorone, 4-methyl-2-pentanone, styrene, and xylenes**
- **"Hazardous Waste Delisting Risk Assessment Software (DRAS)" and the associated "Users Guide for DRAS Version 3.0" (USEPA 2010).**

SLR interviewed Selmet staff and developed a comprehensive summary of site operations dating back to development of the site in 1967. SLR then worked alongside DEQ to create a list of relevant chemicals that would be quantitated using laboratory analytical testing. The list was created following comprehensive review of the information provided in interviews and facility Material Safety Data Sheets (MSDSs). Constituents were not included in the list if historical interviews suggested the

constituent was not historically used at the site, if the constituent was not found in facility MSDSs, or if the constituent was unrelated to the F006 hazardous waste listing (USEPA 2009. pg. 15).

Lists of constituents and parameters of concern to undergo analytical testing for the Chem Mill process sludge and evaporation pond sediment samples were included in the Sampling and Analysis Plans (SAPs) submitted to DEQ for each waste. As described above, constituents that were not reasonably expected to be present in the wastes and/or unrelated to the F006 hazardous waste listing were not included in the analytical plan. The SAPs were approved by DEQ in an email dated March 15, 2018.

Concentrations of the constituents of concern were individually compared to the maximum allowable concentrations reported by the DRAS to determine if the waste was a candidate for delisting. According to the USEPA 2008 RCRA Delisting Technical Support Document, the waste may qualify to exit the hazardous waste management program if concentrations are below these values (USEPA 2008, pgs. 4-9). A DRAS analysis run was performed for the evaporation pond sediment and filter press cake using the highest reported concentrations of each COPC (see appendix J). Total and TCLP results were also compared to the D-list of the RCRA characteristic hazardous waste concentrations according to Title 40 CFR, Section 302.4 and to the relevant Oregon Risk-Based Concentration (RBC) tables for the following exposure pathways for an occupational and construction worker receptor scenario (DEQ, 2017):

- Soil ingestion, Dermal Contact, and Inhalation (RBC_{SS}) and
- Volatilization to Outdoor Air (RBC_{SO}).

The DRAS required inputs characteristic of the Chem Mill process sludge, evaporation pond sediment, and receiving waste management units to generate maximum allowable concentrations. The inputs required included:

- Waste Management Type
- Waste Volume
- Cancer Risk Level
- Hazard Quotient
- Waste Management Unit Active Life
- Active Life

Table 4.1, below, shows the inputs entered into DRAS for the Chem Mill process sludge:

TABLE 4.1 – DRAS INPUTS FOR WASTE EVALUATION

Waste	Waste Management Type	Waste Volume (yd^3)	Cancer Risk Level	Hazard Quotient	Waste Management Unit Type	Active Life (years)
Evaporation Pond Sediment	Landfill	3,800	1E-6	1.0	One Year Batch	N/A
Chem Mill Process Sludge	Landfill	3,120	1E-6	1.0	Multiple Year Batch	20

Prior to laboratory analytical testing, Selmet compared MRLs for each constituent test method to the maximum allowable total and TCLP concentrations reported by DRAS and the D-List for RCRA characteristic hazardous waste to verify that appropriate test methods were assigned to each constituent.

Samples collected were first analyzed for total concentrations of the constituents of concern. A contingency sample for follow-up TCLP laboratory analytical testing was also collected. A constituent with a total concentration above the laboratory method reporting limit (MRL) and a total concentration greater than 20 times the DRAS maximum allowable TCLP concentration or the D-List Hazardous Characteristic concentration underwent subsequent TCLP laboratory quantitative analysis. TCLP testing was not performed if the total concentration of a constituent was less than 20 times the concentration of the benchmarks because the test method dilutes the sample by 20 times to simulate landfill leachate conditions (USEPA 1992, section 2.2).

The SAPs list the chemicals considered when developing a list of constituents and parameters of concern. Table 3A and 3B list the constituents and parameters of potential concern identified to be quantitated using laboratory analytical testing following an engineering analysis for the Chem Mill process sludge and evaporation pond sediment, respectively. Tables 4A and 4B include analytical data along with maximum allowable total concentrations, DRAS maximum allowable TCLP concentrations, RCRA D-List characteristic hazardous waste concentrations, and Oregon RBC concentrations for the relevant constituents. An electronic copy of the DRAS analysis for the evaporation pond sediment and filter press cake is included in Appendix J.

2. Provide mass balance demonstrations for those constituents of concern in your list for which analyses were not conducted. Provide all calculations and assumptions.

Mass balances were not used for determining a list of constituents of concern.

3. Explain why any other delisting constituent of concern is not on the constituent of concern list for your petitioned waste.

USEPA regulations and guidance, including the DRAS, were used to develop an initial comprehensive list of constituents of potential concern for consideration. The initial list of constituents for consideration was then evaluated using historical data and generator knowledge of plant process operations. Many of these constituents were removed from the list of constituents to undergo laboratory analytical testing because they were absent from raw materials used in current or historical operations at the facility and were therefore not reasonably expected to be present in the waste (USEPA 2009, pg. 15). The final list of constituents to undergo analytical testing was approved by DEQ in emails dated March 15, 2018.

Analyses of the processes related to the waste generation and analytical data indicated that the waste does not exhibit the characteristics of ignitable (D001), corrosive (D002), reactive (D003), or toxic hazardous waste (D004 through D043).

4. Explain why your petitioned waste does not exhibit any hazardous waste characteristic for which analysis was not conducted.

The constituents excluded from analytical laboratory analysis are not reasonably expected to be present in the wastes at hazardous levels following a thorough engineering and MSDS review.

PART 5: DELISTING SAMPLE AND ANALYSIS INFORMATION

1. Has a draft sampling and analysis plan been submitted to EPA/DEQ for review before petition preparation?

Yes [Answer items 1a and 1b]

a. Submittal date of sampling and analysis plan:

March 14, 2018

b. Log number assigned by EPA to your draft submittal:

Not Applicable, submitted to the Oregon DEQ. The SAPs were approved by DEQ in an email dated March 15, 2018.

WASTE SAMPLING INFORMATION

2. Were all sampling-related activities performed by in-house staff?

No [Answer items 2a and 2b]

a. Name and address of the organization(s) or company(s) responsible for designing the sampling strategy and collecting the samples.

SLR International Corporation
1800 Blankenship Road, Suite 440
West Linn, Oregon 97068

b. For each individual person (in-house and otherwise) who designed the sampling plan, the quality control plan, and/or participated in sample collection, please provide a resume of qualifications and the following information:

Name: **Steven Hammer, P.E., P.Eng (SLR International Corporation)**
Title: **Principal Engineer (Prepared SAP, Managed Project)**

Name: **Tyler Weber, E.I. (SLR International Corporation)**
Title: **Project Engineer (Prepared SAP, Participated in Sample Collection)**

Title: **Justin Moman, P.E. (SLR International Corporation)**
Title: **Associate Engineer (Participated in Sample Collection)**

SAMPLING STRATEGY

3. Provide the following information (items 3a through 3f) on the sampling strategy you followed to make sure that the samples were representative.

a. Identify which process point discharges, containment areas (e.g., lagoons), or other areas (e.g., soil) were sampled and why these areas were selected for sample collection.

Selmet collected samples from the filter press cake roll-off representative of the filter press cake disposed in a landfill. Selmet also sampled the evaporation pond sediment to identify the waste composition of sludge historically generated prior to the operation of the ZLD liquid recycling system.

b. Describe the techniques and guidelines used to select waste sampling points (e.g., random sampling procedure or fixed transect and offset sampling procedure).

In accordance with the RCRA Waste Sampling Draft Technical Guidance (USEPA 2002, pg. 57), random unbiased composite sampling techniques were used to sample waste representing the Chem Mill process sludge and evaporation pond sediment.

c. Describe the sampling and subsampling (i.e., transferring of sample aliquots into containers specific to certain analyses) procedures used during the sample collection process, including the particular days and times selected for sample collection, the number of grab samples collected for each composite sample, and why these procedures were used.

Chem Mill Process Sludge

For the samples representing the Chem Mill sludge, a random unbiased sampling strategy was used. Random unbiased sampling is best suited for sampling a waste that has is not reasonably expected to have spatial variability. Selmet collected four composite samples from the 20-cubic yard filter press cake waste roll-offs, each separated by duration of approximately 10 days. Samples were taken over these four consecutive periods of generation to capture temporal waste variability, in accordance with the 2009 USEPA delisting guidance (USEPA, 2009, pg. 16). The samples were collected mid-day on March 22, 2018, April 2, 2018, April 12, 2018, and April 20, 2018. Sampling was performed while the roll-off was located in the waste accumulation storage area prior to offsite shipment.

Each composite sample consisted of 5 aliquots from the same waste bin. Locations of the aliquots within the bin were randomly selected from the grid formation, consisting of approximately 1-ft "squares" overlain on the waste top surface. The dimension of the roll-offs was 15 ft by 8 ft by 4 ft. Each "square" in the grid was assigned a number, and a random number generator was be used to determine which "square" the aliquot samples were taken from (USEPA 2002, pg. 57). A tape measure was used to identify the location of each aliquot. A small portable scissor lift was maneuvered over the open top of the roll-off to provide a safe platform for standing while the samples were collected. This procedure was performed to represent the contents of the entire roll-off. Appendix B includes the diagrams and random number tables for each composite sample. The random number table used was provided by the 1993 USEPA delisting guidance document (USEPA, 1993, pg. 147).

Samples were collected from the platform of the portable lift using a decontaminated stainless-steel hand-auger. Decontaminated stainless steel extension rods were used to advance the auger bucket from the waste surface, down to the bottom of the bin. Equipment was not decontaminated between aliquot locations because these were combined to create a composite sample. Complete columns of filter press cake were collected for each aliquot sample to capture vertical spatial variability in the waste. Depending on the height of the waste at a specific aliquot location, this consisted of 2-3 core depths. Aliquots were collected and placed in a decontaminated high-density polyethylene (HDPE) 5-gallon bucket and mixed together using a decontaminated stainless steel spoon until the mixture was homogenous.

The hand bucket used to collect the samples had an outside diameter of 2 inches. The auger bucket was 8.25 inches (9.5 inches including teeth) in length. The volume of the auger bucket was approximately 15 oz. For each event, the following containers were filled for laboratory analysis:

- **(1) 2-oz jar**

- (1) 4-oz jar
- (2) 8-oz jars

An additional two (2), 8-oz jars were collected during the Period 1 event as contingency containers to ensure adequate volume was provided to labs for testing. None of the containers for the filter press cake sampling contained preservatives.

Evaporation Pond Sediment

For the samples representing the evaporation pond sediment, a random unbiased sampling strategy was also used. This is because the lateral spatial variability was expected to be minor throughout the sediment; records also indicate Selmet historically used pond aerators to keep the pond well-mixed. Some vertical spatial variability was expected in the sediment as a result of chemistry changes to the pond throughout its lifetime. Therefore, discrete samples and composite aliquots were collected as complete sediment columns spanning from the water-sediment interface down to the sediment-native soil interface. The depth of the sediment cores was approximately 1 to 2 ft.

Four composite samples were collected from the evaporation pond sediment. To capture spatial variability that may exist, composite samples collected from the pond consisted of three aliquots. Aliquots were collected from randomly selected areas from a two-dimensional grid consisting of 62, 20-ft square parcels. A discrete sample was collected from the third aliquot location of every composite sample for VOC analysis.

Appendix B includes the diagrams and random number tables for each sample. The random number table used was provided by the 1993 USEPA delisting guidance document (USEPA, 1993, pg. 147).

Each square in the two-dimensional grid was assigned a number (1 through 62). The grid squares were then divided into four groups, and three squares from each group were chosen randomly as squares from which sample aliquots for a composite sample will be collected. Groups included:

- Composite A (squares 1 to 16)
- Composite B (squares 17 to 31)
- Composite C (squares 32 to 45)
- Composite D (squares 46 to 62)

Sediment samples near the shoreline were collected on foot. Sediment samples located deeper in the pond were sampled using a small water craft. The water craft was positioned by aligning a rope across the width of the pond, intersecting the

aliquot location. The rope was marked off to guide the sampler to the correct width of the pond to collect the sample from. Samples were collected from as close to the center of the grid location as possible. All aliquot samples were taken from submerged locations.

Sediment samples were collected using a decontaminated 48-inch stainless steel hand-core sediment sampler with disposal eggshell catchers and plastic liners. For samples collected where the pond depth was greater than 3 ft, a decontaminated extension rod was used to advance the sediment sampler down to interface of the sediment and native soil.

The liner had an outside diameter of 2 inches and a length of 48 inches. The volume of the liner was approximately 83 oz. A check valve on the top of the device allowed for displacement of the water column as the device was driven into the sediment and kept solids from being washed out of the device as it was vertically removed from the pond liquids.

Equipment was not decontaminated between aliquot locations because these were combined to create a composite sample. Complete columns of the sediment were collected for each aliquot sample to capture vertical spatial variability in the waste. Aliquots were collected and placed in a decontaminated HDPE 5-gallon bucket and mixed together until the mixture was homogenous using a decontaminated stainless steel spoon.

The sampling device did not encounter considerable resistance as it was driven into the sediment until the native soils were encountered. When increased resistance was observed, the device was carefully removed from the sediment to retain material captured in the device. Depending on the depth of the sediment at the aliquot location, 1 to 2 ft of sediment was retained in the liner. The threaded end of the device was then removed to access the liner and the solids were emptied into a 5-gallon HDPE bucket.

For aliquots identified as locations for VOC discrete samples, a sample was immediately collected from the material using a 5035 terracore sampling kit in accordance with SW-846 (USEAP, 1996) and one (1) 8-oz jar for TCLP follow-up. The sample containers consisted of the following:

- (3) 40-mL vials with sodium bisulfate preservative as part of the 5035 TerraCore kit
- (1) 40-mL vial with methanol preservative as part of the 5035 TerraCore kit
- (1) 2-oz jar as part of the 5035 TerraCore kit
- (1) T-handle for collecting material as part of the 5035 TerraCore kit
- (1) 8-oz jar

After the material had been emptied from the sediment sampler into a clean, 5-gallon HDPE bucket, the T-bar handle was inserted into the waste and the material collected was transferred a single volume into a VOA vial. This procedure was repeated for the remaining three VOA vials. The 2-oz jar was then filled with material directly from the core. An 8-oz glass jar was also filled with material directly from the core for follow-up TCLP analysis.

The remaining material was kept in the bucket and additional aliquots were added and combined to form a composite sample. The exception was the discrete sample collected from pond grid 26, which was collected during a separate event than the associated pond composite sample (Pond Composite B). For each composite sample, the following containers were filled for laboratory analysis:

- **(1) 2 oz jar**
- **(4) 4-oz jars**
- **(3) 8-oz jars**

For Chem Mill process sludge and evaporation pond sediment sampling events, clean laboratory-supplied sample containers were filled after the composite sample had been mixed. All containers were properly labeled with the sample identification, date and time of collection, and analysis required. The samples were securely wrapped to prevent breakage. Samples were then immediately placed in coolers on ice. Detailed documentation of the sampling event was recorded and a chain of custody (COC) was completed. COCs included sample IDs, date and time of collection, sampler initials, and parameters for analyses. The sampler signed the chain of custody to relinquish custody with the date and time of transfer. The chain of custody was placed in a heavy-duty locking plastic bag and placed in the cooler. The coolers were sealed with packing tape and the FedEx label was adhered to the tops of the coolers. Some samples were hand delivered to Specialty in Clackamas, Oregon. The remaining samples were delivered to the FedEx facility in West Linn, Oregon and then shipped to ESC in Mt Juliet Tennessee for next day delivery.

d. Describe the sampling devices used for sample collection and the basis for selecting the devices.

For Chem Mill process sludge, sample aliquots were collected with a 2-inch stainless steel hand bucket auger. This equipment was determined to be best suited for roll-off bin sampling based on guidance from the RCRA Waste Sampling Draft Technical Guidance (USEPA 2002. pgs. 99, 112, and 225). The hand bucket auger effectively collected the moist clayey sample at the specified depth and held the sample until it was removed from the roll-off and transferred to the mixing equipment.

For the evaporation pond sediment sampling, samples were collected using a 48-inch stainless steel hand-core sediment sampler (penetrating probe sampler) with disposal eggshell catchers and plastic liners. The hand-core sediment sampler is a push coring

device consisting of a threaded steel tube, a threaded top cap, and a detachable steel tip. The steel tube was approximately 2 inches in diameter. A stainless steel extension rod was used in some locations where the water was too deep to collect a full sediment core sample using the sampler alone. The equipment was determined to be best suited for waste settling pond sampling based on the RCRA Waste Sampling Draft Technical Guidance (USEPA 2002, pgs 113, 118, 215, and 288).

e. Identify and discuss any deviations from your original sampling plan and strategy and the impact of these deviations on waste characterization.

There were no deviations from either SAP with regard to the constituents identified to undergo laboratory analytical testing for quantitative analysis.

A list describing field modifications to sampling methodologies related to filter press cake sampling is shown below:

1. **The SAP specified toxicity leachate characteristic procedure (TCLP) analysis would be performed on composite samples collected during subsequent sampling events after a constituent of concern (COC) had been identified (SLR 2018a, pg. 7). The plan was changed and TCLP analysis for COCs was performed on the same samples as those with a total COC concentration greater than 20 times the TLCP benchmark concentrations using contingency containers collected from the same composite.**
2. **Aliquots combined for composite samples were mixed in a decontaminated 5-gallon HDPE bucket instead of a stainless steel bowl (SLR 2018a, pg. 11). This was because the stainless steel bowl originally specified for mixing did not provide enough volume for effectively mixing the aliquots into a homogeneous composite.**
3. **It was determined that wiping down all solids from the bucket auger in-between aliquot collection from the same sampling event was unnecessary.**

A list describing field modifications to sampling methodologies related to evaporation pond sediment sampling is shown below:

1. **The SAP specified that all pond composite and pond grid samples would be collected during a single event (SLR 2018b, pg. 4). Pond Composite B was collected during a preliminary sampling event to confirm the effectiveness of the hand core sediment sampler.**
2. **Samples were tested on a standard turnaround instead of 5-day rush (SLR 2018b, pg. 4). Follow-up TCLP analytical testing could be specified and performed within hold times using standard turnarounds on total analysis.**
3. **Discrete and composite aliquot samples were collected from as close to the center as possible. As a result of the liquid level in the pond during the time of sampling, all discrete and composite aliquot samples were collected from submerged locations.**
4. **Submerged samples were collected using a decontaminated 48" stainless steel hand push-core sediment sampler with a stainless steel extension rod, disposable**

eggshell catchers, and disposable liners. The SAP had specified a settleable solids profiler would be used, but field testing revealed this equipment was unsuitable for collecting a full sediment sample (SLR 2018b, pg. 11). SLR notified DEQ of the change via email on April 4, 2018.

5. **Triple rinse decontamination of the sediment sampler between samples was determined to be unnecessary because composite and discrete samples were collected to represent the chemical composition of the entire pond. Solids were removed from the equipment between aliquot and discrete sample collection.**
6. **Separate decontaminated buckets were used during sampling events to composite aliquots, rather than rinsing a single bucket between mixing (SLR 2018b, pg. 11). This allowed for samples to be collected and composited more efficiently.**

f. Explain why you believe the samples collected are non-biased and sufficiently represent the petitioned waste. In this explanation, fully address the potential for waste uniformity or spatial and temporal variability and how the strategy ensured collection of representative samples.

Chem Mill process sludge is generated on a continuous basis 24-hours per day, 7 days per week. There are no operational changes that occur in the treatment process. The sludge is stored in a tank and fed to a filter press where water is removed from the sludge. The resultant filter cake is collected in a 20-cubic yard roll-off. One roll-off is filled approximately every ten days. The manner in which the filter cake is generated indicates that the filter cake is generally homogeneous. Historical analytical data provided in the SAP submitted to DEQ supports this claim. A random unbiased sampling strategy is expected to have captured any unexpected spatial variability.

Evaporation pond sediment has been deposited on the pond since the pond was constructed in approximately 1975. The evaporation pond sediment is not expected to have significant temporal variability because records indicate it has been consistently well-mixed, and the sediment is a cumulative result of decades of solids settling from plant liquids held in the pond. In addition, the facility no longer routinely sends process liquids to the pond. Vertical spatial variability was represented in the samples by collecting a full sediment core from the sediment-liquid interface to the sediment-native soil interface. A random unbiased sampling strategy is expected to have captured any unexpected spatial variability.

SAMPLE SPECIFICINFORMATION

4. How many samples of the petitioned waste were collected? Is the number of samples taken different from the number of samples agreed upon during the pre-petition scoping meeting? Explain the deviation.

The number of samples taken did not deviate from the sampling and analysis plan developed by SLR with collaboration from DEQ. However, Period 1 and Period 2 composite samples from the filter press cake were submitted to Specialty for duplicate analysis of total COPC concentrations.

For Chem Mill process sludge, four composite samples were collected. Each consisted of five aliquots from the same waste bin, with the locations of aliquots within the bin being selected randomly from the grid formation. Overall, a sample was collected approximately once every ten days from a unique waste bin. COPCs were select metals, cyanide and fluoride.

For the evaporation pond sediment, four composite samples were collected. Each consisted of three aliquots that were randomly selected from a two-dimensional grid. A discrete sample was collected from the third aliquot location of every composite sample. Overall, there were two sampling event with a total of four composite and four discrete samples. COPCs were metals, VOCs, SVOCs and PBCs.

5. For each individual sample collected, please provide the following sample-specific information (items 5a through 5g).

   a. For each sample included in item 4, provide the sample identification number (as it appears in your field logbook and other records), the date that the sample was taken, an indication as to what type of sample it is (waste sample versus quality control sample and whether or not it is a composite sample).

      Chem Mill process sludge sampling events were conducted on March 22, 2018, April 2nd, 2018, April 12nd, 2018, and April 22nd, 2018. Table 4A presents a summary of sample identifications, along with the dates samples were collected and whether they were discrete or composite samples.

      Evaporation pond sediment sampling was conducted during two separate events on April 12, 2018 and April 18, 2018. Table 4B presents a summary of sample identifications, along with the dates samples were collected and whether they were discrete or composite samples.

   b. Describe how each sample was collected, and its point of collection from the petitioned waste. If a sample is a composite of grabs, provide the number of grab samples collected for the composite sample, the sampling location for each grab sample, the volume of each grab sample, and the volume of the composite sample.

      This is described in item c on Page 32, above. It is not repeated here to avoid duplication. See "Sampling Strategy, Part 3, Letter c, beginning on Page 35.

   c. Describe the general sampling location (e.g., which quadrant of a surface impoundment) and the specific sampling points (e.g., specific location in the quadrant). You may refer to numbered sampling points shown in a diagram.

      This is described in item c on Page 32, above. It is not repeated here to avoid duplication. See "Sampling Strategy, Part 3, Letter c, beginning on Page 35.

Appendix B includes additional information on sampling locations for each waste.

d. Describe how each sample was composited (e.g., equipment used and manner of mixing).

The same technique was used to composite the samples for both Chem Mill process sludge and Evaporation pond sediment. Samples were placed in a clean 5-gallon HDPE bucket, and then mixed together with a stainless steel spoon continuously for at least 5 minutes until a composite sample was formed. For the Chem mill process sludge, four samples were placed and mixed in the bucket, whereas for the Evaporation pond sediment, only three aliquot samples were mixed together.

e. Provide a physical description of each sample at time of collection (e.g., color, odor, whether phase separation occurred soon after collection).

The filter press cake was fairly uniform in color and texture throughout each individual sampling event and across the four events. The filter press cake was grayish-green in color and resembled a clayey soil. The filter press cake did not have a distinct odor.

The evaporation pond sediment was fairly consistent in appearance, color, odor and characteristics across the aliquot locations but stratified across the core depths. A typical core consisted of native brown clay at the bottom followed by a 1 to 2 ft thick grayish-white silty sediment layer with a band of green near the center of the column. The cores had a slight organic odor presumably due to anaerobic conditions. The core quickly lost its shape as it was deposited in the bucket for sample collection and compositing. After compositing the aliquots, the material resembled a gray slurry that was homogeneous.

f. For each composite sample, specify the time and date when the grab samples were collected and the time and date when the sample was composited, as applicable.

The time that each aliquot sample was collected was not recorded. The time and date recorded for each sample is included in laboratory analytical reports (see Appendices D through H.

g. Describe the handling and preparation techniques used for each sample (including types of containers used and techniques employed for container preparation) and types and amounts of preservatives used.

For Chem Mill process sludge, after collection, samples were placed immediately into clean, laboratory-supplied jars, sealed, labeled, and placed on ice for delivery to the analytical laboratory under strict chain-of-custody procedures. Clean nitrile sampling gloves were worn during sampling handling procedures. The mixing bucket, spoon, and bucket auger were decontaminated prior to and between each

sample event using a solution of Alconox detergent and distilled water, followed by a triple rinse with distilled water.

Three different sized glass jars were used for the total concentration tests. A 2-oz glass jar was used for the total metals analysis except total Zirconium, which was performed from material in a 4-oz glass jar. An 8-oz glass jar was used for the total fluoride, hexavalent chromium, and cyanide. Follow-up TCLP analysis was performed using a second 8-oz glass jar. These jars did not contain preservatives.

For Evaporation pond sediment, after collection, samples were placed immediately into clean, laboratory-supplied jars, sealed, labeled, and placed on ice for delivery to the analytical laboratory under strict chain-of-custody procedures. Clean nitrile or PVC sampling gloves were worn during sampling handling procedures. The mixing bucket and hand-core sediment sampler were decontaminated prior to each sampling event using a solution of Alconox detergent and distilled water, followed by a triple rinse with distilled water. The eggshell catcher and plastic liners were provided new. A single eggshell catcher and plastic liner were used to collect all aliquots during each sampling event. Between sampling events, the eggshell catchers and liners were replaced with new equipment.

Three different-sized glass containers were used for the total concentration tests on the composite samples. A 2-oz glass jar was used for total metals analysis. Three 4-oz glass jars were used to test for total zirconium, PCBs, and SVOCs. An 8-oz glass jar was used for total fluoride, hexavalent chromium, and cyanide analysis. Follow-up TCLP testing for SVOCs, PBCs, metals, fluoride, hexavalent chromium, and cyanide was performed using material placed in two 8-oz jars.

For the VOC discrete samples, a 5035 terracore kit was used for analysis. The kit included three 40-mL vials with sodium bisulfate preservative, one 40-mL vial with methanol preservative, one 2-oz jar for dry with total solids and one T-handle for solids transfer. An 8-oz glass jar was used for the four TCLP tests. Follow-up TCLP analysis on the discrete samples was performed using material placed in an 8-oz glass jar.

Additional information describing the preservatives and containers used can be found in lab reports, located in Appendices D through H.

OTHER GENERAL INFORMATION

6. Describe the weather conditions during sampling (if conducted outdoors).

Sampling activities occurred between 9:00 AM and 4 PM. Weather was sunny or cloudy with light rain only during the period 1 filter press cake sample. Temperatures were approximately between 50˚F and 70˚F.

7. Describe any facility activities separate from sampling that occurred at the same time and

might have affected sample representativeness.

Activities at the facility were typical of normal operation from the start of sampling periods to the conclusion of sampling. The exception was during Period 3 filter cake press generation, when a portion of the material processed in the Chem Mill was Alloy C. The resulting liquids were sent to the ZLD liquid recycling system and eventually processed by the filter press.

8. Describe sampling device decontamination; and note when disposable devices were used for sample collection.

Three pieces of equipment were used for the filter press cake sampling activities including a stainless steel hand auger with 5-ft extension rods, a stainless steel spoon, and a 5-gallon HDPE bucket. Prior to sampling, each piece of equipment was decontaminated using Alconox and a triple wash of distilled water.

The equipment used during the evaporation pond sediment sampling included a 48-inch stainless steel hand core sediment sampler with a 5-ft extension, disposable plastic eggshell catchers, disposable plastic liners, a stainless steel spoon, and 5-gallon HDPE buckets. Prior to each sampling event, the equipment was decontaminated using Alconox and a triple wash of distilled water. New eggshell catchers and liners were used at the beginning of each sampling event, but they were reused to sample different aliquot locations across the same event.

9. Were the chain-of-custody procedures specified in SW-846 followed?

Yes. Field modifications to the SAPs are described above in Part 5, Section 3e. [Skip to item 11]

10. Provide a description of the quality control procedures and documentation system used to track sample location and maintain sample integrity during transportation to the laboratory. Copies of the chain-of-custody forms may be provided, but are not needed.

Not Applicable.

LOCALIZED AREA OF CONTAMINATION

11. Have you collected samples to characterize a localized area of contamination (a "hot spot") within the petitioned waste?

No [Skip to item 16]

12. Discuss your basis for believing a hot spot may or does exist (e.g., records of a one-time discharge of a concentrated material at a specific location).

Not Applicable.

13. Describe the known or predicted location (on a diagram) and the dimensions (e.g., depth, width and length) of the hot spot.

Not Applicable.

14. Identify the samples specifically collected to characterize the hot spot.

Not Applicable.

15. Explain why the samples sufficiently represent the hot spot.

Not Applicable.

MULTIPLE WASTE TREATMENT FACILITY

16. Have you collected samples to characterize a waste generated by a multiple waste treatment facility (MWTF)?

No [Skip to item 21]

17. List and describe the untreated wastes that were treated and are represented by the treatment residue samples collected during the sampling period.

Not Applicable.

18. Provide the percentage of total wastes treated annually that was represented by the sampling period.

Not Applicable.

19. List and briefly describe the untreated wastes that also are treated at the facility but were not represented by the sampling period.

Not Applicable.

20. Explain why the wastes not represented by the sampling period are not expected to contain any other hazardous constituents of concern, different levels of constituents of concern, or other different characteristics than that represented by the sampling period.

Not Applicable.

WASTE ANALYSIS INFORMATION

21. Were sample analyses done by in-house staff?

No [Answer items 21a and 21b]

a. Name and address of the organization(s) or company(s) responsible for sample analyses.

ESC Lab Sciences (ESC)
12065 Lebanon Road
Mount Juliet, Tennessee
615-773-9772

Specialty Analytical (Specialty)
9011 SE Jansen Road
Clackamas, Oregon, 97015
503-607-1331

b. For each individual person (in-house and otherwise) who conducted analyses or was responsible for data reduction, validation, and laboratory quality control, please provide a resume of qualifications and the following information:

Resumes of qualifications for individuals who conducted analyses or other related activities are included in Appendix C.

22. Provide your signed laboratory data reporting forms from all analyses, including results from quality control analyses.

Laboratory reporting forms are included in Appendices D through H.

23. Provide the following information on each sample and each analysis.
    a. Sample identification numbers as logged during collection and as assigned by the laboratory.
    b. Type of sample (e.g., waste sample, waste sample replicate, equipment blank, field blank).
    c. Date of sample receipt by the laboratory.
    d. The sample workup or preparation method and reference for the method (e.g., SW-846 Method 3500).
    e. The date of sample workup or preparation.
    f. The name of the person conducting the analysis.
    g. The date of extraction and analysis.
    h. The test method used and the source of the test method (e.g., SW-846 Method 8020).
    i. The specific constituent, parameter, or hazard for which analysis was conducted.
    j. The test results, expressed in appropriate units (e.g., mg/L, mg/kg).
    k. The basis for the analysis (e.g., wet/dry weight).

l. The quantitation limits.

The laboratory analytical reports contain the following information for each sample and analysis (see Appendices D through H).

24. Provide the names and model numbers of all equipment used during analysis.

This information is found in the and laboratory testing information and analytical reports (see Appendices C through H)

25. Provide all other information necessary to fully interpret the test procedures or results.

All necessary information to fully interpret the test procedures and results is provided in the petition and lab reports.

26. For each quality control analysis that involved a matrix or a surrogate spike and spike duplicate analysis, provide the following information.

The following information is provided on the laboratory analytical reports (see Appendices D through H).

a. The name of the spike analyte added.
b. The concentration of the spike analyte in the unspiked sample.
c. The amount of the spike analyte added.
d. The measured amount of the spike in both spiked samples.
e. The calculated percent recovery of the spike and method of calculation.
f. The acceptance criterion for recovery of each matrix spike.
g. The relative percent difference (RPD) between the duplicate results.
h. The acceptance criterion for the RPD.

27. Identify whether the waste analytical data was corrected based on quality control results (e.g., blank analysis) and explain how the correction was made.

The waste analytical data was not corrected based on quality control results (see Appendices D through H).

28. Explain any inconsistencies or deviations found in the reported analytical results. The discussion should include any observed analytical interferences and what actions were taken to resolve the problems.

No inconsistencies or deviations were reported (see Appendices D through H).

29. If any calculations are necessary, (i.e., in use of the Oily Waste Extraction Procedure, for the Mobile Metal Concentration) please include all calculation sheets.

All concentrations were reported without the use of calculations.

PART 6: DELISTING GROUNDWATER MONITORING INFORMATION

1. Show which of the following describes the management of the petitioned waste.

   a. The petitioned waste is currently managed in a land-based waste management unit (on-site or off- site), and groundwater monitoring is needed under 40 CFR Part 264 or 265 or authorized State equivalent, or other Federal, state, or local requirements; or if groundwater monitoring information is otherwise available for the unit.

      The filter press cake is shipped to Chemical Waste Management Facility in Arlington, Oregon for disposal in a landfill permitted by the state of Oregon RCRA program. This landfill is subject to RCRA groundwater monitoring requirements under this permit. The analytical results from sampling also indicate that the filter press cake is not reasonably expected to have negatively impacted groundwater at either landfill.

   b. The petitioned waste was once managed (but is no longer) in a land-based waste management unit (on-site or off-site) and groundwater monitoring was needed under 40 CFR Part 264 or 265 or authorized State equivalent, or other Federal, state, or local requirements; or if groundwater monitoring information is otherwise available for the unit.

      Not Applicable.

   c. The petitioned waste is currently managed, or was once managed, in a land- based waste management unit, but groundwater monitoring requirement has been waived.

      Not Applicable.

   d. The petitioned waste is currently managed, or was once managed, in one or more land-based waste management units containing also significant amounts of other wastes, and you consider groundwater data from these non-dedicated units are immaterial in evaluating the petitioned waste's impact on groundwater quality.

      The filter press cake has not previously been disposed of as a listed waste.

   e. None of the above management scenarios apply.

      Not Applicable.

2. Has the appropriate responsible party previously submitted groundwater monitoring information for the subject units to an EPA Regional office or an authorized State in response to 40 CFR Part 264 or Part 265 requirements (or authorized State equivalent)?

Not Applicable

3. Do you wish that the DEQ directly get the groundwater monitoring information from the EPA Region or State?

   Not Applicable

4. Indicate the EPA Regional or State Contact for getting the groundwater monitoring information (include name of contact, affiliation, mailing address, and phone number).

   a. Name of contact: **Seth Sadofsky, PhD, RG**
   b. Affiliation: **Materials Management, Western Region, Oregon DEQ**
   c. Title of report (if applicable): **NA**
   d. Street/P.O. Box: **165 East 7th Avenue, Suite 100**
   e. City: **Euguene** State: **Oregon** Zip Code: **97401**
   f. Phone: **(541) 687-7329**

5. Provide all available and relevant (e.g. for each unit used to manage the petitioned waste) groundwater monitoring information and reports which, at a minimum, should include:

   a. A description of site geology and hydrogeology.
   b. A description of the groundwater monitoring systems for the units in which the petitioned waste is (or was) managed.
   c. The results obtained from the analysis of groundwater samples.
   d. A discussion of sampling and analytical procedures followed in getting and analyzing the groundwater samples.
   e. Any additional information necessary to characterize the petitioned waste's impact on groundwater quality.
   f. An analysis and discussion of whether the above-listed information and data that show contamination of the groundwater is attributable to the petitioned waste.

   Not Applicable.

6. Is the unsaturated (vadose) zone monitored at any of the subject units?

   Not Applicable [Skip to Item 8]

7. Provide the following information on vadose zone monitoring (e.g. lysimetric information) in as much detail as possible (as requested for groundwater monitoring systems).

   a. A description of regional, local, and unit-specific geology and hydrogeology, and soil characteristics.
   b. A description of the monitoring system(s) (e.g. design and construction)
   c. A description of the sampling and analytical procedures followed.
   d. Analytical and QC data obtained from sample analysis.

e. An interpretation of the information and data presented.

Not Applicable.

8. Discuss whether groundwater contamination exists on the site and, if it does, identify the source. If the source is not the petitioned waste, explain, with supporting information, why the petitioned waste has not contributed to the contamination.

Based upon the analytical results presented in this petition, the filter press cake and evaporation pond sediment are not reasonably expected to leach concentrations of chemicals that are hazardous in a landfill environment.

9. Provide documentation on the waiver or exemption of groundwater monitoring at the land-based management unit containing the petitioned waste.

Not Applicable.

10. Identify the units in question, provide estimates of the relative volumes of the petitioned and other wastes disposed in the unit, and discuss in detail why you consider groundwater data from these non-dedicated units are immaterial in evaluating the petitioned waste's impact on groundwater quality.

Based upon the analytical results presented in this petition, the filter press cake and evaporation pond sediment are not reasonably expected to leach concentrations of chemicals that are hazardous in a landfill environment.

11. Describe why groundwater monitoring is not needed for your petitioned waste.

Based upon the analytical results presented in this petition, the filter press cake and evaporation pond sediment are not reasonably expected to leach concentrations of chemicals that are hazardous in a landfill environment.

REFERENCES

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USEPA. 1992. Method 1311 – Toxicity Characteristic Leaching Procedure. Web Reference: https://www.epa.gov/sites/production/files/2015-12/documents/1311.pdf

TABLES

TABLE 1
SUMMARY OF STATE AND FEDERAL PERMITS FOR SELMET, INC.
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Program	Permit No.	State or Federal Issued	Status
Standard Air Contamination Discharge Permit	22-8041-ST-01	State	Active
National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit	1200-Z	State	Active
Water Pollution Control Facility (WPCF) Permit	101350	State	Active
Water Pollution Control Facility (WPCF) Septic Permit	103129	State	Active
Public Water System	OR4194327	State	Active

Table 2A
Historical ZLD System Filter Press Cake Analytical Results
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Sample Name	Sample ID	Sample Date	Total Solids	Arsenic, TCLP	Barium, TCLP	Cadmium, TCLP	Chromium, TCLP	Lead, TCLP	Mercury, TCLP	Nickel, TCLP	Selenium, TCLP	Silver, TCLP
Units			%	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
TCLP Regulatory Limit			NA	5.0	100.0	1.0	5.0	5.0	0.2	--	1.0	5.0
2014 Filter Press Sampling												
Week 1	**1312086-001**	--[1]	--	<0.10	0.2045	<0.005	0.1530	0.113	--	1.218	<0.10	<0.05000
Week 2	**1312086-002**	--[1]	--	<0.10	0.277	<0.005	0.5915	<0.10	--	1.275	<0.10	<0.05000
Week 1 Filter Cake	**1401171-001**	1/24/2014	--	<0.10	0.1965	<0.005	0.1080	<0.10	--	0.0305	<0.10	<0.05000
Week 2 Filter Cake	**1401197-001**	1/27/2014	--	<0.10	0.167	<0.005	0.08200	<0.10	--	0.0485	<0.10	<0.05000
Filter Cake Sample #3	**1402066-001**	2/10/2014	--	<0.10	0.195	<0.005	0.04050	<0.10	--	0.3855	<0.10	<0.05000
Filter Cake Sample #4	**1402177-001**	2/18/2014	--	<0.02	0.025	0.0245	0.01010	<0.02	--	0.008	<0.02	<0.05000
Filter Cake WK 6	**1403050-001**	3/5/2014	--	<0.10	0.179	<0.005	0.4085	<0.10	--	0.324	<0.10	<0.05000
Filter Cake WK 7	**1403086-001**	3/7/2014	--	<0.10	0.0975	0.0115	0.1525	<0.10	--	0.131	<0.10	<0.05000
Filter Cake Week 8	**1403100-001**	3/11/2014	--	<0.10	0.068	0.007	0.1635	<0.10	--	0.1555	<0.10	<0.05000
Filter Cake Week 9	**1403127-001**	3/13/2014	--	<0.10	0.067	<0.005	0.08900	<0.10	--	0.0995	<0.10	<0.05000
Filter Cake Week 10	**1403145-001**	3/14/2014	--	<0.10	0.067	<0.005	0.07350	<0.10	--	0.058	<0.10	<0.05000
Standard Deviation [2]			--	0.012	0.079	0.007	0.175	0.023	--	0.464	0.012	0.000
Mean [2]			--	0.046	0.140	0.006	0.170	0.052	--	0.339	0.046	0.025

Notes:

[1] No date specified for these samples.

[2] For concentrations below the laboratory method reporting limit (MRL), half of the detection limit was used.

Grey text indicates concentrations below the MRL.

Table 2A (cont.)
Historical ZLD System Filter Press Cake Analytical Results
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Sample Name	Units	WW FP 08012017
Sample ID		1708015-002
Sample Date		8/1/2017
Total Solids	%	37.5%
Arsenic, TCLP	mg/L	<0.00500
Barium, TCLP	mg/L	<0.0500
Cadmium, TCLP	mg/L	<0.00500
Chromium, TCLP	mg/L	<0.00500
Lead, TCLP	mg/L	<0.00500
Mercury, TCLP	mg/L	<0.000500
Selenium, TCLP	mg/L	<0.0500
Silver, TCLP	mg/L	<0.00500
Chloride	mg/kg	133
Fluoride	mg/kg	96
Nitrate	mg/kg	109
Sulfate	mg/kg	666
Aluminum, Total	mg/kg	43,300
Arsenic, Total	mg/kg	<0.971
Barium, Total	mg/kg	2.68
Cadmium, Total	mg/kg	<0.0971
Calcium, Total	mg/kg	78,700
Chromium, Total	mg/kg	6.3
Iron, Total	mg/kg	396
Lead, Total	mg/kg	0.691
Magnesium, Total	mg/kg	1,400
Manganese, Total	mg/kg	17.9
Mercury, Total	mg/kg	<0.0166
Molybdenum, Total	mg/kg	15.9
Nickel, Total	mg/kg	5.87
Potassium, Total	mg/kg	252
Selenium, Total	mg/kg	<0.971
Silicon, Total	mg/kg	1,240
Silver, Total	mg/kg	11
Sodium, Total	mg/kg	1,030
Tin, Total	mg/kg	139
Titanium, Total	mg/kg	27,900
Vanadium, Total	mg/kg	1,120
Zirconium, Total	mg/kg	329

Notes:
Grey text indicates concentrations below the method reporting limit (MRL).

Table 2B
Historical Evaporation Pond Sediment Analytical Results
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Sample ID	Units	13M	13P	14M	14P	NPond071001	MPond071001	SPond071001	DuplicateSPond	POND082702	PB-1	PB-2	PB-3	PB-4	PB-5	PB-6
Report		Final Conceptual Human Health Risk Assessment Model [2]				Report on Sediment and Water Sampling In Evaporation Pond				Report on Phase II Sediment Sampling in Evaporation Pond	Pond and Ditch Assessment Report					
Sample Type		Solid Grab	Solid Grab	Solid Composite	Solid Composite	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment	Pond Sediment
Sample Date		6/25/1990	6/26/1990	6/26/1990	6/26/1990	7/10/2001	7/10/2001	7/10/2001	7/10/2001	8/27/2002	8/23/2011	8/23/2011	8/23/2011	8/23/2011	8/23/2011	8/23/2011
Sample Depth (ft bws[1])		Unknown	Unknown	Unknown	Unknown	7	10	7.25	7.25	7	<6	<6	<6	<6	<6	<6
HVOCs																
1,1,1-Trichloroethane	µg/kg	<1.0	<1.0	<1.0	<1.0	<230	<322	<277	<220	--	<10	<10	<10	<10	<10	<10
1,1-Dichloroethane	µg/kg	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	<10	<10	<10	<10	<10	<10
1,1-Dichloroethene	µg/kg	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	<10	<10	<10	<10	<10	<10
1,4-Dichlorobenzene	µg/kg	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Chloroethane	µg/kg	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10
cis-1,2-Dichloroethene	µg/kg	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Dichlorodifluoromethane	µg/kg	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Tetrachloroethene	µg/kg	<1.0	<1.0	<1.0	<1.0	<230	<322	<277	<220	--	<10	<10	<10	<10	<10	<10
trans-1,2-Dichloroethene	µg/kg	<1.0	<1.0	<1.0	<1.0	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Trichloroethene	µg/kg	<1.0	<1.0	<1.0	<1.0	<230	<322	<277	<220	--	<10	<10	<10	<10	<10	<10
Trichlorofluoromethane	µg/kg	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Toluene	µg/kg	--	--	--	--	<230	360	<277	<220	--	--	--	--	--	--	--
Vinyl Chloride	µg/kg	--	--	--	--	--	--	--	--	--	<10	<10	<10	<10	<10	<10
Metals, TCLP																
Arsenic, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	<0.100	<0.100	--	--	--
Barium, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	<0.0500	<0.0500	--	--	--
Cadmium, TCLP	mg/L	--	--	--	--	--	--	--	--	<0.01	--	<0.00500	<0.00500	--	--	--
Chromium, TCLP	mg/L	--	--	--	--	--	--	--	--	<0.01	--	<0.0250	<0.0250	--	--	--
Fluoride, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead, TCLP	mg/L	--	--	--	--	--	--	--	--	<0.05	--	<0.100	<0.100	--	--	--
Nickel, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	<0.100	<0.100	--	--	--
Silver, TCLP	mg/L	--	--	--	--	--	--	--	--	<0.02	--	<0.0500	<0.0500	--	--	--
Vanadium, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	0.0790	<0.0500	--	--	--
Zinc, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury, TCLP	mg/L	--	--	--	--	--	--	--	--	--	--	<0.000100	<0.000100	--	--	--
Metals, Total																
Aluminum	mg/kg	62,000	--	21,600	--	--	--	--	--	--	--	--	--	--	--	--
Arsenic	mg/kg	11	--	5.6	--	3.28	6.80	6.19	5.25	--	--	--	--	--	--	--
Barium	mg/kg	108	--	177	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	2	--	1.2	--	<1.15	2.25	<1.38	<0.967	9.1	--	--	--	--	--	--
Chromium	mg/kg	34.8	--	26.9	--	68.5	126	93.1	78	--	--	--	--	--	--	--
Fluoride	mg/kg	--	--	--	--	460	780	678	500	--	--	--	--	--	--	--
Lead	mg/kg	<8.0	--	<7.8	--	<23.0	<32.2	<27.7	<19.3	<20	--	--	--	--	--	--
Mercury	mg/kg	<0.1	--	<0.09	--	<0.0826	<0.0721	<0.0692	<0.0626	--	--	--	--	--	--	--
Molybdenum	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel	mg/kg	--	--	--	--	52.2	73.3	46.6	37.6	--	--	--	--	--	--	--
Selenium	mg/kg	<6.8	--	<6.6	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	44.6	--	34	--	129	425	331	130	--	--	--	--	--	--	--
Titanium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanadium	mg/kg	--	--	--	--	154	766	540	365	--	--	--	--	--	--	--
Zinc	mg/kg	--	--	--	--	56.6	118	116	93.4	--	--	--	--	--	--	--
Zirconium	mg/kg	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:
[1] Below water surface.
[2] Data is referenced from a previous report which could not be located.
-- Constituent not tested for in sample.
Grey text indicates concentrations below the laboratory method reporting limit (MRL).

Item B 000084

TABLE 3A
CONSTITUENTS OF POTENTIAL CONCERN (COPCs) FOR CHEM MILL PROCESS SLUDGE
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Analyte Group	Individual Analytes
Metals Method 6010B	Cadmium
	Manganese
	Molybdenum
	Nickel
	Silver
	Vanadium
	Zirconium
Anions Methods 6010B, 9012, 9056A	Chromium
	Cyanide
	Fluoride
Metal Ion Method 7199	Chromium (vi) (+6)

TABLE 3B
CONSTITUENTS OF POTENTIAL CONCERN (COPCs) FOR EVAPORATION POND SEDIMENT
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Analyte Group	Individual Analytes
Anions Methods 9056A, 9012	Fluoride
	Cyanide
Metals Methods 6010B, 7471A	Antimony
	Arsenic
	Barium
	Beryllium
	Cadmium
	Chromium
	Cobalt
	Copper
	Lead
	Manganese
	Mercury
	Molybdenum
	Nickel
	Selenium
	Silver
	Thallium
	Vanadium
	Zinc
	Zirconium
Polychlorinated Biphenyls Method 8082	Polychlorinated biphenyls
Metal Ion Method 7199	Chromium (vi) (+6)
Semi-Volatile Organic Compounds Method 8270	1,2,4-trichlorobenzene
	2,4,6-Trichlorophenol
	2,4-Dichlorophenol
	2,4-Dimethylphenol
	2,4-Dinitrophenol
	2,4-Dinitrotoluene
	2,6-Dinitrotoluene
	2-Chlorophenol
	3,3-Dichlorobenzidine
	4,6-Dinitro-o-cresol
	Acenaphthene
	Anthracene
	Benzidine
	Benzo[a]anthracene; benzanthracene
	Benzo[a]pyrene
	Benzo[b]fluoranthene
	Benzo[k]fluoranthene
	Beta-chloronaphthalene
	Bis(2-chloroisopropyl)ether
	Butyl benzyl phthalate; benzyl butyl phthalate
	Chrysene
	Dibenz[a,h]anthracene
	Dichloroethyl ether
	Dichloromethoxy ethane
	Diethyl phthalate
	Dimethyl phthalate
	Di-n-butyl phthalate
	Fluoranthene
	Fluorene
	Hexachlorobenzene
	Hexachlorobutadiene
	Hexachloroethane
	Indeno(1,2,3-cd)pyrene
	Isophorone
	Naphthalene
	Nitrobenzene
	N-nitrosodimethylamine
	N-nitrosodiphenylamine
	N-nitrosodipropylamine;di-n-propylnitrosamine
	Pentachlorophenol
	Phenol
	Pyrene

TABLE 3B
CONSTITUENTS OF POTENTIAL CONCERN (COPCs) FOR EVAPORATION POND SEDIMENT
F006 DELISTING PETITION
SELMET INC.
ALBANY, OREGON

Analyte Group	Individual Analytes
Volatile Organic Compounds Methods 8260B, 8270	1,1,1,2-Tetrachloroethane
	1,1,2,2-Tetrachloroethane
	1,1,2-Trichloroethane
	1,1-Dichloroethane
	1,1-Dichloroethylene; Vinylidene chloride
	1,2,3-Trichloropropane
	1,2,4-Trichlorobenzene
	1,2-Dibromo-3-chloropropane; dbcp
	1,2-Dibromoethane; ethylene dibromide
	1,2-Dichloroethane; ethylene dichloride
	1,2-Dichloropropane
	4-Methyl-2-pentanone; methyl isobutyl ketone
	Acetone
	Acrylonitrile
	Benzene
	Bromodichloromethane
	Bromoform; tribromomethane
	Carbon tetrachloride
	Chlorobenzene
	Chloroethane; ethyl chloride
	Chloroform
	Cis-1,3-dichloropropene
	Cumene (isopropylbenzene)
	Dibromochloromethane; chlorodibromomethane
	Dichlorodifluoromethane
	Dichloroethylene cis-1,2-
	Ethylbenzene
	Hexachlorobutadiene
	Methyl bromide; bromomethane
	Methyl chloride; chloromethane
	Methyl chloroform; 1,1,1-trichloroethane
	Methyl ethyl ketone; mek; 2-butanone
	Methylene bromide; dibromomethane
	Methylene chloride; dichloromethane
	Naphthalene
	O-dichlorobenzene
	P-dichlorobenzene
	Styrene
	Tetrachloroethylene; perchloroethylene; tetrachloroethene
	Toluene
	Trans-1,2-dichloroethylene
	Trans-1,3-dichloropropene
	Trichloro-1,2,2-trifluoro-ethane 1,1,2-
	Trichloroethylene; trichloroethene
	Trichlorofluoromethane
	Vinyl chloride
	Xylene (total)

TABLE 4A
CHEM MILL PROCESS SLUDGE SAMPLING LABORATORY ANALYTICAL RESULTS
F006 DELISTING PETITION
SELMET INC.
SALEM, OREGON

Analyte Group	Individual Analytes	DRAS Maximum Allowable TCLP Concentration (mg/L)[4]	DRAS Maximum Allowable Total Concentration (mg/kg)[4]	TCLP RCRA Toxicity Characteristic Regulatory Levels (mg/L)	Oregon RBC - Direct Contact to Construction Worker (mg/kg)	Oregon RBC - Direct Contact to Occupational Worker (mg/kg)	3/22/2018 Period 1 Composite Sample			4/2/2018 Period 2 Composite Sample			4/12/2018 Period 3 Composite Sample		4/20/2018 Period 4 Composite Sample	
							Total (mg/kg)[1]	Total (mg/kg)[3]	TCLP (mg/L)[2]	Total (mg/kg)[1]	Total (mg/kg)[3]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]
Metals Method 6010B	Cadmium	0.22	20,000	1.0	350	1,100	<3.38	0.34	-	<12.0	0.40	<0.00500	<11	<0.00500	<5.94	<0.00500
	Manganese	38.70	1,540,000	--	8,200	25,000	29	70.60	-	53.80	63.90	-	71.90	-	74.30	-
	Molybdenum	7.92	83,100,000	--	--	--	141	345	0.187	316	345	0.0254	236	0.1	319	0.0640
	Nickel	32.70	258,000	--	7,000	22,000	25.10	50.2	-	62.80	57.10	-	57.10	-	51.90	-
	Silver	20.70	2,060,000	5.0	1,800	5,800	<6.77	41.70	-	<24.0	34.50	-	<22	-	12.90	-
	Vanadium	8.47	83,100,000	--	--	--	1380	2750	<0.025	3560	3710	0.0293	3350	<0.0250	3060	<0.025
	Zirconium	--	9,940	--	--	--	1210	-	-	509	-	-	880	-	1380	-
	Chromium	4.88	5,150	5.0	530,000	--	33.80	80.90	-	83.10	84.30	-	145	<0.00500	70	-
Anions Methods 9012, 9056A	Cyanide	7.45	1,140,000	--	210	700	2.58	18.80 (HT)	-	2.04	2.57 (HT)	-	1.23	-	1.82	-
	Fluoride	94.80	997,000,000	--	--	--	280	255	-	612	134	-	388	-	505	-
Metal Ion Method 7199	Chromium (vi) (+6)	4.88	736	--	49	6.3	**7.98** (J)	**62.30**	-	**8.33** (J)	**<9.03** (HT, Q)	-	**17.20**	-	**<23.70**	-

Notes:
Bold: Greater than either Oregon RBC to Construction or Occupational Worker values
Highlighted in tan: Greater than DRAS Maximum Allowable Total Concentration values
Highlighted in light gray: 20 times greater than DRAS Maximum Allowable TCLP Concentration values or 20 times greater than TCLP RCRA Toxicity Characteristic Regulatory Level values
Highlighted in purple: Greater than DRAS Maximum Allowable TCLP Concentration values
- : TCLP or Total Testing not performed
HT : At clients request, samples was analyzed outside of recommended holding time.
Q : Detection levels elevated due to sample matrix.
J : The identification of the analyte is acceptable; the reported value is an estimate.

1. Total concentration for Zirconium tested by Specialty. All other total concentrations tested by ESC.
2. All TCLP analysis performed by Specialty.
3. Duplicate analysis performed by Specialty.
4. Maximum Allowable TCLP and Total Concentration determined for pond sediment from DRAS using example analyses and the following inputs:
   - Waste Management Unit Type - Landfill
   - Waste Volume - 3,120 cubic yards
   - Cancer Risk Level - 1E-6
   - Hazard Quotient (HQ) - 1.0
   - Waste management Unit Active Life - One Year Batch
   - Active Life - 20 years

TABLE 4B
TOTAL ANALYTE ANALYSIS FOR EVAPORATION POND SEDIMENT
F006 DELISTING PETITION
SELMET INC.
SALEM, OREGON

Analyte Group	Individual Analytes	DRAS Maximum Allowable TCLP Concentration (mg/L)[4]	DRAS Maximum Allowable Total Concentration (mg/kg)[4]	TCLP RCRA Toxicity Characteristic Regulatory Levels (mg/L)	Oregon RBC - Direct Contact to Construction Worker (mg/kg)	Oregon RBC - Direct Contact to Occupational Worker (mg/kg)	4/18/2018		4/18/2018		4/12/2018			4/18/2018		4/18/2018		4/18/2018		4/18/2018		4/18/2018	
							POND COMPOSITE A		POND GRID 16		POND COMPOSITE B			POND GRID 26		POND COMPOSITE C		POND GRID 42		POND COMPOSITE D		POND GRID 59	
							Composite Sample		Discrete Sample		Composite Sample			Discrete Sample		Composite Sample		Discrete Sample		Composite Sample		Discrete Sample	
							Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	Total (mg/kg)[3]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]	Total (mg/kg)[1]	TCLP (mg/L) [2]
Anions Methods 9056A, 9012	Fluoride	1,470	1,630,000,000	--	--	--	3,080	-	-	-	5,990	-	-	-	-	3,500	-	-	-	4,190	-	-	-
	Cyanide	116	12,200,000	--	210	700	<0.58	-	-	-	0.376	-	-	-	-	0.0950 (J)	-	-	-	<0.555	-	-	-
Metals Methods 6010B, 7471A	Antimony	4.03	3,870,000	--	--	--	<93	0.136	-	-	<66.0	-	-	-	-	<44.2	-	-	-	<44.4	-	-	-
	Arsenic	0.032	5,650	5	15	1.90	**<93**	0.022	-	-	**<66.0**	-	0.0174	-	-	**<44.2**	<0.005	-	-	**<44.4**	<0.005	-	-
	Barium	1,340	24,900,000	100	69,000	220,000	75.7	-	-	-	191	-	-	-	-	114	-	-	-	122	-	-	-
	Beryllium	2.93	41,700	--	700	2,300	<9.30	-	-	-	<6.60	-	-	-	-	<4.42	-	-	-	<4.44	-	-	-
	Cadmium	3.42	55,600	1	350	1,100	<23.30	<0.0050	-	-	<16.5	-	-	-	-	<11.1	-	-	-	<11.1	-	-	-
	Chromium	67	8,340	5	530,000	--	110	0.028	-	-	205	-	0.0632	-	-	80.4	-	-	-	97.5	-	-	-
	Cobalt	7.71	11,100	--	--	--	<46.50	-	-	-	<33.0	-	-	-	-	<22.1	-	-	-	10.1 (J)	-	-	-
	Copper	880	21,800,000	--	14,000	47,000	<93	-	-	-	44.6	-	-	-	-	<44.2	-	-	-	17.4 (J)	-	-	-
	Lead	19.60	9,560,000	5	800	800	<23.30	-	-	-	7.01	-	-	-	-	<11.1	-	-	-	<11.1	-	-	-
	Manganese	602	2,490,000	--	8,200	25,000	185	-	-	-	273	-	-	-	-	130	-	-	-	179	-	-	-
	Mercury	2.55	8,170,000	0.20	110	350	<0.047	-	-	-	0.0287	-	-	-	-	<0.0442	-	-	-	<0.0444	-	-	-
	Molybdenum	122	136,000,000	--	--	--	80.5	-	-	-	84.1	-	-	-	-	115	-	-	-	81.0	-	-	-
	Nickel	505	417,000	--	7,000	22,000	32.2 (J)	-	-	-	50.9	-	-	-	-	16.9 (J)	-	-	-	27.5 (J)	-	-	-
	Selenium	32.60	15,000,000	1	--	--	<93	0.094	-	-	<66.0	-	0.0656	-	-	<44.2	<0.05	-	-	<44.4	<0.050	-	-
	Silver	253	22,000,000	5	1,800	5,800	105	0.0099	-	-	173	-	0.0208	-	-	190	0.0121	-	-	73.3	-	-	-
	Thallium	1.37	2,550	--	--	--	<93	<0.0250	-	-	<66.0	-	<0.0250	-	-	<44.2	<0.0250	-	-	<44.4	<0.0250	-	-
	Vanadium	123	136,000,000	--	--	--	1,130	-	-	-	2,160	-	-	-	-	1,330	-	-	-	1,060	-	-	-
	Zinc	7,600	56,300,000	--	--	--	56.7 (J)	-	-	-	92.9	-	-	-	-	44.0 (J)	-	-	-	53.8 (J)	-	-	-
	Zirconium	--	106,000	--	--	--	2,020	-	-	-	1,290	-	-	-	-	803	-	-	-	1,130	-	-	-
Polychlorinated Biphenyls Method 8082	PCB 1016	1,000,000,000	0.075	--	4.90	0.59	<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1221						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1232						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1242						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1248						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1254						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1260						<0.0395	-	-	-	**<0.825**	<0.0238 (HT)	-	-	-	<0.0376	-	-	-	<0.0377	-	-	-
	PCB 1262						-	-	-	-	-	<0.0238 (HT)	-	-	-	-	-	-	-	-	-	-	-
	PCB 1268						-	-	-	-	-	<0.0238 (HT)	-	-	-	-	-	-	-	-	-	-	-
Metal Ion Method 7199	Chromium (vi) (+6)	67	1,190	--	49	6.30	**<23.30**	-	-	-	3.14	-	-	-	-	**<22.1**	-	-	-	**17.9** (J)	-	-	-
Semi-Volatile Organic Compounds Method 8270	2,4,6-Trichlorophenol	3.76	234,000	2	270	210	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	2,4-Dichlorophenol	63.80	9,300,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	2,4-Dimethylphenol	425	234,000,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	2,4-Dinitrophenol	43.40	54,500,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	2,4-Dinitrotoluene	0.062	240,000	0.13	--	--	<7.74	<0.021	-	-	<16.2	-	<0.0128	-	-	<7.36	<0.0132	-	-	<7.39	<0.0155	-	-
	2,6-Dinitrotoluene	0.062	240,000	--	13	1.50	**<7.74**	<0.021	-	-	**<16.2**	-	<0.0128	-	-	**<7.36**	<0.0132	-	-	**<7.39**	<0.0155	-	-
	2-Chlorophenol	108	76,200,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	3,3-Dichlorobenzidine	0.095	7,840	--	42	5.10	**<7.74**	<0.021	-	-	**<16.2**	-	<0.0128	-	-	**<7.36**	<0.0132	-	-	**<7.39**	<0.0155	-	-
	4,6-Dinitro-o-cresol	2.18	2,720,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Acenaphthene	399	41,500,000	--	21,000	70,000	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Anthracene	972	47,000,000	--	110,000	350,000	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Benzidine	0.00018	684	--	0.082	0.010	**<7.74**	<0.0084	-	-	**<16.2**	-	<0.00513	-	-	**<7.36**	<0.00529	-	-	**<7.39**	<0.00619	-	-
	Benzo[a]anthracene; Benzanthracene	0.26	310	--	24	2.90	<0.014 (J3)	-	-	-	0.0302	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Benzo[a]pyrene	98.70	23	--	2.40	0.29	0.0076 (J, J3)	-	-	-	**<0.297**	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Benzo[b]fluoranthene	840	181	--	24	2.90	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	0.00159 (J)	-	-	-	0.00145 (J)	-	-	-
	Benzo[k]fluoranthene	2,510,000,000,000,000,000	2,140	--	240	29	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Beta-chloronaphthalene	384	27,200,000	--	--	--	<0.77	-	-	-	<0.990	-	-	-	-	<0.0442	-	-	-	<0.0444	-	-	-
	Bis(2-chloroisopropyl)ether	856	287,000,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Butyl benzyl phthalate; Benzyl butyl phthalate	1,500	13,700,000	--	--	--	0.30 (J)	-	-	-	2.62	-	-	-	-	0.243 (J)	-	-	-	0.408 (J)	-	-	-
	Chrysene	26.30	30,400	--	2,400	290	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Dibenz[a,h]anthracene	1,390,000,000,000	24.20	--	2.40	0.29	<0.014 (J3)	-	-	-	**<0.297**	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Dichloroethyl ether	0.42	156,000	--	16	1.30	**<7.74**	-	-	-	**<16.2**	-	<0.00513	-	-	**<7.36**	-	-	-	**<7.39**	-	-	-
	Dichloromethoxy ethane	63.80	81,700,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Diethyl phthalate	37,500	7,600,000,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Dimethyl phthalate	217,000	272,000,000,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Di-n-butyl phthalate	923	14,100,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Fluoranthene	92.30	778,000	--	10,000	30,000	0.0018 (J, J3)	-	-	-	0.0769	-	-	-	-	0.00187 (J)	-	-	-	0.00183 (J)	-	-	-
	Fluorene	184	12,700,000	--	14,000	47,000	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Hexachlorobenzene	0.34	11.60	0.13	11	0.93	**<7.74**	<0.00420	-	-	**<16.2**	-	<0.00256	-	-	**<7.36**	<0.00265	-	-	**<7.39**	<0.00310	-	-
	Hexachloroethane	3.13	60,600	3	180	32	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Indeno(1,2,3-cd)pyrene	9,240,000,000	571	--	24	2.9	<0.014 (J3)	-	-	-	<0.297	-	-	-	-	<0.0133	-	-	-	<0.0133	-	-	-
	Isophorone	42.20	84,000,000	--	--	--	<7.74 (J3)	-	-	-	<16.2	-	-	-	-	<7.36 (J3)	-	-	-	<7.39 (J3)	-	-	-
	Nitrobenzene	10.80	13,600,000	2	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	N-nitrosodimethylamine	0.00083	2,060	--	--	--	<7.74	<0.00420	-	-	<16.2	-	<0.00256	-	-	<7.36	<0.00265	-	-	<7.39	<0.00310	-	-
	N-nitrosodiphenylamine	8.50	1,400,000	--	3,800	470	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	N-nitrosodipropylamine; Di-n-propylnitrosamine	0.0060	21,700	--	2.70	0.33	**<7.74**	<0.00840	-	-	**<16.2**	-	<0.00513	-	-	**<7.36**	<0.00529	-	-	**<7.39**	<0.00619	-	-
	Pentachlorophenol	0.091	20,300	100	34	4	**<7.74**	<0.021	-	-	**<16.2**	-	<0.0128	-	-	**<7.36**	<0.0132	-	-	**<7.39**	<0.0155	-	-
	Phenol	6,510	8,170,000,000	--	--	--	<7.74	-	-	-	<16.2	-	-	-	-	<7.36	-	-	-	<7.39	-	-	-
	Pyrene	167	1,400,000	--	7,500	23,000	0.00152 (J, J3)	-	-	-	0.0518	-	-	-	-	0.00212 (J)	-	-	-	0.00188 (J)	-	-	-

Item B 000089

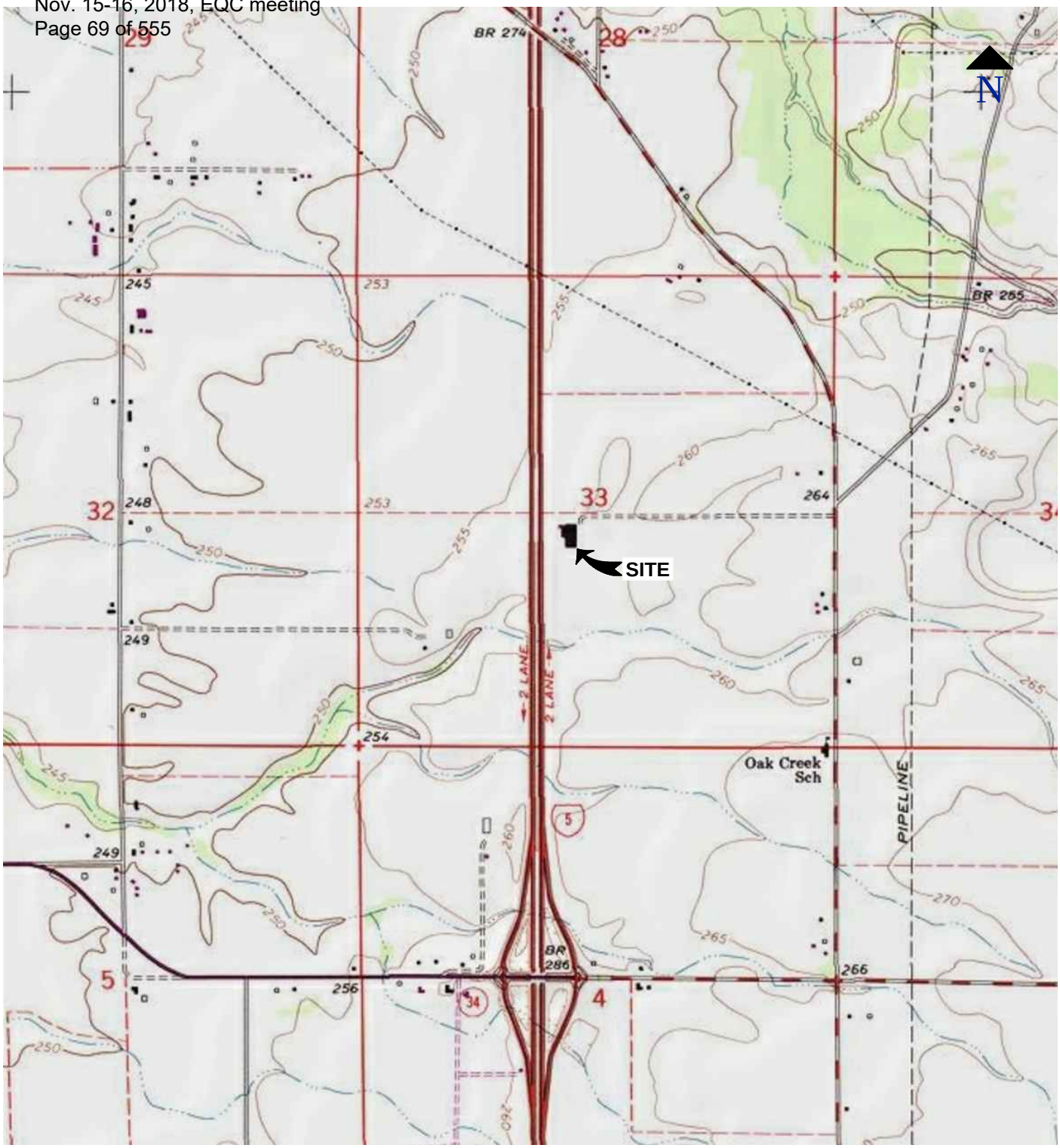
TABLE 4B
TOTAL ANALYTE ANALYSIS FOR EVAPORATION POND SEDIMENT
F006 DELISTING PETITION
SELMET INC.
SALEM, OREGON

Analyte Group	Individual Analytes	DRAS Maximum Allowable TCLP Concentration (mg/L)[4]	DRAS Maximum Allowable Total Concentration (mg/kg)[4]	TCLP RCRA Toxicity Characteristic Regulatory Levels (mg/L)	Oregon RBC - Direct Contact to Construction Worker (mg/kg)	Oregon RBC - Direct Contact to Occupational Worker (mg/kg)	4/18/2018 POND COMPOSITE A Composite Sample		4/18/2018 POND GRID 16 Discrete Sample		4/12/2018 POND COMPOSITE B Composite Sample			4/18/2018 POND GRID 26 Discrete Sample		4/18/2018 POND COMPOSITE C Composite Sample		4/18/2018 POND GRID 42 Discrete Sample		4/18/2018 POND COMPOSITE D Composite Sample		4/18/2018 POND GRID 59 Discrete Sample	
							Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	Total (mg/kg)[3]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]	Total (mg/kg)[1]	TCLP (mg/L)[2]
Volatile Organic Compounds Methods 8260B, 8270	1,1,1,2-Tetrachloroethane	2.07	633,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,1,2,2-Tetrachloroethane	173	125,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,1,2-Trichloroethane	0.72	383,000	--	54	26	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,1-Dichloroethane	1,980	137,000,000	--	3,200	240	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,1-Dichloroethylene; Vinylidene chloride	4.04	21,000,000	0.70	13,000	29,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,2,3-Trichloropropane	0.0083	4,410	--	--	--	-	-	<0.00534	-	-	-	-	<0.00402	-	-	-	<0.00440	-	-	-	<0.0149	-
	1,2,4-Trichlorobenzene	37.20	174,000,000	--	--	--	<7.74	-	<0.00214	-	<16.2	-	-	<0.00161	-	<7.36	-	<0.00176	-	<7.39	-	<0.00596	-
	1,2-Dibromo-3-chloropropane	0.0054	11,500	--	--	--	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	1,2-Dibromoethane; Ethylene dibromide	2.88	26,600	--	9	0.65	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,2-Dichloroethane; Ethylene dichloride	0.40	60,200	0.50	200	15	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	1,2-Dichloropropane	1.27	470,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	4-Methyl-2-pentanone; Methyl isobutyl ketone (MIBK)	1,730	2,180,000,000	--	--	--	-	-	0.00474 (J)	-	-	-	-	<0.0161	-	-	-	<0.0176	-	-	-	<0.0596	-
	Acetone	19,500	1,060,000,000	--	--	--	-	-	0.275	-	-	-	-	0.0924	-	-	-	0.0319 (J)	-	-	-	1.25	-
	Acrylonitrile	0.085	20,000	--	40	4	-	-	<0.0214	-	-	-	-	<0.0161	-	-	-	<0.0176	-	-	-	<0.0596	-
	Benzene	0.77	184,000	0.50	380	37	-	-	0.00111 (J)	-	-	-	-	0.000823 (J)	-	-	-	0.000665 (J)	-	-	-	0.00848	-
	Bromodichloromethane	0.51	183,000	--	230	11	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Bromoform; Tribromomethane	5.69	3,110,000	--	2,700	260	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Carbon Tetrachloride	0.53	99,900	0.50	320	34	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Chlorobenzene	56.60	91,100,000	--	4,700	8,700	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Chloroethane; Ethyl chloride	8,670	4,620,000	--	--	--	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Chloroform	0.30	31,800	6	410	17	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Cis-1,3-dichloropropene	27,400,000,000,000,000,000,000,000,000	446,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Cumene (isopropylbenzene)	887	109,000,000	--	27,000	57,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Dibromochloromethane; Chlorodibromomethane	0.52	446,000	--	210	14	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Dichlorodifluoromethane	596	2,010,000	--	--	--	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Dichloroethylene cis-1,2-	40.40	253,000,000	--	710	2,300	-	-	<0.0214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Ethylbenzene	407	265,000,000	--	1,700	150	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Hexachlorobutadiene[5]	0.31	2,070	0.50	--	--	<7.74	-	<0.00214	-	<16.2	-	<0.00513	<0.00161	-	<7.36	-	<0.00176	-	<7.39	-	<0.00596	-
	Methyl bromide; Bromomethane	412,000,000,000,000,000,000,000	203,000	--	370	700	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Methyl chloride; Chloromethane	227	1,480,000	--	25,000	25,000	-	-	<0.00534	-	-	-	-	<0.00402	-	-	-	<0.00440	-	-	-	<0.0149	-
	Methyl Chloroform; 1,1,1-trichloroethane	436,000	1,790,000,000	--	470,000	870,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Methyl ethyl ketone (MEK); 2-butanone	13,000	4,230,000,000	200	--	--	-	-	<0.0214	-	-	-	-	<0.0161	-	-	-	<0.0176	-	-	-	0.0385 (J)	-
	Methylene bromide; Dibromomethane	217	272,000,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Methylene chloride; Dichloromethane	2.96	722,000	--	2,100	1,600	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Naphthalene	0.12	1,000,000	--	580	23	<0.0465	-	<0.0107	-	<0.990	-	-	<0.00803	-	<0.0442	-	<0.00880	-	<0.0444	-	<0.0298	-
	O-dichlorobenzene	349	146,000,000	--	20,000	36,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	P-dichlorobenzene	1.78	166,000	--	64	36	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Styrene	56.60	752,000,000	--	56,000	130,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Tetrachloroethylene; Perchloroethylene; Tetrachloroethene	0.077	7,920	0.70	1,800	1,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Toluene	566	442,000,000	--	28,000	88,000	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Trans-1,2-dichloroethylene	57.80	9,910,000	--	7,100	23,000	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Trans-1,3-dichloropropene	27,400,000,000,000,000,000,000,000,000	470,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Trichloro-1,2,2-trifluoro-ethane 1,1,2-	27,500	741,000,000	--	--	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Trichloroethylene; Trichloroethene	2.91	1,150,000	0.50	470	--	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Trichlorofluoromethane	578	9,230,000	-	69,000	130,000	-	-	<0.0107	-	-	-	-	<0.00803	-	-	-	<0.00880	-	-	-	<0.0298	-
	Vinyl chloride	0.030	5,430	0.20	34	4.4	-	-	<0.00214	-	-	-	-	<0.00161	-	-	-	<0.00176	-	-	-	<0.00596	-
	Xylene (total)	359	558,000,000	--	20,000	25,000	-	-	<0.00641	-	-	-	-	<0.00482	-	-	-	<0.00528	-	-	-	<0.0179	-

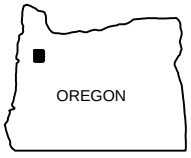
Notes:
Bold: Greater than either Oregon RBC to Construction or Occupational Worker values
Highlighted in tan: Greater than DRAS Maximum Allowable Total Concentration values
Highlighted in light gray: 20 times greater than DRAS Maximum Allowable TCLP Concentration values or 20 times greater than TCLP RCRA Toxicity Characteristic Regulatory Level values
Highlighted in purple: Greater than DRAS Maximum Allowable TCLP Concentration values
- : TCLP or Total Testing not performed
J : The identification of the analyte is acceptable; the reported value is an estimate.
J3: The associated batch QC was outside the established quality control range for precision.
HT : At clients request, samples was analyzed outside of recommended holding time.

1. Total concentration for Zirconium tested by Specialty. All other total concentrations tested by ESC.
2. All TCLP analysis performed by Specialty.
3. Duplicate PCB analysis performed by Specialty.
4. Maximum Allowable TCLP and Total Concentration determined for pond sediment from DRAS using example analyses and the following inputs:
   - Waste Management Unit Type - Landfill
   - Waste Volume - 3,800 cubic yards
   - Cancer Risk Level - 1E-6
   - Hazard Quotient (HQ) - 1.0
   - Waste management Unit Active Life - One Year Batch
   - Active Life - 1 years
5. Follow-up TCLP analysis on hexachlorobutadiene for samples Pond Composite A, Pond Composite C, and Pond Composite D was not necessary because corresponding pond grid aliquots total concentrations were less than 20 times the TCLP benchmark.

FIGURES



REFERENCED FROM : USGS 7.5 MINUTE QUADRANGLE
TAGENT, OREGON 1986



SCALE: 1" = 2000'

0' 2000' 4000' 6000'

SLR

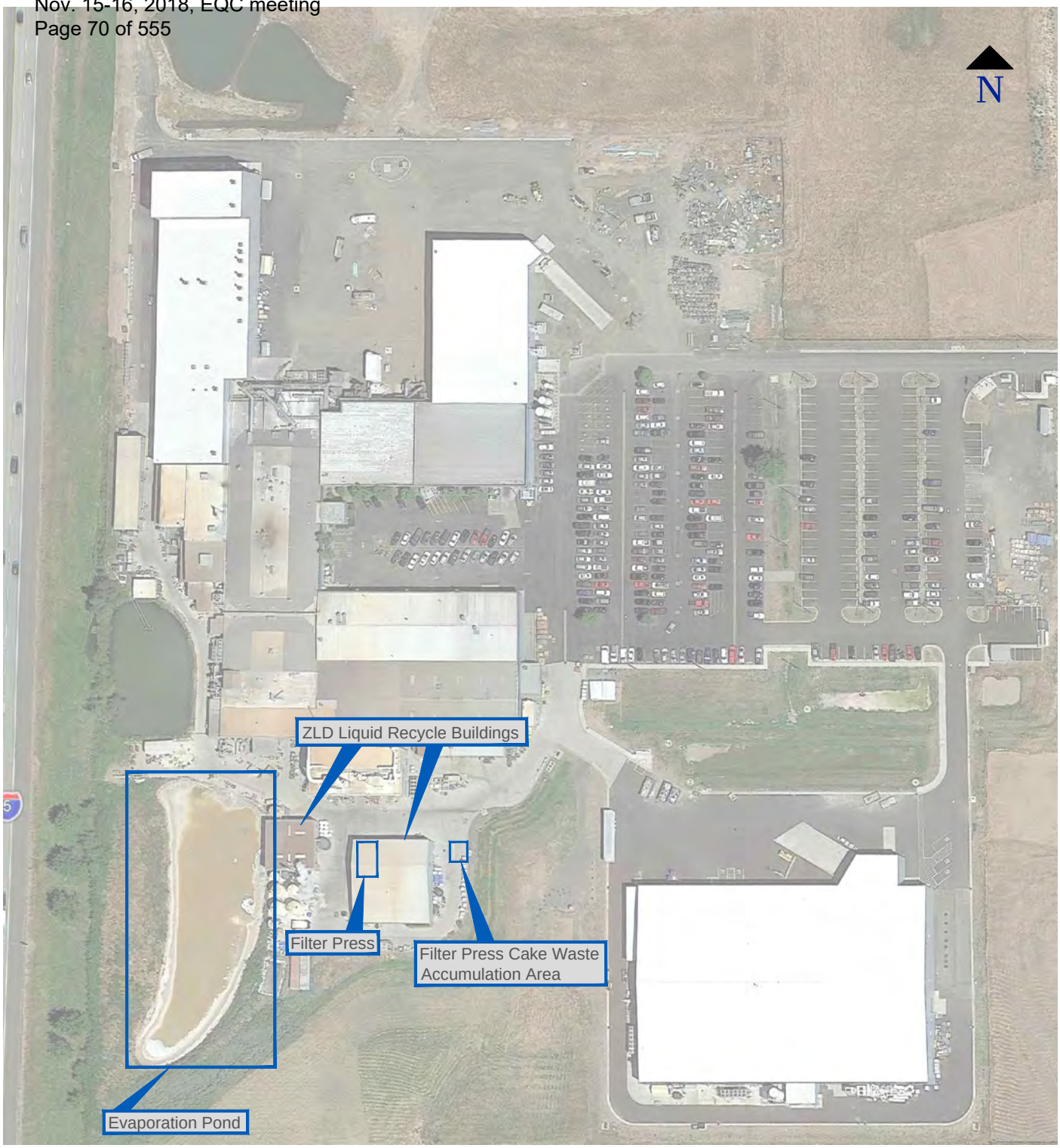
SELMET, INC.
33992 7 MILE LN SE
ALBANY, OREGON 97322

Report
F006 HAZARDOUS WASTE DELISTING

Drawing
SITE LOCATION MAP

Date	MAY 2018	Scale	As Shown
File Name		Project No.	108.00256.00017

Fig. No. 1



0 150 300 450 feet

SELMET, INC.
33992 7 MILE LN SE
ALBANY, OREGON 97322

Report
F006 HAZARDOUS WASTE DELISTING

Drawing
SITE LAYOUT

Date	MAY 2018	Scale	As Shown	Fig. No. 2
File Name		Project No.	108.00256.00017	

PAGE INCLUDED SEPERATELY
CONFIDENTIAL BUSINESS INFORMATION

APPENDIX A

2017 SELMET HAZARDOUS WASTE INFORMATION

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APPENDIX B

SAMPLING LOCATIONS

FILTER PRESS CAKE SAMPLING LOCATIONS
SELMET F006 DELISTING PETITION

Period 1 (15x 8)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120

Period 2 (15x 8)

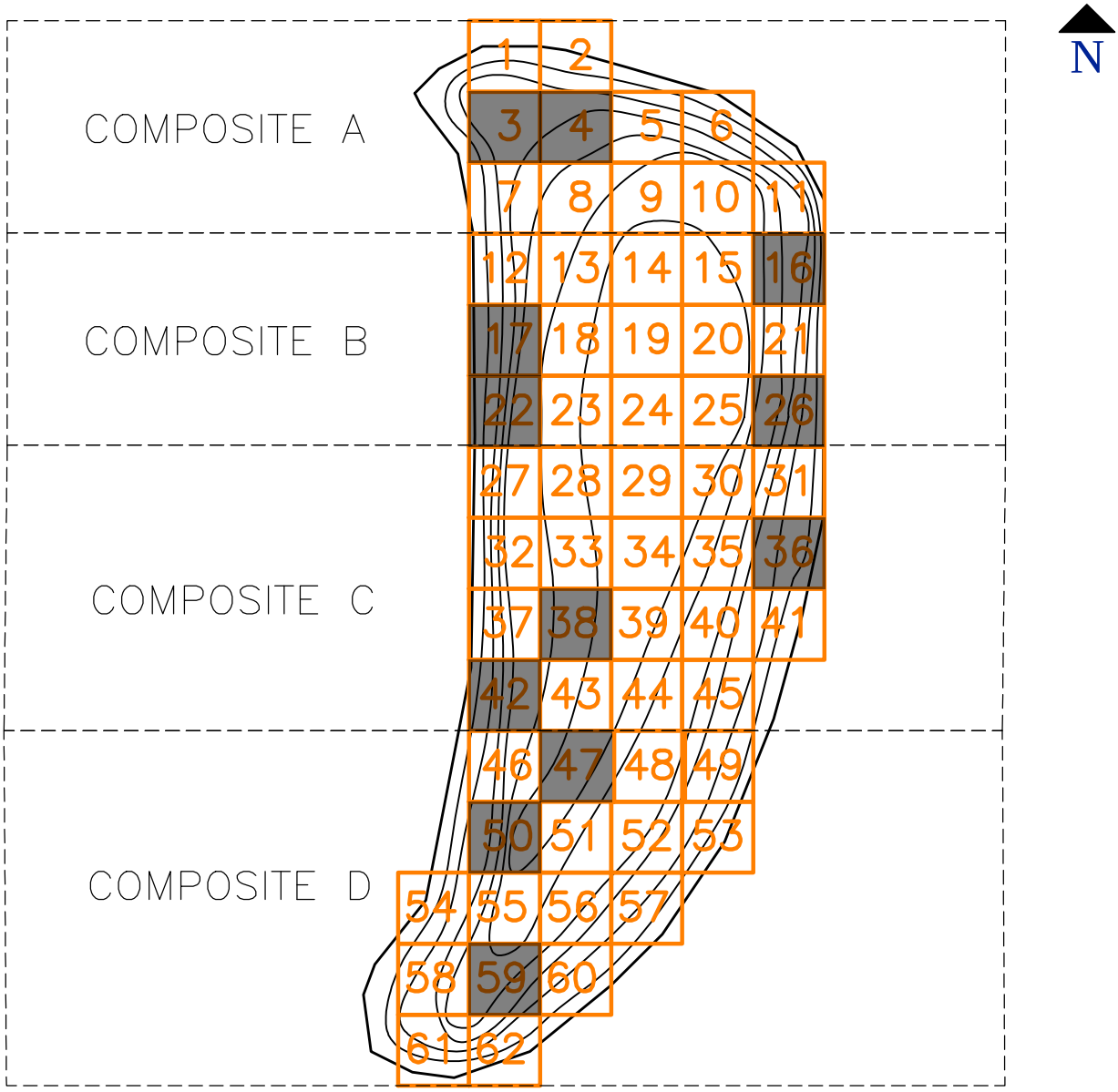
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120

Period 3 (15x 8)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120

Period 4 (15x 8)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105
106	107	108	109	110	111	112	113	114	115	116	117	118	119	120



LEGEND

20' x 20' GRID SPACING

1' BATHYMETRIC LINES

ALIQUOT LOCATION

SELMET INC
33992 SEVEN MILE LANE
ALBANY, OREGON

Report
DELISTING PETITION

Drawing
POND SAMPLING LOCATIONS

Date JULY 2017
File Name POND MEASUREMENTS_10-4-17
Scale AS SHOWN
Project No. 108.00256.00029
Fig. No.

APPENDIX C

LABORATORY TESTING INFORMATION

ESC Employee List

Analyst Name	ID #	Job Title	Analysis/ Instrumentation	Years of Exp.	Education/Year Graduated
WetChem					
Kara Kozlowski	786	Assistant Chemist	LaChat	2	B.S. Biology, 2012
Nasha Moulon	236	Chemist	LaChat	10	B.S. Chemistry, 2006
Mary Garrett	183	Chemist	Prep, LaChat, IC	11	A.S. Chemistry, 2013 + 11 years lab experience
Garrett Bryant	818	Assistant Chemist	Short Holds	<1	B.S. Biology, 2017
Michael James	759	Assistant Chemist	Prep, IC	1	B.S. Biology, 2014
Dibran Rexihepi	645	Chemist	LaChat, IC	4	B.S. Biology, 2013
Simo Tami	447	Chemist	ICP/ICPMS	9	M.S. Chemistry/B.S. Chemistry, 2000
Metals					
Blake Lansford	802	Assistant Chemist	Metals prep, Hg	1	B.S. Microbiology, 2016
Taylor Baldwin	708	Assistant Chemist	ICP/Hg	2	B.S. Forensic Science, 2015
Elizabeth Lerch	684	Assistant Chemist	Metals Prep, Hg	3	3 year college
Charles Evans	572	Chemist	Hg/ICP	10	B.S. Mathematics , 2003
SVOCs					
Tommy Donald	473	Assistant Chemist	Extractions	8	H.S. + 8 years lab experience
Christopher Rucker	140	Chemist	SVOC GC/MS	12	B.S. Chemistry, 1996
Daisy Goodman	614	Chemist	SVOC GC/MS	9	B.S. Horticulture, 2006
TS					
Jonathan Deboard	832	TS Analyst	Total Solids	1	High School/Some college

ESC Equipment List

ID	Manufacturer	Model
[redacted]		
L988246		
IC-13	Thermo Fisher	ICS 1600
ICP13	Thermo	7400
LACHAT4	Lachat	Quikchem 8500
LOGBAL3	Mettler	XS2O4
IC-8	Dionex	ICS 2000
[redacted]		
L987450		
VOCMS33	Agilent	7890 GC/5975MSD
VOCMS7	Agilent	6890 GC/5973MSD
IC-11	Dionex	ICS 2100
LACHAT4	Lachat	Quikchem 8500
BNAMS4	Agilent	6890GC/5973MSD
SVGC18	Agilent	7890 GC/5975MSD
BNAMS25	Agilent	7890GC/5975MSD
LOGBAL3	Mettler	XS2O4
LOGBAL4	Mettler	MS2O4TS/00
IC-13	Thermo Fisher	ICS 1600
ICP12	Thermo	7400
CVAA3	Perkin Elmer	FIMS 100
[redacted]		
L985817		
IC-11	Dionex	ICS 2100
IC-13	Thermo Fisher	ICS 1600
LOGBAL1	Mettler	MS204S
ICP13	Thermo	7400
LACHAT4	Lachat	Quikchem 8500
[redacted]		

ESC Equipment List

ID	Manufacturer	Model
L985823		
LACHAT4	Lachat	Quikchem 8500
IC-13	Thermo Fisher	ICS 1600
BNAMS25	Agilent	7890GC/5975MSD
SVGC14	Agilent	7890 GC/5975MSD
LOGBAL1	Mettler	MS204S
CVAA3	Perkin Elmer	FIMS 100
ICP13	Thermo	7400
IC-11	Dionex	ICS 2100
BNAMS16	Agilent	7890GC/5975MSD
L983055		
ICP12	Thermo	7400
LACHAT4	Lachat	Quikchem 8500
IC-13	Thermo Fisher	ICS 1600
IC-11	Dionex	ICS 2100
LOGBAL4	Mettler	MS2O4TS/00
L980373		
ICP12	Thermo	7400
LACHAT4	Lachat	Quikchem 8500
IC-13	Thermo Fisher	ICS 1600
LOGBAL3	Mettler	XS2O4
IC-11	Dionex	ICS 2100

SPECIALTY ANALYTICAL EMPLOYEE LIST

NAME:	HIRE DATE:		EDUCATION:		TECH SPECIALTY
Andrew Riddell	02/2012		B.S. Chemistry		Chemist
Austin Mobley	10/2017		B.S. Biology		Organic Prep
Ben Walker	01/2014		B.S. BioChemistry		Inorganic/Organic Analyst
Chris Knox	03/2013		B.S. Chemistry		Vol/Semi Organic Analyst
Julie Clay	07/2003		B.S. Biology		Operations Manager / Inorganic/Organic Analyst
Katherine Lynch	04/2017		B.S. Biology/		Admin / Project Management
			Conservation & Environmental Science		
Marty French	1997		B.S. Chemistry/Biology		Lab Director
Alyssa Gardner	08/2015		3rd yr / Sciences		Courier
Jacob Tietsort	09/2015		B.S. Biology		Inorganic Analyst
Jacob Hostetler	03/2017		B.S. Biology		Organic Analyst

SPECIALTY ANALYTICAL EQUIPMENT LIST

Department	Inst. ID	Insturment Description	Serial #
Metals	ICPMS	PE NexION-350	85VN4121301
Metals	CVAF	CETAC Quick Trace M-8000	10801QM8
GCMS VOL	5973J	Agilent GC:6890/MS:5973	US00023631/US82311218
GCMS VOL	5975X	Agilent GC:7890/MS:5975C	CN10817045/US80629090
GCMS SEMI	5973G	Agilent GC:6890/MS:5973	US00005558/US63810119
GCMS SEMI	5973P	Agilent GC:6890/MS:5973	CN10433066/US94260132
GCMS SEMI	5975Q	Agilent GC:6890/MS:5975	CN10547200/US54421616
GC SEMI	GC-M	Agilent GC:6890 (FID)	US00031528
GC SEMI	GC-O	Agilent GC:6890 (FID)	US10151052
GC VOL	GC-S	Agilent 7890 (PID/FID)	CN10823116
PEST	GCK	Agilent 6890 (Dual ECD)	US00022531
PEST	GC-R	Agilent 7890 (Dual ECD)	CN1081302
Wetchem	LACHAT	Lachat QuickChem FIA+	A83000-1484
Wetchem	DIONEX2100	Dionex ICS-2100	12081157
Wetchem	IC	Dionex IC DX-120	99110575
Wetchem	HPLC	Agilent HPLC	DE63055546/DE63059850
Wetchem	MANTECH	Mantech PC-Titrate	MS-OJ3-348
Wetchem	TOC-APOLLO	Tekmar Apollo 9000	US01152005
Wetchem	GENESYS	Thermo Genesys 20	3SGS155006
Wetchem	OIFS3100	OI FS3100	21831323
Wetchem	PH Accumet	Fisher PH Accumet	9120030
Wetchem	TURB	VWR 6612-200 Turbidity	TUR800 1944
Wetchem	Analytical Balance	Denver Insturment Co. A-160	N0083453
Wetchem	COND	Jenway Conductivity Meter 4310	2807
Wetchem	FLASH	Koehler 16200	R61091101
MICRO	Autoclave	Market Forge STM-E Autoclave	Jul-85
MICRO	Dissolved Oxygen Meter	YSI-5100-115V	08A101589
MICRO	BOD_INC	Norlake Scientific	7061391
MICRO	INCUBATOR	Fisher @35°	911N0297
MICRO	INCUBATOR	Fisher @44.5°	204N0056
ALL	Nanopure	Barnstead Nanpure II	8810086

APPENDIX D

FILTER PRESS CAKE PERIOD 1 ANALYTICAL REPORTS

Analytical results are included on enclosed Data CD

ANALYTICAL REPORT

April 03, 2018

Selmet, Inc

Sample Delivery Group:	L980373
Samples Received:	03/24/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.esclabsciences.com

TABLE OF CONTENTS

Item B 000123

SAMPLE SUMMARY

PERIOD 1 FILTER PRESS CAKE L980373-01 Solid

Collected by	Collected date/time	Received date/time
Tyler Weber	03/22/18 11:10	03/24/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1091486	1	03/30/18 11:53	03/30/18 12:14	JD
Wet Chemistry by Method 7199	WG1090383	10	03/30/18 10:30	03/30/18 17:08	NJM
Wet Chemistry by Method 9012B	WG1090065	1	03/27/18 21:37	03/28/18 09:42	KK
Wet Chemistry by Method 9056A	WG1092170	5	04/01/18 10:00	04/01/18 13:15	MAJ
Metals (ICP) by Method 6010B	WG1089637	5	03/26/18 18:09	03/29/18 09:17	TRB

Item B 000124

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
	%				
Total Solids	73.9	J3	1	03/30/2018 12:14	WG1091486

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Hexavalent Chromium	7.98	J	3.45	13.5	10	03/30/2018 17:08	WG1090383

Sample Narrative:

L980373-01 WG1090383: diluted due to matrix

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Cyanide	2.58		0.0528	0.338	1	03/28/2018 09:42	WG1090065

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Fluoride	280		1.76	6.77	5	04/01/2018 13:15	WG1092170

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis date / time	Batch
	mg/kg		mg/kg	mg/kg			
Cadmium	U		0.474	3.38	5	03/29/2018 09:17	WG1089637
Chromium	33.8		0.948	6.77	5	03/29/2018 09:17	WG1089637
Manganese	29.0		0.812	6.77	5	03/29/2018 09:17	WG1089637
Molybdenum	141		1.08	3.38	5	03/29/2018 09:17	WG1089637
Nickel	25.1		3.32	13.5	5	03/29/2018 09:17	WG1089637
Silver	U		1.90	6.77	5	03/29/2018 09:17	WG1089637
Vanadium	1380		1.62	13.5	5	03/29/2018 09:17	WG1089637

Method Blank (MB)

(MB) R3297996-1 03/30/18 12:14

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L980373-01 Original Sample (OS) • Duplicate (DUP)

(OS) L980373-01 03/30/18 12:14 • (DUP) R3297996-3 03/30/18 12:14

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	73.9	78.8	1	6.51	J3	5

Laboratory Control Sample (LCS)

(LCS) R3297996-2 03/30/18 12:14

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000127

Method Blank (MB)

(MB) R3297883-1 03/30/18 14:28

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Hexavalent Chromium	U		0.255	1.00

L979595-02 Original Sample (OS) • Duplicate (DUP)

(OS) L979595-02 03/30/18 14:56 • (DUP) R3297883-4 03/30/18 15:04

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Hexavalent Chromium	0.692	0.712	1	2.85	J	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297883-2 03/30/18 14:34 • (LCSD) R3297883-3 03/30/18 14:41

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Hexavalent Chromium	20.0	18.5	19.0	92.7	95.0	80.0-120			2.39	20

L980737-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980737-02 03/30/18 16:10 • (MS) R3297883-5 03/30/18 16:16 • (MSD) R3297883-6 03/30/18 16:22

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Hexavalent Chromium	25.8	U	22.7	22.9	87.8	88.6	1	75.0-125			0.897	20

L980737-02 Original Sample (OS) • Matrix Spike (MS)

(OS) L980737-02 03/30/18 16:10 • (MS) R3297883-8 03/30/18 16:34

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Analyte	mg/kg	mg/kg	mg/kg	%		%	
Hexavalent Chromium	1620	U	1700	105	50	75.0-125	

Item B 000128

Method Blank (MB)

(MB) R3296960-1 03/28/18 09:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3296960-2 03/28/18 09:31 • (LCSD) R3296960-3 03/28/18 09:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.65	2.62	106	105	50.0-150			1.27	20

Method Blank (MB)

(MB) R3298309-1 04/01/18 11:51

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3298309-2 04/01/18 12:12 • (LCSD) R3298309-3 04/01/18 12:33

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	20.4	20.6	102	103	80.0-120			1.10	15

Item B 000130

Method Blank (MB)

(MB) R3297261-1 03/28/18 23:41

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Silver	U		0.280	1.00
Vanadium	U		0.240	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3297261-2 03/28/18 23:45 • (LCSD) R3297261-3 03/28/18 23:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cadmium	100	97.8	99.9	97.8	99.9	80.0-120			2.10	20
Chromium	100	100	102	100	102	80.0-120			2.11	20
Manganese	100	95.4	97.9	95.4	97.9	80.0-120			2.55	20
Molybdenum	100	100	103	100	103	80.0-120			2.15	20
Nickel	100	99.1	101	99.1	101	80.0-120			2.27	20
Silver	20.0	18.0	18.5	90.2	92.7	80.0-120			2.75	20
Vanadium	100	97.8	99.2	97.8	99.2	80.0-120			1.47	20

L980383-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L980383-02 03/28/18 23:51 • (MS) R3297261-6 03/29/18 00:00 • (MSD) R3297261-7 03/29/18 00:03

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	100	0.0809	99.5	101	99.4	101	1	75.0-125			1.32	20
Chromium	100	12.6	107	109	94.7	96.9	1	75.0-125			1.99	20
Manganese	100	161	246	231	85.2	70.1	1	75.0-125		J6	6.31	20
Molybdenum	100	U	95.0	96.1	95.0	96.1	1	75.0-125			1.14	20
Nickel	100	12.5	113	115	101	102	1	75.0-125			1.40	20
Silver	20.0	U	18.4	18.8	92.1	94.2	1	75.0-125			2.24	20
Vanadium	100	19.8	117	117	96.8	97.5	1	75.0-125			0.596	20

Item B 000131

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.

Item B 000132

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only full service environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

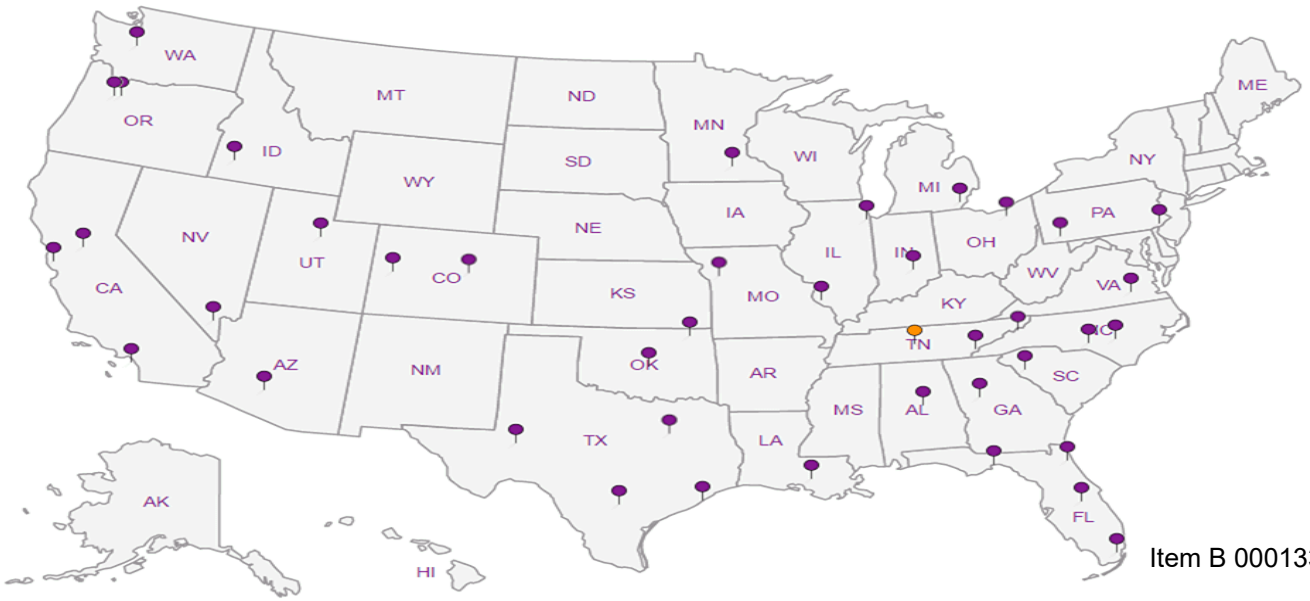
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000133

SLR International Corp
1800 Blankenship Road, Suite 440
West Linn, OR 97068

Alternate billing information:
Accounts Payable
P.O. Box 689
Albany, OR 97321

Report to: Tyler Weber
Email to: tweber@slrconsulting.com

Project Description: Selmet F006 Delisting
City/State Collected: Albany, OR
Phone: (503) 723-4423
FAX:
Client Project #: 108.00256.00029
ESC Key:
Collected by: Tyler Weber
Site/Facility ID#:
P.O.#:
Collected by (signature):
Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Five Day.....25%

Date Results Needed:
Email? __No X Yes
FAX? __No __Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-No Pres	Total Metals* 2ozClr - No Pres	Remarks/Contaminant	Sample # (lab only)
Period 1 Filter Press Cake	Comp	SS		3/22/18	1110	2	X	X		

Chain of Custody Page 1 of 1

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859
L980373

CoCode SLRWLOR (lab use only)
Template/Prelogin B201
Shipped Via:

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

pH Temp

Remarks: * Total metals include - Cadmium, Chromium, Molybdenum, Nickel, Silver, Vanadium, and Manganese 7066 8128 9340

Flow Other

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)
	3/23/2018	17:00			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.9 KM 50 / Bottles Received: 4	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3/24/18 / Time: 8:45	pH Checked: / NCF:

ESC LAB SCIENCES
Cooler Receipt Form

Client: SLRWLR	SDG#	C9D0375	
Cooler Received/Opened On: 3/14/18	Temperature:	2.9	
Received By: Kelsey Rish			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	~		
COC Signed / Accurate?		~	
Bottles arrive intact?		~	
Correct bottles used?		~	
Sufficient volume sent?		~	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 21, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1803216

Specialty Analytical received 1 sample(s) on 3/23/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1803216**
Date: **5/21/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

This sample was hand delivered by the client on 3/23/2018 at 11:15.

Notes relating to quality control samples:

SMC flags reported on QC in this batch reflect results where the sample concentration is greater than 4x the spiked value. The spiked value is considered insignificant compared to the sample concentration. LCS values in this batch are within range.

Revision 1-

This report has been revised to report dry-weight corrected results.

Revision 2-

This report has been revised to correct the RL for TCLP Vanadium.

Revision 4-

Upon review this report was revised to correct the % moisture content.

Revision 5-

This report has been revised to add prep batch reports.

Revision 6-

This report has been revised to include a value for TCLP Mo per client request.

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 3/22/2018 11:10:00 AM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1803216-001
Client Sample ID: Period 1 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **JRC**
Percent Moisture	58.9	0		wt%	1	4/11/2018 4:30:00 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	1210000	22600		µg/Kg-dry	100	4/2/2018 3:45:04 PM
TCLP METALS ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Molybdenum, TCLP	187	25.0		µg/L	10	4/11/2018 1:07:20 PM
Vanadium, TCLP	ND	25.0		µg/L	10	4/11/2018 1:07:20 PM

QC SUMMARY REPORT

Specialty Analytical

WO#: **1803216**
21-May-18

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25359**
Client ID: **ICV**	Batch ID: **11641**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/2/2018**	SeqNo: **340587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4990	100	5000	0	99.8	90	110				

Sample ID **LCS-11641**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/2/2018**	RunNo: **25359**
Client ID: **LCSS**	Batch ID: **11641**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/2/2018**	SeqNo: **340589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5400	100	5000	0	108	80	120				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25359**
Client ID: **CCV**	Batch ID: **11641**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/2/2018**	SeqNo: **340595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4800	100	5000	0	95.9	90	110				

Sample ID **MB-11641**	SampType: **MBLK**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/2/2018**	RunNo: **25359**
Client ID: **PBS**	Batch ID: **11641**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/2/2018**	SeqNo: **340596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	ND	100									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1803216**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **1803216-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/2/2018** RunNo: **25359**
Client ID: **Period 1 Filter Pres** Batch ID: **11641** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/2/2018** SeqNo: **340598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1170000	19300						1215000	4.13	20	

Sample ID **1803216-001AMS** SampType: **MS** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/2/2018** RunNo: **25359**
Client ID: **Period 1 Filter Pres** Batch ID: **11641** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/2/2018** SeqNo: **340599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1210000	21900	10940	1215000	-38.7	70	130				SMC

Sample ID **1803216-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/2/2018** RunNo: **25359**
Client ID: **Period 1 Filter Pres** Batch ID: **11641** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/2/2018** SeqNo: **340600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1200000	23700	11850	1215000	-94.8	70	130	1211000	0.580	20	SMC

Sample ID **CCV** SampType: **CCV** TestCode: **6020_S** Units: **µg/Kg** Prep Date: RunNo: **25359**
Client ID: **CCV** Batch ID: **11641** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/2/2018** SeqNo: **340601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4530	100	5000	0	90.5	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1803216**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25446**
Client ID: **ICV**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	49.6	0.500	50.00	0	99.1	90	110				
Vanadium, TCLP	49.7	0.500	50.00	0	99.5	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25446**
Client ID: **CCV**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	47.3	0.500	50.00	0	94.6	90	110				
Vanadium, TCLP	49.7	0.500	50.00	0	99.4	90	110				

Sample ID **MB-11679**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **PBW**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	ND	0.500									
Vanadium, TCLP	ND	0.500									

Sample ID **LCS-11679**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **LCSW**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	47.4	0.500	50.00	0	94.9	80	120				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1803216**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **LCS-11679**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **LCSW**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium, TCLP	50.1	0.500	50.00	0	100	80	120				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25446**
Client ID: **CCV**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	47.0	0.500	50.00	0	94.1	90	110				
Vanadium, TCLP	51.0	0.500	50.00	0	102	90	110				

Sample ID **A1804068-002ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **ZZZZZZ**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	ND	0.500						0	0	20	
Vanadium, TCLP	ND	0.500						0	0	20	R

Sample ID **A1804068-002AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **ZZZZZZ**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	52.9	0.500	50.00	0.1780	106	70	130				
Vanadium, TCLP	53.6	0.500	50.00	0.1294	107	70	130				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1803216**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **A1804068-002AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **ZZZZZZ**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **A1804068-002AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/10/2018**	RunNo: **25446**
Client ID: **ZZZZZZ**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	55.1	0.500	50.00	0.1780	110	70	130	52.94	4.02	20	
Vanadium, TCLP	54.3	0.500	50.00	0.1294	108	70	130	53.60	1.25	20	

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25446**
Client ID: **CCV**	Batch ID: **11679**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/11/2018**	SeqNo: **341693**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	48.1	0.500	50.00	0	96.1	90	110				
Vanadium, TCLP	50.7	0.500	50.00	0	101	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 3/23/2018 Page: 1 of: 1

Laboratory Project No (internal): 18032116

Project Name: Selmet F006 Delisting

Temperature on Receipt:

Client: SLR International Corporation

Project No: 108.00256.00029 PO No:

Custody Seal: Y / (N) - N/A

Address: 1800 Blankenship Rd, Suite 440

Collected by: Tyler Weber

Notes:

City, State, Zip: West Linn, OR, 97068

State Collected: OR [✓] WA [ ] OTHER

Shipped Via: Client - SLR

Telephone: 503-723-4423

Report To (PM): Tyler Weber

Sample Disposal: [ ] Return to client [ ] Disposal by lab (after 60 days)

Invoice To:

PM Email: tweber@slrconsulting.com

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn, Zirconium	Requested Tests: TCLP - V	TCLP - Mo							Comments
1	Period 1 Filter Press Cake	3/22/18	1110	SL	2	✓	H*	⊗	⊛							*Hold All TCLP Tests
2																⊗ Added 4/5/18
3																⊛ Added 5/18/18 (FO)
4																
5																
6																
7																
8																
9																
10																

*Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): [✓] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	3-22-18 1115	x	
Relinquished x	Date/Time	Received x	Date/Time 3-23-18 11:15

www.specialtyanalytical.com

Supporting Document 1: Delisting Petition
Nov. 15-16, 2018, EQC meeting
Page 122 of 555

Item B 000145

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 03, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1804152

Specialty Analytical received 1 sample(s) on 3/23/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804152**
Date: **5/3/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

This sample was hand delivered by the client on 3/23/2018 at 11:15.

Notes relating to quality control samples:

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

RMI flags reported on QC in this batch reflect RPD results outside control limits due to matrix interference.

SMC flags reported on QC in this batch reflect results where the sample concentration is greater than 4x the spiked value. The spiked value is considered insignificant compared to the sample concentration. LCS values in this batch are within range.

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

HT flags reported in this batch reflect that samples were analyzed outside of recommended holding time at client's request.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Specialty Analytical

Date Reported: 03-May-18

CLIENT: SLR International Corp.
Collection Date: 3/22/2018 11:10:00 AM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804152-001
Client Sample ID: Period 1 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **JRC**
Percent Moisture	58.9	0	HT	wt%	1	4/11/2018 4:30:00 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **JRC**
Cadmium	341	223		µg/Kg-dry	10	4/25/2018 10:56:32 AM
Chromium	80900	2230		µg/Kg-dry	10	4/25/2018 10:56:32 AM
Manganese	70600	1120		µg/Kg-dry	10	4/25/2018 10:56:32 AM
Molybdenum	345000	22300		µg/Kg-dry	200	4/30/2018 11:21:36 AM
Nickel	50200	1120		µg/Kg-dry	10	4/25/2018 10:56:32 AM
Silver	41700	223		µg/Kg-dry	10	4/25/2018 10:56:32 AM
Vanadium	2750000	112000		µg/Kg-dry	1000	4/25/2018 11:54:52 AM
CYANIDE		**SW9012B**				Analyst: **jtt**
Cyanide, Total	18.8	0.487	HT	mg/Kg-dry	10	4/25/2018 2:34:12 PM
HEXAVALENT CHROMIUM		**SW7196A**				Analyst: **jtt**
Chromium, Hexavalent	62300	5.14		µg/Kg-dry	10	4/20/2018 3:08:07 PM
FLUORIDE IN SOLIDS		**E 340.2**				Analyst: **ajr**
Fluoride	255	18.2		mg/Kg-dry	10	4/18/2018 10:30:00 AM

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25637**
Client ID: **ICV**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/25/2018**	SeqNo: **343830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	5290	10.0	5000	0	106	90	110				
Chromium	4970	100	5000	0	99.3	90	110				
Manganese	5040	50.0	5000	0	101	90	110				
Molybdenum	4970	50.0	5000	0	99.4	90	110				
Nickel	5090	50.0	5000	0	102	90	110				
Silver	5270	10.0	5000	0	105	90	110				
Vanadium	4930	50.0	5000	0	98.6	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25637**
Client ID: **CCV**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/25/2018**	SeqNo: **343831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	4830	10.0	5000	0	96.7	90	110				
Chromium	4970	100	5000	0	99.4	90	110				
Manganese	4930	50.0	5000	0	98.7	90	110				
Molybdenum	4530	50.0	5000	0	90.6	90	110				
Nickel	4910	50.0	5000	0	98.1	90	110				
Silver	4880	10.0	5000	0	97.5	90	110				
Vanadium	4930	50.0	5000	0	98.6	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID	**MB-11740**	SampType:	**MBLK**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/23/2018**	RunNo:	**25637**
Client ID:	**PBS**	Batch ID:	**11740**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/25/2018**	SeqNo:	**343835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	10.0									
Chromium	ND	100									
Manganese	ND	50.0									
Molybdenum	ND	50.0									
Nickel	ND	50.0									
Silver	ND	10.0									
Vanadium	ND	50.0									

Sample ID	**LCS-11740**	SampType:	**LCS**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/23/2018**	RunNo:	**25637**
Client ID:	**LCSS**	Batch ID:	**11740**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/25/2018**	SeqNo:	**343836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	4040	10.0	5000	0	80.7	80	120				
Chromium	4720	100	5000	0	94.3	80	120				
Manganese	4710	50.0	5000	0	94.1	80	120				
Molybdenum	4240	50.0	5000	0	84.9	79.8	145				
Nickel	4600	50.0	5000	0	91.9	80	120				
Silver	4460	10.0	5000	0	89.1	12.3	165				
Vanadium	4650	50.0	5000	0	93.1	86	115				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **1804152-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	281	221						341.4	19.5	20	
Chromium	79400	2210						80910	1.93	20	
Manganese	72200	1110						70590	2.29	20	
Nickel	47600	1110						50160	5.30	20	
Silver	36700	221						41740	13.0	20	

Sample ID **1804152-001AMS** SampType: **MS** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	11300	235	11740	341.4	93.6	70	130				
Chromium	86400	2350	11740	80910	46.7	70	130				SMI
Manganese	81400	1170	11740	70590	92.2	70	130				
Nickel	58900	1170	11740	50160	74.4	70	130				
Silver	46300	235	11740	41740	38.8	70	130				SMI

Sample ID **1804152-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	10500	224	11210	341.4	90.6	70	130	11330	7.60	20	
Chromium	83800	2240	11210	80910	25.7	70	130	86390	3.06	20	SMI
Manganese	78700	1120	11210	70590	72.8	70	130	81410	3.33	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **1804152-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343840**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nickel	57600	1120	11210	50160	66.0	70	130	58890	2.29	20	SMI
Silver	48200	224	11210	41740	57.9	70	130	46290	4.10	20	SMI

Sample ID **1804152-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	2800000	111000						3030000	7.86	20	

Sample ID **1804152-001AMS** SampType: **MS** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	2830000	117000	11740	3030000	-1710	70	130				SMC

Sample ID **1804152-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/23/2018** RunNo: **25637**
Client ID: **Period 1 Filter Pres** Batch ID: **11740** TestNo: **SW6020A** **SW3050B** Analysis Date: **4/25/2018** SeqNo: **343867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	2790000	112000	11210	3030000	-2100	70	130	3141000	11.7	20	SMC

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25637**
Client ID: **ICV**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/30/2018**	SeqNo: **344733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	4900	50.0	5000	0	98.1	90	110				

Sample ID **1804152-001ADUP**	SampType: **DUP**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/23/2018**	RunNo: **25637**
Client ID: **Period 1 Filter Pres**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/30/2018**	SeqNo: **344735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	325000	22100						344700	5.93	20	

Sample ID **1804152-001AMS**	SampType: **MS**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/23/2018**	RunNo: **25637**
Client ID: **Period 1 Filter Pres**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/30/2018**	SeqNo: **344736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	356000	23500	11740	344700	96.0	70	130				

Sample ID **1804152-001AMSD**	SampType: **MSD**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/23/2018**	RunNo: **25637**
Client ID: **Period 1 Filter Pres**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/30/2018**	SeqNo: **344737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	318000	22400	11210	344700	-236	70	130	356000	11.2	20	SMC

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:				RunNo: **25637**			
Client ID: **CCV**	Batch ID: **11740**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/30/2018**				SeqNo: **344738**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	4980	50.0	5000	0	99.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

Specialty Analytical

WO#: **1804152**
17-May-18

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **CN_S**

Sample ID **LCS-R25642**	SampType: **LCS**	TestCode: **CN_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25642**
Client ID: **LCSS**	Batch ID: **R25642**	TestNo: **SW9012B**		Analysis Date: **4/25/2018**	SeqNo: **343941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.0568	0.0200	0.05000	0	114	85	115				

Sample ID **MB-R25642**	SampType: **MBLK**	TestCode: **CN_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25642**
Client ID: **PBS**	Batch ID: **R25642**	TestNo: **SW9012B**		Analysis Date: **4/25/2018**	SeqNo: **343942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	ND	0.0200									

Sample ID **1804152-001AMS**	SampType: **MS**	TestCode: **CN_S**	Units: **mg/Kg-dry**	Prep Date:	RunNo: **25642**
Client ID: **Period 1 Filter Pres**	Batch ID: **R25642**	TestNo: **SW9012B**		Analysis Date: **4/25/2018**	SeqNo: **343944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	21.2	0.487	2.433	18.78	100	80	120				HT

Sample ID **1804152-001AMSD**	SampType: **MSD**	TestCode: **CN_S**	Units: **mg/Kg-dry**	Prep Date:	RunNo: **25642**
Client ID: **Period 1 Filter Pres**	Batch ID: **R25642**	TestNo: **SW9012B**		Analysis Date: **4/25/2018**	SeqNo: **343945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	21.8	0.487	2.433	18.78	125	80	120	21.23	2.78	20	SMCHT

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **CN_S**

Sample ID	**R25642CCV**	SampType:	**CCV**	TestCode:	**CN_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25642**
Client ID:	**CCV**	Batch ID:	**R25642**	TestNo:	**SW9012B**			Analysis Date:	**4/25/2018**	SeqNo:	**343946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.0753	0.0200	0.07500	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **Cr6_S**

Sample ID **R25590ICV**	SampType: **ICV**	TestCode: **Cr6_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25590**
Client ID: **ICV**	Batch ID: **11744**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/20/2018**	SeqNo: **343378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	50.6	0.200	50.00	0	101	90	110				

Sample ID **MB-11744**	SampType: **MBLK**	TestCode: **Cr6_S**	Units: **µg/Kg**	Prep Date: **4/19/2018**	RunNo: **25590**
Client ID: **PBS**	Batch ID: **11744**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/20/2018**	SeqNo: **343379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.200									

Sample ID **LCS-11744**	SampType: **LCS**	TestCode: **Cr6_S**	Units: **µg/Kg**	Prep Date: **4/19/2018**	RunNo: **25590**
Client ID: **LCSS**	Batch ID: **11744**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/20/2018**	SeqNo: **343380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	48.1	0.200	50.00	0	96.1	80	120				

Sample ID **LCSD-11744**	SampType: **LCSD**	TestCode: **Cr6_S**	Units: **µg/Kg**	Prep Date: **4/19/2018**	RunNo: **25590**
Client ID: **LCSS02**	Batch ID: **11744**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/20/2018**	SeqNo: **343381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	49.7	0.200	50.00	0	99.5	80	120	48.06	3.44	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **Cr6_S**

Sample ID **1804152-001ADUP** SampType: **DUP** TestCode: **Cr6_S** Units: **µg/Kg-dry** Prep Date: **4/19/2018** RunNo: **25590**
Client ID: **Period 1 Filter Pres** Batch ID: **11744** TestNo: **SW7196A** **SW 3060A** Analysis Date: **4/20/2018** SeqNo: **343383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	74300	4.96						62340	17.6	20	

Sample ID **1804152-001AMS** SampType: **MS** TestCode: **Cr6_S** Units: **µg/Kg-dry** Prep Date: **4/19/2018** RunNo: **25590**
Client ID: **Period 1 Filter Pres** Batch ID: **11744** TestNo: **SW7196A** **SW 3060A** Analysis Date: **4/20/2018** SeqNo: **343384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	53600	4.89	122.3	62340	-7130	75	125				SMC

Sample ID **1804152-001AMSD** SampType: **MSD** TestCode: **Cr6_S** Units: **µg/Kg-dry** Prep Date: **4/19/2018** RunNo: **25590**
Client ID: **Period 1 Filter Pres** Batch ID: **11744** TestNo: **SW7196A** **SW 3060A** Analysis Date: **4/20/2018** SeqNo: **343385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	44400	5.06	126.6	62340	-14200	75	125	53620	18.8	20	SMC

Sample ID **1804171-002ADUP** SampType: **DUP** TestCode: **Cr6_S** Units: **µg/Kg** Prep Date: **4/19/2018** RunNo: **25590**
Client ID: **ZZZZZZ** Batch ID: **11744** TestNo: **SW7196A** **SW 3060A** Analysis Date: **4/20/2018** SeqNo: **343387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	83700	3.94						87530	4.49	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **Cr6_S**

Sample ID **1804171-002ATRIP**	SampType: **DUP**	TestCode: **CR6_S**	Units: **µg/Kg**	Prep Date: **4/19/2018**				RunNo: **25590**	
Client ID: **ZZZZZZ**	Batch ID: **11744**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/20/2018**				SeqNo: **343388**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	86800	1.95						87530	0.874	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **FL_S**

Sample ID **CCV 15**	SampType: **CCV**	TestCode: **FL_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25570**
Client ID: **CCV**	Batch ID: **R25570**	TestNo: **E 340.2**		Analysis Date: **4/18/2018**	SeqNo: **343141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	47.8	0.750	45.00	0	106	90	110				

Sample ID **CCV 15**	SampType: **CCV**	TestCode: **FL_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25570**
Client ID: **CCV**	Batch ID: **R25570**	TestNo: **E 340.2**		Analysis Date: **4/18/2018**	SeqNo: **343142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	47.8	0.750	45.00	0	106	90	110				

Sample ID **LCS 10**	SampType: **LCS**	TestCode: **FL_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25570**
Client ID: **LCSS**	Batch ID: **R25570**	TestNo: **E 340.2**		Analysis Date: **4/18/2018**	SeqNo: **343143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	34.2	0.750	30.00	0	114	85	115				

Sample ID **LCSD 10**	SampType: **LCSD**	TestCode: **FL_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25570**
Client ID: **LCSS02**	Batch ID: **R25570**	TestNo: **E 340.2**		Analysis Date: **4/18/2018**	SeqNo: **343144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	34.4	0.750	30.00	0	115	85	115	34.21	0.430	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804152**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **FL_S**

Sample ID **MBLK**	SampType: **MBLK**	TestCode: **FL_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25570**
Client ID: **PBS**	Batch ID: **R25570**	TestNo: **E 340.2**		Analysis Date: **4/18/2018**	SeqNo: **343146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.750									

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/19/2018 10:00:5**
Prep End Date: **4/23/2018 11:58:4**

Prep Batch ID **11744** Prep Code **CR6PR** Method No Technician **Jacob Tietsort**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
1804152-001A	Period 1 Filter Press	Solid			1.184	0	0	50	42.230	4/19/2018	4/23/2018
1804152-001ADUP		Solid			1.2269	0	0	50	40.753	4/19/2018	4/23/2018
1804152-001AMS		Solid			1.243	0	0	50	40.225	4/19/2018	4/23/2018
1804152-001AMSD		Solid			1.2013	0	0	50	41.622	4/19/2018	4/23/2018
1804171-002A	SPEI-003 (Cr6-S)	Unknown			1.2984	0	0	50	38.509	4/19/2018	4/23/2018
1804171-002ADUP		Unknown			1.2676	0	0	50	39.445	4/19/2018	4/23/2018
1804171-002ATRIP					1.28	0	0	50	39.063	4/19/2018	4/23/2018
MB-11744		Soil			1.25	0	0	50	40.000	4/19/2018	4/23/2018
LCS-11744		Soil			1.25	0	0	50	40.000	4/19/2018	4/23/2018
LCSD-11744		Soil			1.25	0	0	50	40.000	4/19/2018	4/23/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/23/2018 10:25:3**
Prep End Date: **4/25/2018 7:28:13**

Prep Batch ID **11740** Prep Code **3050_MS** Method No **3050** Technician **Julie Clay**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11740		Soil			0.5	0	0	50	100.000	4/23/2018	4/23/2018
LCS-11740		Soil			0.5	0	0	50	100.000	4/23/2018	4/23/2018
1804152-001A	Period 1 Filter Press	Solid			0.5454	0	0	50	91.676	4/23/2018	4/23/2018
1804152-001ADUP		Solid			0.5504	0	0	50	90.843	4/23/2018	4/23/2018
1804152-001AMS		Solid			0.5182	0	0	50	96.488	4/23/2018	4/23/2018
1804152-001AMSD		Solid			0.5425	0	0	50	92.166	4/23/2018	4/23/2018
1804193-001A	100-2-042218	Unknown			0.5013	0	0	50	99.741	4/23/2018	4/25/2018
1804196-001A	Metal Scale Mud	Soil			0.5157	0	0	50	96.956	4/23/2018	4/25/2018
1804197-001A	Dust Filter Sample	Soil			0.5173	0	0	50	96.656	4/23/2018	4/25/2018
1804195-001A	Oily Waste Tank	Liquid			0.5044	0	0	50	99.128	4/23/2018	4/25/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 3/23/2018 | Page: 1 of: 1 | Laboratory Project No (internal): 1804152

Project Name: Selmet F006 Delisting | Temperature on Receipt:

Project No: 108.00256.00029 PO No: | Custody Seal: Y / (N) - N/A

Collected by: Tyler Weber | Notes:

State Collected: OR ☑ WA ☐ OTHER | Shipped Via: Client. Follow Up Tests - SLR from 1803216

Report To (PM): Tyler Weber | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 60 days)

Client: SLR International Corporation

Address: 1800 Blankenship Rd, Suite 440

City, State, Zip: West Linn, OR, 97068

Telephone: 503-723-4423

Invoice To:

PM Email: tweber@slrconsulting.com

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	Total Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn	TCLP Vanadium	Requested Tests									Comments
1	Period 1 Filter Press Cake	3/22/2018	1110	SL	2	✓	✓	✓										
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

*Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): ☐ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Relinquished	Date/Time	Received	Date/Time
x [signature]	3-23-18 / 1115	x [signature]	3.23.18 11:15
x		x	

APPENDIX E

FILTER PRESS CAKE PERIOD 2 ANALYTICAL REPORTS

Analytical results are included on enclosed Data CD

ANALYTICAL REPORT

April 11, 2018

Selmet, Inc

Sample Delivery Group:	L983055
Samples Received:	04/04/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.esclabsciences.com

TABLE OF CONTENTS

SAMPLE SUMMARY

PERIOD 2 FILTER PRESS CAKE L983055-01 Solid

Collected by	Collected date/time	Received date/time
Tyler Weber	04/02/18 13:00	04/04/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1095509	1	04/09/18 12:09	04/09/18 12:19	JD
Wet Chemistry by Method 7199	WG1094717	10	04/10/18 13:28	04/10/18 21:06	MCG
Wet Chemistry by Method 9012B	WG1094646	1	04/06/18 19:17	04/09/18 09:32	KK
Wet Chemistry by Method 9056A	WG1095088	5	04/08/18 11:14	04/09/18 16:54	DR
Metals (ICP) by Method 6010B	WG1093988	10	04/05/18 11:19	04/06/18 11:23	TRB

Item B 000169

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	41.7		1	04/09/2018 12:19	WG1095509

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	8.33	J	6.11	24.0	10	04/10/2018 21:06	WG1094717

Sample Narrative:

L983055-01 WG1094717: Diluted due to matrix interference

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	2.04		0.0935	0.599	1	04/09/2018 09:32	WG1094646

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	612		3.12	12.0	5	04/09/2018 16:54	WG1095088

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cadmium	U		1.68	12.0	10	04/06/2018 11:23	WG1093988
Chromium	83.1		3.36	24.0	10	04/06/2018 11:23	WG1093988
Manganese	53.8		2.88	24.0	10	04/06/2018 11:23	WG1093988
Molybdenum	316		3.83	12.0	10	04/06/2018 11:23	WG1093988
Nickel	62.8		11.7	47.9	10	04/06/2018 11:23	WG1093988
Silver	U		6.71	24.0	10	04/06/2018 11:23	WG1093988
Vanadium	3560		5.75	47.9	10	04/06/2018 11:23	WG1093988

Method Blank (MB)

(MB) R3300352-1 04/09/18 12:19

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L983038-04 Original Sample (OS) • Duplicate (DUP)

(OS) L983038-04 04/09/18 12:19 • (DUP) R3300352-3 04/09/18 12:19

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	81.7	82.1	1	0.466		5

Laboratory Control Sample (LCS)

(LCS) R3300352-2 04/09/18 12:19

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000172

Method Blank (MB)

(MB) R3300641-1 04/10/18 20:07

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L983286-01 Original Sample (OS) • Duplicate (DUP)

(OS) L983286-01 04/10/18 20:35 • (DUP) R3300641-4 04/10/18 20:41

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.391	0.716	1	58.8	J P1	20

L983291-04 Original Sample (OS) • Duplicate (DUP)

(OS) L983291-04 04/10/18 23:20 • (DUP) R3300641-8 04/10/18 23:26

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	0.549	0.562	1	2.25	J	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3300641-2 04/10/18 20:13 • (LCSD) R3300641-3 04/10/18 20:19

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	10.0	8.97	9.15	89.7	91.5	80.0-120			1.99	20

L983286-06 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L983286-06 04/10/18 21:38 • (MS) R3300641-5 04/10/18 21:44 • (MSD) R3300641-6 04/10/18 21:50

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	0.737	17.8	18.2	85.1	87.4	1	75.0-125			2.55	20

L983286-06 Original Sample (OS) • Matrix Spike (MS)

(OS) L983286-06 04/10/18 21:38 • (MS) R3300641-7 04/10/18 21:56

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	1250	0.737	1000	80.0	50	75.0-125	

Item B 000173

Method Blank (MB)

(MB) R3300082-1 04/09/18 09:06

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L983024-06 Original Sample (OS) • Duplicate (DUP)

(OS) L983024-06 04/09/18 09:22 • (DUP) R3300082-4 04/09/18 09:23

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

L983024-10 Original Sample (OS) • Duplicate (DUP)

(OS) L983024-10 04/09/18 09:28 • (DUP) R3300082-5 04/09/18 09:31

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3300082-2 04/09/18 09:07 • (LCSD) R3300082-3 04/09/18 09:08

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.42	2.47	96.7	98.7	50.0-150			2.05	20

Item B 000174

Method Blank (MB)

(MB) R3300077-1 04/08/18 15:50

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

L983707-02 Original Sample (OS) • Duplicate (DUP)

(OS) L983707-02 04/08/18 18:58 • (DUP) R3300077-4 04/08/18 19:19

Analyte	Original Result	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride		2.63	1	17.3	P1	15

L983711-04 Original Sample (OS) • Duplicate (DUP)

(OS) L983711-04 04/08/18 23:09 • (DUP) R3300077-7 04/08/18 23:30

Analyte	Original Result	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride		5.03	1	26.6	J3	15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3300077-2 04/08/18 16:11 • (LCSD) R3300077-3 04/08/18 16:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	20.3	20.7	101	103	80.0-120			2.02	15

L983707-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L983707-03 04/08/18 20:22 • (MS) R3300077-5 04/08/18 20:43 • (MSD) R3300077-6 04/08/18 21:04

Analyte	Spike Amount mg/kg	Original Result	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	50.0		41.1	43.8	72.7	78.1	1	80.0-120	J6	J6	6.39	15

Item B 000175

Method Blank (MB)

(MB) R3299536-1 04/06/18 03:39

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Silver	U		0.280	1.00
Vanadium	U		0.240	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3299536-2 04/06/18 03:42 • (LCSD) R3299536-3 04/06/18 03:45

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cadmium	100	98.5	103	98.5	103	80.0-120			4.32	20
Chromium	100	96.1	101	96.1	101	80.0-120			5.06	20
Manganese	100	94.7	99.8	94.7	99.8	80.0-120			5.24	20
Molybdenum	100	102	107	102	107	80.0-120			4.92	20
Nickel	100	95.4	101	95.4	101	80.0-120			5.74	20
Silver	20.0	17.7	18.8	88.7	93.8	80.0-120			5.57	20
Vanadium	100	96.9	103	96.9	103	80.0-120			5.90	20

L983021-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L983021-01 04/06/18 03:49 • (MS) R3299536-6 04/06/18 03:59 • (MSD) R3299536-7 04/06/18 04:02

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	100	ND	95.0	94.9	94.8	94.6	1	75.0-125			0.169	20
Chromium	100	16.9	101	103	84.6	85.7	1	75.0-125			1.11	20
Manganese	100	981	835	913	0.000	0.000	1	75.0-125	V	V	8.91	20
Molybdenum	100	ND	91.0	90.5	90.8	90.2	1	75.0-125			0.564	20
Nickel	100	14.7	110	111	94.9	96.3	1	75.0-125			1.30	20
Silver	20.0	ND	17.2	17.4	86.2	86.9	1	75.0-125			0.785	20
Vanadium	100	25.4	112	114	86.9	88.2	1	75.0-125			1.13	20

Item B 000176

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only full service environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

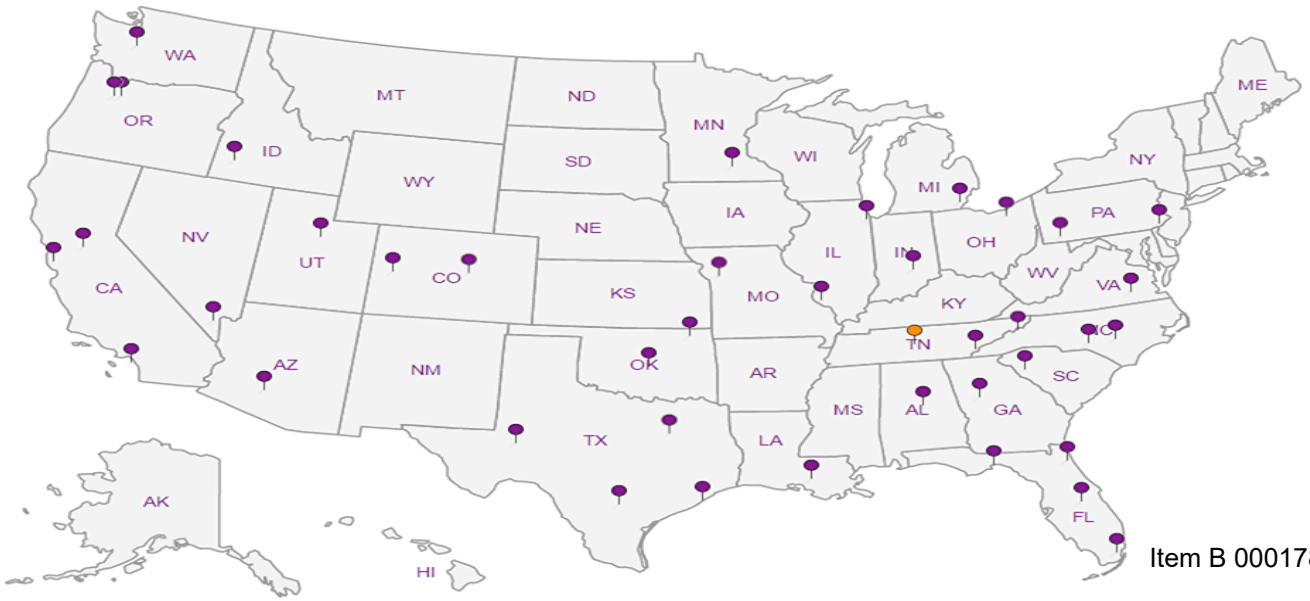
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000178

SLR International Corp
1800 Blankenship Road, Suite 440
West Linn, OR 97068

Alternate billing information:
Accounts Payable
P.O. Box 689
Albany, OR 97321

Report to: Tyler Weber
Email to: tweber@slrconsulting.com

Project Description: Selmet F006 Delisting
City/State Collected: Albany, OR
Phone: (503) 723-4423
FAX:
Client Project #: 108.00256.00029
ESC Key:
Collected by: Tyler Weber
Site/Facility ID#:
P.O.#:
Collected by (signature):
Packed on Ice N Y X

Rush? (Lab MUST Be Notified)
____ Same Day.....200%
____ Next Day.....100%
____ Five Day.....25%

Date Results Needed:
Email? __No__Yes
FAX? __No__Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-No Pres	Total Metals* 2ozClr - No Pres	Remarks/Contaminant	Sample # (lab only)
Period 2 Filter Press Cake	Comp	SS	—	4/2/2018	13:00	2	X	X		983055-01

Chain of Custody Page 1 of 1

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

CoCode SLRWLOR (lab use only)
Template/Prelogin
Shipped Via:

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

E008

pH ____ Temp ____
Flow ____ Other ____

Remarks: * Total metals include - Cadmium, Chromium, Molybdenum, Nickel, Silver, Vanadium, and Manganese

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	4/2/2018	1700	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			600

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐
Temp: 0.1°C
Bottles Received: 2
Date: 4/4/18
Time: 845
Condition: (lab use only)
pH Checked: NCF:

6051 2430 7078

ESC LAB SCIENCES
Cooler Receipt Form

Client: SLRwlon	SDG#	583055	
Cooler Received/Opened On: 4/4/18	Temperature:	0.1	
Received By: Christian Kacar			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	✓		
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 21, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1804002

Specialty Analytical received 1 sample(s) on 4/2/2018 for the analyses presented in the following report.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804002**
Date: **5/21/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

Notes relating to quality control samples:

B flags reported on QC in this batch reflect results where the sample has a concentration greater then ten times the hit in the method blank. This hit is considered insignificant in relation to the concentration of the sample.

SMC flags reported on QC in this batch reflect results where the sample concentration is greater than 4x the spiked value. The spiked value is considered insignificant compared to the sample concentration. LCS values in this batch are within range.

Revision 1-

This report has been revised to include the following analyses per client request: Cadmium, Chromium, Manganese, Molybdenum, Nickel, Silver, Vanadium, Cyanide, Fluoride and Hexavalent Chromium.

Revision 2-

Upon review this report was revised to correct the % moisture content. The correct RL for Total Zirconium has been added.

Revision 3-

This report has been revised to add prep batch reports.

Revision 4-

This report has been revised to include values for TCLP Cd and Mo per client request.

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/2/2018 1:00:00 PM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804002-001
Client Sample ID: Period 2 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **JRC**
Percent Moisture	55.7	0		wt%	1	4/11/2018 4:30:00 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	1150000	21900		µg/Kg-dry	100	4/9/2018 11:31:49 AM
TCLP METALS ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Cadmium, TCLP	ND	5.00		µg/L	10	4/25/2018 12:25:15 PM
Molybdenum, TCLP	25.4	25.0		µg/L	10	5/21/2018 11:11:04 AM
Vanadium, TCLP	29.3	25.0		µg/L	10	4/25/2018 12:25:15 PM

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25417**
Client ID: **ICV**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/9/2018**	SeqNo: **341360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5250	100	5000	0	105	90	110				B

Sample ID **MB-11668**	SampType: **MBLK**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/9/2018**	RunNo: **25417**
Client ID: **PBS**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/9/2018**	SeqNo: **341361**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	456	100									

Sample ID **LCS-11668**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/9/2018**	RunNo: **25417**
Client ID: **LCSS**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/9/2018**	SeqNo: **341362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4930	100	5000	0	98.6	80	120				B

Sample ID **1804002-001ADUP**	SampType: **DUP**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/9/2018**	RunNo: **25417**
Client ID: **Period 2 Filter Pres**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/9/2018**	SeqNo: **341364**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1120000	21000						1150000	2.38	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID	**1804002-001AMS**	SampType:	**MS**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/9/2018**	RunNo:	**25417**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/9/2018**	SeqNo:	**341365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1170000	22900	11470	1150000	133	70	130				SMC

Sample ID	**1804002-001AMSD**	SampType:	**MSD**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/9/2018**	RunNo:	**25417**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/9/2018**	SeqNo:	**341366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1150000	22600	11280	1150000	-11.1	70	130	1165000	1.42	20	SMC

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:		RunNo:	**25417**
Client ID:	**CCV**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/9/2018**	SeqNo:	**341367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4770	100	5000	0	95.3	90	110				B

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV** SampType: **ICV** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: RunNo: **25571**
Client ID: **ICV** Batch ID: **11729** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/19/2018** SeqNo: **343188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	51.2	0.100	50.00	0	102	90	110				
Vanadium, TCLP	47.3	0.500	50.00	0	94.6	90	110				

Sample ID **MB-11729** SampType: **MBLK** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **4/19/2018** RunNo: **25571**
Client ID: **PBW** Batch ID: **11729** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/19/2018** SeqNo: **343189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	0.100									
Vanadium, TCLP	ND	0.500									

Sample ID **LCS-11729** SampType: **LCS** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **4/19/2018** RunNo: **25571**
Client ID: **LCSW** Batch ID: **11729** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/19/2018** SeqNo: **343190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	51.5	0.100	50.00	0	103	80	120				
Vanadium, TCLP	46.6	0.500	50.00	0	93.2	80	120				

Sample ID **ICV** SampType: **ICV** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: RunNo: **25571**
Client ID: **ICV** Batch ID: **11729** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/20/2018** SeqNo: **343207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	51.9	0.100	50.00	0	104	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **ICV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/20/2018**	SeqNo: **343207**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **CCV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/19/2018**	SeqNo: **343214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	50.9	0.100	50.00	0	102	90	110				
Vanadium, TCLP	50.0	0.500	50.00	0	100	90	110				

Sample ID **A1804157-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/19/2018**	SeqNo: **343216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	1.00						0	0	20	RF
Vanadium, TCLP	14.2	5.00						15.26	7.26	20	

Sample ID **A1804157-001AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/19/2018**	SeqNo: **343217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	42.4	1.00	50.00	0.4695	83.9	70	130				
Vanadium, TCLP	67.1	5.00	50.00	15.26	104	70	130				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **A1804157-001AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/19/2018**	SeqNo: **343218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	41.8	1.00	50.00	0.4695	82.7	70	130	42.41	1.39	20	
Vanadium, TCLP	66.3	5.00	50.00	15.26	102	70	130	67.14	1.29	20	

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **ICV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/25/2018**	SeqNo: **343899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	52.9	0.100	50.00	0	106	90	110				
Vanadium, TCLP	49.3	0.500	50.00	0	98.6	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **CCV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/25/2018**	SeqNo: **343900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	49.2	0.100	50.00	0	98.4	90	110				
Vanadium, TCLP	48.7	0.500	50.00	0	97.5	90	110				

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **ICV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	47.6	0.500	50.00	0	95.3	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **ICV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348233**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID **MB-11729**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **PBW**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	ND	0.500									

Sample ID **LCS-11729**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **LCSW**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	46.4	0.500	50.00	0	92.8	80	120				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **CCV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	45.7	0.500	50.00	0	91.3	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804002**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **A1804157-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	298	5.00						294.7	0.959	20	

Sample ID **A1804157-001AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	348	5.00	50.00	294.7	107	70	130				

Sample ID **A1804157-001AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/19/2018**	RunNo: **25571**
Client ID: **ZZZZZZ**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	349	5.00	50.00	294.7	109	70	130	348.3	0.318	20	

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25571**
Client ID: **CCV**	Batch ID: **11729**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	45.1	0.500	50.00	0	90.1	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 4/2/18 | Page: 1 of 1 | Laboratory Project No (internal): 1804002

Project Name: Selwet Food Delisting | Temperature on Receipt: Amb

Client: SLR | Project No: | PO No: | Custody Seal: (Y) N

Address: 1800 Blankenship Rd, Ste 440 | Collected by: Tyler Weber | Notes: Seals intact

City, State, Zip: West Linn, OR 97068 | State Collected: OR [X] WA [ ] OTHER | Shipped Via: Client - SLR

Telephone: 503-723-4427 | Report To (PM): Tyler Weber | Sample Disposal: [ ] Return to client [X] Disposal by lab (after 60 days)

Invoice To: | PM Email: tweber@slrconsulting.com

Requested Tests

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn, Zirconium		Ca, Cr, Mn, Mo, Ni, Ag, V	Cyanide, Total	Fluoride	Hex Chrom						Comments
1	Period 2 Filter Press Cake	4/2/18	1300	SL	2	✓	H*		⊗	⊗	⊗	⊗						Hold All TCLP Tests
2																		
3																		⊗ Additional Testing Per
4																		Client Request 4/27/18
5																		(KL) 4/27/18
6																		
7																		
8																		
9																		
10																		

*Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): [ ] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	4/2/18 15:10	x	4/2/18 15:10
x		x	

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 04, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1805035

Specialty Analytical received 1 sample(s) on 5/3/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1805035**
Date: **5/4/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

Notes relating to quality control samples:

B flags reported on QC in this batch reflect results where the sample has a concentration greater then ten times the hit in the method blank. This hit is considered insignificant in relation to the concentration of the sample.

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

SMC flags reported on QC in this batch reflect results where the sample concentration is greater than 4x the spiked value. The spiked value is considered insignificant compared to the sample concentration. LCS values in this batch are within range.

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

RMI flags reported on QC in this batch reflect RPD results outside control limits due to matrix interference.

HT flags reported in this batch reflect that samples were analyzed outside of recommended holding time at client's request.

Q flags reported in this batch reflect elevated detection levels due to sample matrix.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Specialty Analytical

Date Reported: 04-May-18

CLIENT: SLR International Corp.
Collection Date: 4/2/2018 1:00:00 PM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1805035-001
Client Sample ID: Period 2 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **JRC**
Percent Moisture	55.7	0		wt%	1	4/11/2018 4:30:00 PM
ANIONS BY ION CHROMATOGRAPHY		**SW9056**				Analyst: **ajr**
Fluoride	134	1.69		mg/Kg-dry	1	4/30/2018 10:41:00 AM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **JRC**
Cadmium	400	219		µg/Kg-dry	10	5/2/2018 3:12:16 PM
Chromium	84300	21900		µg/Kg-dry	100	5/2/2018 2:21:00 PM
Manganese	63900	11000		µg/Kg-dry	100	5/2/2018 2:21:00 PM
Molybdenum	345000	11000		µg/Kg-dry	100	5/2/2018 2:21:00 PM
Nickel	57100	11000		µg/Kg-dry	100	5/2/2018 2:21:00 PM
Silver	34500	2190		µg/Kg-dry	100	5/2/2018 2:21:00 PM
Vanadium	3710000	110000		µg/Kg-dry	1000	5/2/2018 2:58:46 PM
CYANIDE		**SW9012B**				Analyst: **jtt**
Cyanide, Total	2.57	0.451	HT	mg/Kg-dry	1	5/4/2018 11:06:35 AM
HEXAVALENT CHROMIUM		**SW7196A**				Analyst: **jtt**
Chromium, Hexavalent	ND	9.03	QHT	mg/Kg-dry	20	4/30/2018 2:03:59 PM

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV** SampType: **ICV** TestCode: **6020_S** Units: **µg/Kg** Prep Date: RunNo: **25740**
Client ID: **ICV** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345073**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	5080	10.0	5000	0	102	90	110				
Chromium	4960	100	5000	0	99.2	90	110				
Manganese	4940	50.0	5000	0	98.7	90	110				
Molybdenum	4980	50.0	5000	0	99.6	90	110				B
Nickel	5000	50.0	5000	0	100	90	110				
Silver	4760	10.0	5000	0	95.3	90	110				B
Vanadium	4930	50.0	5000	0	98.7	90	110				

Sample ID **CCV** SampType: **CCV** TestCode: **6020_S** Units: **µg/Kg** Prep Date: RunNo: **25740**
Client ID: **CCV** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	4500	50.0	5000	0	90.1	90	110				B

Sample ID **MB-11668** SampType: **MBLK** TestCode: **6020_S** Units: **µg/Kg** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **PBS** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	ND	10.0									
Chromium	ND	100									
Manganese	ND	50.0									
Molybdenum	79.2	50.0									
Nickel	ND	50.0									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **MB-11668** SampType: **MBLK** TestCode: **6020_S** Units: **µg/Kg** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **PBS** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Silver	18.3	10.0									
Vanadium	ND	50.0									

Sample ID **1805035-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **Period 2 Filter Pres** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	90600	21000						84300	7.25	20	
Manganese	100000	10500						63930	44.2	20	RMI
Molybdenum	346000	10500						345000	0.168	20	
Nickel	65200	10500						57100	13.2	20	
Silver	36500	2100						34460	5.65	20	

Sample ID **LCS-11668** SampType: **LCS** TestCode: **6020_S** Units: **µg/Kg** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **LCSS** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	4350	10.0	5000	0	87.0	80	120				
Chromium	5410	100	5000	0	108	80	120				
Manganese	5450	50.0	5000	0	109	80	120				
Molybdenum	5270	50.0	5000	0	105	79.8	145				B
Nickel	5330	50.0	5000	0	107	80	120				
Silver	4670	10.0	5000	0	93.3	12.3	165				B

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID	**LCS-11668**	SampType:	**LCS**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/9/2018**	RunNo:	**25740**
Client ID:	**LCSS**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/2/2018**	SeqNo:	**345079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	5400	50.0	5000	0	108	86	115				

Sample ID	**1805035-001AMS**	SampType:	**MS**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/9/2018**	RunNo:	**25740**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/2/2018**	SeqNo:	**345080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	85400	22900	11470	84300	9.77	70	130				SMC
Manganese	193000	11500	11470	63930	1130	70	130				SMC
Molybdenum	332000	11500	11470	345000	-113	70	130				SMC
Nickel	57700	11500	11470	57100	5.55	70	130				SMC
Silver	33600	2290	11470	34460	-7.97	70	130				SMC

Sample ID	**1805035-001AMSD**	SampType:	**MSD**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/9/2018**	RunNo:	**25740**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11668**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/2/2018**	SeqNo:	**345081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	85800	22600	11280	84300	13.5	70	130	85420	0.466	20	SMC
Manganese	67800	11300	11280	63930	34.6	70	130	193000	96.0	20	SRMC
Molybdenum	349000	11300	11280	345000	32.4	70	130	332100	4.87	20	SMC
Nickel	58900	11300	11280	57100	16.0	70	130	57740	2.00	20	SMC
Silver	41900	2260	11280	34460	66.4	70	130	33550	22.2	20	SRMC

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25740**
Client ID: **CCV**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/2/2018**	SeqNo: **345082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	5110	10.0	5000	0	102	90	110				
Chromium	4950	100	5000	0	99.0	90	110				
Manganese	5020	50.0	5000	0	100	90	110				
Molybdenum	4530	50.0	5000	0	90.5	90	110				B
Nickel	5080	50.0	5000	0	102	90	110				
Silver	4800	10.0	5000	0	96.0	90	110				B
Vanadium	4990	50.0	5000	0	99.8	90	110				

Sample ID **1805035-001ADUP**	SampType: **DUP**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/9/2018**	RunNo: **25740**
Client ID: **Period 2 Filter Pres**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/2/2018**	SeqNo: **345115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	4040000	105000						3710000	8.62	20	

Sample ID **1805035-001AMS**	SampType: **MS**	TestCode: **6020_S**	Units: **µg/Kg-dry**	Prep Date: **4/9/2018**	RunNo: **25740**
Client ID: **Period 2 Filter Pres**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/2/2018**	SeqNo: **345116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	4060000	115000	11470	3710000	3080	70	130				SMC

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **1805035-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **Period 2 Filter Pres** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vanadium	4000000	113000	11280	3710000	2540	70	130	4063000	1.65	20	SMC

Sample ID **1805035-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **Period 2 Filter Pres** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345119**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	414	210						400.2	3.47	20	

Sample ID **1805035-001AMS** SampType: **MS** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **Period 2 Filter Pres** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345120**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	13300	229	11470	400.2	113	70	130				

Sample ID **1805035-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/9/2018** RunNo: **25740**
Client ID: **Period 2 Filter Pres** Batch ID: **11668** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/2/2018** SeqNo: **345121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	12600	226	11280	400.2	108	70	130	12610	0	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25740**
Client ID: **CCV**	Batch ID: **11668**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/2/2018**	SeqNo: **345122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	5280	10.0	5000	0	106	90	110				
Vanadium	5130	50.0	5000	0	103	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **CN_S**

Sample ID	**11825-ICV**	SampType:	**ICV**	TestCode:	**CN_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25774**
Client ID:	**ICV**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.0492	0.0200	0.05000	0	98.4	90	110				

Sample ID	**MB-R25774**	SampType:	**MBLK**	TestCode:	**CN_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25774**
Client ID:	**PBS**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345434**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	ND	0.0200									

Sample ID	**LCS-R25774**	SampType:	**LCS**	TestCode:	**CN_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25774**
Client ID:	**LCSS**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	0.102	0.0200	0.1000	0	102	85	115				

Sample ID	**1805035-001AMS**	SampType:	**MS**	TestCode:	**CN_S**	Units:	**mg/Kg-dry**	Prep Date:		RunNo:	**25774**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cyanide, Total	2.84	0.451	0.5643	2.571	48.3	80	120				SMCHT

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **CN_S**

Sample ID	**1805035-001AMSD**	SampType:	**MSD**	TestCode:	**CN_S**	Units:	**mg/Kg-dry**	Prep Date:		RunNo:	**25774**		
Client ID:	**Period 2 Filter Pres**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345438**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Cyanide, Total	2.71	0.451	0.5643	2.571	25.3	80	120	2.844	4.68	20	SMCHT		

Sample ID	**11825-CCV**	SampType:	**CCV**	TestCode:	**CN_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25774**		
Client ID:	**CCV**	Batch ID:	**R25774**	TestNo:	**SW9012B**			Analysis Date:	**5/4/2018**	SeqNo:	**345439**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Cyanide, Total	0.0754	0.0200	0.07500	0	101	90	110						

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **Cr6_S**

Sample ID **MB-11835**	SampType: **MBLK**	TestCode: **Cr6_S**	Units: **mg/Kg**	Prep Date: **4/27/2018**	RunNo: **25778**
Client ID: **PBS**	Batch ID: **11835**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/30/2018**	SeqNo: **345499**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	0.200									

Sample ID **LCS-11835**	SampType: **LCS**	TestCode: **Cr6_S**	Units: **mg/Kg**	Prep Date: **4/27/2018**	RunNo: **25778**
Client ID: **LCSS**	Batch ID: **11835**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/30/2018**	SeqNo: **345500**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	42.2	0.200	40.00	0	105	80	120				

Sample ID **LCSD-11835**	SampType: **LCSD**	TestCode: **Cr6_S**	Units: **mg/Kg**	Prep Date: **4/27/2018**	RunNo: **25778**
Client ID: **LCSS02**	Batch ID: **11835**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/30/2018**	SeqNo: **345501**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	41.3	0.200	40.00	0	103	80	120	42.17	2.01	20	

Sample ID **1805035-001ADUP**	SampType: **DUP**	TestCode: **Cr6_S**	Units: **mg/Kg-dry**	Prep Date: **4/27/2018**	RunNo: **25778**
Client ID: **Period 2 Filter Pres**	Batch ID: **11835**	TestNo: **SW7196A**	**SW 3060A**	Analysis Date: **4/30/2018**	SeqNo: **345503**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	9.03						0	0	20	QHT

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **Cr6_S**

Sample ID	**1805035-001AMS**	SampType:	**MS**	TestCode:	**Cr6_S**	Units:	**mg/Kg-dry**	Prep Date:	**4/27/2018**	RunNo:	**25778**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11835**	TestNo:	**SW7196A**	**SW 3060A**		Analysis Date:	**4/30/2018**	SeqNo:	**345504**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	9.03	112.9	0	0	75	125				SMIHT

Sample ID	**1805035-001AMSD**	SampType:	**MSD**	TestCode:	**Cr6_S**	Units:	**mg/Kg-dry**	Prep Date:	**4/27/2018**	RunNo:	**25778**
Client ID:	**Period 2 Filter Pres**	Batch ID:	**11835**	TestNo:	**SW7196A**	**SW 3060A**		Analysis Date:	**4/30/2018**	SeqNo:	**345505**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium, Hexavalent	ND	9.03	112.9	0	0	75	125	0	0	20	SMIHT

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

Specialty Analytical

WO#: **1805035**
17-May-18

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **IC_S**

Sample ID	**A1804216-002EDUP**	SampType:	**DUP**	TestCode:	**IC_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25748**		
Client ID:	**ZZZZZZ**	Batch ID:	**11823**	TestNo:	**SW9056**	**SW9056PR**		Analysis Date:	**4/30/2018**	SeqNo:	**345235**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Fluoride	ND	0.750						0	0	20	RF		

Sample ID	**A1804216-002EMS**	SampType:	**MS**	TestCode:	**IC_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25748**		
Client ID:	**ZZZZZZ**	Batch ID:	**11823**	TestNo:	**SW9056**	**SW9056PR**		Analysis Date:	**4/30/2018**	SeqNo:	**345236**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Fluoride	28.6	0.750	30.00	0.1600	94.7	75	125						

Sample ID	**A1804216-002EMSD**	SampType:	**MSD**	TestCode:	**IC_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25748**		
Client ID:	**ZZZZZZ**	Batch ID:	**11823**	TestNo:	**SW9056**	**SW9056PR**		Analysis Date:	**4/30/2018**	SeqNo:	**345237**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Fluoride	30.1	0.750	30.00	0.1600	99.7	75	125	28.57	5.13	20			

Sample ID	**CCV 15**	SampType:	**CCV**	TestCode:	**IC_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25748**		
Client ID:	**CCV**	Batch ID:	**11823**	TestNo:	**SW9056**	**SW9056PR**		Analysis Date:	**4/30/2018**	SeqNo:	**345238**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Fluoride	48.4	0.750	45.00	0	108	90	110						

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **IC_S**

Sample ID **CCV 15**	SampType: **CCV**	TestCode: **IC_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25748**
Client ID: **CCV**	Batch ID: **11823**	TestNo: **SW9056**	**SW9056PR**	Analysis Date: **4/30/2018**	SeqNo: **345239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	43.8	0.750	45.00	0	97.4	90	110				

Sample ID **LCS 10**	SampType: **LCS**	TestCode: **IC_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25748**
Client ID: **LCSS**	Batch ID: **11823**	TestNo: **SW9056**	**SW9056PR**	Analysis Date: **4/30/2018**	SeqNo: **345240**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	29.9	0.750	30.00	0	99.8	85	115				

Sample ID **LCSD 10**	SampType: **LCSD**	TestCode: **IC_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25748**
Client ID: **LCSS02**	Batch ID: **11823**	TestNo: **SW9056**	**SW9056PR**	Analysis Date: **4/30/2018**	SeqNo: **345241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	29.9	0.750	30.00	0	99.5	85	115	29.95	0.287	20	

Sample ID **LOW CHK 0.25**	SampType: **ICV**	TestCode: **IC_S**	Units: **mg/Kg**	Prep Date:	RunNo: **25748**
Client ID: **ICV**	Batch ID: **11823**	TestNo: **SW9056**	**SW9056PR**	Analysis Date: **4/30/2018**	SeqNo: **345242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.750	0.7500	0	95.9	70	130				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805035**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **IC_S**

Sample ID	**MBLK**	SampType:	**MBLK**	TestCode:	**IC_S**	Units:	**mg/Kg**	Prep Date:		RunNo:	**25748**
Client ID:	**PBS**	Batch ID:	**11823**	TestNo:	**SW9056**	**SW9056PR**		Analysis Date:	**4/30/2018**	SeqNo:	**345243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fluoride	ND	0.750									

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/27/2018 10:00:3**
Prep End Date: **5/4/2018 11:41:50**

Prep Batch ID **11835** Prep Code **CR6PR** Method No Technician **Jacob Tietsort**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11835		Soil			1.25	0	0	50	40.000	4/27/2018	5/4/2018
LCS-11835		Soil			1.25	0	0	50	40.000	4/27/2018	5/4/2018
LCSD-11835		Soil			1.25	0	0	50	40.000	4/27/2018	5/4/2018
1805035-001A	Period 2 Filter Press	Solid			1.25	0	0	50	40.000	4/27/2018	5/4/2018
1805035-001ADUP		Solid			1.25	0	0	50	40.000	4/27/2018	5/4/2018
1805035-001AMS		Solid			1.25	0	0	50	40.000	4/27/2018	5/4/2018
1805035-001AMSD		Solid			1.25	0	0	50	40.000	4/27/2018	5/4/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/27/2018 9:19:00**
Prep End Date: **4/27/2018 9:19:00**

Prep Batch ID **11823** Prep Code **IC_SPR** Method No Technician **A.J. Riddell**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
1804002-001A	Period 2 Filter Press	Solid			10	0	0	30	3.000	4/27/2018	4/27/2018
MB-11823		Soil			10	0	0	30	3.000	4/27/2018	4/27/2018
1805035-001A	Period 2 Filter Press	Solid			10	0	0	30	3.000	4/27/2018	4/27/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/9/2018 7:20:45 A**
Prep End Date: **4/9/2018 11:00:45**

Prep Batch ID **11668** Prep Code **3050_MS** Method No **3050** Technician **Ben Walker**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11668		Soil			0.5	0	0	50	100.000	4/9/2018	4/9/2018
LCS-11668		Soil			0.5	0	0	50	100.000	4/9/2018	4/9/2018
1804002-001A	Period 2 Filter Press	Solid			0.5149	0	0	50	97.106	4/9/2018	4/9/2018
1804002-001ADUP		Solid			0.5382	0	0	50	92.902	4/9/2018	4/9/2018
1804002-001AMS		Solid			0.4921	0	0	50	101.605	4/9/2018	4/9/2018
1804002-001AMSD		Solid			0.5005	0	0	50	99.900	4/9/2018	4/9/2018
1805035-001A	Period 2 Filter Press	Solid			0.5149	0	0	50	97.106	4/9/2018	4/9/2018
1805035-001ADUP		Solid			0.5382	0	0	50	92.902	4/9/2018	4/9/2018
1805035-001AMS		Solid			0.4921	0	0	50	101.605	4/9/2018	4/9/2018
1805035-001AMSD		Solid			0.5005	0	0	50	99.900	4/9/2018	4/9/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 4/2/18 | Page: 1 of 1 | Laboratory Project No (internal): 1804002

Project Name: Selwet Food Delisting | Temperature on Receipt: Amb

Client: SLR | Project No: | PO No: | Custody Seal: (Y) N

Address: 1800 Blankenship Rd, Ste 440 | Collected by: Tyler Weber | Notes: Seals intact

City, State, Zip: West Linn, OR 97068 | State Collected: OR [X] WA [ ] OTHER | Shipped Via: Client - SLR

Telephone: 503-723-4427 | Report To (PM): Tyler Weber | Sample Disposal: [ ] Return to client [X] Disposal by lab (after 60 days)

Invoice To: | PM Email: tweber@slrconsulting.com

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn, Zirconium		Requested Tests: Ca, Cr, Mn, Mo, Ni, Ag, V	Cyanide, Total	Fluoride	Hex Chrom						Comments
1	Period 2 Filter Press Cake	4/2/18	1300	SL	2	✓	H*		⊗	⊗	⊗	⊗						Hold All TCLP Tests
2																		
3																		⊗ Additional Testing Per
4																		Client Request 4/27/18
5																		(KL) 4/27/18
6																		
7																		
8																		
9																		
10																		

*Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): [ ] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	4/2/18 15:10	x	4/2/18 15:10
Relinquished	Date/Time	Received	Date/Time
x		x	

APPENDIX F

FILTER PRESS CAKE PERIOD 3 ANALYTICAL REPORTS

Analytical results are included on enclosed Data CD

ANALYTICAL REPORT

April 24, 2018

Selmet, Inc

Sample Delivery Group:	L985817
Samples Received:	04/14/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.esclabsciences.com

TABLE OF CONTENTS

Item B 000216

SAMPLE SUMMARY

PERIOD 3 FILTER PRESS CAKE L985817-01 Solid

Collected by	Collected date/time	Received date/time
Tyler Weber	04/12/18 13:20	04/14/18 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1099014	1	04/17/18 13:32	04/17/18 13:49	JD
Wet Chemistry by Method 7199	WG1097962	1	04/15/18 14:01	04/16/18 20:15	MCG
Wet Chemistry by Method 9012B	WG1101060	1	04/23/18 09:05	04/23/18 12:51	KK
Wet Chemistry by Method 9056A	WG1097872	5	04/16/18 15:53	04/17/18 11:45	MAJ
Metals (ICP) by Method 6010B	WG1099139	10	04/17/18 17:27	04/18/18 14:38	CCE

Item B 000217

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	45.4		1	04/17/2018 13:49	WG1099014

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	17.2		0.562	2.20	1	04/16/2018 20:15	WG1097962

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	1.23		0.0860	0.551	1	04/23/2018 12:51	WG1101060

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	388		2.87	11.0	5	04/17/2018 11:45	WG1097872

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cadmium	U		1.54	11.0	10	04/18/2018 14:38	WG1099139
Chromium	145		3.09	22.0	10	04/18/2018 14:38	WG1099139
Manganese	71.9		2.64	22.0	10	04/18/2018 14:38	WG1099139
Molybdenum	236		3.53	11.0	10	04/18/2018 14:38	WG1099139
Nickel	57.1		10.8	44.1	10	04/18/2018 14:38	WG1099139
Silver	U		6.17	22.0	10	04/18/2018 14:38	WG1099139
Vanadium	3350		5.29	44.1	10	04/18/2018 14:38	WG1099139

Method Blank (MB)

(MB) R3302661-1 04/17/18 13:49

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	%		%	%
Total Solids	0.00100			

L985842-01 Original Sample (OS) • Duplicate (DUP)

(OS) L985842-01 04/17/18 13:49 • (DUP) R3302661-3 04/17/18 13:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	75.3	76.0	1	0.943		5

Laboratory Control Sample (LCS)

(LCS) R3302661-2 04/17/18 13:49

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	%	%	%	%	
Total Solids	50.0	50.0	100	85.0-115	

Item B 000220

Method Blank (MB)

(MB) R3302379-1 04/16/18 19:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L984685-01 Original Sample (OS) • Duplicate (DUP)

(OS) L984685-01 04/16/18 21:04 • (DUP) R3302379-7 04/16/18 21:11

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.414	1	200	J P1	20

L985938-07 Original Sample (OS) • Duplicate (DUP)

(OS) L985938-07 04/16/18 23:12 • (DUP) R3302379-8 04/16/18 23:19

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	2.02	1.28	1	45.1	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302379-2 04/16/18 19:42 • (LCSD) R3302379-3 04/16/18 19:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	10.0	9.67	9.73	96.7	97.3	80.0-120			0.620	20

L985817-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985817-01 04/16/18 20:15 • (MS) R3302379-4 04/16/18 20:22 • (MSD) R3302379-5 04/16/18 20:28

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	44.1	17.2	53.2	53.7	81.6	82.8	1	75.0-125			0.986	20

Item B 000221

Method Blank (MB)

(MB) R3303916-1 04/23/18 12:44

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

L986741-15 Original Sample (OS) • Duplicate (DUP)

(OS) L986741-15 04/23/18 12:54 • (DUP) R3303916-7 04/23/18 13:22

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	ND	0.000	1	0.000		20

L987444-01 Original Sample (OS) • Duplicate (DUP)

(OS) L987444-01 04/23/18 13:41 • (DUP) R3303916-10 04/23/18 13:42

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Cyanide	U	0.000	1	0.000		20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3303916-2 04/23/18 12:45 • (LCSD) R3303916-3 04/23/18 12:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.45	2.42	97.8	96.9	50.0-150			0.951	20

L986854-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986854-03 04/23/18 13:24 • (MS) R3303916-8 04/23/18 13:25 • (MSD) R3303916-9 04/23/18 13:26

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cyanide	2.04	U	1.36	1.04	66.6	51.0	1	75.0-125	J6	J3 J6	26.5	20

Item B 000222

Method Blank (MB)

(MB) R3302500-1 04/16/18 18:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

L985173-02 Original Sample (OS) • Duplicate (DUP)

(OS) L985173-02 04/16/18 22:50 • (DUP) R3302500-4 04/16/18 23:10

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	11.3	63.9	1	140	J3	15

L985499-01 Original Sample (OS) • Duplicate (DUP)

(OS) L985499-01 04/17/18 06:09 • (DUP) R3302500-7 04/17/18 06:30

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	17.2	17.3	1	0.649		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302500-2 04/16/18 18:50 • (LCSD) R3302500-3 04/16/18 19:11

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	19.7	20.0	98.3	99.8	80.0-120			1.46	15

L985478-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985478-01 04/17/18 02:40 • (MS) R3302500-5 04/17/18 03:01 • (MSD) R3302500-6 04/17/18 03:21

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	60.3	34.3	58.8	56.4	40.6	36.7	1	80.0-120	J6	J6	4.06	15

Item B 000223

Method Blank (MB)

(MB) R3302880-1 04/18/18 12:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Silver	U		0.280	1.00
Vanadium	U		0.240	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302880-2 04/18/18 12:48 • (LCSD) R3302880-3 04/18/18 12:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cadmium	100	98.1	101	98.1	101	80.0-120			2.62	20
Chromium	100	101	104	101	104	80.0-120			2.74	20
Manganese	100	98.9	101	98.9	101	80.0-120			2.62	20
Molybdenum	100	105	108	105	108	80.0-120			2.28	20
Nickel	100	102	104	102	104	80.0-120			2.44	20
Silver	20.0	19.1	19.6	95.3	97.9	80.0-120			2.78	20
Vanadium	100	103	105	103	105	80.0-120			2.07	20

L986114-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986114-01 04/18/18 12:55 • (MS) R3302880-6 04/18/18 13:04 • (MSD) R3302880-7 04/18/18 13:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	100	ND	99.0	96.4	99.0	96.4	1	75.0-125			2.70	20
Chromium	100	6.41	110	106	104	99.6	1	75.0-125			3.95	20
Manganese	100	133	315	495	183	362	1	75.0-125	J5	J3 J5	44.3	20
Molybdenum	100	9.06	122	110	113	101	1	75.0-125			9.78	20
Nickel	100	14.5	136	128	122	113	1	75.0-125			6.59	20
Silver	20.0	ND	18.8	18.6	94.0	93.1	1	75.0-125			1.06	20
Vanadium	100	24.2	139	129	115	105	1	75.0-125			6.99	20

Item B 000224

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only full service environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

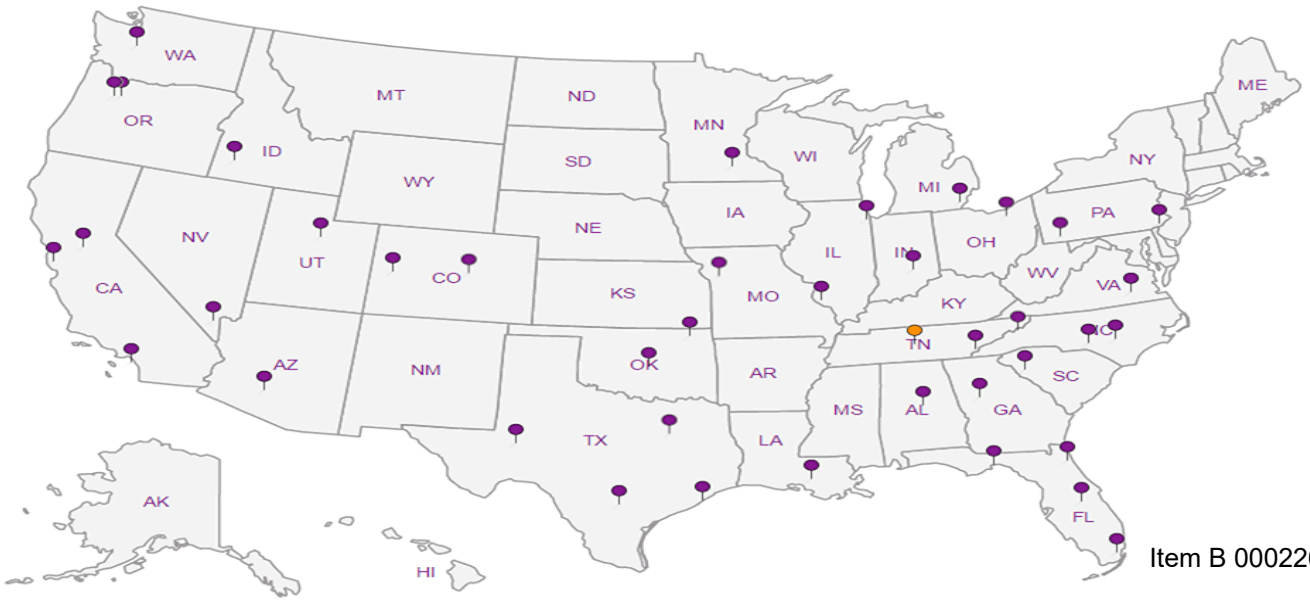
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000226

G135

SLR International Corp
1800 Blankenship Road, Suite 440
West Linn, OR 97068

Alternate billing information:
Accounts Payable
P.O. Box 689
Albany, OR 97321

Report to: Tyler Weber
Email to: tweber@slrconsulting.com

Project Description: Selmet F006 Delisting
City/State Collected: Albany, OR
Phone: (503) 723-4423
FAX:
Client Project #: 108.00256.00029
ESC Key:
Collected by: Tyler Weber
Site/Facility ID#:
P.O.#:
Collected by (signature):
Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Five Day.....25%

Date Results Needed:
Email? __No__Yes
FAX? __No__Yes

Chain of Custody Page 1 of 1

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

CoCode SLRWLOR (lab use only)
Template/Prelogin
Shipped Via:

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-No Pres	Total Metals* 2ozClr - No Pres	Remarks/Contaminant	Sample # (lab only)
Period 3 Filter Press Cake	Comp	SS	-	4/12/18	1320	2	X	X		L985817-01

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____

Remarks: * Total metals include - Cadmium, Chromium, Molybdenum, Nickel, Silver, Vanadium, and Manganese 7466 1466 7835

Flow _____ Other _____

Relinquished by: (Signature)	Date: 4/12/18	Time: 2015	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐	Condition: (lab use only)	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 4.1	Bottles Received: 2	COC SI
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) 904	Date: 4/14/18	Time: 9:00	pH Checked

ESC LAB SCIENCES
Cooler Receipt Form

Client: SLRWLOR		SDG#	485817
Cooler Received/Opened On: 4/14/18		Temperature:	4.1
Received By: Kelsey Rish			
Signature:			

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	AV 4/24/18		
COC Signed / Accurate?			
Bottles arrive intact?			
Correct bottles used?			
Sufficient volume sent?			
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 21, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting

Dear Tyler Weber: Order No.: 1804112

Specialty Analytical received 1 sample(s) on 4/13/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804112**
Date: **5/21/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting

This sample was hand delivered by the client on 4/13/2018 at 12:22.

Notes relating to quality control samples:

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

Revision 1-

This report has been revised in order to correct the units for TCLP Chromium and Vanadium.

Revision 2-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Revision 3-

This report has been revised to include values for TCLP Cd & Mo per client request.

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/12/2018 1:20:00 PM
Project: Selmet F006 Delisting
Lab ID: 1804112-001
Client Sample ID: Period 3 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	46.7	0		wt%	1	4/16/2018 3:00:13 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	880000	17300		µg/Kg-dry	100	4/18/2018 9:22:56 AM
TCLP METALS ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **JRC**
Cadmium, TCLP	ND	5.00		µg/L	10	4/27/2018 5:13:40 PM
Chromium, TCLP	ND	5.00		µg/L	10	4/27/2018 5:13:40 PM
Molybdenum, TCLP	100	25.0		µg/L	10	5/21/2018 11:09:13 AM
Vanadium, TCLP	ND	25.0		µg/L	10	4/27/2018 5:13:40 PM

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25542**
Client ID: **ICV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5180	100	5000	0	104	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25542**
Client ID: **CCV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4960	100	5000	0	99.3	90	110				

Sample ID **LCS-11716**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/17/2018**	RunNo: **25542**
Client ID: **LCSS**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4920	100	5000	0	98.4	80	120				

Sample ID **1804137-001ADUP**	SampType: **DUP**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/17/2018**	RunNo: **25542**
Client ID: **ZZZZZZ**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	ND	960						0	0	20	RF

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID	**1804137-001AMS**	SampType:	**MS**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**ZZZZZZ**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	6410	925	4626	145.6	136	70	130				SMI

Sample ID	**1804137-001AMSD**	SampType:	**MSD**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**ZZZZZZ**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5750	943	4715	145.6	119	70	130	6415	10.9	20	

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:		RunNo:	**25542**
Client ID:	**CCV**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4770	100	5000	0	95.4	90	110				

Sample ID	**MB-11716**	SampType:	**MBLK**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**PBS**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	ND	100									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:				RunNo: **25542**	
Client ID: **CCV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**				SeqNo: **342920**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4800	100	5000	0	96.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **ICV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	51.2	0.100	50.00	0	102	90	110				
Chromium, TCLP	50.2	0.100	50.00	0	100	90	110				
Vanadium, TCLP	49.6	0.500	50.00	0	99.2	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **CCV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	49.1	0.100	50.00	0	98.1	90	110				
Chromium, TCLP	48.2	0.100	50.00	0	96.5	90	110				
Vanadium, TCLP	48.1	0.500	50.00	0	96.2	90	110				

Sample ID **MB-11781**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **PBW**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	0.100									
Chromium, TCLP	ND	0.100									
Vanadium, TCLP	ND	0.500									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID **LCS-11781**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **LCSW**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	46.7	0.100	50.00	0	93.5	80	120				
Chromium, TCLP	49.6	0.100	50.00	0	99.2	80	120				
Vanadium, TCLP	49.6	0.500	50.00	0	99.2	80	120				

Sample ID **1805036-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	5.00						0	0	20	R
Chromium, TCLP	60.3	5.00						63.23	4.80	20	

Sample ID **1805036-001AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	236	5.00	250.0	0.8364	94.1	70	130				
Chromium, TCLP	305	5.00	250.0	63.23	96.5	70	130				

Sample ID **1805036-001AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID **1805036-001AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	235	5.00	250.0	0.8364	93.7	70	130	236.1	0.454	20	
Chromium, TCLP	309	5.00	250.0	63.23	98.3	70	130	304.6	1.44	20	

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **ICV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	47.6	0.500	50.00	0	95.3	90	110				

Sample ID **MB-11781**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **PBW**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	ND	0.500									

Sample ID **LCS-11781**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **LCSW**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348259**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	51.4	0.500	50.00	0	103	80	120				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804112**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode: 6020_TCLP**

Sample ID **1805036-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	29.4	25.0						50.95	53.5	20	RF

Sample ID **1805036-001AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	290	25.0	250.0	50.95	95.6	70	130				

Sample ID **1805036-001AMSD**	SampType: **MSD**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **ZZZZZZ**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	289	25.0	250.0	50.95	95.2	70	130	290.0	0.345	20	

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **CCV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348265**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum, TCLP	45.7	0.500	50.00	0	91.3	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 4/12/18 | Page: 1 of: 1 | Laboratory Project No (internal): 1804112

Project Name: Selmet F006 Relining | Temperature on Receipt:

Client: SLR | Project No: | PO No: | Custody Seal: Y (N) - N/A

Address: 1800 Blankenship Rd, Ste 440 | Collected by: Tyler Weber | Notes:

City, State, Zip: West Linn, OR 97068 | State Collected: OR [X] WA [ ] OTHER | Shipped Via: Client - SLR

Telephone: 503-723-4423 | Report To (PM): Tyler Weber | Sample Disposal: [ ] Return to client [ ] Disposal by lab (after 60 days)

Invoice To: Selmet | PM Email: tweber@slrconsulting.com

Item B 000240

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn, Zirconium	Requested Tests	Comments
1	Period 3 Filter Press Cake	4/12/18	13:20	SL	2	✓	H+ *		Hold All TCLP Tests
2									
3									
4									
5									
6									
7									
8									
9									
10									

*Matrix: A = Air, AQ = Aqueous, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water ** Metals

Turn-around Time: Standard (5-7 Business): [ ] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	4-12-18 / 20:00	x	
x		x	4/13/18 12:22

www.specialtyanalytical.com

APPENDIX G

FILTER PRESS CAKE PERIOD 4 ANALYTICAL RESULTS

Analytical results are included on enclosed Data CD

ANALYTICAL REPORT

May 18, 2018

Selmet, Inc

Sample Delivery Group:	L988246
Samples Received:	04/24/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.esclabsciences.com

TABLE OF CONTENTS

Item B 000243

SAMPLE SUMMARY

PERIOD 4 FILTER PRESS CAKE L988246-01 Solid

Collected by	Collected date/time	Received date/time
Tyler Weber	04/20/18 11:15	04/24/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1103593	1	04/26/18 15:08	04/26/18 15:17	KDW
Wet Chemistry by Method 7199	WG1101979	10	04/24/18 16:56	04/25/18 19:13	GB
Wet Chemistry by Method 9012B	WG1103534	1	04/26/18 22:35	04/27/18 10:05	KK
Wet Chemistry by Method 9056A	WG1105508	5	05/02/18 13:19	05/02/18 16:13	MAJ
Metals (ICP) by Method 6010B	WG1102914	5	04/25/18 18:44	04/26/18 22:30	ST

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	42.1		1	04/26/2018 15:17	WG1103593

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		6.06	23.7	10	04/25/2018 19:13	WG1101979

Sample Narrative:

L988246-01 WG1101979: DILUTION DUE TO MATRIX INTERFERENCE

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	1.82		0.0926	0.594	1	04/27/2018 10:05	WG1103534

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	505		3.09	11.9	5	05/02/2018 16:13	WG1105508

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cadmium	U		0.831	5.94	5	04/26/2018 22:30	WG1102914
Chromium	70.0		1.66	11.9	5	04/26/2018 22:30	WG1102914
Manganese	74.3		1.42	11.9	5	04/26/2018 22:30	WG1102914
Molybdenum	319		1.90	5.94	5	04/26/2018 22:30	WG1102914
Nickel	51.9		5.82	23.7	5	04/26/2018 22:30	WG1102914
Silver	12.9		3.32	11.9	5	04/26/2018 22:30	WG1102914
Vanadium	3060		2.85	23.7	5	04/26/2018 22:30	WG1102914

Sample Narrative:

L988246-01 WG1102914: Post Spike/Serial Dilution Passed for Manganese

Item B 000246

Method Blank (MB)

(MB) R3305192-1 04/26/18 15:17

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L988181-01 Original Sample (OS) • Duplicate (DUP)

(OS) L988181-01 04/26/18 15:17 • (DUP) R3305192-3 04/26/18 15:17

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	84.7	83.5	1	1.36		5

Laboratory Control Sample (LCS)

(LCS) R3305192-2 04/26/18 15:17

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000247

Method Blank (MB)

(MB) R3304849-1 04/25/18 15:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L987075-01 Original Sample (OS) • Duplicate (DUP)

(OS) L987075-01 04/25/18 15:31 • (DUP) R3304849-4 04/25/18 15:40

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	1.19	1.46	1	20.2	J P1	20

L987450-03 Original Sample (OS) • Duplicate (DUP)

(OS) L987450-03 04/25/18 19:01 • (DUP) R3304849-10 04/25/18 19:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	17.9	19.6	10	8.95	J	20

Sample Narrative:

OS: DILUTION DUE TO MATRIX INTERFERENCE

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304849-2 04/25/18 15:14 • (LCSD) R3304849-3 04/25/18 15:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	10.0	9.11	9.31	91.1	93.1	80.0-120			2.24	20

L987142-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987142-09 04/25/18 16:45 • (MS) R3304849-5 04/25/18 16:51 • (MSD) R3304849-6 04/25/18 16:57

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	21.9	58.1	99.4	100	189	192	1	75.0-125	E J5	E J5	0.649	20

Item B 000248

L987142-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L987142-09 04/25/18 16:45 • (MS) R3304849-7 04/25/18 17:03

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	1130	58.1	761	62.4	50	75.0-125	J6

Item B 000249

Method Blank (MB)

(MB) R3305255-1 04/27/18 09:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3305255-2 04/27/18 09:57 • (LCSD) R3305255-3 04/27/18 09:58

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.53	2.48	101	99.3	50.0-150			1.99	20

Item B 000250

Method Blank (MB)

(MB) R3306752-1 05/02/18 15:12

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Fluoride	U		0.261	1.00

L988507-01 Original Sample (OS) • Duplicate (DUP)

(OS) L988507-01 05/02/18 16:29 • (DUP) R3306752-4 05/02/18 16:44

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Fluoride	7.86	6.02	1	26.6	J3	15

L988510-03 Original Sample (OS) • Duplicate (DUP)

(OS) L988510-03 05/02/18 23:25 • (DUP) R3306752-9 05/02/18 23:40

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Fluoride	8.97	9.50	1	5.78		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3306752-2 05/02/18 15:27 • (LCSD) R3306752-3 05/02/18 15:42

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Fluoride	20.0	21.7	21.6	108	108	80.0-120			0.652	15

L988510-12 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L988510-12 05/02/18 20:35 • (MS) R3306752-5 05/02/18 21:22 • (MSD) R3306752-6 05/02/18 21:37

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Fluoride	62.6	9.17	47.2	45.4	60.8	57.8	1	80.0-120	J6	J6	4.04	15

Item B 000251

L988510-13 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L988510-13 05/02/18 21:52 • (MS) R3306752-7 05/02/18 22:08 • (MSD) R3306752-8 05/02/18 22:23

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	64.4	9.48	49.1	48.1	61.5	60.0	1	80.0-120	J6	J6	1.92	15

Item B 000252

Method Blank (MB)

(MB) R3305122-1 04/26/18 13:56

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Silver	U		0.280	1.00
Vanadium	0.256	J	0.240	2.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3305122-2 04/26/18 13:59 • (LCSD) R3305122-3 04/26/18 14:02

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cadmium	100	94.3	94.8	94.3	94.8	80.0-120			0.532	20
Chromium	100	96.0	96.2	96.0	96.2	80.0-120			0.187	20
Manganese	100	94.2	94.7	94.2	94.7	80.0-120			0.559	20
Molybdenum	100	100	100	100	100	80.0-120			0.158	20
Nickel	100	98.5	99.3	98.5	99.3	80.0-120			0.878	20
Silver	20.0	18.9	19.0	94.7	95.2	80.0-120			0.438	20
Vanadium	100	96.9	96.4	96.9	96.4	80.0-120			0.429	20

L988164-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L988164-05 04/26/18 14:06 • (MS) R3305122-6 04/26/18 14:16 • (MSD) R3305122-7 04/26/18 14:19

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Cadmium	163	11.0	174	166	99.7	95.2	1	75.0-125			4.32	20
Chromium	163	22.8	179	165	96.0	87.6	1	75.0-125			7.95	20
Manganese	163	256	438	320	112	39.4	1	75.0-125		J3 J6	31.2	20
Molybdenum	163	5.44	166	152	98.5	89.7	1	75.0-125			9.04	20
Nickel	163	16.8	189	168	105	92.6	1	75.0-125			11.7	20
Silver	32.6	ND	33.7	31.7	103	97.2	1	75.0-125			6.02	20
Vanadium	163	13.2	167	162	94.6	91.3	1	75.0-125			3.33	20

Item B 000253

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

Item B 000254

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the 32nd largest environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

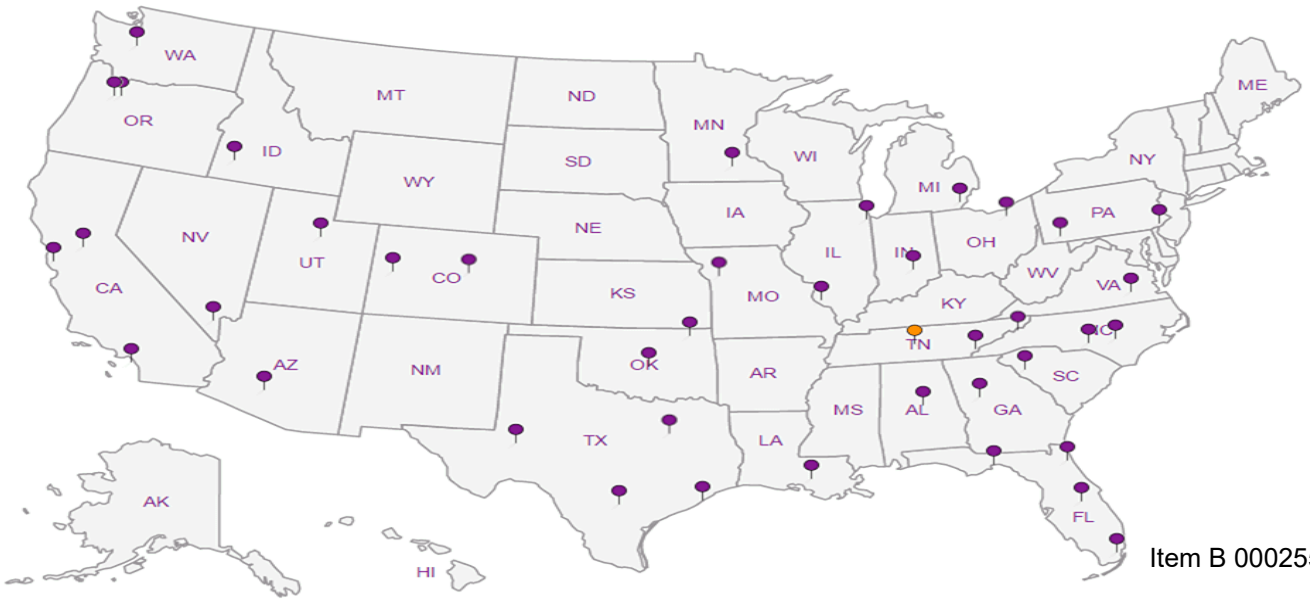
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000255

SLR International Corp
1800 Blankenship Road, Suite 440
West Linn, OR 97068

Alternate billing information:
Accounts Payable
P.O. Box 689
Albany, OR 97321

Report to: Tyler Weber
Email to: tweber@slrconsulting.com

Project Description: Selmet F006 Delisting
City/State Collected: Albany, OR
Phone: (503) 723-4423
FAX:
Client Project #: 108.00256.00029
ESC Key: —
Collected by: Tyler Weber
Site/Facility ID#:
P.O.#: —
Collected by (signature):
Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day.....200%
___ Next Day.....100%
___ Five Day.....25%

Date Results Needed:
Email? __No__Yes
FAX? __No__Yes

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-No Pres	Total Metals* 8ozClr - No Pres	8oz TRC	Remarks/Contaminant	Sample # (lab only)
Period 4 Filter Press Cake	Comp	SS	—	11:15	4/20/2018	2	X	X			-01
—											
—											
—											
—											
—											
—											
—											
—											
—											

C080 Chain of Custody _ of 1

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (615) 758-5858
Phone (800) 767-5859
FAX (615) 758-5859

CoCode SLRWLOR (lab use only)
Template/Prelogin
Shipped Via: L988246

*Matrix: SS - Soil/Solid GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

Remarks: * Total metals include - Cadmium, Chromium, Molybdenum, Nickel, Silver, Vanadium, and Manganese

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
	4/23/18	14:00	
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)
			Kelly Rice

Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ _____
Temp: 3.2
Bottles Received: 2x8oz
Date: 4/24/18
Time: 0845

Condition: (lab use only) OK
pH Checked:
NCF:

Tracking #: 6200 8042 4026

ESC LAB SCIENCES
Cooler Receipt Form

Client: SLR WLOR	SDG#	L988246
Cooler Received/Opened On: 04/24/18	Temperature:	3.2
Received By: Kelly Mercer		
Signature:		

Receipt Check List	NP	Yes	No
COC Seal Present / Intact?		✓	
COC Signed / Accurate?		✓	
Bottles arrive intact?		✓	
Correct bottles used?		✓	
Sufficient volume sent?		✓	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 21, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1804198

Specialty Analytical received 1 sample(s) on 4/23/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804198**
Date: **5/21/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

Notes relating to quality control samples:

B flags reported on QC in this batch reflect results where the sample has a concentration greater then ten times the hit in the method blank. This hit is considered insignificant in relation to the concentration of the sample.

RMI flags reported on QC in this batch reflect RPD results outside control limits due to matrix interference.

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Revision 2-

This report has been revised to include values for TCLP Cd & Mo per client request.

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/20/2018 11:15:00 AM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804198-001
Client Sample ID: Period 4 Filter Press Cake
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	56.2	0		wt%	1	4/24/2018 9:00:27 AM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	1380000	21100		µg/Kg-dry	100	5/8/2018 11:12:10 AM
ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Cadmium, TCLP	ND	5.00		µg/L	10	5/7/2018 4:17:02 PM
Molybdenum, TCLP	64.0	25.0		µg/L	10	5/7/2018 4:17:02 PM
Vanadium, TCLP	ND	25.0		µg/L	10	5/7/2018 4:17:02 PM

QC SUMMARY REPORT

WO#: **1804198**

21-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25809**
Client ID: **ICV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5230	100	5000	0	105	90	110				B

Sample ID **MB-11771**	SampType: **MBLK**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/26/2018**	RunNo: **25809**
Client ID: **PBS**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	428	100									

Sample ID **LCS-11771**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/26/2018**	RunNo: **25809**
Client ID: **LCSS**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4650	100	5000	0	93.0	80	120				B

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25809**
Client ID: **CCV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4690	100	5000	0	93.8	90	110				B

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804198**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID	**1804173-001AMS**	SampType:	**MS**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/26/2018**	RunNo:	**25809**
Client ID:	**ZZZZZZ**	Batch ID:	**11771**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/8/2018**	SeqNo:	**345842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1990000	34700	17330	2016000	-165	70	130				SMI

Sample ID	**1804173-001AMSD**	SampType:	**MSD**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/26/2018**	RunNo:	**25809**
Client ID:	**ZZZZZZ**	Batch ID:	**11771**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/8/2018**	SeqNo:	**345843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1600000	36100	18070	2016000	-2280	70	130	1988000	21.4	20	SRMI

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:		RunNo:	**25809**
Client ID:	**CCV**	Batch ID:	**11771**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/8/2018**	SeqNo:	**345847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4510	100	5000	0	90.2	90	110				B

Sample ID	**1804173-001ADUP**	SampType:	**DUP**	TestCode:	**6020_S**	Units:	**µg/Kg-dry**	Prep Date:	**4/26/2018**	RunNo:	**25809**
Client ID:	**ZZZZZZ**	Batch ID:	**11771**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**5/8/2018**	SeqNo:	**345848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	2730000	332000						2016000	30.2	20	RMI

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804198**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25809**
Client ID: **CCV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4780	100	5000	0	95.6	90	110				B

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804198**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **ICV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	50.0	0.100	50.00	0	100	90	110				
Molybdenum, TCLP	50.2	0.500	50.00	0	100	90	110				
Vanadium, TCLP	49.2	0.500	50.00	0	98.5	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **CCV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	52.1	0.100	50.00	0	104	90	110				
Molybdenum, TCLP	48.7	0.500	50.00	0	97.3	90	110				
Vanadium, TCLP	54.0	0.500	50.00	0	108	90	110				

Sample ID **MB-11850**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **PBW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	0.100									
Molybdenum, TCLP	ND	0.500									
Vanadium, TCLP	ND	0.500									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804198**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **LCS-11850**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **LCSW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	53.3	0.100	50.00	0	107	80	120				
Molybdenum, TCLP	43.7	0.500	50.00	0	87.4	80	120				
Vanadium, TCLP	48.6	0.500	50.00	0	97.1	80	120				

Sample ID **1804173-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **ZZZZZZ**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	ND	5.00						0	0	20	RF
Molybdenum, TCLP	32.3	25.0						84.60	89.5	20	RMI
Vanadium, TCLP	339	25.0						325.3	4.06	20	

Sample ID **1804173-001AMS**	SampType: **MS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **ZZZZZZ**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	274	5.00	250.0	1.051	109	70	130				
Molybdenum, TCLP	257	25.0	250.0	0	103	70	130				
Vanadium, TCLP	607	25.0	250.0	0	243	70	130				SMI

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804198**

21-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID	**1804173-001AMSD**	SampType:	**MSD**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**5/7/2018**	RunNo:	**25812**
Client ID:	**ZZZZZZ**	Batch ID:	**11850**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**5/7/2018**	SeqNo:	**345879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium, TCLP	259	5.00	250.0	1.051	103	70	130	273.7	5.41	20	
Molybdenum, TCLP	254	25.0	250.0	0	102	70	130	257.2	1.15	20	
Vanadium, TCLP	607	25.0	250.0	0	243	70	130	607.2	0.0272	20	SMI

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Item B-000268

Date: 4/23/2018 | Page: 1 of: 1 | Laboratory Project No (internal): 1804198

Project Name: Selmet F006 Delisting | Temperature on Receipt: 5.9°C

Client: SLR International Corporation | Project No: 108.00256.00029 PO No: | Custody Seal: (Y) N Intact

Address: 1800 Blankenship Rd, Suite 440 | Collected by: Tyler Weber | Notes:

City, State, Zip: West Linn, OR, 97068 | State Collected: OR ☑ WA ☐ OTHER | Shipped Via: Client - SLR

Telephone: 503-723-4423 | Report To (PM): Tyler Weber | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 60 days)

Invoice To: Selmet | PM Email: tweber@slrconsulting.com

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP Cd, Cr, Hex Cr, Cyanide, Fluoride, Mo, Ni, Ag, V, Mn, Zirconium	Requested Tests									Comments
1	Period 4 Filter Press Cake	4/20/2018	1115	SL	2	✓											Hold all TCLP tests for follow-up
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*Matrix: A = Air, AQ = Aqueous, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water **Metals

Turn-around Time: Standard (5-7 Business): ☐ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Relinquished	Date/Time	Received	Date/Time
x	4-23-2018 / 1330	x	4-23-2018 13:55
Relinquished	Date/Time	Received	Date/Time
x		x	

APPENDIX H

EVAPORATION POND SEDIMENT ANLYTICAL RESULTS

Analytical results are included on enclosed Data CD

ANALYTICAL REPORT

April 23, 2018

Selmet, Inc

Sample Delivery Group:	L985823
Samples Received:	04/14/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Brian Ford

Brian Ford
Technical Service Representative

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TABLE OF CONTENTS

SAMPLE SUMMARY

POND COMPOSITE B L985823-02 Solid

Collected by	Collected date/time	Received date/time
Tyler Weber	04/12/18 16:00	04/14/18 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1099014	1	04/17/18 13:32	04/17/18 13:49	JD
Wet Chemistry by Method 7199	WG1097962	1	04/15/18 14:01	04/16/18 22:26	MCG
Wet Chemistry by Method 9012B	WG1097299	1	04/17/18 10:28	04/17/18 13:04	KK
Wet Chemistry by Method 9056A	WG1099259	100	04/17/18 16:06	04/19/18 13:20	MAJ
Mercury by Method 7471A	WG1099135	1	04/17/18 11:12	04/17/18 22:37	EL
Metals (ICP) by Method 6010B	WG1099139	10	04/17/18 17:27	04/18/18 14:41	CCE
Polychlorinated Biphenyls (GC) by Method 8082	WG1098940	14.7	04/17/18 10:24	04/17/18 17:14	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270D	WG1098865	14.72	04/16/18 21:54	04/17/18 13:12	CJR
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1099792	15	04/18/18 07:22	04/18/18 16:31	DMG

Item B 000272

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	30.3		1	04/17/2018 13:49	WG1099014

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	3.14	J	0.842	3.30	1	04/16/2018 22:26	WG1097962

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.376	J	0.129	0.825	1	04/17/2018 13:04	WG1097299

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	5990		86.2	330	100	04/19/2018 13:20	WG1099259

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	0.0287	J	0.00924	0.0660	1	04/17/2018 22:37	WG1099135

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		24.8	66.0	10	04/18/2018 14:41	WG1099139
Arsenic	U		21.5	66.0	10	04/18/2018 14:41	WG1099139
Barium	191		5.61	16.5	10	04/18/2018 14:41	WG1099139
Beryllium	U		2.31	6.60	10	04/18/2018 14:41	WG1099139
Cadmium	U		2.31	16.5	10	04/18/2018 14:41	WG1099139
Chromium	205		4.62	33.0	10	04/18/2018 14:41	WG1099139
Cobalt	U		7.59	33.0	10	04/18/2018 14:41	WG1099139
Copper	44.6	J	17.5	66.0	10	04/18/2018 14:41	WG1099139
Lead	7.01	J	6.27	16.5	10	04/18/2018 14:41	WG1099139
Manganese	273		3.96	33.0	10	04/18/2018 14:41	WG1099139
Molybdenum	84.1		5.28	16.5	10	04/18/2018 14:41	WG1099139
Nickel	50.9	J	16.2	66.0	10	04/18/2018 14:41	WG1099139
Selenium	U		24.4	66.0	10	04/18/2018 14:41	WG1099139
Silver	173		9.24	33.0	10	04/18/2018 14:41	WG1099139
Thallium	U		21.5	66.0	10	04/18/2018 14:41	WG1099139
Vanadium	2160		7.92	66.0	10	04/18/2018 14:41	WG1099139
Zinc	92.9	J	19.5	165	10	04/18/2018 14:41	WG1099139

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.170	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1221	U		0.260	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1232	U		0.202	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1242	U		0.154	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1248	U		0.153	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1254	U		0.229	0.825	14.7	04/17/2018 17:14	WG1098940
PCB 1260	U		0.240	0.825	14.7	04/17/2018 17:14	WG1098940

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
(S) Decachlorobiphenyl	*106*			*10.0-148*		*04/17/2018 17:14*	WG1098940
(S) Tetrachloro-m-xylene	*77.5*			*21.0-146*		*04/17/2018 17:14*	WG1098940

Sample Narrative:

L985823-02 WG1098940: Dilution due to sample volume

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.312	1.60	14.72	04/17/2018 13:12	WG1098865
Acenaphthylene	U		0.326	1.60	14.72	04/17/2018 13:12	WG1098865
Anthracene	U		0.307	1.60	14.72	04/17/2018 13:12	WG1098865
Benzidine	U	J4	3.10	16.2	14.72	04/17/2018 13:12	WG1098865
Benzo(a)anthracene	U		0.208	1.60	14.72	04/17/2018 13:12	WG1098865
Benzo(b)fluoranthene	U		0.337	1.60	14.72	04/17/2018 13:12	WG1098865
Benzo(k)fluoranthene	U		0.283	1.60	14.72	04/17/2018 13:12	WG1098865
Benzo(g,h,i)perylene	U		0.350	1.60	14.72	04/17/2018 13:12	WG1098865
Benzo(a)pyrene	U		0.266	1.60	14.72	04/17/2018 13:12	WG1098865
Bis(2-chlorethoxy)methane	U		0.373	16.2	14.72	04/17/2018 13:12	WG1098865
Bis(2-chloroethyl)ether	U		0.436	16.2	14.72	04/17/2018 13:12	WG1098865
Bis(2-chloroisopropyl)ether	U		0.370	16.2	14.72	04/17/2018 13:12	WG1098865
4-Bromophenyl-phenylether	U		0.555	16.2	14.72	04/17/2018 13:12	WG1098865
2-Chloronaphthalene	U		0.311	1.60	14.72	04/17/2018 13:12	WG1098865
4-Chlorophenyl-phenylether	U		0.305	16.2	14.72	04/17/2018 13:12	WG1098865
Chrysene	U		0.270	1.60	14.72	04/17/2018 13:12	WG1098865
Dibenz(a,h)anthracene	U		0.399	1.60	14.72	04/17/2018 13:12	WG1098865
3,3-Dichlorobenzidine	U		3.86	16.2	14.72	04/17/2018 13:12	WG1098865
2,4-Dinitrotoluene	U		0.295	16.2	14.72	04/17/2018 13:12	WG1098865
2,6-Dinitrotoluene	U		0.357	16.2	14.72	04/17/2018 13:12	WG1098865
Fluoranthene	U		0.241	1.60	14.72	04/17/2018 13:12	WG1098865
Fluorene	U		0.330	1.60	14.72	04/17/2018 13:12	WG1098865
Hexachlorobenzene	U		0.416	16.2	14.72	04/17/2018 13:12	WG1098865
Hexachloro-1,3-butadiene	U		0.485	16.2	14.72	04/17/2018 13:12	WG1098865
Hexachlorocyclopentadiene	U		2.85	16.2	14.72	04/17/2018 13:12	WG1098865
Hexachloroethane	U		0.650	16.2	14.72	04/17/2018 13:12	WG1098865
Indeno(1,2,3-cd)pyrene	U		0.376	1.60	14.72	04/17/2018 13:12	WG1098865
Isophorone	U		0.254	16.2	14.72	04/17/2018 13:12	WG1098865
Naphthalene	U		0.432	1.60	14.72	04/17/2018 13:12	WG1098865
Nitrobenzene	U		0.337	16.2	14.72	04/17/2018 13:12	WG1098865
n-Nitrosodimethylamine	U		3.14	16.2	14.72	04/17/2018 13:12	WG1098865
n-Nitrosodiphenylamine	U		0.289	16.2	14.72	04/17/2018 13:12	WG1098865
n-Nitrosodi-n-propylamine	U		0.439	16.2	14.72	04/17/2018 13:12	WG1098865
Phenanthrene	U		0.257	1.60	14.72	04/17/2018 13:12	WG1098865
Benzylbutyl phthalate	2.62	J	0.502	16.2	14.72	04/17/2018 13:12	WG1098865
Bis(2-ethylhexyl)phthalate	3.11	J	0.584	16.2	14.72	04/17/2018 13:12	WG1098865
Di-n-butyl phthalate	U		0.528	16.2	14.72	04/17/2018 13:12	WG1098865
Diethyl phthalate	U		0.337	16.2	14.72	04/17/2018 13:12	WG1098865
Dimethyl phthalate	U		0.262	16.2	14.72	04/17/2018 13:12	WG1098865
Di-n-octyl phthalate	U		0.442	16.2	14.72	04/17/2018 13:12	WG1098865
Pyrene	U		0.598	1.60	14.72	04/17/2018 13:12	WG1098865
1,2,4-Trichlorobenzene	U		0.426	16.2	14.72	04/17/2018 13:12	WG1098865
4-Chloro-3-methylphenol	U		0.232	16.2	14.72	04/17/2018 13:12	WG1098865
2-Chlorophenol	U		0.403	16.2	14.72	04/17/2018 13:12	WG1098865
2,4-Dichlorophenol	U		0.363	16.2	14.72	04/17/2018 13:12	WG1098865
2,4-Dimethylphenol	U		2.29	16.2	14.72	04/17/2018 13:12	WG1098865
4,6-Dinitro-2-methylphenol	U		6.01	16.2	14.72	04/17/2018 13:12	WG1098865

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
2,4-Dinitrophenol	U		4.75	16.2	14.72	04/17/2018 13:12	WG1098865
2-Nitrophenol	U		0.631	16.2	14.72	04/17/2018 13:12	WG1098865
4-Nitrophenol	U		2.55	16.2	14.72	04/17/2018 13:12	WG1098865
Pentachlorophenol	U		2.33	16.2	14.72	04/17/2018 13:12	WG1098865
Phenol	U		0.337	16.2	14.72	04/17/2018 13:12	WG1098865
2,4,6-Trichlorophenol	U		0.380	16.2	14.72	04/17/2018 13:12	WG1098865
(S) 2-Fluorophenol	*52.6*			*20.0-120*		*04/17/2018 13:12*	WG1098865
(S) Phenol-d5	*53.3*			*20.0-120*		*04/17/2018 13:12*	WG1098865
(S) Nitrobenzene-d5	*48.0*			*18.0-125*		*04/17/2018 13:12*	WG1098865
(S) 2-Fluorobiphenyl	*62.9*			*28.0-120*		*04/17/2018 13:12*	WG1098865
(S) 2,4,6-Tribromophenol	*70.7*			*17.0-137*		*04/17/2018 13:12*	WG1098865
(S) p-Terphenyl-d14	*78.9*			*13.0-131*		*04/17/2018 13:12*	WG1098865

Sample Narrative:

L985823-02 WG1098865: Dilution due to sample volume

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Acenaphthene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Acenaphthylene	0.374		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Benzo(a)anthracene	0.0302	B J	0.0297	0.297	15	04/18/2018 16:31	WG1099792
Benzo(a)pyrene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Benzo(b)fluoranthene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Benzo(g,h,i)perylene	0.0510	B J	0.0297	0.297	15	04/18/2018 16:31	WG1099792
Benzo(k)fluoranthene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Chrysene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Dibenz(a,h)anthracene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Fluoranthene	0.0769	B J	0.0297	0.297	15	04/18/2018 16:31	WG1099792
Fluorene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Indeno(1,2,3-cd)pyrene	U		0.0297	0.297	15	04/18/2018 16:31	WG1099792
Naphthalene	U		0.0990	0.990	15	04/18/2018 16:31	WG1099792
Phenanthrene	0.0606	J	0.0297	0.297	15	04/18/2018 16:31	WG1099792
Pyrene	0.0518	J	0.0297	0.297	15	04/18/2018 16:31	WG1099792
1-Methylnaphthalene	U		0.0990	0.990	15	04/18/2018 16:31	WG1099792
2-Methylnaphthalene	U		0.0990	0.990	15	04/18/2018 16:31	WG1099792
2-Chloronaphthalene	U		0.0990	0.990	15	04/18/2018 16:31	WG1099792
(S) Nitrobenzene-d5	*59.9*			*14.0-149*		*04/18/2018 16:31*	WG1099792
(S) 2-Fluorobiphenyl	*94.6*			*34.0-125*		*04/18/2018 16:31*	WG1099792
(S) p-Terphenyl-d14	*87.5*			*23.0-120*		*04/18/2018 16:31*	WG1099792

Sample Narrative:

L985823-02 WG1099792: Dilution due to sample volume

Method Blank (MB)

(MB) R3302661-1 04/17/18 13:49

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L985842-01 Original Sample (OS) • Duplicate (DUP)

(OS) L985842-01 04/17/18 13:49 • (DUP) R3302661-3 04/17/18 13:49

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	75.3	76.0	1	0.943		5

Laboratory Control Sample (LCS)

(LCS) R3302661-2 04/17/18 13:49

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000277

Method Blank (MB)

(MB) R3302379-1 04/16/18 19:35

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L984685-01 Original Sample (OS) • Duplicate (DUP)

(OS) L984685-01 04/16/18 21:04 • (DUP) R3302379-7 04/16/18 21:11

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	U	0.414	1	200	J P1	20

L985938-07 Original Sample (OS) • Duplicate (DUP)

(OS) L985938-07 04/16/18 23:12 • (DUP) R3302379-8 04/16/18 23:19

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	2.02	1.28	1	45.1	P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302379-2 04/16/18 19:42 • (LCSD) R3302379-3 04/16/18 19:48

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	10.0	9.67	9.73	96.7	97.3	80.0-120			0.620	20

L985817-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985817-01 04/16/18 20:15 • (MS) R3302379-4 04/16/18 20:22 • (MSD) R3302379-5 04/16/18 20:28

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	20.0	7.82	24.1	24.4	81.6	82.8	1	75.0-125			0.986	20

Item B 000278

Method Blank (MB)

(MB) R3302461-1 04/17/18 12:33

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Cyanide	U		0.0390	0.250

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302461-2 04/17/18 12:34 • (LCSD) R3302461-3 04/17/18 12:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Cyanide	2.50	2.45	2.38	98.0	95.3	50.0-150			2.76	20

Item B 000279

Method Blank (MB)

(MB) R3303173-1 04/18/18 15:27

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

L986111-01 Original Sample (OS) • Duplicate (DUP)

(OS) L986111-01 04/18/18 18:51 • (DUP) R3303173-4 04/18/18 19:54

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	3.59	3.70	1	2.99		15

L986229-01 Original Sample (OS) • Duplicate (DUP)

(OS) L986229-01 04/19/18 02:10 • (DUP) R3303173-8 04/19/18 02:31

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	ND	3.08	10	0.000		15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3303173-2 04/18/18 15:48 • (LCSD) R3303173-3 04/18/18 16:09

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	19.7	19.5	98.7	97.5	80.0-120			1.16	15

L986111-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986111-02 04/18/18 20:57 • (MS) R3303173-6 04/18/18 21:17 • (MSD) R3303173-7 04/18/18 21:38

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	50.0	3.19	9.15	7.48	11.9	8.57	1	80.0-120	J6	J3 J6	20.1	15

Item B 000280

Method Blank (MB)

(MB) R3302625-1 04/17/18 22:30

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302625-2 04/17/18 22:32 • (LCSD) R3302625-3 04/17/18 22:35

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.345	0.341	115	114	80.0-120			1.08	20

L985823-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985823-02 04/17/18 22:37 • (MS) R3302625-4 04/17/18 22:40 • (MSD) R3302625-5 04/17/18 22:42

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.990	0.0287	1.13	1.11	111	109	1	75.0-125			1.73	20

Item B 000281

Method Blank (MB)

(MB) R3302880-1 04/18/18 12:45

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.750	2.00
Arsenic	U		0.650	2.00
Barium	U		0.170	0.500
Beryllium	U		0.0700	0.200
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Cobalt	U		0.230	1.00
Copper	U		0.530	2.00
Lead	U		0.190	0.500
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Selenium	U		0.740	2.00
Silver	U		0.280	1.00
Thallium	U		0.650	2.00
Vanadium	U		0.240	2.00
Zinc	U		0.590	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302880-2 04/18/18 12:48 • (LCSD) R3302880-3 04/18/18 12:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	100	103	106	103	106	80.0-120			3.22	20
Arsenic	100	98.6	101	98.6	101	80.0-120			2.31	20
Barium	100	105	108	105	108	80.0-120			2.84	20
Beryllium	100	104	106	104	106	80.0-120			2.01	20
Cadmium	100	98.1	101	98.1	101	80.0-120			2.62	20
Chromium	100	101	104	101	104	80.0-120			2.74	20
Cobalt	100	103	105	103	105	80.0-120			2.40	20
Copper	100	101	104	101	104	80.0-120			2.85	20
Lead	100	98.9	101	98.9	101	80.0-120			2.47	20
Manganese	100	98.9	101	98.9	101	80.0-120			2.62	20
Molybdenum	100	105	108	105	108	80.0-120			2.28	20
Nickel	100	102	104	102	104	80.0-120			2.44	20
Selenium	100	102	106	102	106	80.0-120			3.33	20
Silver	20.0	19.1	19.6	95.3	97.9	80.0-120			2.78	20
Thallium	100	97.0	100	97.0	100	80.0-120			3.10	20
Vanadium	100	103	105	103	105	80.0-120			2.07	20

Item B 000282

QUALITY CONTROL SUMMARY

L985823-02

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302880-2 04/18/18 12:48 • (LCSD) R3302880-3 04/18/18 12:51

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Zinc	100	99.5	102	99.5	102	80.0-120			2.72	20

L986114-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L986114-01 04/18/18 12:55 • (MS) R3302880-6 04/18/18 13:04 • (MSD) R3302880-7 04/18/18 13:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	100	ND	80.0	82.9	79.1	82.0	1	75.0-125			3.49	20
Arsenic	100	4.17	105	100	101	96.1	1	75.0-125			4.83	20
Barium	100	17.1	142	176	125	158	1	75.0-125		J3 J5	20.9	20
Beryllium	100	0.306	102	103	102	103	1	75.0-125			0.437	20
Cadmium	100	ND	99.0	96.4	99.0	96.4	1	75.0-125			2.70	20
Chromium	100	6.41	110	106	104	99.6	1	75.0-125			3.95	20
Cobalt	100	ND	114	119	113	118	1	75.0-125			4.48	20
Copper	100	11.3	124	116	112	104	1	75.0-125			6.64	20
Lead	100	1.78	109	104	108	102	1	75.0-125			4.95	20
Manganese	100	133	315	495	183	362	1	75.0-125	J5	J3 J5	44.3	20
Molybdenum	100	9.06	122	110	113	101	1	75.0-125			9.78	20
Nickel	100	14.5	136	128	122	113	1	75.0-125			6.59	20
Selenium	100	ND	102	99.3	102	99.3	1	75.0-125			2.78	20
Silver	20.0	ND	18.8	18.6	94.0	93.1	1	75.0-125			1.06	20
Thallium	100	ND	98.8	96.4	98.8	96.4	1	75.0-125			2.41	20
Vanadium	100	24.2	139	129	115	105	1	75.0-125			6.99	20
Zinc	100	27.9	142	129	114	101	1	75.0-125			9.52	20

Method Blank (MB)

(MB) R3302558-1 04/17/18 14:03

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*102*			*10.0-148*
(S) Tetrachloro-m-xylene	*71.2*			*21.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302558-2 04/17/18 14:17 • (LCSD) R3302558-3 04/17/18 14:30

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.162	0.153	97.1	91.8	37.0-145			5.63	37
PCB 1016	0.167	0.138	0.123	83.0	74.1	36.0-141			11.4	35
(S) Decachlorobiphenyl				*121*	*108*	*10.0-148*				
(S) Tetrachloro-m-xylene				*80.4*	*72.3*	*21.0-146*				

L985064-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985064-02 04/17/18 14:44 • (MS) R3302558-4 04/17/18 14:58 • (MSD) R3302558-5 04/17/18 15:24

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.00580	0.0971	0.111	54.8	63.3	1	10.0-160			13.6	31
PCB 1016	0.167	0.0556	0.142	0.160	51.8	62.4	1	17.0-160			11.7	30
(S) Decachlorobiphenyl					*117*	*106*		*10.0-148*				
(S) Tetrachloro-m-xylene					*81.3*	*83.0*		*21.0-146*				

Item B 000284

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Method Blank (MB)

(MB) R3302455-3 04/17/18 08:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Anthracene	U		0.00632	0.0330
Benzidine	U		0.0637	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
Naphthalene	U		0.00889	0.0330
Nitrobenzene	U		0.00695	0.333
n-Nitrosodimethylamine	U		0.0647	0.333
n-Nitrosodiphenylamine	U		0.00594	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333

Item B 000285

Method Blank (MB)

(MB) R3302455-3 04/17/18 08:55

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*71.0*			*18.0-125*
(S) 2-Fluorobiphenyl	*72.4*			*28.0-120*
(S) p-Terphenyl-d14	*87.1*			*13.0-131*
(S) Phenol-d5	*80.9*			*20.0-120*
(S) 2-Fluorophenol	*84.4*			*20.0-120*
(S) 2,4,6-Tribromophenol	*60.2*			*17.0-137*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302455-1 04/17/18 08:09 • (LCSD) R3302455-2 04/17/18 08:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.667	0.507	0.516	76.0	77.3	47.0-120			1.74	21
Acenaphthylene	0.667	0.531	0.557	79.6	83.5	48.0-120			4.81	21
Anthracene	0.667	0.497	0.449	74.5	67.4	46.0-120			9.99	20
Benzidine	0.667	ND	ND	0.000	0.000	1.00-120	J4	J4	0.000	36
Benzo(a)anthracene	0.667	0.504	0.509	75.5	76.2	46.0-120			0.946	20
Benzo(b)fluoranthene	0.667	0.493	0.531	73.9	79.6	45.0-120			7.36	22
Benzo(k)fluoranthene	0.667	0.496	0.491	74.4	73.6	45.0-120			1.01	23
Benzo(g,h,i)perylene	0.667	0.568	0.585	85.1	87.8	48.0-120			3.09	21
Benzo(a)pyrene	0.667	0.518	0.538	77.6	80.6	46.0-120			3.77	21
Bis(2-chlorethoxy)methane	0.667	0.391	0.397	58.6	59.6	41.0-120			1.60	22
Bis(2-chloroethyl)ether	0.667	0.462	0.493	69.3	73.8	28.0-120			6.31	28
Bis(2-chloroisopropyl)ether	0.667	0.419	0.503	62.8	75.3	40.0-120			18.2	27
4-Bromophenyl-phenylether	0.667	0.566	0.500	84.9	75.0	45.0-120			12.4	20
2-Chloronaphthalene	0.667	0.526	0.537	78.8	80.5	43.0-120			2.10	22

Item B 000286

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302455-1 04/17/18 08:09 • (LCSD) R3302455-2 04/17/18 08:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.667	0.435	0.460	65.2	69.0	46.0-120			5.72	21
Chrysene	0.667	0.486	0.495	72.8	74.2	46.0-120			1.89	20
Dibenz(a,h)anthracene	0.667	0.546	0.558	81.8	83.7	47.0-120			2.25	22
3,3-Dichlorobenzidine	0.667	0.435	0.458	65.3	68.7	20.0-130			5.13	24
2,4-Dinitrotoluene	0.667	0.474	0.511	71.1	76.6	48.0-122			7.46	21
2,6-Dinitrotoluene	0.667	0.504	0.541	75.5	81.1	46.0-120			7.17	21
Fluoranthene	0.667	0.494	0.461	74.1	69.2	46.0-120			6.91	20
Fluorene	0.667	0.486	0.496	72.9	74.4	47.0-120			1.98	20
Hexachlorobenzene	0.667	0.517	0.479	77.5	71.8	42.0-120			7.64	20
Hexachloro-1,3-butadiene	0.667	0.348	0.314	52.1	47.1	36.0-120			10.0	26
Hexachlorocyclopentadiene	0.667	0.432	0.437	64.8	65.6	20.0-124			1.13	26
Hexachloroethane	0.667	0.429	0.452	64.3	67.8	32.0-120			5.26	31
Indeno(1,2,3-cd)pyrene	0.667	0.553	0.597	82.9	89.6	48.0-120			7.67	21
Isophorone	0.667	0.413	0.414	61.9	62.1	42.0-120			0.297	21
Naphthalene	0.667	0.385	0.396	57.8	59.3	41.0-120			2.59	24
Nitrobenzene	0.667	0.411	0.402	61.6	60.3	36.0-120			2.10	24
n-Nitrosodimethylamine	0.667	0.379	0.393	56.8	58.9	20.0-120			3.70	31
n-Nitrosodiphenylamine	0.667	0.577	0.538	86.6	80.6	42.0-120			7.08	20
n-Nitrosodi-n-propylamine	0.667	0.451	0.471	67.6	70.6	39.0-120			4.41	23
Phenanthrene	0.667	0.530	0.492	79.5	73.7	45.0-120			7.58	20
Benzylbutyl phthalate	0.667	0.499	0.522	74.9	78.2	41.0-123			4.39	20
Bis(2-ethylhexyl)phthalate	0.667	0.503	0.485	75.4	72.7	41.0-124			3.61	20
Di-n-butyl phthalate	0.667	0.512	0.487	76.8	73.0	44.0-120			5.00	20
Diethyl phthalate	0.667	0.454	0.460	68.1	69.0	46.0-120			1.26	20
Dimethyl phthalate	0.667	0.517	0.488	77.6	73.2	47.0-120			5.76	21
Di-n-octyl phthalate	0.667	0.500	0.526	75.0	78.9	40.0-123			5.06	21
Pyrene	0.667	0.507	0.513	76.1	77.0	45.0-120			1.19	21
1,2,4-Trichlorobenzene	0.667	0.359	0.365	53.9	54.8	40.0-120			1.68	25
4-Chloro-3-methylphenol	0.667	0.367	0.341	55.1	51.1	46.0-120			7.53	20
2-Chlorophenol	0.667	0.492	0.509	73.7	76.4	37.0-120			3.52	27
2,4-Dichlorophenol	0.667	0.396	0.380	59.4	57.0	45.0-120			4.09	21
2,4-Dimethylphenol	0.667	0.350	0.362	52.5	54.3	40.0-120			3.42	22
4,6-Dinitro-2-methylphenol	0.667	0.572	0.501	85.7	75.2	34.0-120			13.1	23
2,4-Dinitrophenol	0.667	0.314	0.384	47.1	57.6	10.0-120			20.0	30
2-Nitrophenol	0.667	0.423	0.410	63.4	61.5	42.0-120			3.09	24
4-Nitrophenol	0.667	0.447	0.468	67.0	70.2	40.0-120			4.77	21
Pentachlorophenol	0.667	0.458	0.448	68.7	67.2	33.0-122			2.22	22
Phenol	0.667	0.475	0.526	71.2	78.8	38.0-120			10.1	25
2,4,6-Trichlorophenol	0.667	0.525	0.519	78.7	77.8	47.0-120			1.18	22
(S) Nitrobenzene-d5				*59.9*	*58.3*	*18.0-125*				

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302455-1 04/17/18 08:09 • (LCSD) R3302455-2 04/17/18 08:32

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*74.5*	*77.2*	*28.0-120*				
(S) p-Terphenyl-d14				*73.9*	*74.8*	*13.0-131*				
(S) Phenol-d5				*73.1*	*80.1*	*20.0-120*				
(S) 2-Fluorophenol				*77.8*	*81.7*	*20.0-120*				
(S) 2,4,6-Tribromophenol				*68.6*	*61.1*	*17.0-137*				

L985245-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985245-03 04/17/18 14:25 • (MS) R3302455-4 04/17/18 14:49 • (MSD) R3302455-5 04/17/18 15:12

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.822	0.294	0.833	0.840	65.6	66.3	1	37.0-120			0.766	23
Acenaphthylene	0.822	ND	0.611	0.609	74.4	74.2	1	41.0-120			0.239	22
Anthracene	0.822	0.0493	1.10	1.25	128	146	1	30.0-123	J5	J5	12.7	25
Benzidine	0.822	ND	0.107	0.117	13.0	14.3	1	1.00-120			9.25	36
Benzo(a)anthracene	0.822	ND	0.664	0.622	80.8	75.7	1	21.0-123			6.55	26
Benzo(b)fluoranthene	0.822	ND	0.748	0.747	91.0	90.9	1	20.0-127			0.0622	29
Benzo(k)fluoranthene	0.822	ND	0.732	0.738	89.1	89.8	1	22.0-123			0.864	28
Benzo(g,h,i)perylene	0.822	ND	0.339	0.268	41.3	32.6	1	10.0-120			23.5	32
Benzo(a)pyrene	0.822	ND	0.665	0.625	80.9	76.0	1	23.0-120			6.24	27
Bis(2-chlorethoxy)methane	0.822	ND	0.553	0.681	67.3	82.9	1	37.0-120			20.6	22
Bis(2-chloroethyl)ether	0.822	ND	0.629	0.668	76.6	81.3	1	26.0-120			6.01	27
Bis(2-chloroisopropyl)ether	0.822	ND	0.620	0.669	75.5	81.4	1	35.0-120			7.52	25
4-Bromophenyl-phenylether	0.822	ND	0.710	0.722	86.3	87.8	1	34.0-120			1.71	23
2-Chloronaphthalene	0.822	ND	0.463	0.502	56.4	61.0	1	40.0-120			7.92	22
4-Chlorophenyl-phenylether	0.822	ND	0.470	0.447	57.2	54.4	1	37.0-120			5.04	23
Chrysene	0.822	ND	0.652	0.621	79.4	75.5	1	19.0-127			4.98	27
Dibenz(a,h)anthracene	0.822	ND	0.412	0.326	50.2	39.7	1	10.0-120			23.2	28
3,3-Dichlorobenzidine	0.822	ND	0.603	0.580	73.4	70.6	1	10.0-142			3.91	30
2,4-Dinitrotoluene	0.822	ND	0.790	0.841	96.2	102	1	37.0-129			6.19	24
2,6-Dinitrotoluene	0.822	ND	0.748	0.817	91.1	99.4	1	40.0-120			8.75	23
Fluoranthene	0.822	ND	0.538	0.557	62.1	64.4	1	20.0-133			3.46	28
Fluorene	0.822	0.376	0.983	0.997	73.9	75.6	1	35.0-120			1.45	23
Hexachlorobenzene	0.822	ND	0.725	0.796	88.3	96.9	1	33.0-120			9.32	24
Hexachloro-1,3-butadiene	0.822	ND	0.394	0.387	47.9	47.1	1	33.0-120			1.77	25
Hexachlorocyclopentadiene	0.822	ND	0.123	0.0917	15.0	11.2	1	10.0-120			29.5	33
Hexachloroethane	0.822	ND	1.22	1.33	149	162	1	21.0-120	J5	J5	8.26	30
Indeno(1,2,3-cd)pyrene	0.822	ND	0.413	0.335	50.2	40.8	1	10.0-120			20.8	30
Isophorone	0.822	ND	0.649	0.604	78.9	73.4	1	38.0-120			7.19	22

L985245-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L985245-03 04/17/18 14:25 • (MS) R3302455-4 04/17/18 14:49 • (MSD) R3302455-5 04/17/18 15:12

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.822	0.198	0.805	0.777	73.9	70.5	1	37.0-120			3.52	25
Nitrobenzene	0.822	ND	0.564	0.561	68.7	68.2	1	32.0-120			0.667	24
n-Nitrosodimethylamine	0.822	ND	0.499	0.526	60.7	64.0	1	18.0-120			5.26	27
n-Nitrosodiphenylamine	0.822	ND	2.27	2.76	277	335	1	20.0-125	E J5	E J5	19.1	25
n-Nitrosodi-n-propylamine	0.822	ND	0.863	0.829	105	101	1	34.0-120			3.91	23
Phenanthrene	0.822	0.991	2.09	2.35	134	165	1	24.0-124	E J5	E J5	11.4	25
Benzylbutyl phthalate	0.822	ND	0.511	0.465	62.2	56.5	1	18.0-130			9.61	27
Bis(2-ethylhexyl)phthalate	0.822	ND	0.672	0.742	81.7	90.3	1	19.0-127			10.0	28
Di-n-butyl phthalate	0.822	ND	0.588	0.642	71.6	78.2	1	29.0-120			8.85	26
Diethyl phthalate	0.822	ND	0.525	0.525	63.9	63.9	1	42.0-121			0.0437	23
Dimethyl phthalate	0.822	ND	0.819	0.909	99.6	111	1	42.0-120			10.4	23
Di-n-octyl phthalate	0.822	ND	0.710	0.580	86.4	70.5	1	21.0-122			20.2	27
Pyrene	0.822	0.0506	0.617	0.573	68.9	63.6	1	19.0-127			7.31	29
1,2,4-Trichlorobenzene	0.822	ND	0.481	0.452	58.5	55.1	1	39.0-120			6.03	25
4-Chloro-3-methylphenol	0.822	ND	0.714	0.721	86.9	87.8	1	37.0-121			1.04	23
2-Chlorophenol	0.822	ND	0.697	0.699	84.9	85.1	1	34.0-120			0.291	25
2,4-Dichlorophenol	0.822	ND	0.520	0.505	63.3	61.4	1	41.0-120			2.97	22
2,4-Dimethylphenol	0.822	ND	0.512	0.467	62.4	56.8	1	27.0-120			9.31	25
4,6-Dinitro-2-methylphenol	0.822	ND	ND	0.182	0.000	22.1	1	10.0-131	J6	J3	200	29
2,4-Dinitrophenol	0.822	ND	ND	ND	0.000	0.000	1	10.0-142	J6	J6	0.000	30
2-Nitrophenol	0.822	ND	0.496	0.622	60.4	75.7	1	34.0-124			22.4	27
4-Nitrophenol	0.822	ND	1.20	1.18	146	144	1	26.0-133	J5	J5	1.06	25
Pentachlorophenol	0.822	ND	0.516	0.563	62.7	68.6	1	15.0-152			8.88	26
Phenol	0.822	ND	0.629	0.659	76.5	80.3	1	33.0-120			4.75	24
2,4,6-Trichlorophenol	0.822	ND	0.555	0.587	67.5	71.4	1	40.0-125			5.65	24
(S) Nitrobenzene-d5					*79.1*	*75.4*		*18.0-125*				
(S) 2-Fluorobiphenyl					*51.9*	*51.8*		*28.0-120*				
(S) p-Terphenyl-d14					*70.7*	*69.6*		*13.0-131*				
(S) Phenol-d5					*81.1*	*89.4*		*20.0-120*				
(S) 2-Fluorophenol					*82.1*	*86.3*		*20.0-120*				
(S) 2,4,6-Tribromophenol					*87.4*	*95.1*		*17.0-137*				

Method Blank (MB)

(MB) R3302998-3 04/18/18 16:09

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	0.000793	J	0.000600	0.00600
Benzo(a)pyrene	0.000639	J	0.000600	0.00600
Benzo(b)fluoranthene	0.000988	J	0.000600	0.00600
Benzo(g,h,i)perylene	0.000773	J	0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	0.000764	J	0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	0.000947	J	0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	*58.0*			*14.0-149*
(S) 2-Fluorobiphenyl	*98.0*			*34.0-125*
(S) p-Terphenyl-d14	*86.6*			*23.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302998-1 04/18/18 15:25 • (LCSD) R3302998-2 04/18/18 15:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0929	0.0954	116	119	50.0-125			2.68	20
Acenaphthene	0.0800	0.0821	0.0815	103	102	52.0-120			0.626	20
Acenaphthylene	0.0800	0.0791	0.0784	98.9	98.0	51.0-120			0.970	20
Benzo(a)anthracene	0.0800	0.0788	0.0786	98.5	98.3	46.0-121			0.230	20
Benzo(a)pyrene	0.0800	0.0856	0.0852	107	107	42.0-121			0.491	20
Benzo(b)fluoranthene	0.0800	0.0781	0.0792	97.7	98.9	42.0-123			1.31	20
Benzo(g,h,i)perylene	0.0800	0.0904	0.0898	113	112	43.0-128			0.601	20
Benzo(k)fluoranthene	0.0800	0.0913	0.0888	114	111	45.0-128			2.80	20
Chrysene	0.0800	0.0864	0.0880	108	110	48.0-127			1.82	20
Dibenz(a,h)anthracene	0.0800	0.0894	0.0891	112	111	43.0-132			0.352	20
Fluoranthene	0.0800	0.0878	0.0901	110	113	49.0-129			2.56	20

Item B 000290

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3302998-1 04/18/18 15:25 • (LCSD) R3302998-2 04/18/18 15:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0776	0.0769	97.0	96.1	50.0-120			0.968	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0900	0.0899	113	112	44.0-131			0.151	20
Naphthalene	0.0800	0.0725	0.0714	90.7	89.2	50.0-120			1.60	20
Phenanthrene	0.0800	0.0823	0.0843	103	105	48.0-120			2.45	20
Pyrene	0.0800	0.0771	0.0784	96.4	98.0	48.0-135			1.65	20
1-Methylnaphthalene	0.0800	0.0819	0.0808	102	101	52.0-122			1.43	20
2-Methylnaphthalene	0.0800	0.0781	0.0779	97.7	97.4	52.0-120			0.283	20
2-Chloronaphthalene	0.0800	0.0798	0.0797	99.7	99.6	50.0-120			0.158	20
(S) Nitrobenzene-d5				*58.1*	*56.2*	*14.0-149*				
(S) 2-Fluorobiphenyl				*92.3*	*90.0*	*34.0-125*				
(S) p-Terphenyl-d14				*82.0*	*78.5*	*23.0-120*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only full service environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

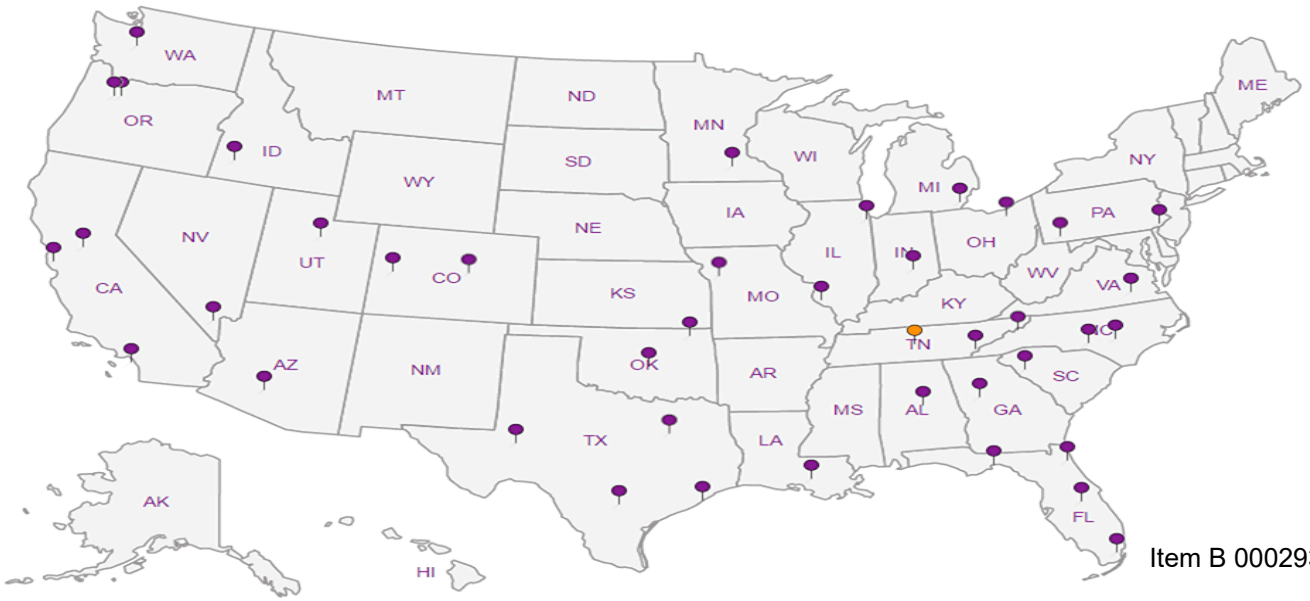
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000293

SLR International Corp. - West Linn, OR

1800 Blankenship Road, Suite 440

Billing Information:
Accounts Payable
1800 Blankenship Rd, Ste 440
West Linn, OR 97068

Report to: Tyler Weber

Email To: tweber@slrconsulting.com

Project Description: Selwet FOG Delisting

City/State Collected: Albany, OR

Phone: 503-723-4423
Fax:

Client Project #

Lab Project # SLRWLOR-WEBER

Collected by (print): Tyler Weber

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-NoPres	SV8082 PCBs 4ozClr-NoPres	SV8270D SVOCs 4ozClr-NoPres	SV8270PAHSIMD LL PAH 4ozClr-NoPres	Total Metals* 2ozClr-NoPres	V8260 VOCs 2ozClr-NoPres	V8260 VOCs 40ml/NaHS04/Syr/MeOH	Remarks	Sample # (lab only)
Pond Grid 26	Grab	SS	—	4/12/18	15:50	4				[redacted]		X	X		4
PondComposite B	Composite	SS	—	4/12/18	16:00	6	X	X	X	X	X				12
		SS													
		SS													
		SS													
		SS													
		SS													
		SS													
		SS													
		SS													

Analysis / Container / Preservative

Chain of Custody Page ___ of ___

ESC LAB SCIENCES
A subsidiary of Pace Analytical
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 985823

G136

Acctnum: SLRWLOR
Template: T132913
Prelogin: P639719
TSR: 110 - Brian Ford
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *Total Metals=please list metals needed here

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # 7466 1466 7835

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	4/12/18	18:00	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature) 904

Trip Blank Received: Yes / No
HCl / MeoH
TBR

Temp: 4.1 °C Bottles Received: 10

Date: 4/14/18 Time: 9:00

If preservation required by Login: Date/Time

Hold:

Condition: NCF / OK

Brian Ford

From: Tyler Weber <tweber@slrconsulting.com>
Sent: Friday, April 13, 2018 8:43 PM
To: Brian Ford
Subject: Re: ESC Lab Sciences Login for Stormwater Sampling L985661

Hi Brian,

There will be a set of samples arriving tomorrow from us. I realized I did not put the trip blank on the pond sample. Please add that to the COC and run it with the pond samples.

Thanks,

Tyler

-------- Original message --------
From: Brian Ford <bford@esclabsciences.com>
Date: 4/13/18 3:24 PM (GMT-08:00)
To: ryanl@selmetinc.com, Steven Hammer <shammer@slrconsulting.com>, judyt@selmetinc.com, Tyler Weber <tweber@slrconsulting.com>
Subject: ESC Lab Sciences Login for Stormwater Sampling L985661

Thank you for choosing ESC Lab Sciences! Please find enclosed PDF files containing your laboratory login confirmation and chain of custody.

ESC is leading the laboratory industry with our On-line Data Management tools. Please contact your Technical Service Representative to learn how to create historical Excel tables or access data in real time using powerful and intuitive software that is only available at http://www.esclabsciences.com.

Visit ESC's secure data management web site - myESC - for all your reporting and data management needs at http://www.esclabsciences.com/login

ESC ... "Your Lab of Choice"

Brian Ford
Technical Service Representative
615-773-9772

ESC Lab Sciences
12065 Lebanon Rd.
Mt. Juliet, TN 37122

SLR

Tyler Weber, E.I.
Project Engineer
503-905-3208
503-939-5486
503-723-4423
tweber@slrconsulting.com

SLR International Corporation
[illegible]

ESC Lab Sciences
Non-Conformance Form

Login #:985823	Client:SLRWLOR	Date:04/14/18	Evaluated by: Matthew Lockhart

Non-Conformance (check applicable items)

	Sample Integrity		Chain of Custody Clarification		
	Parameter(s) past holding time		Login Clarification Needed		**If Broken Container:**
	Improper temperature		Chain of custody is incomplete		Insufficient packing material around container
	Improper container type	x	Please specify Metals requested.		Insufficient packing material inside cooler
	Improper preservation		Please specify TCLP requested.		Improper handling by carrier (FedEx / UPS / Couri
x	Insufficient sample volume.		Received additional samples not listed on coc.		Sample was frozen
	Sample is biphasic.		Sample ids on containers do not match ids on coc		Container lid not intact
	Vials received with headspace.		Trip Blank not received.		**If no Chain of Custody:**
	Broken container		Client did not "X" analysis.		Received by:
	Broken container:		Chain of Custody is missing		Date/Time:
	Sufficient sample remains				Temp./Cont. Rec./pH:
					Carrier:
					Tracking#

Login Comments:Client did not send bulk container sample for Paul Grid 26.
2) Clarification of metals needed to be ran.

Client informed by:		Call		Email	x	Voice Mail		Date:04/16/18	Time:1100
TSR Initials:bjf	Client Contact: Tyler Weber								

Login Instructions:

1) Will report in wet weight.
2) M6010CAM17 + MNICP.

ANALYTICAL REPORT

May 17, 2018

Selmet, Inc

Sample Delivery Group:	L987450
Samples Received:	04/20/2018
Project Number:	108.00256.00029
Description:	Selmet F006 Delisting

Report To: Tyler Weber
33992 SE Seven Mile Lane
Albany, OR 97322

Entire Report Reviewed By: Chris Ward

Chris Ward
Technical Service Representative

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.esclabsciences.com

TABLE OF CONTENTS

POND COMPOSITE A L987450-01 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 14:15
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101966	1	04/24/18 13:49	04/24/18 14:00	KDW
Wet Chemistry by Method 7199	WG1101979	10	04/24/18 16:56	04/25/18 18:48	GB
Wet Chemistry by Method 9012B	WG1101728	1	04/25/18 14:33	04/25/18 16:46	KK
Wet Chemistry by Method 9056A	WG1101642	20	04/23/18 20:48	04/25/18 16:51	MAJ
Mercury by Method 7471A	WG1102647	1	04/24/18 22:58	04/25/18 08:57	ABL
Metals (ICP) by Method 6010B	WG1102597	20	04/24/18 20:58	04/26/18 12:11	TRB
Polychlorinated Biphenyls (GC) by Method 8082	WG1101748	1	04/23/18 06:42	04/23/18 16:59	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270D	WG1101733	10	04/24/18 08:28	04/27/18 22:01	ADF
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1101758	1	04/23/18 07:16	04/24/18 15:30	DMG

POND COMPOSITE C L987450-02 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 14:05
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101966	1	04/24/18 13:49	04/24/18 14:00	KDW
Wet Chemistry by Method 7199	WG1101979	10	04/24/18 16:56	04/25/18 18:55	GB
Wet Chemistry by Method 9012B	WG1101728	1	04/25/18 14:33	04/25/18 16:47	KK
Wet Chemistry by Method 9056A	WG1101642	50	04/23/18 20:48	04/25/18 17:33	MAJ
Mercury by Method 7471A	WG1102647	1	04/24/18 22:58	04/25/18 09:00	ABL
Metals (ICP) by Method 6010B	WG1102597	10	04/24/18 20:58	04/26/18 13:21	TRB
Polychlorinated Biphenyls (GC) by Method 8082	WG1101748	1	04/23/18 06:42	04/23/18 17:13	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270D	WG1101733	10	04/24/18 08:28	04/27/18 21:14	CJR
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1101758	1	04/23/18 07:16	04/24/18 16:33	DMG

POND COMPOSITE D L987450-03 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 12:55
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101966	1	04/24/18 13:49	04/24/18 14:00	KDW
Wet Chemistry by Method 7199	WG1101979	10	04/24/18 16:56	04/25/18 19:01	GB
Wet Chemistry by Method 9012B	WG1101728	1	04/25/18 14:33	04/25/18 16:48	KK
Wet Chemistry by Method 9056A	WG1101642	50	04/23/18 20:48	04/25/18 18:36	MAJ
Mercury by Method 7471A	WG1102647	1	04/24/18 22:58	04/25/18 09:02	ABL
Metals (ICP) by Method 6010B	WG1102597	10	04/24/18 20:58	04/26/18 13:24	TRB
Polychlorinated Biphenyls (GC) by Method 8082	WG1101748	1	04/23/18 06:42	04/23/18 17:28	TD
Semi Volatile Organic Compounds (GC/MS) by Method 8270D	WG1101733	10	04/24/18 08:28	04/27/18 21:38	CJR
Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM	WG1101758	1	04/23/18 07:16	04/24/18 16:55	DMG

POND GRID 16 L987450-04 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 13:35
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101966	1	04/24/18 13:49	04/24/18 14:00	KDW
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1101154	1	04/18/18 13:35	04/20/18 19:32	LRL

POND GRID 26 L987450-05 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 13:15
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101966	1	04/24/18 13:49	04/24/18 14:00	KDW
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1101154	1	04/18/18 13:15	04/20/18 19:52	LRL

SAMPLE SUMMARY

POND GRID 42 L987450-06 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 13:55
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101968	1	04/23/18 17:04	04/23/18 17:13	JD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1101154	1	04/18/18 13:55	04/20/18 20:12	LRL

POND GRID 59 L987450-07 Solid

Collected by: Tyler Weber
Collected date/time: 04/18/18 11:30
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Total Solids by Method 2540 G-2011	WG1101968	1	04/23/18 17:04	04/23/18 17:13	JD
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1101154	1.14	04/18/18 11:30	04/20/18 20:32	LRL

TRIP BLANK L987450-08 GW

Collected by: Tyler Weber
Collected date/time: 04/18/18 00:00
Received date/time: 04/20/18 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (GC/MS) by Method 8260B	WG1101237	1	04/20/18 22:23	04/20/18 22:23	RAS

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Chris Ward

Chris Ward
Technical Service Representative

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	43.0		1	04/24/2018 14:00	WG1101966

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		5.93	23.3	10	04/25/2018 18:48	WG1101979

Sample Narrative:

L987450-01 WG1101979: DILUTION DUE TO MATRIX INTERFERENCE

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0907	0.581	1	04/25/2018 16:46	WG1101728

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	3080		12.1	46.5	20	04/25/2018 16:51	WG1101642

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00651	0.0465	1	04/25/2018 08:57	WG1102647

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		34.9	93.0	20	04/26/2018 12:11	WG1102597
Arsenic	U		30.2	93.0	20	04/26/2018 12:11	WG1102597
Barium	75.7		7.91	23.3	20	04/26/2018 12:11	WG1102597
Beryllium	U		3.26	9.30	20	04/26/2018 12:11	WG1102597
Cadmium	U		3.26	23.3	20	04/26/2018 12:11	WG1102597
Chromium	110		6.51	46.5	20	04/26/2018 12:11	WG1102597
Cobalt	U		10.7	46.5	20	04/26/2018 12:11	WG1102597
Copper	U		24.6	93.0	20	04/26/2018 12:11	WG1102597
Lead	U		8.84	23.3	20	04/26/2018 12:11	WG1102597
Manganese	185		5.58	46.5	20	04/26/2018 12:11	WG1102597
Molybdenum	80.5		7.44	23.3	20	04/26/2018 12:11	WG1102597
Nickel	32.2	J	22.8	93.0	20	04/26/2018 12:11	WG1102597
Selenium	U		34.4	93.0	20	04/26/2018 12:11	WG1102597
Silver	105		13.0	46.5	20	04/26/2018 12:11	WG1102597
Thallium	U		30.2	93.0	20	04/26/2018 12:11	WG1102597
Vanadium	1130		11.2	93.0	20	04/26/2018 12:11	WG1102597
Zinc	56.7	J	27.4	233	20	04/26/2018 12:11	WG1102597

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00814	0.0395	1	04/23/2018 16:59	WG1101748
PCB 1221	U		0.0125	0.0395	1	04/23/2018 16:59	WG1101748
PCB 1232	U		0.00970	0.0395	1	04/23/2018 16:59	WG1101748
PCB 1242	U		0.00739	0.0395	1	04/23/2018 16:59	WG1101748

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1248	U		0.00732	0.0395	1	04/23/2018 16:59	WG1101748
PCB 1254	U		0.0110	0.0395	1	04/23/2018 16:59	WG1101748
PCB 1260	U		0.0115	0.0395	1	04/23/2018 16:59	WG1101748
(S) Decachlorobiphenyl	*46.6*			*10.0-148*		*04/23/2018 16:59*	WG1101748
(S) Tetrachloro-m-xylene	*56.8*			*21.0-146*		*04/23/2018 16:59*	WG1101748

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.149	0.767	10	04/27/2018 22:01	WG1101733
Acenaphthylene	U		0.156	0.767	10	04/27/2018 22:01	WG1101733
Anthracene	U		0.147	0.767	10	04/27/2018 22:01	WG1101733
Benzidine	U		1.48	7.74	10	04/27/2018 22:01	WG1101733
Benzo(a)anthracene	U		0.0995	0.767	10	04/27/2018 22:01	WG1101733
Benzo(b)fluoranthene	U		0.162	0.767	10	04/27/2018 22:01	WG1101733
Benzo(k)fluoranthene	U		0.135	0.767	10	04/27/2018 22:01	WG1101733
Benzo(g,h,i)perylene	U		0.168	0.767	10	04/27/2018 22:01	WG1101733
Benzo(a)pyrene	U		0.127	0.767	10	04/27/2018 22:01	WG1101733
Bis(2-chlorethoxy)methane	U		0.179	7.74	10	04/27/2018 22:01	WG1101733
Bis(2-chloroethyl)ether	U		0.208	7.74	10	04/27/2018 22:01	WG1101733
Bis(2-chloroisopropyl)ether	U		0.177	7.74	10	04/27/2018 22:01	WG1101733
4-Bromophenyl-phenylether	U		0.265	7.74	10	04/27/2018 22:01	WG1101733
2-Chloronaphthalene	U		0.149	0.767	10	04/27/2018 22:01	WG1101733
4-Chlorophenyl-phenylether	U		0.146	7.74	10	04/27/2018 22:01	WG1101733
Chrysene	U		0.129	0.767	10	04/27/2018 22:01	WG1101733
Dibenz(a,h)anthracene	U		0.191	0.767	10	04/27/2018 22:01	WG1101733
3,3-Dichlorobenzidine	U		1.85	7.74	10	04/27/2018 22:01	WG1101733
2,4-Dinitrotoluene	U		0.141	7.74	10	04/27/2018 22:01	WG1101733
2,6-Dinitrotoluene	U		0.171	7.74	10	04/27/2018 22:01	WG1101733
Fluoranthene	U		0.115	0.767	10	04/27/2018 22:01	WG1101733
Fluorene	U		0.159	0.767	10	04/27/2018 22:01	WG1101733
Hexachlorobenzene	U		0.199	7.74	10	04/27/2018 22:01	WG1101733
Hexachloro-1,3-butadiene	U		0.233	7.74	10	04/27/2018 22:01	WG1101733
Hexachlorocyclopentadiene	U		1.36	7.74	10	04/27/2018 22:01	WG1101733
Hexachloroethane	U		0.312	7.74	10	04/27/2018 22:01	WG1101733
Indeno(1,2,3-cd)pyrene	U		0.179	0.767	10	04/27/2018 22:01	WG1101733
Isophorone	U	J3	0.121	7.74	10	04/27/2018 22:01	WG1101733
Naphthalene	U		0.207	0.767	10	04/27/2018 22:01	WG1101733
Nitrobenzene	U		0.162	7.74	10	04/27/2018 22:01	WG1101733
n-Nitrosodimethylamine	U		1.50	7.74	10	04/27/2018 22:01	WG1101733
n-Nitrosodiphenylamine	U		0.138	7.74	10	04/27/2018 22:01	WG1101733
n-Nitrosodi-n-propylamine	U		0.211	7.74	10	04/27/2018 22:01	WG1101733
Phenanthrene	U		0.123	0.767	10	04/27/2018 22:01	WG1101733
Benzylbutyl phthalate	0.304	J	0.239	7.74	10	04/27/2018 22:01	WG1101733
Bis(2-ethylhexyl)phthalate	0.477	J	0.279	7.74	10	04/27/2018 22:01	WG1101733
Di-n-butyl phthalate	U		0.253	7.74	10	04/27/2018 22:01	WG1101733
Diethyl phthalate	U		0.161	7.74	10	04/27/2018 22:01	WG1101733
Dimethyl phthalate	U		0.126	7.74	10	04/27/2018 22:01	WG1101733
Di-n-octyl phthalate	U		0.211	7.74	10	04/27/2018 22:01	WG1101733
Pyrene	U		0.286	0.767	10	04/27/2018 22:01	WG1101733
1,2,4-Trichlorobenzene	U		0.204	7.74	10	04/27/2018 22:01	WG1101733
4-Chloro-3-methylphenol	U	J3	0.111	7.74	10	04/27/2018 22:01	WG1101733
2-Chlorophenol	U		0.193	7.74	10	04/27/2018 22:01	WG1101733
2,4-Dichlorophenol	U		0.173	7.74	10	04/27/2018 22:01	WG1101733
2,4-Dimethylphenol	U		1.10	7.74	10	04/27/2018 22:01	WG1101733
4,6-Dinitro-2-methylphenol	U		2.88	7.74	10	04/27/2018 22:01	WG1101733

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
2,4-Dinitrophenol	U		2.28	7.74	10	04/27/2018 22:01	WG1101733
2-Nitrophenol	U		0.302	7.74	10	04/27/2018 22:01	WG1101733
4-Nitrophenol	U		1.22	7.74	10	04/27/2018 22:01	WG1101733
Pentachlorophenol	U		1.12	7.74	10	04/27/2018 22:01	WG1101733
Phenol	U		0.162	7.74	10	04/27/2018 22:01	WG1101733
2,4,6-Trichlorophenol	U		0.181	7.74	10	04/27/2018 22:01	WG1101733
(S) 2-Fluorophenol	*99.0*			*20.0-120*		*04/27/2018 22:01*	WG1101733
(S) Phenol-d5	*85.7*			*20.0-120*		*04/27/2018 22:01*	WG1101733
(S) Nitrobenzene-d5	*99.5*			*18.0-125*		*04/27/2018 22:01*	WG1101733
(S) 2-Fluorobiphenyl	*92.1*			*28.0-120*		*04/27/2018 22:01*	WG1101733
(S) 2,4,6-Tribromophenol	*81.8*			*17.0-137*		*04/27/2018 22:01*	WG1101733
(S) p-Terphenyl-d14	*100*			*13.0-131*		*04/27/2018 22:01*	WG1101733

Sample Narrative:

L987450-01 WG1101733: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Acenaphthene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Acenaphthylene	0.00687	J J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Benzo(a)anthracene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Benzo(a)pyrene	0.00756	J J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Benzo(b)fluoranthene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Benzo(g,h,i)perylene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Benzo(k)fluoranthene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Chrysene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Dibenz(a,h)anthracene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Fluoranthene	0.00183	J J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Fluorene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Indeno(1,2,3-cd)pyrene	U	J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Naphthalene	U		0.00465	0.0465	1	04/24/2018 15:30	WG1101758
Phenanthrene	0.00146	J J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
Pyrene	0.00152	J J3	0.00140	0.0140	1	04/24/2018 15:30	WG1101758
1-Methylnaphthalene	U	J3	0.00465	0.0465	1	04/24/2018 15:30	WG1101758
2-Methylnaphthalene	U	J3	0.00465	0.0465	1	04/24/2018 15:30	WG1101758
2-Chloronaphthalene	U	J3	0.00465	0.0465	1	04/24/2018 15:30	WG1101758
(S) Nitrobenzene-d5	*79.3*			*14.0-149*		*04/24/2018 15:30*	WG1101758
(S) 2-Fluorobiphenyl	*69.0*			*34.0-125*		*04/24/2018 15:30*	WG1101758
(S) p-Terphenyl-d14	*75.8*			*23.0-120*		*04/24/2018 15:30*	WG1101758

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	45.2		1	04/24/2018 14:00	WG1101966

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	U		5.64	22.1	10	04/25/2018 18:55	WG1101979

Sample Narrative:

L987450-02 WG1101979: DILUTION DUE TO MATRIX INTERFERENCE

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	0.0950	J	0.0862	0.553	1	04/25/2018 16:47	WG1101728

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	3500		28.7	111	50	04/25/2018 17:33	WG1101642

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00619	0.0442	1	04/25/2018 09:00	WG1102647

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		16.6	44.2	10	04/26/2018 13:21	WG1102597
Arsenic	U		14.4	44.2	10	04/26/2018 13:21	WG1102597
Barium	114		3.76	11.1	10	04/26/2018 13:21	WG1102597
Beryllium	U		1.55	4.42	10	04/26/2018 13:21	WG1102597
Cadmium	U		1.55	11.1	10	04/26/2018 13:21	WG1102597
Chromium	80.4		3.09	22.1	10	04/26/2018 13:21	WG1102597
Cobalt	U		5.08	22.1	10	04/26/2018 13:21	WG1102597
Copper	U		11.7	44.2	10	04/26/2018 13:21	WG1102597
Lead	U		4.20	11.1	10	04/26/2018 13:21	WG1102597
Manganese	130		2.65	22.1	10	04/26/2018 13:21	WG1102597
Molybdenum	115		3.54	11.1	10	04/26/2018 13:21	WG1102597
Nickel	16.9	J	10.8	44.2	10	04/26/2018 13:21	WG1102597
Selenium	U		16.4	44.2	10	04/26/2018 13:21	WG1102597
Silver	190		6.19	22.1	10	04/26/2018 13:21	WG1102597
Thallium	U		14.4	44.2	10	04/26/2018 13:21	WG1102597
Vanadium	1330		5.31	44.2	10	04/26/2018 13:21	WG1102597
Zinc	44.0	J	13.0	111	10	04/26/2018 13:21	WG1102597

Sample Narrative:

L987450-02 WG1102597: Reporting at 10x, MS/MSD refer to 1x diluton only and are not applicable.

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1016	U		0.00774	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1221	U		0.0119	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1232	U		0.00922	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1242	U		0.00703	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1248	U		0.00696	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1254	U		0.0104	0.0376	1	04/23/2018 17:13	WG1101748
PCB 1260	U		0.0109	0.0376	1	04/23/2018 17:13	WG1101748
(S) Decachlorobiphenyl	*47.7*			*10.0-148*		*04/23/2018 17:13*	WG1101748
(S) Tetrachloro-m-xylene	*52.6*			*21.0-146*		*04/23/2018 17:13*	WG1101748

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.142	0.729	10	04/27/2018 21:14	WG1101733
Acenaphthylene	U		0.148	0.729	10	04/27/2018 21:14	WG1101733
Anthracene	U		0.140	0.729	10	04/27/2018 21:14	WG1101733
Benzidine	U		1.41	7.36	10	04/27/2018 21:14	WG1101733
Benzo(a)anthracene	U		0.0946	0.729	10	04/27/2018 21:14	WG1101733
Benzo(b)fluoranthene	U		0.154	0.729	10	04/27/2018 21:14	WG1101733
Benzo(k)fluoranthene	U		0.129	0.729	10	04/27/2018 21:14	WG1101733
Benzo(g,h,i)perylene	U		0.159	0.729	10	04/27/2018 21:14	WG1101733
Benzo(a)pyrene	U		0.121	0.729	10	04/27/2018 21:14	WG1101733
Bis(2-chlorethoxy)methane	U		0.170	7.36	10	04/27/2018 21:14	WG1101733
Bis(2-chloroethyl)ether	U		0.198	7.36	10	04/27/2018 21:14	WG1101733
Bis(2-chloroisopropyl)ether	U		0.168	7.36	10	04/27/2018 21:14	WG1101733
4-Bromophenyl-phenylether	U		0.252	7.36	10	04/27/2018 21:14	WG1101733
2-Chloronaphthalene	U		0.141	0.729	10	04/27/2018 21:14	WG1101733
4-Chlorophenyl-phenylether	U		0.139	7.36	10	04/27/2018 21:14	WG1101733
Chrysene	U		0.123	0.729	10	04/27/2018 21:14	WG1101733
Dibenz(a,h)anthracene	U		0.181	0.729	10	04/27/2018 21:14	WG1101733
3,3-Dichlorobenzidine	U		1.76	7.36	10	04/27/2018 21:14	WG1101733
2,4-Dinitrotoluene	U		0.134	7.36	10	04/27/2018 21:14	WG1101733
2,6-Dinitrotoluene	U		0.163	7.36	10	04/27/2018 21:14	WG1101733
Fluoranthene	U		0.110	0.729	10	04/27/2018 21:14	WG1101733
Fluorene	U		0.151	0.729	10	04/27/2018 21:14	WG1101733
Hexachlorobenzene	U		0.189	7.36	10	04/27/2018 21:14	WG1101733
Hexachloro-1,3-butadiene	U		0.221	7.36	10	04/27/2018 21:14	WG1101733
Hexachlorocyclopentadiene	U		1.30	7.36	10	04/27/2018 21:14	WG1101733
Hexachloroethane	U		0.296	7.36	10	04/27/2018 21:14	WG1101733
Indeno(1,2,3-cd)pyrene	U		0.171	0.729	10	04/27/2018 21:14	WG1101733
Isophorone	U	J3	0.115	7.36	10	04/27/2018 21:14	WG1101733
Naphthalene	U		0.197	0.729	10	04/27/2018 21:14	WG1101733
Nitrobenzene	U		0.154	7.36	10	04/27/2018 21:14	WG1101733
n-Nitrosodimethylamine	U		1.43	7.36	10	04/27/2018 21:14	WG1101733
n-Nitrosodiphenylamine	U		0.131	7.36	10	04/27/2018 21:14	WG1101733
n-Nitrosodi-n-propylamine	U		0.200	7.36	10	04/27/2018 21:14	WG1101733
Phenanthrene	U		0.117	0.729	10	04/27/2018 21:14	WG1101733
Benzylbutyl phthalate	0.243	J	0.228	7.36	10	04/27/2018 21:14	WG1101733
Bis(2-ethylhexyl)phthalate	0.322	J	0.265	7.36	10	04/27/2018 21:14	WG1101733
Di-n-butyl phthalate	U		0.241	7.36	10	04/27/2018 21:14	WG1101733
Diethyl phthalate	U		0.153	7.36	10	04/27/2018 21:14	WG1101733
Dimethyl phthalate	U		0.119	7.36	10	04/27/2018 21:14	WG1101733
Di-n-octyl phthalate	U		0.200	7.36	10	04/27/2018 21:14	WG1101733
Pyrene	U		0.272	0.729	10	04/27/2018 21:14	WG1101733
1,2,4-Trichlorobenzene	U		0.194	7.36	10	04/27/2018 21:14	WG1101733
4-Chloro-3-methylphenol	U	J3	0.105	7.36	10	04/27/2018 21:14	WG1101733

Item B 000307

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
2-Chlorophenol	U		0.184	7.36	10	04/27/2018 21:14	WG1101733
2,4-Dichlorophenol	U		0.165	7.36	10	04/27/2018 21:14	WG1101733
2,4-Dimethylphenol	U		1.04	7.36	10	04/27/2018 21:14	WG1101733
4,6-Dinitro-2-methylphenol	U		2.74	7.36	10	04/27/2018 21:14	WG1101733
2,4-Dinitrophenol	U		2.17	7.36	10	04/27/2018 21:14	WG1101733
2-Nitrophenol	U		0.287	7.36	10	04/27/2018 21:14	WG1101733
4-Nitrophenol	U		1.16	7.36	10	04/27/2018 21:14	WG1101733
Pentachlorophenol	U		1.06	7.36	10	04/27/2018 21:14	WG1101733
Phenol	U		0.154	7.36	10	04/27/2018 21:14	WG1101733
2,4,6-Trichlorophenol	U		0.172	7.36	10	04/27/2018 21:14	WG1101733
(S) 2-Fluorophenol	*90.4*			*20.0-120*		*04/27/2018 21:14*	WG1101733
(S) Phenol-d5	*78.7*			*20.0-120*		*04/27/2018 21:14*	WG1101733
(S) Nitrobenzene-d5	*86.4*			*18.0-125*		*04/27/2018 21:14*	WG1101733
(S) 2-Fluorobiphenyl	*86.7*			*28.0-120*		*04/27/2018 21:14*	WG1101733
(S) 2,4,6-Tribromophenol	*85.6*			*17.0-137*		*04/27/2018 21:14*	WG1101733
(S) p-Terphenyl-d14	*95.6*			*13.0-131*		*04/27/2018 21:14*	WG1101733

Sample Narrative:

L987450-02 WG1101733: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Acenaphthene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Acenaphthylene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Benzo(a)anthracene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Benzo(a)pyrene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Benzo(b)fluoranthene	0.00159	J	0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Benzo(g,h,i)perylene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Benzo(k)fluoranthene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Chrysene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Dibenz(a,h)anthracene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Fluoranthene	0.00187	J	0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Fluorene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Indeno(1,2,3-cd)pyrene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Naphthalene	U		0.00442	0.0442	1	04/24/2018 16:33	WG1101758
Phenanthrene	U		0.00133	0.0133	1	04/24/2018 16:33	WG1101758
Pyrene	0.00212	J	0.00133	0.0133	1	04/24/2018 16:33	WG1101758
1-Methylnaphthalene	0.00679	J	0.00442	0.0442	1	04/24/2018 16:33	WG1101758
2-Methylnaphthalene	U		0.00442	0.0442	1	04/24/2018 16:33	WG1101758
2-Chloronaphthalene	U		0.00442	0.0442	1	04/24/2018 16:33	WG1101758
(S) Nitrobenzene-d5	*75.5*			*14.0-149*		*04/24/2018 16:33*	WG1101758
(S) 2-Fluorobiphenyl	*72.8*			*34.0-125*		*04/24/2018 16:33*	WG1101758
(S) p-Terphenyl-d14	*84.4*			*23.0-120*		*04/24/2018 16:33*	WG1101758

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	45.0		1	04/24/2018 14:00	WG1101966

Wet Chemistry by Method 7199

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Hexavalent Chromium	17.9	J	5.66	22.2	10	04/25/2018 19:01	WG1101979

Sample Narrative:

L987450-03 WG1101979: DILUTION DUE TO MATRIX INTERFERENCE

Wet Chemistry by Method 9012B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Cyanide	U		0.0866	0.555	1	04/25/2018 16:48	WG1101728

Wet Chemistry by Method 9056A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Fluoride	4190		28.9	111	50	04/25/2018 18:36	WG1101642

Mercury by Method 7471A

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Mercury	U		0.00622	0.0444	1	04/25/2018 09:02	WG1102647

Metals (ICP) by Method 6010B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Antimony	U		16.6	44.4	10	04/26/2018 13:24	WG1102597
Arsenic	U		14.4	44.4	10	04/26/2018 13:24	WG1102597
Barium	122		3.77	11.1	10	04/26/2018 13:24	WG1102597
Beryllium	U		1.55	4.44	10	04/26/2018 13:24	WG1102597
Cadmium	U		1.55	11.1	10	04/26/2018 13:24	WG1102597
Chromium	97.5		3.11	22.2	10	04/26/2018 13:24	WG1102597
Cobalt	10.1	J	5.11	22.2	10	04/26/2018 13:24	WG1102597
Copper	17.4	J	11.8	44.4	10	04/26/2018 13:24	WG1102597
Lead	U		4.22	11.1	10	04/26/2018 13:24	WG1102597
Manganese	179		2.66	22.2	10	04/26/2018 13:24	WG1102597
Molybdenum	81.0		3.55	11.1	10	04/26/2018 13:24	WG1102597
Nickel	27.5	J	10.9	44.4	10	04/26/2018 13:24	WG1102597
Selenium	U		16.4	44.4	10	04/26/2018 13:24	WG1102597
Silver	73.3		6.22	22.2	10	04/26/2018 13:24	WG1102597
Thallium	U		14.4	44.4	10	04/26/2018 13:24	WG1102597
Vanadium	1060		5.33	44.4	10	04/26/2018 13:24	WG1102597
Zinc	53.8	J	13.1	111	10	04/26/2018 13:24	WG1102597

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
PCB 1016	U		0.00777	0.0377	1	04/23/2018 17:28	WG1101748
PCB 1221	U		0.0119	0.0377	1	04/23/2018 17:28	WG1101748
PCB 1232	U		0.00926	0.0377	1	04/23/2018 17:28	WG1101748
PCB 1242	U		0.00706	0.0377	1	04/23/2018 17:28	WG1101748

Polychlorinated Biphenyls (GC) by Method 8082

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
PCB 1248	U		0.00699	0.0377	1	04/23/2018 17:28	WG1101748
PCB 1254	U		0.0105	0.0377	1	04/23/2018 17:28	WG1101748
PCB 1260	U		0.0110	0.0377	1	04/23/2018 17:28	WG1101748
(S) Decachlorobiphenyl	*50.4*			*10.0-148*		*04/23/2018 17:28*	WG1101748
(S) Tetrachloro-m-xylene	*55.2*			*21.0-146*		*04/23/2018 17:28*	WG1101748

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Acenaphthene	U		0.143	0.733	10	04/27/2018 21:38	WG1101733
Acenaphthylene	U		0.149	0.733	10	04/27/2018 21:38	WG1101733
Anthracene	U		0.140	0.733	10	04/27/2018 21:38	WG1101733
Benzidine	U		1.41	7.39	10	04/27/2018 21:38	WG1101733
Benzo(a)anthracene	U		0.0950	0.733	10	04/27/2018 21:38	WG1101733
Benzo(b)fluoranthene	U		0.154	0.733	10	04/27/2018 21:38	WG1101733
Benzo(k)fluoranthene	U		0.129	0.733	10	04/27/2018 21:38	WG1101733
Benzo(g,h,i)perylene	U		0.160	0.733	10	04/27/2018 21:38	WG1101733
Benzo(a)pyrene	U		0.122	0.733	10	04/27/2018 21:38	WG1101733
Bis(2-chlorethoxy)methane	U		0.171	7.39	10	04/27/2018 21:38	WG1101733
Bis(2-chloroethyl)ether	U		0.199	7.39	10	04/27/2018 21:38	WG1101733
Bis(2-chloroisopropyl)ether	U		0.169	7.39	10	04/27/2018 21:38	WG1101733
4-Bromophenyl-phenylether	U		0.253	7.39	10	04/27/2018 21:38	WG1101733
2-Chloronaphthalene	U		0.142	0.733	10	04/27/2018 21:38	WG1101733
4-Chlorophenyl-phenylether	U		0.139	7.39	10	04/27/2018 21:38	WG1101733
Chrysene	U		0.123	0.733	10	04/27/2018 21:38	WG1101733
Dibenz(a,h)anthracene	U		0.182	0.733	10	04/27/2018 21:38	WG1101733
3,3-Dichlorobenzidine	U		1.76	7.39	10	04/27/2018 21:38	WG1101733
2,4-Dinitrotoluene	U		0.135	7.39	10	04/27/2018 21:38	WG1101733
2,6-Dinitrotoluene	U		0.164	7.39	10	04/27/2018 21:38	WG1101733
Fluoranthene	U		0.110	0.733	10	04/27/2018 21:38	WG1101733
Fluorene	U		0.151	0.733	10	04/27/2018 21:38	WG1101733
Hexachlorobenzene	U		0.190	7.39	10	04/27/2018 21:38	WG1101733
Hexachloro-1,3-butadiene	U		0.222	7.39	10	04/27/2018 21:38	WG1101733
Hexachlorocyclopentadiene	U		1.30	7.39	10	04/27/2018 21:38	WG1101733
Hexachloroethane	U		0.297	7.39	10	04/27/2018 21:38	WG1101733
Indeno(1,2,3-cd)pyrene	U		0.171	0.733	10	04/27/2018 21:38	WG1101733
Isophorone	U	J3	0.116	7.39	10	04/27/2018 21:38	WG1101733
Naphthalene	U		0.197	0.733	10	04/27/2018 21:38	WG1101733
Nitrobenzene	U		0.154	7.39	10	04/27/2018 21:38	WG1101733
n-Nitrosodimethylamine	U		1.44	7.39	10	04/27/2018 21:38	WG1101733
n-Nitrosodiphenylamine	U		0.132	7.39	10	04/27/2018 21:38	WG1101733
n-Nitrosodi-n-propylamine	U		0.201	7.39	10	04/27/2018 21:38	WG1101733
Phenanthrene	U		0.117	0.733	10	04/27/2018 21:38	WG1101733
Benzylbutyl phthalate	0.408	J	0.229	7.39	10	04/27/2018 21:38	WG1101733
Bis(2-ethylhexyl)phthalate	0.269	J	0.266	7.39	10	04/27/2018 21:38	WG1101733
Di-n-butyl phthalate	U		0.242	7.39	10	04/27/2018 21:38	WG1101733
Diethyl phthalate	U		0.153	7.39	10	04/27/2018 21:38	WG1101733
Dimethyl phthalate	U		0.120	7.39	10	04/27/2018 21:38	WG1101733
Di-n-octyl phthalate	U		0.201	7.39	10	04/27/2018 21:38	WG1101733
Pyrene	U		0.273	0.733	10	04/27/2018 21:38	WG1101733
1,2,4-Trichlorobenzene	U		0.194	7.39	10	04/27/2018 21:38	WG1101733
4-Chloro-3-methylphenol	U	J3	0.106	7.39	10	04/27/2018 21:38	WG1101733
2-Chlorophenol	U		0.184	7.39	10	04/27/2018 21:38	WG1101733
2,4-Dichlorophenol	U		0.166	7.39	10	04/27/2018 21:38	WG1101733
2,4-Dimethylphenol	U		1.05	7.39	10	04/27/2018 21:38	WG1101733
4,6-Dinitro-2-methylphenol	U		2.75	7.39	10	04/27/2018 21:38	WG1101733

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
2,4-Dinitrophenol	U		2.18	7.39	10	04/27/2018 21:38	WG1101733
2-Nitrophenol	U		0.289	7.39	10	04/27/2018 21:38	WG1101733
4-Nitrophenol	U		1.17	7.39	10	04/27/2018 21:38	WG1101733
Pentachlorophenol	U		1.07	7.39	10	04/27/2018 21:38	WG1101733
Phenol	U		0.154	7.39	10	04/27/2018 21:38	WG1101733
2,4,6-Trichlorophenol	U		0.173	7.39	10	04/27/2018 21:38	WG1101733
(S) 2-Fluorophenol	*97.7*			*20.0-120*		*04/27/2018 21:38*	WG1101733
(S) Phenol-d5	*85.7*			*20.0-120*		*04/27/2018 21:38*	WG1101733
(S) Nitrobenzene-d5	*95.1*			*18.0-125*		*04/27/2018 21:38*	WG1101733
(S) 2-Fluorobiphenyl	*85.5*			*28.0-120*		*04/27/2018 21:38*	WG1101733
(S) 2,4,6-Tribromophenol	*82.0*			*17.0-137*		*04/27/2018 21:38*	WG1101733
(S) p-Terphenyl-d14	*91.9*			*13.0-131*		*04/27/2018 21:38*	WG1101733

Sample Narrative:

L987450-03 WG1101733: Dilution due to matrix impact during extract concentration procedure

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
Anthracene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Acenaphthene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Acenaphthylene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Benzo(a)anthracene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Benzo(a)pyrene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Benzo(b)fluoranthene	0.00145	J	0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Benzo(g,h,i)perylene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Benzo(k)fluoranthene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Chrysene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Dibenz(a,h)anthracene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Fluoranthene	0.00183	J	0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Fluorene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Indeno(1,2,3-cd)pyrene	U		0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Naphthalene	U		0.00444	0.0444	1	04/24/2018 16:55	WG1101758
Phenanthrene	0.00138	J	0.00133	0.0133	1	04/24/2018 16:55	WG1101758
Pyrene	0.00188	J	0.00133	0.0133	1	04/24/2018 16:55	WG1101758
1-Methylnaphthalene	0.00762	J	0.00444	0.0444	1	04/24/2018 16:55	WG1101758
2-Methylnaphthalene	U		0.00444	0.0444	1	04/24/2018 16:55	WG1101758
2-Chloronaphthalene	U		0.00444	0.0444	1	04/24/2018 16:55	WG1101758
(S) Nitrobenzene-d5	*78.1*			*14.0-149*		*04/24/2018 16:55*	WG1101758
(S) 2-Fluorobiphenyl	*72.2*			*34.0-125*		*04/24/2018 16:55*	WG1101758
(S) p-Terphenyl-d14	*83.8*			*23.0-120*		*04/24/2018 16:55*	WG1101758

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	46.8		1	04/24/2018 14:00	WG1101966

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acetone	0.275		0.0214	0.107	1	04/20/2018 19:32	WG1101154
Acrylonitrile	U		0.00383	0.0214	1	04/20/2018 19:32	WG1101154
Benzene	0.00111	J	0.000577	0.00214	1	04/20/2018 19:32	WG1101154
Bromobenzene	U		0.000607	0.00214	1	04/20/2018 19:32	WG1101154
Bromodichloromethane	U		0.000543	0.00214	1	04/20/2018 19:32	WG1101154
Bromoform	U		0.000907	0.00214	1	04/20/2018 19:32	WG1101154
Bromomethane	U		0.00286	0.0107	1	04/20/2018 19:32	WG1101154
n-Butylbenzene	U		0.000552	0.00214	1	04/20/2018 19:32	WG1101154
sec-Butylbenzene	U		0.000430	0.00214	1	04/20/2018 19:32	WG1101154
tert-Butylbenzene	U		0.000440	0.00214	1	04/20/2018 19:32	WG1101154
Carbon tetrachloride	U		0.000701	0.00214	1	04/20/2018 19:32	WG1101154
Chlorobenzene	U		0.000453	0.00214	1	04/20/2018 19:32	WG1101154
Chlorodibromomethane	U		0.000797	0.00214	1	04/20/2018 19:32	WG1101154
Chloroethane	U		0.00202	0.0107	1	04/20/2018 19:32	WG1101154
Chloroform	U		0.000490	0.0107	1	04/20/2018 19:32	WG1101154
Chloromethane	U		0.000802	0.00534	1	04/20/2018 19:32	WG1101154
2-Chlorotoluene	U		0.000644	0.00214	1	04/20/2018 19:32	WG1101154
4-Chlorotoluene	U		0.000513	0.00214	1	04/20/2018 19:32	WG1101154
1,2-Dibromo-3-Chloropropane	U		0.00224	0.0107	1	04/20/2018 19:32	WG1101154
1,2-Dibromoethane	U		0.000733	0.00214	1	04/20/2018 19:32	WG1101154
Dibromomethane	U		0.000817	0.00214	1	04/20/2018 19:32	WG1101154
1,2-Dichlorobenzene	U		0.000652	0.00214	1	04/20/2018 19:32	WG1101154
1,3-Dichlorobenzene	U		0.000511	0.00214	1	04/20/2018 19:32	WG1101154
1,4-Dichlorobenzene	U		0.000483	0.00214	1	04/20/2018 19:32	WG1101154
Dichlorodifluoromethane	U		0.00152	0.0107	1	04/20/2018 19:32	WG1101154
1,1-Dichloroethane	U		0.000425	0.00214	1	04/20/2018 19:32	WG1101154
1,2-Dichloroethane	U		0.000567	0.00214	1	04/20/2018 19:32	WG1101154
1,1-Dichloroethene	U		0.000648	0.00214	1	04/20/2018 19:32	WG1101154
cis-1,2-Dichloroethene	U		0.000502	0.00214	1	04/20/2018 19:32	WG1101154
trans-1,2-Dichloroethene	U		0.000564	0.00214	1	04/20/2018 19:32	WG1101154
1,2-Dichloropropane	U		0.000765	0.00214	1	04/20/2018 19:32	WG1101154
1,1-Dichloropropene	U		0.000678	0.00214	1	04/20/2018 19:32	WG1101154
1,3-Dichloropropane	U		0.000443	0.00214	1	04/20/2018 19:32	WG1101154
cis-1,3-Dichloropropene	U		0.000560	0.00214	1	04/20/2018 19:32	WG1101154
trans-1,3-Dichloropropene	U		0.000571	0.00214	1	04/20/2018 19:32	WG1101154
2,2-Dichloropropane	U		0.000597	0.00214	1	04/20/2018 19:32	WG1101154
Di-isopropyl ether	U		0.000530	0.00214	1	04/20/2018 19:32	WG1101154
Ethylbenzene	U		0.000635	0.00214	1	04/20/2018 19:32	WG1101154
Hexachloro-1,3-butadiene	U		0.000731	0.00214	1	04/20/2018 19:32	WG1101154
Isopropylbenzene	U		0.000520	0.00214	1	04/20/2018 19:32	WG1101154
p-Isopropyltoluene	U		0.000436	0.00214	1	04/20/2018 19:32	WG1101154
2-Butanone (MEK)	U		0.0100	0.0214	1	04/20/2018 19:32	WG1101154
Methylene Chloride	U		0.00214	0.0107	1	04/20/2018 19:32	WG1101154
4-Methyl-2-pentanone (MIBK)	0.00474	J	0.00402	0.0214	1	04/20/2018 19:32	WG1101154
Methyl tert-butyl ether	U		0.000453	0.00214	1	04/20/2018 19:32	WG1101154
Naphthalene	U		0.00214	0.0107	1	04/20/2018 19:32	WG1101154
n-Propylbenzene	U		0.000440	0.00214	1	04/20/2018 19:32	WG1101154
Styrene	U		0.000500	0.00214	1	04/20/2018 19:32	WG1101154
1,1,1,2-Tetrachloroethane	U		0.000564	0.00214	1	04/20/2018 19:32	WG1101154
1,1,2,2-Tetrachloroethane	U		0.000780	0.00214	1	04/20/2018 19:32	WG1101154

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.000780	0.00214	1	04/20/2018 19:32	WG1101154
Tetrachloroethene	U		0.000590	0.00214	1	04/20/2018 19:32	WG1101154
Toluene	U		0.000928	0.0107	1	04/20/2018 19:32	WG1101154
1,2,3-Trichlorobenzene	U		0.000654	0.00214	1	04/20/2018 19:32	WG1101154
1,2,4-Trichlorobenzene	U		0.000830	0.00214	1	04/20/2018 19:32	WG1101154
1,1,1-Trichloroethane	U		0.000611	0.00214	1	04/20/2018 19:32	WG1101154
1,1,2-Trichloroethane	U		0.000592	0.00214	1	04/20/2018 19:32	WG1101154
Trichloroethene	U		0.000597	0.00214	1	04/20/2018 19:32	WG1101154
Trichlorofluoromethane	U		0.000817	0.0107	1	04/20/2018 19:32	WG1101154
1,2,3-Trichloropropane	U		0.00158	0.00534	1	04/20/2018 19:32	WG1101154
1,2,4-Trimethylbenzene	U		0.000451	0.00214	1	04/20/2018 19:32	WG1101154
1,2,3-Trimethylbenzene	U		0.000614	0.00214	1	04/20/2018 19:32	WG1101154
1,3,5-Trimethylbenzene	U		0.000569	0.00214	1	04/20/2018 19:32	WG1101154
Vinyl chloride	U		0.000622	0.00214	1	04/20/2018 19:32	WG1101154
Xylenes, Total	U		0.00149	0.00641	1	04/20/2018 19:32	WG1101154
(S) Toluene-d8	*94.3*			*80.0-120*		*04/20/2018 19:32*	WG1101154
(S) Dibromofluoromethane	*122*			*74.0-131*		*04/20/2018 19:32*	WG1101154
(S) 4-Bromofluorobenzene	*138*	J1		*64.0-132*		*04/20/2018 19:32*	WG1101154

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	62.2		1	04/24/2018 14:00	WG1101966

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acetone	0.0924		0.0161	0.0803	1	04/20/2018 19:52	WG1101154
Acrylonitrile	U		0.00288	0.0161	1	04/20/2018 19:52	WG1101154
Benzene	0.000823	J	0.000434	0.00161	1	04/20/2018 19:52	WG1101154
Bromobenzene	U		0.000456	0.00161	1	04/20/2018 19:52	WG1101154
Bromodichloromethane	U		0.000408	0.00161	1	04/20/2018 19:52	WG1101154
Bromoform	U		0.000681	0.00161	1	04/20/2018 19:52	WG1101154
Bromomethane	U		0.00215	0.00803	1	04/20/2018 19:52	WG1101154
n-Butylbenzene	U		0.000414	0.00161	1	04/20/2018 19:52	WG1101154
sec-Butylbenzene	U		0.000323	0.00161	1	04/20/2018 19:52	WG1101154
tert-Butylbenzene	U		0.000331	0.00161	1	04/20/2018 19:52	WG1101154
Carbon tetrachloride	U		0.000527	0.00161	1	04/20/2018 19:52	WG1101154
Chlorobenzene	U		0.000341	0.00161	1	04/20/2018 19:52	WG1101154
Chlorodibromomethane	U		0.000599	0.00161	1	04/20/2018 19:52	WG1101154
Chloroethane	U		0.00152	0.00803	1	04/20/2018 19:52	WG1101154
Chloroform	U		0.000368	0.00803	1	04/20/2018 19:52	WG1101154
Chloromethane	U		0.000602	0.00402	1	04/20/2018 19:52	WG1101154
2-Chlorotoluene	U		0.000484	0.00161	1	04/20/2018 19:52	WG1101154
4-Chlorotoluene	U		0.000386	0.00161	1	04/20/2018 19:52	WG1101154
1,2-Dibromo-3-Chloropropane	U		0.00169	0.00803	1	04/20/2018 19:52	WG1101154
1,2-Dibromoethane	U		0.000551	0.00161	1	04/20/2018 19:52	WG1101154
Dibromomethane	U		0.000614	0.00161	1	04/20/2018 19:52	WG1101154
1,2-Dichlorobenzene	U		0.000490	0.00161	1	04/20/2018 19:52	WG1101154
1,3-Dichlorobenzene	U		0.000384	0.00161	1	04/20/2018 19:52	WG1101154
1,4-Dichlorobenzene	U		0.000363	0.00161	1	04/20/2018 19:52	WG1101154
Dichlorodifluoromethane	U		0.00115	0.00803	1	04/20/2018 19:52	WG1101154
1,1-Dichloroethane	U		0.000320	0.00161	1	04/20/2018 19:52	WG1101154
1,2-Dichloroethane	U		0.000426	0.00161	1	04/20/2018 19:52	WG1101154
1,1-Dichloroethene	U		0.000487	0.00161	1	04/20/2018 19:52	WG1101154
cis-1,2-Dichloroethene	U		0.000378	0.00161	1	04/20/2018 19:52	WG1101154
trans-1,2-Dichloroethene	U		0.000424	0.00161	1	04/20/2018 19:52	WG1101154
1,2-Dichloropropane	U		0.000575	0.00161	1	04/20/2018 19:52	WG1101154
1,1-Dichloropropene	U		0.000509	0.00161	1	04/20/2018 19:52	WG1101154
1,3-Dichloropropane	U		0.000333	0.00161	1	04/20/2018 19:52	WG1101154
cis-1,3-Dichloropropene	U		0.000421	0.00161	1	04/20/2018 19:52	WG1101154
trans-1,3-Dichloropropene	U		0.000429	0.00161	1	04/20/2018 19:52	WG1101154
2,2-Dichloropropane	U		0.000448	0.00161	1	04/20/2018 19:52	WG1101154
Di-isopropyl ether	U		0.000398	0.00161	1	04/20/2018 19:52	WG1101154
Ethylbenzene	U		0.000477	0.00161	1	04/20/2018 19:52	WG1101154
Hexachloro-1,3-butadiene	U		0.000549	0.00161	1	04/20/2018 19:52	WG1101154
Isopropylbenzene	U		0.000390	0.00161	1	04/20/2018 19:52	WG1101154
p-Isopropyltoluene	U		0.000328	0.00161	1	04/20/2018 19:52	WG1101154
2-Butanone (MEK)	U		0.00752	0.0161	1	04/20/2018 19:52	WG1101154
Methylene Chloride	U		0.00161	0.00803	1	04/20/2018 19:52	WG1101154
4-Methyl-2-pentanone (MIBK)	U		0.00302	0.0161	1	04/20/2018 19:52	WG1101154
Methyl tert-butyl ether	U		0.000341	0.00161	1	04/20/2018 19:52	WG1101154
Naphthalene	U		0.00161	0.00803	1	04/20/2018 19:52	WG1101154
n-Propylbenzene	U		0.000331	0.00161	1	04/20/2018 19:52	WG1101154
Styrene	U		0.000376	0.00161	1	04/20/2018 19:52	WG1101154
1,1,1,2-Tetrachloroethane	U		0.000424	0.00161	1	04/20/2018 19:52	WG1101154
1,1,2,2-Tetrachloroethane	U		0.000586	0.00161	1	04/20/2018 19:52	WG1101154

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.000586	0.00161	1	04/20/2018 19:52	WG1101154
Tetrachloroethene	U		0.000443	0.00161	1	04/20/2018 19:52	WG1101154
Toluene	U		0.000697	0.00803	1	04/20/2018 19:52	WG1101154
1,2,3-Trichlorobenzene	U		0.000492	0.00161	1	04/20/2018 19:52	WG1101154
1,2,4-Trichlorobenzene	U		0.000623	0.00161	1	04/20/2018 19:52	WG1101154
1,1,1-Trichloroethane	U		0.000459	0.00161	1	04/20/2018 19:52	WG1101154
1,1,2-Trichloroethane	U		0.000445	0.00161	1	04/20/2018 19:52	WG1101154
Trichloroethene	U		0.000448	0.00161	1	04/20/2018 19:52	WG1101154
Trichlorofluoromethane	U		0.000614	0.00803	1	04/20/2018 19:52	WG1101154
1,2,3-Trichloropropane	U		0.00119	0.00402	1	04/20/2018 19:52	WG1101154
1,2,4-Trimethylbenzene	U		0.000339	0.00161	1	04/20/2018 19:52	WG1101154
1,2,3-Trimethylbenzene	U		0.000461	0.00161	1	04/20/2018 19:52	WG1101154
1,3,5-Trimethylbenzene	U		0.000427	0.00161	1	04/20/2018 19:52	WG1101154
Vinyl chloride	U		0.000467	0.00161	1	04/20/2018 19:52	WG1101154
Xylenes, Total	U		0.00112	0.00482	1	04/20/2018 19:52	WG1101154
(S) Toluene-d8	*99.8*			*80.0-120*		*04/20/2018 19:52*	WG1101154
(S) Dibromofluoromethane	*114*			*74.0-131*		*04/20/2018 19:52*	WG1101154
(S) 4-Bromofluorobenzene	*106*			*64.0-132*		*04/20/2018 19:52*	WG1101154

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	56.8	J3	1	04/23/2018 17:13	WG1101968

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acetone	0.0319	J	0.0176	0.0880	1	04/20/2018 20:12	WG1101154
Acrylonitrile	U		0.00315	0.0176	1	04/20/2018 20:12	WG1101154
Benzene	0.000665	J	0.000475	0.00176	1	04/20/2018 20:12	WG1101154
Bromobenzene	U		0.000500	0.00176	1	04/20/2018 20:12	WG1101154
Bromodichloromethane	U		0.000447	0.00176	1	04/20/2018 20:12	WG1101154
Bromoform	U		0.000746	0.00176	1	04/20/2018 20:12	WG1101154
Bromomethane	U		0.00236	0.00880	1	04/20/2018 20:12	WG1101154
n-Butylbenzene	U		0.000454	0.00176	1	04/20/2018 20:12	WG1101154
sec-Butylbenzene	U		0.000354	0.00176	1	04/20/2018 20:12	WG1101154
tert-Butylbenzene	U		0.000363	0.00176	1	04/20/2018 20:12	WG1101154
Carbon tetrachloride	U		0.000577	0.00176	1	04/20/2018 20:12	WG1101154
Chlorobenzene	U		0.000373	0.00176	1	04/20/2018 20:12	WG1101154
Chlorodibromomethane	U		0.000657	0.00176	1	04/20/2018 20:12	WG1101154
Chloroethane	U		0.00167	0.00880	1	04/20/2018 20:12	WG1101154
Chloroform	U		0.000403	0.00880	1	04/20/2018 20:12	WG1101154
Chloromethane	U		0.000660	0.00440	1	04/20/2018 20:12	WG1101154
2-Chlorotoluene	U		0.000530	0.00176	1	04/20/2018 20:12	WG1101154
4-Chlorotoluene	U		0.000422	0.00176	1	04/20/2018 20:12	WG1101154
1,2-Dibromo-3-Chloropropane	U		0.00185	0.00880	1	04/20/2018 20:12	WG1101154
1,2-Dibromoethane	U		0.000604	0.00176	1	04/20/2018 20:12	WG1101154
Dibromomethane	U		0.000672	0.00176	1	04/20/2018 20:12	WG1101154
1,2-Dichlorobenzene	U		0.000537	0.00176	1	04/20/2018 20:12	WG1101154
1,3-Dichlorobenzene	U		0.000421	0.00176	1	04/20/2018 20:12	WG1101154
1,4-Dichlorobenzene	U		0.000398	0.00176	1	04/20/2018 20:12	WG1101154
Dichlorodifluoromethane	U		0.00126	0.00880	1	04/20/2018 20:12	WG1101154
1,1-Dichloroethane	U		0.000350	0.00176	1	04/20/2018 20:12	WG1101154
1,2-Dichloroethane	U		0.000467	0.00176	1	04/20/2018 20:12	WG1101154
1,1-Dichloroethene	U		0.000533	0.00176	1	04/20/2018 20:12	WG1101154
cis-1,2-Dichloroethene	U		0.000414	0.00176	1	04/20/2018 20:12	WG1101154
trans-1,2-Dichloroethene	U		0.000465	0.00176	1	04/20/2018 20:12	WG1101154
1,2-Dichloropropane	U		0.000630	0.00176	1	04/20/2018 20:12	WG1101154
1,1-Dichloropropene	U		0.000558	0.00176	1	04/20/2018 20:12	WG1101154
1,3-Dichloropropane	U		0.000364	0.00176	1	04/20/2018 20:12	WG1101154
cis-1,3-Dichloropropene	U		0.000461	0.00176	1	04/20/2018 20:12	WG1101154
trans-1,3-Dichloropropene	U		0.000470	0.00176	1	04/20/2018 20:12	WG1101154
2,2-Dichloropropane	U		0.000491	0.00176	1	04/20/2018 20:12	WG1101154
Di-isopropyl ether	U		0.000437	0.00176	1	04/20/2018 20:12	WG1101154
Ethylbenzene	U		0.000523	0.00176	1	04/20/2018 20:12	WG1101154
Hexachloro-1,3-butadiene	U		0.000602	0.00176	1	04/20/2018 20:12	WG1101154
Isopropylbenzene	U		0.000428	0.00176	1	04/20/2018 20:12	WG1101154
p-Isopropyltoluene	U		0.000359	0.00176	1	04/20/2018 20:12	WG1101154
2-Butanone (MEK)	U		0.00824	0.0176	1	04/20/2018 20:12	WG1101154
Methylene Chloride	U		0.00176	0.00880	1	04/20/2018 20:12	WG1101154
4-Methyl-2-pentanone (MIBK)	U		0.00331	0.0176	1	04/20/2018 20:12	WG1101154
Methyl tert-butyl ether	U		0.000373	0.00176	1	04/20/2018 20:12	WG1101154
Naphthalene	U		0.00176	0.00880	1	04/20/2018 20:12	WG1101154
n-Propylbenzene	U		0.000363	0.00176	1	04/20/2018 20:12	WG1101154
Styrene	U		0.000412	0.00176	1	04/20/2018 20:12	WG1101154
1,1,1,2-Tetrachloroethane	U		0.000465	0.00176	1	04/20/2018 20:12	WG1101154
1,1,2,2-Tetrachloroethane	U		0.000643	0.00176	1	04/20/2018 20:12	WG1101154

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.000643	0.00176	1	04/20/2018 20:12	WG1101154
Tetrachloroethene	U		0.000486	0.00176	1	04/20/2018 20:12	WG1101154
Toluene	U		0.000764	0.00880	1	04/20/2018 20:12	WG1101154
1,2,3-Trichlorobenzene	U		0.000539	0.00176	1	04/20/2018 20:12	WG1101154
1,2,4-Trichlorobenzene	U		0.000683	0.00176	1	04/20/2018 20:12	WG1101154
1,1,1-Trichloroethane	U		0.000503	0.00176	1	04/20/2018 20:12	WG1101154
1,1,2-Trichloroethane	U		0.000488	0.00176	1	04/20/2018 20:12	WG1101154
Trichloroethene	U		0.000491	0.00176	1	04/20/2018 20:12	WG1101154
Trichlorofluoromethane	U		0.000672	0.00880	1	04/20/2018 20:12	WG1101154
1,2,3-Trichloropropane	U		0.00130	0.00440	1	04/20/2018 20:12	WG1101154
1,2,4-Trimethylbenzene	U		0.000371	0.00176	1	04/20/2018 20:12	WG1101154
1,2,3-Trimethylbenzene	U		0.000505	0.00176	1	04/20/2018 20:12	WG1101154
1,3,5-Trimethylbenzene	U		0.000468	0.00176	1	04/20/2018 20:12	WG1101154
Vinyl chloride	U		0.000512	0.00176	1	04/20/2018 20:12	WG1101154
Xylenes, Total	U		0.00123	0.00528	1	04/20/2018 20:12	WG1101154
(S) Toluene-d8	*100*			*80.0-120*		*04/20/2018 20:12*	WG1101154
(S) Dibromofluoromethane	*115*			*74.0-131*		*04/20/2018 20:12*	WG1101154
(S) 4-Bromofluorobenzene	*104*			*64.0-132*		*04/20/2018 20:12*	WG1101154

Total Solids by Method 2540 G-2011

Analyte	Result	Qualifier	Dilution	Analysis	Batch
	%			date / time	
Total Solids	19.1		1	04/23/2018 17:13	WG1101968

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry)	Qualifier	MDL (dry)	RDL (dry)	Dilution	Analysis	Batch
	mg/kg		mg/kg	mg/kg		date / time	
Acetone	1.25		0.0596	0.298	1.14	04/20/2018 20:32	WG1101154
Acrylonitrile	U		0.0107	0.0596	1.14	04/20/2018 20:32	WG1101154
Benzene	0.00848		0.00161	0.00596	1.14	04/20/2018 20:32	WG1101154
Bromobenzene	U		0.00169	0.00596	1.14	04/20/2018 20:32	WG1101154
Bromodichloromethane	U		0.00152	0.00596	1.14	04/20/2018 20:32	WG1101154
Bromoform	U		0.00252	0.00596	1.14	04/20/2018 20:32	WG1101154
Bromomethane	U		0.00799	0.0298	1.14	04/20/2018 20:32	WG1101154
n-Butylbenzene	U		0.00154	0.00596	1.14	04/20/2018 20:32	WG1101154
sec-Butylbenzene	U		0.00120	0.00596	1.14	04/20/2018 20:32	WG1101154
tert-Butylbenzene	U		0.00123	0.00596	1.14	04/20/2018 20:32	WG1101154
Carbon tetrachloride	U		0.00195	0.00596	1.14	04/20/2018 20:32	WG1101154
Chlorobenzene	U		0.00126	0.00596	1.14	04/20/2018 20:32	WG1101154
Chlorodibromomethane	U		0.00222	0.00596	1.14	04/20/2018 20:32	WG1101154
Chloroethane	U		0.00564	0.0298	1.14	04/20/2018 20:32	WG1101154
Chloroform	U		0.00136	0.0298	1.14	04/20/2018 20:32	WG1101154
Chloromethane	U		0.00224	0.0149	1.14	04/20/2018 20:32	WG1101154
2-Chlorotoluene	U		0.00179	0.00596	1.14	04/20/2018 20:32	WG1101154
4-Chlorotoluene	U		0.00143	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2-Dibromo-3-Chloropropane	U		0.00627	0.0298	1.14	04/20/2018 20:32	WG1101154
1,2-Dibromoethane	U		0.00204	0.00596	1.14	04/20/2018 20:32	WG1101154
Dibromomethane	U		0.00227	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2-Dichlorobenzene	U		0.00182	0.00596	1.14	04/20/2018 20:32	WG1101154
1,3-Dichlorobenzene	U		0.00142	0.00596	1.14	04/20/2018 20:32	WG1101154
1,4-Dichlorobenzene	U		0.00135	0.00596	1.14	04/20/2018 20:32	WG1101154
Dichlorodifluoromethane	U		0.00425	0.0298	1.14	04/20/2018 20:32	WG1101154
1,1-Dichloroethane	U		0.00119	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2-Dichloroethane	U		0.00158	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1-Dichloroethene	U		0.00180	0.00596	1.14	04/20/2018 20:32	WG1101154
cis-1,2-Dichloroethene	U		0.00140	0.00596	1.14	04/20/2018 20:32	WG1101154
trans-1,2-Dichloroethene	U		0.00157	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2-Dichloropropane	U		0.00213	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1-Dichloropropene	U		0.00189	0.00596	1.14	04/20/2018 20:32	WG1101154
1,3-Dichloropropane	U		0.00123	0.00596	1.14	04/20/2018 20:32	WG1101154
cis-1,3-Dichloropropene	U		0.00156	0.00596	1.14	04/20/2018 20:32	WG1101154
trans-1,3-Dichloropropene	U		0.00159	0.00596	1.14	04/20/2018 20:32	WG1101154
2,2-Dichloropropane	U		0.00166	0.00596	1.14	04/20/2018 20:32	WG1101154
Di-isopropyl ether	U		0.00148	0.00596	1.14	04/20/2018 20:32	WG1101154
Ethylbenzene	U		0.00177	0.00596	1.14	04/20/2018 20:32	WG1101154
Hexachloro-1,3-butadiene	U		0.00204	0.00596	1.14	04/20/2018 20:32	WG1101154
Isopropylbenzene	U		0.00145	0.00596	1.14	04/20/2018 20:32	WG1101154
p-Isopropyltoluene	0.00298	J	0.00121	0.00596	1.14	04/20/2018 20:32	WG1101154
2-Butanone (MEK)	0.0385	J	0.0279	0.0596	1.14	04/20/2018 20:32	WG1101154
Methylene Chloride	U		0.00596	0.0298	1.14	04/20/2018 20:32	WG1101154
4-Methyl-2-pentanone (MIBK)	U		0.0112	0.0596	1.14	04/20/2018 20:32	WG1101154
Methyl tert-butyl ether	U		0.00126	0.00596	1.14	04/20/2018 20:32	WG1101154
Naphthalene	U		0.00596	0.0298	1.14	04/20/2018 20:32	WG1101154
n-Propylbenzene	U		0.00123	0.00596	1.14	04/20/2018 20:32	WG1101154
Styrene	U		0.00139	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1,1,2-Tetrachloroethane	U		0.00157	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1,2,2-Tetrachloroethane	U		0.00217	0.00596	1.14	04/20/2018 20:32	WG1101154

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result (dry) mg/kg	Qualifier	MDL (dry) mg/kg	RDL (dry) mg/kg	Dilution	Analysis date / time	Batch
1,1,2-Trichlorotrifluoroethane	U		0.00217	0.00596	1.14	04/20/2018 20:32	WG1101154
Tetrachloroethene	U		0.00165	0.00596	1.14	04/20/2018 20:32	WG1101154
Toluene	U		0.00259	0.0298	1.14	04/20/2018 20:32	WG1101154
1,2,3-Trichlorobenzene	U		0.00182	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2,4-Trichlorobenzene	U		0.00231	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1,1-Trichloroethane	U		0.00170	0.00596	1.14	04/20/2018 20:32	WG1101154
1,1,2-Trichloroethane	U		0.00165	0.00596	1.14	04/20/2018 20:32	WG1101154
Trichloroethene	U		0.00166	0.00596	1.14	04/20/2018 20:32	WG1101154
Trichlorofluoromethane	U		0.00227	0.0298	1.14	04/20/2018 20:32	WG1101154
1,2,3-Trichloropropane	U		0.00441	0.0149	1.14	04/20/2018 20:32	WG1101154
1,2,4-Trimethylbenzene	U		0.00125	0.00596	1.14	04/20/2018 20:32	WG1101154
1,2,3-Trimethylbenzene	U		0.00171	0.00596	1.14	04/20/2018 20:32	WG1101154
1,3,5-Trimethylbenzene	U		0.00158	0.00596	1.14	04/20/2018 20:32	WG1101154
Vinyl chloride	U		0.00173	0.00596	1.14	04/20/2018 20:32	WG1101154
Xylenes, Total	U		0.00416	0.0179	1.14	04/20/2018 20:32	WG1101154
(S) Toluene-d8	*101*			*80.0-120*		*04/20/2018 20:32*	WG1101154
(S) Dibromofluoromethane	*116*			*74.0-131*		*04/20/2018 20:32*	WG1101154
(S) 4-Bromofluorobenzene	*124*			*64.0-132*		*04/20/2018 20:32*	WG1101154

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
Acetone	U		10.0	50.0	1	04/20/2018 22:23	WG1101237
Acrolein	U		8.87	50.0	1	04/20/2018 22:23	WG1101237
Acrylonitrile	U		1.87	10.0	1	04/20/2018 22:23	WG1101237
Benzene	U		0.331	1.00	1	04/20/2018 22:23	WG1101237
Bromobenzene	U		0.352	1.00	1	04/20/2018 22:23	WG1101237
Bromodichloromethane	U	J4	0.380	1.00	1	04/20/2018 22:23	WG1101237
Bromoform	U		0.469	1.00	1	04/20/2018 22:23	WG1101237
Bromomethane	U		0.866	5.00	1	04/20/2018 22:23	WG1101237
n-Butylbenzene	U		0.361	1.00	1	04/20/2018 22:23	WG1101237
sec-Butylbenzene	U		0.365	1.00	1	04/20/2018 22:23	WG1101237
tert-Butylbenzene	U		0.399	1.00	1	04/20/2018 22:23	WG1101237
Carbon tetrachloride	U		0.379	1.00	1	04/20/2018 22:23	WG1101237
Chlorobenzene	U		0.348	1.00	1	04/20/2018 22:23	WG1101237
Chlorodibromomethane	U		0.327	1.00	1	04/20/2018 22:23	WG1101237
Chloroethane	U		0.453	5.00	1	04/20/2018 22:23	WG1101237
Chloroform	U		0.324	5.00	1	04/20/2018 22:23	WG1101237
Chloromethane	U		0.276	2.50	1	04/20/2018 22:23	WG1101237
2-Chlorotoluene	U		0.375	1.00	1	04/20/2018 22:23	WG1101237
4-Chlorotoluene	U		0.351	1.00	1	04/20/2018 22:23	WG1101237
1,2-Dibromo-3-Chloropropane	U		1.33	5.00	1	04/20/2018 22:23	WG1101237
1,2-Dibromoethane	U		0.381	1.00	1	04/20/2018 22:23	WG1101237
Dibromomethane	U		0.346	1.00	1	04/20/2018 22:23	WG1101237
1,2-Dichlorobenzene	U		0.349	1.00	1	04/20/2018 22:23	WG1101237
1,3-Dichlorobenzene	U		0.220	1.00	1	04/20/2018 22:23	WG1101237
1,4-Dichlorobenzene	U		0.274	1.00	1	04/20/2018 22:23	WG1101237
Dichlorodifluoromethane	U		0.551	5.00	1	04/20/2018 22:23	WG1101237
1,1-Dichloroethane	U		0.259	1.00	1	04/20/2018 22:23	WG1101237
1,2-Dichloroethane	U		0.361	1.00	1	04/20/2018 22:23	WG1101237
1,1-Dichloroethene	U		0.398	1.00	1	04/20/2018 22:23	WG1101237
cis-1,2-Dichloroethene	U		0.260	1.00	1	04/20/2018 22:23	WG1101237
trans-1,2-Dichloroethene	U		0.396	1.00	1	04/20/2018 22:23	WG1101237
1,2-Dichloropropane	U		0.306	1.00	1	04/20/2018 22:23	WG1101237
1,1-Dichloropropene	U		0.352	1.00	1	04/20/2018 22:23	WG1101237
1,3-Dichloropropane	U		0.366	1.00	1	04/20/2018 22:23	WG1101237
cis-1,3-Dichloropropene	U		0.418	1.00	1	04/20/2018 22:23	WG1101237
trans-1,3-Dichloropropene	U		0.419	1.00	1	04/20/2018 22:23	WG1101237
2,2-Dichloropropane	U		0.321	1.00	1	04/20/2018 22:23	WG1101237
Di-isopropyl ether	U		0.320	1.00	1	04/20/2018 22:23	WG1101237
Ethylbenzene	U		0.384	1.00	1	04/20/2018 22:23	WG1101237
Hexachloro-1,3-butadiene	U		0.256	1.00	1	04/20/2018 22:23	WG1101237
Isopropylbenzene	U		0.326	1.00	1	04/20/2018 22:23	WG1101237
p-Isopropyltoluene	U		0.350	1.00	1	04/20/2018 22:23	WG1101237
2-Butanone (MEK)	U		3.93	10.0	1	04/20/2018 22:23	WG1101237
Methylene Chloride	U		1.00	5.00	1	04/20/2018 22:23	WG1101237
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0	1	04/20/2018 22:23	WG1101237
Methyl tert-butyl ether	U		0.367	1.00	1	04/20/2018 22:23	WG1101237
Naphthalene	U	J4	1.00	5.00	1	04/20/2018 22:23	WG1101237
n-Propylbenzene	U		0.349	1.00	1	04/20/2018 22:23	WG1101237
Styrene	U		0.307	1.00	1	04/20/2018 22:23	WG1101237
1,1,1,2-Tetrachloroethane	U		0.385	1.00	1	04/20/2018 22:23	WG1101237
1,1,2,2-Tetrachloroethane	U		0.130	1.00	1	04/20/2018 22:23	WG1101237
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00	1	04/20/2018 22:23	WG1101237
Tetrachloroethene	U		0.372	1.00	1	04/20/2018 22:23	WG1101237
Toluene	U		0.412	1.00	1	04/20/2018 22:23	WG1101237
1,2,3-Trichlorobenzene	U		0.230	1.00	1	04/20/2018 22:23	WG1101237
1,2,4-Trichlorobenzene	U		0.355	1.00	1	04/20/2018 22:23	WG1101237

Item B 000320

Volatile Organic Compounds (GC/MS) by Method 8260B

Analyte	Result	Qualifier	MDL	RDL	Dilution	Analysis	Batch
	ug/l		ug/l	ug/l		date / time	
1,1,1-Trichloroethane	U		0.319	1.00	1	04/20/2018 22:23	WG1101237
1,1,2-Trichloroethane	U		0.383	1.00	1	04/20/2018 22:23	WG1101237
Trichloroethene	U		0.398	1.00	1	04/20/2018 22:23	WG1101237
Trichlorofluoromethane	U		1.20	5.00	1	04/20/2018 22:23	WG1101237
1,2,3-Trichloropropane	U		0.807	2.50	1	04/20/2018 22:23	WG1101237
1,2,4-Trimethylbenzene	U		0.373	1.00	1	04/20/2018 22:23	WG1101237
1,2,3-Trimethylbenzene	U		0.321	1.00	1	04/20/2018 22:23	WG1101237
1,3,5-Trimethylbenzene	U		0.387	1.00	1	04/20/2018 22:23	WG1101237
Vinyl chloride	U		0.259	1.00	1	04/20/2018 22:23	WG1101237
Xylenes, Total	U		1.06	3.00	1	04/20/2018 22:23	WG1101237
(S) Toluene-d8	*107*			*80.0-120*		*04/20/2018 22:23*	WG1101237
(S) Dibromofluoromethane	*100*			*76.0-123*		*04/20/2018 22:23*	WG1101237
(S) 4-Bromofluorobenzene	*110*			*80.0-120*		*04/20/2018 22:23*	WG1101237

Method Blank (MB)

(MB) R3304442-1 04/24/18 14:00

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.00100			

L987445-10 Original Sample (OS) • Duplicate (DUP)

(OS) L987445-10 04/24/18 14:00 • (DUP) R3304442-3 04/24/18 14:00

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	98.0	97.8	1	0.146		5

Laboratory Control Sample (LCS)

(LCS) R3304442-2 04/24/18 14:00

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000322

Method Blank (MB)

(MB) R3304113-1 04/23/18 17:13

Analyte	MB Result %	MB Qualifier	MB MDL %	MB RDL %
Total Solids	0.000			

L987450-06 Original Sample (OS) • Duplicate (DUP)

(OS) L987450-06 04/23/18 17:13 • (DUP) R3304113-3 04/23/18 17:13

Analyte	Original Result %	DUP Result %	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Solids	56.8	60.3	1	5.99	J3	5

Laboratory Control Sample (LCS)

(LCS) R3304113-2 04/23/18 17:13

Analyte	Spike Amount %	LCS Result %	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Solids	50.0	50.0	100	85.0-115	

Item B 000323

Method Blank (MB)

(MB) R3304849-1 04/25/18 15:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Hexavalent Chromium	U		0.255	1.00

L987075-01 Original Sample (OS) • Duplicate (DUP)

(OS) L987075-01 04/25/18 15:31 • (DUP) R3304849-4 04/25/18 15:40

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	1.19	1.46	1	20.2	J P1	20

L987450-03 Original Sample (OS) • Duplicate (DUP)

(OS) L987450-03 04/25/18 19:01 • (DUP) R3304849-10 04/25/18 19:07

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Hexavalent Chromium	17.9	19.6	10	8.95	J	20

Sample Narrative:

OS: DILUTION DUE TO MATRIX INTERFERENCE

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304849-2 04/25/18 15:14 • (LCSD) R3304849-3 04/25/18 15:20

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	10.0	9.11	9.31	91.1	93.1	80.0-120			2.24	20

L987142-09 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987142-09 04/25/18 16:45 • (MS) R3304849-5 04/25/18 16:51 • (MSD) R3304849-6 04/25/18 16:57

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Hexavalent Chromium	21.9	58.1	99.4	100	189	192	1	75.0-125	E J5	E J5	0.649	20

Item B 000324

L987142-09 Original Sample (OS) • Matrix Spike (MS)

(OS) L987142-09 04/25/18 16:45 • (MS) R3304849-7 04/25/18 17:03

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier
Hexavalent Chromium	1130	58.1	761	62.4	50	75.0-125	J6

Item B 000325

Method Blank (MB)

(MB) R3304693-1 04/25/18 16:34

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0390	0.250

L987672-15 Original Sample (OS) • Duplicate (DUP)

(OS) L987672-15 04/25/18 17:04 • (DUP) R3304693-7 04/25/18 17:05

	Original Result (dry)	DUP Result (dry)	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Cyanide	0.0924	0.115	1	22.2	J P1	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304693-2 04/25/18 16:35 • (LCSD) R3304693-3 04/25/18 16:36

	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	2.50	2.52	2.43	101	97.3	50.0-150			3.37	20

L987672-14 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987672-14 04/25/18 17:01 • (MS) R3304693-5 04/25/18 17:02 • (MSD) R3304693-6 04/25/18 17:03

	Spike Amount (dry)	Original Result (dry)	MS Result (dry)	MSD Result (dry)	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		%			%	%
Cyanide	3.31	0.110	3.28	3.09	95.8	90.1	1	75.0-125			5.91	20

Item B 000326

Method Blank (MB)

(MB) R3304956-1 04/25/18 13:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Fluoride	U		0.261	1.00

L987450-01 Original Sample (OS) • Duplicate (DUP)

(OS) L987450-01 04/25/18 16:51 • (DUP) R3304956-4 04/25/18 17:12

Analyte	Original Result (dry) mg/kg	DUP Result (dry) mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	3080	3090	20	0.352		15

L987909-03 Original Sample (OS) • Duplicate (DUP)

(OS) L987909-03 04/26/18 00:31 • (DUP) R3304956-7 04/26/18 00:51

Analyte	Original Result mg/kg	DUP Result mg/kg	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Fluoride	4.66	6.10	1	26.8	J3	15

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304956-2 04/25/18 13:57 • (LCSD) R3304956-3 04/25/18 14:18

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluoride	20.0	20.9	20.0	104	100	80.0-120			4.12	15

L987837-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987837-05 04/25/18 21:44 • (MS) R3304956-5 04/25/18 22:46 • (MSD) R3304956-6 04/25/18 23:07

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Fluoride	50.0	14.0	44.4	43.2	60.7	58.3	1	80.0-120	J6	J6	2.73	15

Item B 000327

Method Blank (MB)

(MB) R3304530-1 04/25/18 08:42

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Mercury	U		0.00280	0.0200

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304530-2 04/25/18 08:45 • (LCSD) R3304530-3 04/25/18 08:47

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.261	0.260	87.0	86.7	80.0-120			0.253	20

L988001-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L988001-02 04/25/18 08:50 • (MS) R3304530-4 04/25/18 08:52 • (MSD) R3304530-5 04/25/18 08:55

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.300	0.119	0.441	0.581	107	154	1	75.0-125		J3 J5	27.4	20

Item B 000328

Method Blank (MB)

(MB) R3304764-1 04/26/18 04:46

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Antimony	U		0.750	2.00
Arsenic	U		0.650	2.00
Barium	U		0.170	0.500
Beryllium	U		0.0700	0.200
Cadmium	U		0.0700	0.500
Chromium	U		0.140	1.00
Cobalt	U		0.230	1.00
Copper	U		0.530	2.00
Lead	0.257	J	0.190	0.500
Manganese	U		0.120	1.00
Molybdenum	U		0.160	0.500
Nickel	U		0.490	2.00
Selenium	U		0.740	2.00
Silver	U		0.280	1.00
Thallium	U		0.650	2.00
Vanadium	U		0.240	2.00
Zinc	U		0.590	5.00

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304764-2 04/26/18 04:49 • (LCSD) R3304764-3 04/26/18 04:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Antimony	100	97.1	93.9	97.1	93.9	80.0-120			3.36	20
Arsenic	100	95.2	92.0	95.2	92.0	80.0-120			3.44	20
Barium	100	103	99.9	103	99.9	80.0-120			3.33	20
Beryllium	100	96.6	93.4	96.6	93.4	80.0-120			3.44	20
Cadmium	100	98.5	95.6	98.5	95.6	80.0-120			3.00	20
Chromium	100	101	98.3	101	98.3	80.0-120			3.10	20
Cobalt	100	103	100	103	100	80.0-120			3.35	20
Copper	100	100	97.0	100	97.0	80.0-120			3.28	20
Lead	100	101	98.1	101	98.1	80.0-120			2.47	20
Manganese	100	99.6	96.4	99.6	96.4	80.0-120			3.25	20
Molybdenum	100	103	99.4	103	99.4	80.0-120			3.66	20
Nickel	100	103	100	103	100	80.0-120			2.90	20
Selenium	100	102	98.7	102	98.7	80.0-120			3.44	20
Silver	20.0	19.2	18.9	96.2	94.6	80.0-120			1.70	20
Thallium	100	103	100	103	100	80.0-120			2.53	20
Vanadium	100	94.6	91.3	94.6	91.3	80.0-120			3.56	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304764-2 04/26/18 04:49 • (LCSD) R3304764-3 04/26/18 04:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Zinc	100	103	99.9	103	99.9	80.0-120			2.94	20

L987450-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987450-02 04/26/18 04:56 • (MS) R3304764-6 04/26/18 05:06 • (MSD) R3304764-7 04/26/18 05:09

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Antimony	221	U	66.8	54.1	30.2	24.5	1	75.0-125	J6	J3 J6	21.0	20
Arsenic	221	2.44	90.9	101	40.0	44.6	1	75.0-125	J6	J6	10.6	20
Barium	221	63.6	175	240	50.6	79.8	1	75.0-125	J6	J3	31.1	20
Beryllium	221	0.169	100	134	45.3	60.4	1	75.0-125	J6	J3 J6	28.5	20
Cadmium	221	0.766	109	145	48.8	65.5	1	75.0-125	J6	J3 J6	28.9	20
Chromium	221	44.4	151	299	48.3	115	1	75.0-125	J6	J3	65.6	20
Cobalt	221	12.6	225	241	96.3	103	1	75.0-125			6.45	20
Copper	221	16.9	128	194	50.5	80.4	1	75.0-125	J6	J3	40.9	20
Lead	221	4.11	211	243	93.5	108	1	75.0-125			14.2	20
Manganese	221	72.8	191	321	53.4	113	1	75.0-125	J6	J3	51.0	20
Molybdenum	221	62.9	191	121	58.0	26.2	1	75.0-125	J6	J3 J6	45.0	20
Nickel	221	20.4	233	274	96.4	115	1	75.0-125			15.9	20
Selenium	221	U	104	134	46.9	60.5	1	75.0-125	J6	J3 J6	25.3	20
Silver	44.2	116	117	176	3.52	138	1	75.0-125	J6	J3 J5	40.4	20
Thallium	221	U	193	201	87.3	91.0	1	75.0-125			4.13	20
Vanadium	221	687	719	1090	14.4	182	1	75.0-125	J6	J3 J5	40.9	20
Zinc	221	24.5	143	239	53.8	97.0	1	75.0-125	J6	J3	50.0	20

Item B 000330

Method Blank (MB)

(MB) R3304521-3 04/20/18 15:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acetone	U		0.0100	0.0500
Acrylonitrile	U		0.00179	0.0100
Benzene	U		0.000270	0.00100
Bromobenzene	U		0.000284	0.00100
Bromodichloromethane	U		0.000254	0.00100
Bromoform	U		0.000424	0.00100
Bromomethane	U		0.00134	0.00500
n-Butylbenzene	U		0.000258	0.00100
sec-Butylbenzene	U		0.000201	0.00100
tert-Butylbenzene	U		0.000206	0.00100
Carbon tetrachloride	U		0.000328	0.00100
Chlorobenzene	U		0.000212	0.00100
Chlorodibromomethane	U		0.000373	0.00100
Chloroethane	U		0.000946	0.00500
Chloroform	U		0.000229	0.00500
Chloromethane	U		0.000375	0.00250
2-Chlorotoluene	U		0.000301	0.00100
4-Chlorotoluene	U		0.000240	0.00100
1,2-Dibromo-3-Chloropropane	U		0.00105	0.00500
1,2-Dibromoethane	U		0.000343	0.00100
Dibromomethane	U		0.000382	0.00100
1,2-Dichlorobenzene	U		0.000305	0.00100
1,3-Dichlorobenzene	U		0.000239	0.00100
1,4-Dichlorobenzene	U		0.000226	0.00100
Dichlorodifluoromethane	U		0.000713	0.00500
1,1-Dichloroethane	U		0.000199	0.00100
1,2-Dichloroethane	U		0.000265	0.00100
1,1-Dichloroethene	U		0.000303	0.00100
cis-1,2-Dichloroethene	U		0.000235	0.00100
trans-1,2-Dichloroethene	U		0.000264	0.00100
1,2-Dichloropropane	U		0.000358	0.00100
1,1-Dichloropropene	U		0.000317	0.00100
1,3-Dichloropropane	U		0.000207	0.00100
cis-1,3-Dichloropropene	U		0.000262	0.00100
trans-1,3-Dichloropropene	U		0.000267	0.00100
2,2-Dichloropropane	U		0.000279	0.00100
Di-isopropyl ether	U		0.000248	0.00100
Ethylbenzene	U		0.000297	0.00100
Hexachloro-1,3-butadiene	U		0.000342	0.00100
Isopropylbenzene	U		0.000243	0.00100

Item B 000331

Method Blank (MB)

(MB) R3304521-3 04/20/18 15:32

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
p-Isopropyltoluene	U		0.000204	0.00100
2-Butanone (MEK)	U		0.00468	0.0100
Methylene Chloride	U		0.00100	0.00500
4-Methyl-2-pentanone (MIBK)	U		0.00188	0.0100
Methyl tert-butyl ether	U		0.000212	0.00100
Naphthalene	U		0.00100	0.00500
n-Propylbenzene	U		0.000206	0.00100
Styrene	U		0.000234	0.00100
1,1,1,2-Tetrachloroethane	U		0.000264	0.00100
1,1,2,2-Tetrachloroethane	U		0.000365	0.00100
Tetrachloroethene	U		0.000276	0.00100
Toluene	U		0.000434	0.00500
1,1,2-Trichlorotrifluoroethane	U		0.000365	0.00100
1,2,3-Trichlorobenzene	U		0.000306	0.00100
1,2,4-Trichlorobenzene	U		0.000388	0.00100
1,1,1-Trichloroethane	U		0.000286	0.00100
1,1,2-Trichloroethane	U		0.000277	0.00100
Trichloroethene	U		0.000279	0.00100
Trichlorofluoromethane	U		0.000382	0.00500
1,2,3-Trichloropropane	U		0.000741	0.00250
1,2,3-Trimethylbenzene	U		0.000287	0.00100
1,2,4-Trimethylbenzene	U		0.000211	0.00100
1,3,5-Trimethylbenzene	U		0.000266	0.00100
Vinyl chloride	U		0.000291	0.00100
Xylenes, Total	U		0.000698	0.00300
(S) Toluene-d8	*109*			*80.0-120*
(S) Dibromofluoromethane	*104*			*74.0-131*
(S) 4-Bromofluorobenzene	*102*			*64.0-132*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304521-1 04/20/18 14:32 • (LCSD) R3304521-2 04/20/18 14:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	0.137	0.154	110	123	11.0-160			11.8	23
Acrylonitrile	0.125	0.137	0.146	109	117	61.0-143			6.79	20
Benzene	0.0250	0.0235	0.0256	93.9	103	71.0-124			8.75	20
Bromobenzene	0.0250	0.0231	0.0253	92.3	101	78.0-120			9.33	20
Bromodichloromethane	0.0250	0.0224	0.0247	89.7	98.9	75.0-120			9.80	20

Item B 000332

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304521-1 04/20/18 14:32 • (LCSD) R3304521-2 04/20/18 14:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	0.0250	0.0218	0.0239	87.3	95.6	65.0-133			9.02	20
Bromomethane	0.0250	0.0228	0.0257	91.2	103	26.0-160			11.9	20
n-Butylbenzene	0.0250	0.0234	0.0254	93.5	102	73.0-126			8.45	20
sec-Butylbenzene	0.0250	0.0240	0.0263	96.0	105	75.0-121			9.22	20
tert-Butylbenzene	0.0250	0.0242	0.0264	96.6	106	74.0-122			8.88	20
Carbon tetrachloride	0.0250	0.0219	0.0245	87.5	97.9	66.0-123			11.2	20
Chlorobenzene	0.0250	0.0248	0.0264	99.1	105	79.0-121			6.23	20
Chlorodibromomethane	0.0250	0.0232	0.0250	92.8	99.8	74.0-128			7.34	20
Chloroethane	0.0250	0.0224	0.0245	89.4	98.0	51.0-147			9.10	20
Chloroform	0.0250	0.0235	0.0257	94.0	103	73.0-123			8.79	20
Chloromethane	0.0250	0.0263	0.0286	105	114	51.0-138			8.22	20
2-Chlorotoluene	0.0250	0.0243	0.0263	97.1	105	72.0-124			8.08	20
4-Chlorotoluene	0.0250	0.0235	0.0258	94.0	103	78.0-120			9.12	20
1,2-Dibromo-3-Chloropropane	0.0250	0.0222	0.0250	88.7	100	65.0-126			12.0	20
1,2-Dibromoethane	0.0250	0.0253	0.0273	101	109	78.0-122			7.67	20
Dibromomethane	0.0250	0.0228	0.0250	91.2	100	79.0-120			9.40	20
1,2-Dichlorobenzene	0.0250	0.0235	0.0256	94.2	103	80.0-120			8.51	20
1,3-Dichlorobenzene	0.0250	0.0233	0.0257	93.1	103	72.0-123			9.84	20
1,4-Dichlorobenzene	0.0250	0.0232	0.0251	92.9	100	77.0-120			7.63	20
Dichlorodifluoromethane	0.0250	0.0242	0.0270	96.9	108	49.0-155			11.0	20
1,1-Dichloroethane	0.0250	0.0258	0.0285	103	114	70.0-128			9.70	20
1,2-Dichloroethane	0.0250	0.0266	0.0291	106	116	69.0-128			8.79	20
1,1-Dichloroethene	0.0250	0.0242	0.0269	96.7	108	63.0-131			10.8	20
cis-1,2-Dichloroethene	0.0250	0.0236	0.0253	94.6	101	74.0-123			6.73	20
trans-1,2-Dichloroethene	0.0250	0.0237	0.0264	94.8	106	72.0-122			10.8	20
1,2-Dichloropropane	0.0250	0.0252	0.0279	101	112	75.0-126			10.4	20
1,1-Dichloropropene	0.0250	0.0246	0.0271	98.3	108	72.0-130			9.71	20
1,3-Dichloropropane	0.0250	0.0253	0.0269	101	108	80.0-121			6.12	20
cis-1,3-Dichloropropene	0.0250	0.0243	0.0257	97.2	103	80.0-125			5.78	20
trans-1,3-Dichloropropene	0.0250	0.0239	0.0254	95.5	102	75.0-129			6.17	20
2,2-Dichloropropane	0.0250	0.0226	0.0245	90.5	98.0	60.0-129			7.92	20
Di-isopropyl ether	0.0250	0.0268	0.0291	107	116	62.0-133			8.31	20
Ethylbenzene	0.0250	0.0240	0.0262	95.9	105	77.0-120			8.97	20
Hexachloro-1,3-butadiene	0.0250	0.0245	0.0271	98.0	109	68.0-128			10.2	20
Isopropylbenzene	0.0250	0.0233	0.0256	93.0	102	75.0-120			9.46	20
p-Isopropyltoluene	0.0250	0.0240	0.0261	95.9	104	74.0-125			8.29	20
2-Butanone (MEK)	0.125	0.137	0.156	110	125	37.0-159			12.7	20
Methylene Chloride	0.0250	0.0241	0.0266	96.4	106	67.0-123			9.74	20
4-Methyl-2-pentanone (MIBK)	0.125	0.137	0.157	110	125	60.0-144			13.0	20
Methyl tert-butyl ether	0.0250	0.0214	0.0237	85.6	94.8	66.0-125			10.2	20

Item B 000333

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304521-1 04/20/18 14:32 • (LCSD) R3304521-2 04/20/18 14:52

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Naphthalene	0.0250	0.0219	0.0246	87.8	98.4	64.0-125			11.4	20
n-Propylbenzene	0.0250	0.0234	0.0259	93.6	104	78.0-120			10.2	20
Styrene	0.0250	0.0226	0.0241	90.6	96.4	78.0-124			6.25	20
1,1,1,2-Tetrachloroethane	0.0250	0.0238	0.0258	95.2	103	74.0-124			8.06	20
1,1,2,2-Tetrachloroethane	0.0250	0.0237	0.0263	95.0	105	73.0-120			10.2	20
Tetrachloroethene	0.0250	0.0249	0.0271	99.5	109	70.0-127			8.69	20
Toluene	0.0250	0.0238	0.0256	95.3	102	77.0-120			7.10	20
1,1,2-Trichlorotrifluoroethane	0.0250	0.0257	0.0293	103	117	64.0-135			12.9	20
1,2,3-Trichlorobenzene	0.0250	0.0234	0.0257	93.4	103	68.0-126			9.47	20
1,2,4-Trichlorobenzene	0.0250	0.0221	0.0247	88.6	98.7	70.0-127			10.8	20
1,1,1-Trichloroethane	0.0250	0.0234	0.0257	93.5	103	69.0-125			9.58	20
1,1,2-Trichloroethane	0.0250	0.0237	0.0257	94.8	103	78.0-120			7.97	20
Trichloroethene	0.0250	0.0239	0.0261	95.5	104	79.0-120			8.74	20
Trichlorofluoromethane	0.0250	0.0174	0.0201	69.8	80.5	59.0-136			14.3	20
1,2,3-Trichloropropane	0.0250	0.0247	0.0269	98.6	107	73.0-124			8.53	20
1,2,3-Trimethylbenzene	0.0250	0.0225	0.0243	89.9	97.1	76.0-120			7.70	20
1,2,4-Trimethylbenzene	0.0250	0.0213	0.0233	85.1	93.0	75.0-120			8.88	20
1,3,5-Trimethylbenzene	0.0250	0.0231	0.0246	92.3	98.6	75.0-120			6.52	20
Vinyl chloride	0.0250	0.0254	0.0282	102	113	63.0-134			10.3	20
Xylenes, Total	0.0750	0.0724	0.0786	96.5	105	77.0-120			8.21	20
(S) Toluene-d8				*108*	*107*	*80.0-120*				
(S) Dibromofluoromethane				*106*	*107*	*74.0-131*				
(S) 4-Bromofluorobenzene				*99.9*	*99.7*	*64.0-132*				

L987390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987390-05 04/21/18 00:12 • (MS) R3304521-4 04/21/18 00:32 • (MSD) R3304521-5 04/21/18 00:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Acetone	0.125	ND	4.59	5.26	147	168	25	10.0-160		J5	13.5	36
Acrylonitrile	0.125	ND	3.78	3.58	121	115	25	14.0-160			5.36	33
Benzene	0.0250	ND	0.642	0.623	103	99.7	25	13.0-146			3.02	27
Bromobenzene	0.0250	ND	0.645	0.652	103	104	25	10.0-149			1.10	33
Bromodichloromethane	0.0250	ND	0.620	0.615	99.2	98.4	25	15.0-142			0.825	28
Bromoform	0.0250	ND	0.542	0.547	86.8	87.5	25	10.0-147			0.800	31
Bromomethane	0.0250	ND	0.483	0.451	77.4	72.1	25	10.0-160			7.00	32
n-Butylbenzene	0.0250	0.441	1.01	1.06	91.7	98.4	25	10.0-154			4.05	37
sec-Butylbenzene	0.0250	0.121	0.719	0.756	95.6	102	25	10.0-151			5.07	36
tert-Butylbenzene	0.0250	0.0613	0.687	0.714	100	104	25	10.0-152			3.90	35

Item B 000334

L987390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987390-05 04/21/18 00:12 • (MS) R3304521-4 04/21/18 00:32 • (MSD) R3304521-5 04/21/18 00:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Carbon tetrachloride	0.0250	ND	4.39	0.433	702	69.3	25	13.0-140	J5	J3	164	30
Chlorobenzene	0.0250	ND	0.629	0.654	101	105	25	10.0-149			3.86	31
Chlorodibromomethane	0.0250	ND	0.573	0.598	91.6	95.7	25	12.0-147			4.32	29
Chloroethane	0.0250	ND	0.243	0.167	38.8	26.8	25	10.0-159		J3	36.7	33
Chloroform	0.0250	ND	0.645	0.637	103	102	25	18.0-148			1.27	28
Chloromethane	0.0250	ND	0.736	0.710	118	114	25	10.0-146			3.56	29
2-Chlorotoluene	0.0250	ND	0.717	0.723	115	116	25	10.0-151			0.897	35
4-Chlorotoluene	0.0250	ND	0.647	0.665	104	106	25	10.0-150			2.63	35
1,2-Dibromo-3-Chloropropane	0.0250	ND	0.592	0.599	94.7	95.9	25	10.0-149			1.21	34
1,2-Dibromoethane	0.0250	ND	0.619	0.638	99.0	102	25	14.0-145			3.05	28
Dibromomethane	0.0250	ND	0.614	0.607	98.3	97.2	25	18.0-144			1.16	27
1,2-Dichlorobenzene	0.0250	ND	0.652	0.659	104	105	25	10.0-153			1.08	34
1,3-Dichlorobenzene	0.0250	ND	0.640	0.649	102	104	25	10.0-150			1.33	35
1,4-Dichlorobenzene	0.0250	ND	0.629	0.642	101	103	25	10.0-148			2.04	34
Dichlorodifluoromethane	0.0250	ND	0.877	0.840	140	134	25	10.0-160			4.23	30
1,1-Dichloroethane	0.0250	0.970	1.79	1.70	131	117	25	19.0-148			4.81	28
1,2-Dichloroethane	0.0250	ND	0.720	0.696	115	111	25	17.0-147			3.41	27
1,1-Dichloroethene	0.0250	0.692	1.45	1.40	122	113	25	10.0-150			4.06	31
cis-1,2-Dichloroethene	0.0250	0.416	1.10	1.06	110	103	25	16.0-145			3.98	28
trans-1,2-Dichloroethene	0.0250	ND	0.629	0.604	101	96.6	25	11.0-142			4.08	29
1,2-Dichloropropane	0.0250	ND	0.693	0.701	111	112	25	17.0-148			1.05	28
1,1-Dichloropropene	0.0250	ND	0.657	0.627	105	100	25	10.0-150			4.72	30
1,3-Dichloropropane	0.0250	ND	0.651	0.675	104	108	25	16.0-148			3.59	27
cis-1,3-Dichloropropene	0.0250	ND	0.626	0.653	100	105	25	13.0-150			4.28	28
trans-1,3-Dichloropropene	0.0250	ND	0.611	0.625	97.8	100	25	10.0-152			2.22	29
2,2-Dichloropropane	0.0250	ND	0.546	0.531	87.3	85.0	25	16.0-143			2.66	30
Di-isopropyl ether	0.0250	ND	0.749	0.733	120	117	25	16.0-149			2.13	28
Ethylbenzene	0.0250	1.02	1.70	1.73	108	113	25	10.0-147			1.84	31
Hexachloro-1,3-butadiene	0.0250	ND	0.359	0.384	57.4	61.4	25	10.0-154			6.80	40
Isopropylbenzene	0.0250	0.0648	0.703	0.712	102	104	25	10.0-147			1.29	33
p-Isopropyltoluene	0.0250	0.134	0.737	0.760	96.4	100	25	10.0-156			3.02	37
2-Butanone (MEK)	0.125	ND	4.24	4.19	136	134	25	10.0-160			0.978	33
Methylene Chloride	0.0250	ND	0.633	0.635	101	102	25	16.0-139			0.282	29
4-Methyl-2-pentanone (MIBK)	0.125	ND	3.80	3.80	121	122	25	12.0-160			0.132	32
Methyl tert-butyl ether	0.0250	ND	0.639	0.648	102	104	25	21.0-145			1.39	29
Naphthalene	0.0250	2.20	2.92	2.83	115	99.7	25	10.0-153			3.43	36
n-Propylbenzene	0.0250	0.146	0.788	0.791	103	103	25	10.0-151			0.378	34
Styrene	0.0250	ND	0.636	0.648	102	104	25	10.0-155			1.81	34
1,1,1,2-Tetrachloroethane	0.0250	ND	0.607	0.631	97.1	101	25	10.0-147			3.93	30
1,1,2,2-Tetrachloroethane	0.0250	ND	0.752	0.784	120	125	25	10.0-155			4.13	31

Item B 000335

L987390-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987390-05 04/21/18 00:12 • (MS) R3304521-4 04/21/18 00:32 • (MSD) R3304521-5 04/21/18 00:52

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Tetrachloroethene	0.0250	0.260	0.908	0.915	104	105	25	10.0-144			0.825	32
Toluene	0.0250	ND	0.642	0.658	99.7	102	25	10.0-144			2.55	28
1,1,2-Trichlorotrifluoroethane	0.0250	ND	0.762	0.740	118	115	25	10.0-153			2.94	33
1,2,3-Trichlorobenzene	0.0250	ND	0.556	0.545	89.0	87.2	25	10.0-153			2.00	40
1,2,4-Trichlorobenzene	0.0250	ND	0.548	0.539	87.6	86.3	25	10.0-156			1.50	40
1,1,1-Trichloroethane	0.0250	31.6	33.9	32.0	369	68.6	25	18.0-145	E V	E	5.71	29
1,1,2-Trichloroethane	0.0250	ND	0.638	0.652	102	104	25	12.0-151			2.21	28
Trichloroethene	0.0250	11.1	12.5	11.9	217	134	25	11.0-148	E V	E	4.26	29
Trichlorofluoromethane	0.0250	ND	0.306	0.209	48.9	33.5	25	10.0-157		J3	37.4	34
1,2,3-Trichloropropane	0.0250	ND	0.706	0.691	113	111	25	10.0-154			2.10	32
1,2,3-Trimethylbenzene	0.0250	0.838	1.47	1.48	100	102	25	10.0-150			0.736	33
1,2,4-Trimethylbenzene	0.0250	0.993	1.59	1.61	96.3	98.9	25	10.0-151			1.04	34
1,3,5-Trimethylbenzene	0.0250	0.509	1.12	1.15	97.8	102	25	10.0-150			2.30	33
Vinyl chloride	0.0250	ND	0.697	0.655	112	105	25	10.0-150			6.28	29
Xylenes, Total	0.0750	5.68	7.63	7.79	104	113	25	10.0-150			2.08	31
(S) Toluene-d8					*106*	*110*		*80.0-120*				
(S) Dibromofluoromethane					*107*	*105*		*74.0-131*				
(S) 4-Bromofluorobenzene					*114*	*112*		*64.0-132*				

Item B 000336

Method Blank (MB)

(MB) R3303689-3 04/20/18 21:23

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00
Hexachloro-1,3-butadiene	U		0.256	1.00

Item B 000337

Method Blank (MB)

(MB) R3303689-3 04/20/18 21:23

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	0.343	J	0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*108*			*80.0-120*
(S) Dibromofluoromethane	*100*			*76.0-123*
(S) 4-Bromofluorobenzene	*108*			*80.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3303689-1 04/20/18 20:23 • (LCSD) R3303689-2 04/20/18 20:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	125	106	101	85.0	81.1	10.0-160			4.78	23
Acrolein	125	166	170	132	136	10.0-160			2.73	20
Acrylonitrile	125	150	149	120	119	60.0-142			0.725	20
Benzene	25.0	23.4	23.5	93.8	93.9	69.0-123			0.116	20

Item B 000338

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3303689-1 04/20/18 20:23 • (LCSD) R3303689-2 04/20/18 20:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromobenzene	25.0	23.3	24.5	93.2	97.9	79.0-120			4.84	20
Bromodichloromethane	25.0	18.8	18.7	75.2	74.7	76.0-120	J4	J4	0.672	20
Bromoform	25.0	20.3	21.1	81.3	84.5	67.0-132			3.84	20
Bromomethane	25.0	15.7	16.9	62.7	67.8	18.0-160			7.85	20
n-Butylbenzene	25.0	23.6	24.2	94.4	97.0	72.0-126			2.71	20
sec-Butylbenzene	25.0	23.3	23.7	93.1	94.7	74.0-121			1.71	20
tert-Butylbenzene	25.0	24.5	24.6	98.0	98.4	75.0-122			0.362	20
Carbon tetrachloride	25.0	19.1	19.0	76.3	75.8	63.0-122			0.691	20
Chlorobenzene	25.0	24.1	23.9	96.2	95.8	79.0-121			0.456	20
Chlorodibromomethane	25.0	21.5	22.0	86.2	88.1	75.0-125			2.28	20
Chloroethane	25.0	21.9	22.9	87.7	91.7	47.0-152			4.53	20
Chloroform	25.0	22.7	22.6	91.0	90.5	72.0-121			0.531	20
Chloromethane	25.0	26.3	25.4	105	101	48.0-139			3.78	20
2-Chlorotoluene	25.0	24.1	25.1	96.5	100	74.0-122			3.81	20
4-Chlorotoluene	25.0	23.3	24.3	93.3	97.1	79.0-120			4.02	20
1,2-Dibromo-3-Chloropropane	25.0	30.6	30.4	122	121	64.0-127			0.591	20
1,2-Dibromoethane	25.0	26.3	25.8	105	103	77.0-123			2.06	20
Dibromomethane	25.0	24.7	24.6	98.8	98.4	78.0-120			0.394	20
1,2-Dichlorobenzene	25.0	25.7	27.0	103	108	80.0-120			4.70	20
1,3-Dichlorobenzene	25.0	24.8	24.7	99.1	98.6	72.0-123			0.478	20
1,4-Dichlorobenzene	25.0	24.6	25.3	98.3	101	77.0-120			3.08	20
Dichlorodifluoromethane	25.0	26.2	26.2	105	105	49.0-155			0.232	20
1,1-Dichloroethane	25.0	22.7	22.7	90.7	90.8	70.0-126			0.175	20
1,2-Dichloroethane	25.0	23.4	23.4	93.7	93.6	67.0-126			0.163	20
1,1-Dichloroethene	25.0	24.6	24.2	98.3	97.0	64.0-129			1.38	20
cis-1,2-Dichloroethene	25.0	22.8	23.0	91.1	92.0	73.0-120			0.993	20
trans-1,2-Dichloroethene	25.0	23.3	23.7	93.4	94.8	71.0-121			1.54	20
1,2-Dichloropropane	25.0	22.3	21.8	89.1	87.4	75.0-125			1.91	20
1,1-Dichloropropene	25.0	25.4	25.3	102	101	71.0-129			0.432	20
1,3-Dichloropropane	25.0	25.1	24.8	100	99.2	80.0-121			1.04	20
cis-1,3-Dichloropropene	25.0	26.1	26.5	104	106	79.0-123			1.36	20
trans-1,3-Dichloropropene	25.0	25.5	24.6	102	98.4	74.0-127			3.72	20
2,2-Dichloropropane	25.0	21.8	21.8	87.0	87.4	60.0-125			0.408	20
Di-isopropyl ether	25.0	20.0	20.1	80.1	80.4	59.0-133			0.355	20
Ethylbenzene	25.0	23.8	23.5	95.1	94.1	77.0-120			1.01	20
Hexachloro-1,3-butadiene	25.0	23.6	24.6	94.5	98.4	64.0-131			4.05	20
Isopropylbenzene	25.0	25.2	25.7	101	103	75.0-120			1.83	20
p-Isopropyltoluene	25.0	23.8	25.0	95.4	100	74.0-126			4.73	20
2-Butanone (MEK)	125	124	121	99.0	96.6	37.0-158			2.48	20
Methylene Chloride	25.0	23.3	23.7	93.0	94.7	66.0-121			1.83	20

Item B 000339

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3303689-1 04/20/18 20:23 • (LCSD) R3303689-2 04/20/18 20:43

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Methyl-2-pentanone (MIBK)	125	125	120	100	96.2	59.0-143			3.87	20
Methyl tert-butyl ether	25.0	23.0	22.8	92.0	91.3	64.0-123			0.761	20
Naphthalene	25.0	32.2	31.5	129	126	62.0-128	J4		2.23	20
n-Propylbenzene	25.0	25.3	26.4	101	106	79.0-120			4.32	20
Styrene	25.0	24.8	25.0	99.2	100	78.0-124			1.03	20
1,1,1,2-Tetrachloroethane	25.0	21.5	21.8	85.8	87.2	75.0-122			1.59	20
1,1,2,2-Tetrachloroethane	25.0	23.3	25.3	93.1	101	71.0-122			8.34	20
Tetrachloroethene	25.0	25.3	25.0	101	100	70.0-127			1.21	20
Toluene	25.0	23.0	22.9	92.0	91.4	77.0-120			0.671	20
1,1,2-Trichlorotrifluoroethane	25.0	24.4	24.8	97.6	99.2	61.0-136			1.70	20
1,2,3-Trichlorobenzene	25.0	28.4	28.5	113	114	61.0-133			0.419	20
1,2,4-Trichlorobenzene	25.0	25.9	27.1	104	108	69.0-129			4.55	20
1,1,1-Trichloroethane	25.0	21.4	21.8	85.7	87.3	68.0-122			1.82	20
1,1,2-Trichloroethane	25.0	24.0	23.2	95.8	92.6	78.0-120			3.37	20
Trichloroethene	25.0	26.3	25.8	105	103	78.0-120			2.05	20
Trichlorofluoromethane	25.0	24.6	23.3	98.5	93.0	56.0-137			5.70	20
1,2,3-Trichloropropane	25.0	29.0	28.6	116	114	72.0-124			1.49	20
1,2,3-Trimethylbenzene	25.0	24.8	25.3	99.3	101	75.0-120			1.75	20
1,2,4-Trimethylbenzene	25.0	23.2	23.5	92.7	94.1	75.0-120			1.46	20
1,3,5-Trimethylbenzene	25.0	23.6	24.5	94.5	97.9	75.0-120			3.62	20
Vinyl chloride	25.0	26.1	26.1	104	105	64.0-133			0.347	20
Xylenes, Total	75.0	70.0	70.4	93.3	93.9	77.0-120			0.570	20
(S) Toluene-d8				*106*	*106*	*80.0-120*				
(S) Dibromofluoromethane				*99.9*	*99.1*	*76.0-123*				
(S) 4-Bromofluorobenzene				*108*	*110*	*80.0-120*				

Item B 000340

Method Blank (MB)

(MB) R3304101-1 04/23/18 13:10

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
PCB 1016	U		0.00350	0.0170
PCB 1221	U		0.00537	0.0170
PCB 1232	U		0.00417	0.0170
PCB 1242	U		0.00318	0.0170
PCB 1248	U		0.00315	0.0170
PCB 1254	U		0.00472	0.0170
PCB 1260	U		0.00494	0.0170
(S) Decachlorobiphenyl	*59.3*			*10.0-148*
(S) Tetrachloro-m-xylene	*62.1*			*21.0-146*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304101-2 04/23/18 13:24 • (LCSD) R3304101-3 04/23/18 13:39

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	0.0890	0.0885	53.4	53.1	37.0-145			0.649	37
PCB 1016	0.167	0.0903	0.0920	54.2	55.2	36.0-141			1.87	35
(S) Decachlorobiphenyl				*49.8*	*47.9*	*10.0-148*				
(S) Tetrachloro-m-xylene				*52.4*	*53.1*	*21.0-146*				

L987126-05 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987126-05 04/23/18 14:36 • (MS) R3304101-4 04/23/18 14:50 • (MSD) R3304101-5 04/23/18 15:05

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MSD Result mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
PCB 1260	0.167	ND	0.0784	0.0670	47.0	40.2	1	10.0-160			15.7	31
PCB 1016	0.167	ND	0.0796	0.0723	47.7	43.4	1	17.0-160			9.52	30
(S) Decachlorobiphenyl					*42.9*	*35.9*		*10.0-148*				
(S) Tetrachloro-m-xylene					*50.0*	*42.9*		*21.0-146*				

Item B 000341

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Method Blank (MB)

(MB) R3305120-3 04/26/18 09:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Acenaphthene	U		0.00642	0.0330
Acenaphthylene	U		0.00671	0.0330
Anthracene	U		0.00632	0.0330
Benzidine	U		0.0637	0.333
Benzo(a)anthracene	U		0.00428	0.0330
Benzo(b)fluoranthene	U		0.00695	0.0330
Benzo(k)fluoranthene	U		0.00582	0.0330
Benzo(g,h,i)perylene	U		0.00721	0.0330
Benzo(a)pyrene	U		0.00548	0.0330
Bis(2-chlorethoxy)methane	U		0.00770	0.333
Bis(2-chloroethyl)ether	U		0.00896	0.333
Bis(2-chloroisopropyl)ether	U		0.00760	0.333
4-Bromophenyl-phenylether	U		0.0114	0.333
2-Chloronaphthalene	U		0.00639	0.0330
4-Chlorophenyl-phenylether	U		0.00627	0.333
Chrysene	U		0.00555	0.0330
Dibenz(a,h)anthracene	U		0.00821	0.0330
3,3-Dichlorobenzidine	U		0.0794	0.333
2,4-Dinitrotoluene	U		0.00607	0.333
2,6-Dinitrotoluene	U		0.00737	0.333
Fluoranthene	U		0.00496	0.0330
Fluorene	U		0.00682	0.0330
Hexachlorobenzene	U		0.00856	0.333
Hexachloro-1,3-butadiene	U		0.0100	0.333
Hexachlorocyclopentadiene	U		0.0587	0.333
Hexachloroethane	U		0.0134	0.333
Indeno(1,2,3-cd)pyrene	U		0.00772	0.0330
Isophorone	U		0.00522	0.333
Naphthalene	U		0.00889	0.0330
Nitrobenzene	U		0.00695	0.333
n-Nitrosodimethylamine	U		0.0647	0.333
n-Nitrosodiphenylamine	U		0.00594	0.333
n-Nitrosodi-n-propylamine	U		0.00906	0.333
Phenanthrene	U		0.00528	0.0330
Benzylbutyl phthalate	U		0.0103	0.333
Bis(2-ethylhexyl)phthalate	U		0.0120	0.333
Di-n-butyl phthalate	U		0.0109	0.333
Diethyl phthalate	U		0.00691	0.333
Dimethyl phthalate	U		0.00540	0.333
Di-n-octyl phthalate	U		0.00907	0.333

Item B 000342

Method Blank (MB)

(MB) R3305120-3 04/26/18 09:36

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Pyrene	U		0.0123	0.0330
1,2,4-Trichlorobenzene	U		0.00876	0.333
4-Chloro-3-methylphenol	U		0.00477	0.333
2-Chlorophenol	U		0.00831	0.333
2,4-Dichlorophenol	U		0.00746	0.333
2,4-Dimethylphenol	U		0.0471	0.333
4,6-Dinitro-2-methylphenol	U		0.124	0.333
2,4-Dinitrophenol	U		0.0980	0.333
2-Nitrophenol	U		0.0130	0.333
4-Nitrophenol	U		0.0525	0.333
Pentachlorophenol	U		0.0480	0.333
Phenol	U		0.00695	0.333
2,4,6-Trichlorophenol	U		0.00779	0.333
(S) Nitrobenzene-d5	*73.5*			*18.0-125*
(S) 2-Fluorobiphenyl	*80.5*			*28.0-120*
(S) p-Terphenyl-d14	*92.5*			*13.0-131*
(S) Phenol-d5	*67.0*			*20.0-120*
(S) 2-Fluorophenol	*82.2*			*20.0-120*
(S) 2,4,6-Tribromophenol	*96.1*			*17.0-137*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3305120-1 04/26/18 08:50 • (LCSD) R3305120-2 04/26/18 09:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acenaphthene	0.667	0.509	0.483	76.3	72.4	47.0-120			5.30	21
Acenaphthylene	0.667	0.504	0.482	75.5	72.2	48.0-120			4.49	21
Anthracene	0.667	0.506	0.468	75.9	70.1	46.0-120			7.90	20
Benzidine	0.667	0.0874	0.103	13.1	15.5	1.00-120			16.5	36
Benzo(a)anthracene	0.667	0.543	0.525	81.4	78.7	46.0-120			3.33	20
Benzo(b)fluoranthene	0.667	0.594	0.541	89.1	81.1	45.0-120			9.38	22
Benzo(k)fluoranthene	0.667	0.550	0.557	82.5	83.5	45.0-120			1.18	23
Benzo(g,h,i)perylene	0.667	0.591	0.567	88.7	85.0	48.0-120			4.24	21
Benzo(a)pyrene	0.667	0.572	0.546	85.8	81.9	46.0-120			4.67	21
Bis(2-chlorethoxy)methane	0.667	0.407	0.328	61.0	49.1	41.0-120			21.5	22
Bis(2-chloroethyl)ether	0.667	0.396	0.369	59.4	55.3	28.0-120			7.25	28
Bis(2-chloroisopropyl)ether	0.667	0.433	0.402	65.0	60.3	40.0-120			7.47	27
4-Bromophenyl-phenylether	0.667	0.588	0.550	88.2	82.4	45.0-120			6.83	20
2-Chloronaphthalene	0.667	0.474	0.462	71.1	69.2	43.0-120			2.65	22

Item B 000343

Semi Volatile Organic Compounds (GC/MS) by Method 8270D

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3305120-1 04/26/18 08:50 • (LCSD) R3305120-2 04/26/18 09:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
4-Chlorophenyl-phenylether	0.667	0.534	0.523	80.0	78.5	46.0-120			1.92	21
Chrysene	0.667	0.545	0.524	81.7	78.5	46.0-120			3.95	20
Dibenz(a,h)anthracene	0.667	0.597	0.578	89.6	86.7	47.0-120			3.28	22
3,3-Dichlorobenzidine	0.667	0.503	0.497	75.4	74.5	20.0-130			1.14	24
2,4-Dinitrotoluene	0.667	0.551	0.532	82.6	79.8	48.0-122			3.45	21
2,6-Dinitrotoluene	0.667	0.517	0.491	77.4	73.6	46.0-120			5.07	21
Fluoranthene	0.667	0.566	0.527	84.8	79.1	46.0-120			7.04	20
Fluorene	0.667	0.523	0.513	78.5	76.9	47.0-120			1.98	20
Hexachlorobenzene	0.667	0.618	0.585	92.7	87.7	42.0-120			5.45	20
Hexachloro-1,3-butadiene	0.667	0.509	0.428	76.4	64.1	36.0-120			17.4	26
Hexachlorocyclopentadiene	0.667	0.447	0.434	67.0	65.1	20.0-124			2.78	26
Hexachloroethane	0.667	0.411	0.400	61.6	59.9	32.0-120			2.76	31
Indeno(1,2,3-cd)pyrene	0.667	0.604	0.579	90.5	86.8	48.0-120			4.21	21
Isophorone	0.667	0.427	0.337	64.0	50.6	42.0-120		J3	23.5	21
Naphthalene	0.667	0.451	0.359	67.7	53.9	41.0-120			22.7	24
Nitrobenzene	0.667	0.444	0.352	66.6	52.7	36.0-120			23.2	24
n-Nitrosodimethylamine	0.667	0.438	0.380	65.6	57.0	20.0-120			14.1	31
n-Nitrosodiphenylamine	0.667	0.504	0.471	75.6	70.6	42.0-120			6.79	20
n-Nitrosodi-n-propylamine	0.667	0.432	0.391	64.8	58.6	39.0-120			10.1	23
Phenanthrene	0.667	0.526	0.493	78.9	74.0	45.0-120			6.40	20
Benzylbutyl phthalate	0.667	0.594	0.567	89.1	85.0	41.0-123			4.68	20
Bis(2-ethylhexyl)phthalate	0.667	0.596	0.573	89.4	85.9	41.0-124			3.95	20
Di-n-butyl phthalate	0.667	0.583	0.533	87.5	80.0	44.0-120			8.97	20
Diethyl phthalate	0.667	0.517	0.499	77.6	74.8	46.0-120			3.64	20
Dimethyl phthalate	0.667	0.510	0.494	76.5	74.1	47.0-120			3.18	21
Di-n-octyl phthalate	0.667	0.600	0.581	89.9	87.2	40.0-123			3.14	21
Pyrene	0.667	0.549	0.530	82.3	79.4	45.0-120			3.56	21
1,2,4-Trichlorobenzene	0.667	0.475	0.389	71.2	58.3	40.0-120			19.8	25
4-Chloro-3-methylphenol	0.667	0.514	0.412	77.1	61.8	46.0-120		J3	22.0	20
2-Chlorophenol	0.667	0.456	0.438	68.3	65.6	37.0-120			4.08	27
2,4-Dichlorophenol	0.667	0.518	0.429	77.7	64.3	45.0-120			18.9	21
2,4-Dimethylphenol	0.667	0.478	0.385	71.6	57.8	40.0-120			21.4	22
4,6-Dinitro-2-methylphenol	0.667	0.536	0.494	80.3	74.1	34.0-120			8.07	23
2,4-Dinitrophenol	0.667	0.349	0.343	52.3	51.4	10.0-120			1.83	30
2-Nitrophenol	0.667	0.520	0.419	78.0	62.8	42.0-120			21.5	24
4-Nitrophenol	0.667	0.441	0.417	66.2	62.5	40.0-120			5.77	21
Pentachlorophenol	0.667	0.356	0.343	53.4	51.4	33.0-122			3.70	22
Phenol	0.667	0.392	0.357	58.8	53.6	38.0-120			9.26	25
2,4,6-Trichlorophenol	0.667	0.474	0.445	71.1	66.7	47.0-120			6.46	22
(S) Nitrobenzene-d5				*70.0*	*54.3*	*18.0-125*				

Item B 000344

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3305120-1 04/26/18 08:50 • (LCSD) R3305120-2 04/26/18 09:13

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
(S) 2-Fluorobiphenyl				*76.2*	*71.3*	*28.0-120*				
(S) p-Terphenyl-d14				*88.1*	*86.4*	*13.0-131*				
(S) Phenol-d5				*63.4*	*59.7*	*20.0-120*				
(S) 2-Fluorophenol				*78.2*	*73.3*	*20.0-120*				
(S) 2,4,6-Tribromophenol				*89.0*	*82.2*	*17.0-137*				

Method Blank (MB)

(MB) R3304814-3 04/24/18 11:16

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Anthracene	U		0.000600	0.00600
Acenaphthene	U		0.000600	0.00600
Acenaphthylene	U		0.000600	0.00600
Benzo(a)anthracene	U		0.000600	0.00600
Benzo(a)pyrene	U		0.000600	0.00600
Benzo(b)fluoranthene	U		0.000600	0.00600
Benzo(g,h,i)perylene	U		0.000600	0.00600
Benzo(k)fluoranthene	U		0.000600	0.00600
Chrysene	U		0.000600	0.00600
Dibenz(a,h)anthracene	U		0.000600	0.00600
Fluoranthene	U		0.000600	0.00600
Fluorene	U		0.000600	0.00600
Indeno(1,2,3-cd)pyrene	U		0.000600	0.00600
Naphthalene	U		0.00200	0.0200
Phenanthrene	U		0.000600	0.00600
Pyrene	U		0.000600	0.00600
1-Methylnaphthalene	U		0.00200	0.0200
2-Methylnaphthalene	U		0.00200	0.0200
2-Chloronaphthalene	U		0.00200	0.0200
(S) Nitrobenzene-d5	*83.0*			*14.0-149*
(S) 2-Fluorobiphenyl	*84.5*			*34.0-125*
(S) p-Terphenyl-d14	*91.3*			*23.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304814-1 04/24/18 10:34 • (LCSD) R3304814-2 04/24/18 10:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0800	0.0753	0.0811	94.1	101	50.0-125			7.49	20
Acenaphthene	0.0800	0.0653	0.0691	81.6	86.4	52.0-120			5.61	20
Acenaphthylene	0.0800	0.0714	0.0667	89.3	83.4	51.0-120			6.84	20
Benzo(a)anthracene	0.0800	0.0672	0.0719	83.9	89.8	46.0-121			6.76	20
Benzo(a)pyrene	0.0800	0.0728	0.0779	91.0	97.4	42.0-121			6.75	20
Benzo(b)fluoranthene	0.0800	0.0676	0.0762	84.5	95.2	42.0-123			12.0	20
Benzo(g,h,i)perylene	0.0800	0.0773	0.0832	96.7	104	43.0-128			7.36	20
Benzo(k)fluoranthene	0.0800	0.0755	0.0778	94.4	97.2	45.0-128			2.91	20
Chrysene	0.0800	0.0710	0.0766	88.7	95.8	48.0-127			7.61	20
Dibenz(a,h)anthracene	0.0800	0.0755	0.0813	94.3	102	43.0-132			7.45	20
Fluoranthene	0.0800	0.0638	0.0698	79.8	87.2	49.0-129			8.90	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3304814-1 04/24/18 10:34 • (LCSD) R3304814-2 04/24/18 10:55

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCSD Result mg/kg	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Fluorene	0.0800	0.0641	0.0631	80.1	78.8	50.0-120			1.65	20
Indeno(1,2,3-cd)pyrene	0.0800	0.0766	0.0823	95.7	103	44.0-131			7.19	20
Naphthalene	0.0800	0.0628	0.0673	78.5	84.1	50.0-120			6.94	20
Phenanthrene	0.0800	0.0721	0.0780	90.1	97.5	48.0-120			7.85	20
Pyrene	0.0800	0.0768	0.0792	96.0	99.0	48.0-135			3.01	20
1-Methylnaphthalene	0.0800	0.0676	0.0687	84.5	85.9	52.0-122			1.69	20
2-Methylnaphthalene	0.0800	0.0677	0.0676	84.7	84.5	52.0-120			0.226	20
2-Chloronaphthalene	0.0800	0.0633	0.0671	79.1	83.9	50.0-120			5.86	20
(S) Nitrobenzene-d5				*83.9*	*87.1*	*14.0-149*				
(S) 2-Fluorobiphenyl				*75.0*	*79.5*	*34.0-125*				
(S) p-Terphenyl-d14				*90.2*	*91.1*	*23.0-120*				

L987239-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987239-01 04/24/18 13:01 • (MS) R3304814-4 04/24/18 13:22 • (MSD) R3304814-5 04/24/18 13:43

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.0929	U	0.0771	0.0776	83.0	83.5	1	20.0-136			0.647	24
Acenaphthene	0.0929	U	0.0678	0.0681	73.0	73.3	1	29.0-124			0.462	20
Acenaphthylene	0.0929	U	0.0714	0.0726	76.8	78.1	1	35.0-120			1.68	20
Benzo(a)anthracene	0.0929	U	0.0754	0.0768	81.2	82.7	1	13.0-132			1.89	27
Benzo(a)pyrene	0.0929	U	0.0712	0.0729	76.7	78.6	1	14.0-138			2.44	27
Benzo(b)fluoranthene	0.0929	U	0.0711	0.0733	76.5	79.0	1	10.0-129			3.11	31
Benzo(g,h,i)perylene	0.0929	U	0.0687	0.0697	74.0	75.0	1	10.0-133			1.38	30
Benzo(k)fluoranthene	0.0929	U	0.0674	0.0692	72.6	74.6	1	15.0-131			2.65	27
Chrysene	0.0929	U	0.0746	0.0751	80.3	80.9	1	15.0-137			0.731	25
Dibenz(a,h)anthracene	0.0929	U	0.0696	0.0704	74.9	75.8	1	15.0-132			1.19	27
Fluoranthene	0.0929	U	0.0699	0.0698	75.3	75.1	1	13.0-139			0.220	28
Fluorene	0.0929	U	0.0706	0.0724	76.0	77.9	1	27.0-122			2.51	22
Indeno(1,2,3-cd)pyrene	0.0929	U	0.0706	0.0707	76.0	76.2	1	11.0-133			0.208	29
Naphthalene	0.0929	U	0.0672	0.0688	72.3	74.1	1	18.0-136			2.38	21
Phenanthrene	0.0929	U	0.0777	0.0790	83.7	85.1	1	15.0-133			1.67	25
Pyrene	0.0929	U	0.0759	0.0775	81.8	83.4	1	11.0-146			1.99	29
1-Methylnaphthalene	0.0929	U	0.0714	0.0707	76.9	76.1	1	24.0-137			1.06	22
2-Methylnaphthalene	0.0929	U	0.0698	0.0696	75.2	74.9	1	23.0-136			0.392	22
2-Chloronaphthalene	0.0929	U	0.0658	0.0676	70.9	72.8	1	36.0-120			2.73	20
(S) Nitrobenzene-d5					*72.6*	*78.9*		*14.0-149*				
(S) 2-Fluorobiphenyl					*68.6*	*72.4*		*34.0-125*				
(S) p-Terphenyl-d14					*77.5*	*78.7*		*23.0-120*				

Semi Volatile Organic Compounds (GC/MS) by Method 8270D-SIM L987450-01,02,03

L987450-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L987450-01 04/24/18 15:30 • (MS) R3304814-6 04/24/18 15:51 • (MSD) R3304814-7 04/24/18 16:12

Analyte	Spike Amount (dry) mg/kg	Original Result (dry) mg/kg	MS Result (dry) mg/kg	MSD Result (dry) mg/kg	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Anthracene	0.186	U	0.0821	0.119	44.1	64.2	1	20.0-136		J3	37.0	24
Acenaphthene	0.186	U	0.0779	0.111	41.9	59.9	1	29.0-124		J3	35.4	20
Acenaphthylene	0.186	0.00687	0.0900	0.137	44.7	70.0	1	35.0-120		J3	41.6	20
Benzo(a)anthracene	0.186	U	0.0823	0.112	44.2	60.1	1	13.0-132		J3	30.4	27
Benzo(a)pyrene	0.186	0.00756	0.0840	0.120	41.1	60.5	1	14.0-138		J3	35.5	27
Benzo(b)fluoranthene	0.186	U	0.0786	0.115	42.3	61.7	1	10.0-129		J3	37.4	31
Benzo(g,h,i)perylene	0.186	U	0.0738	0.107	39.7	57.6	1	10.0-133		J3	36.9	30
Benzo(k)fluoranthene	0.186	U	0.0825	0.114	44.3	61.2	1	15.0-131		J3	31.9	27
Chrysene	0.186	U	0.0837	0.112	45.0	60.5	1	15.0-137		J3	29.4	25
Dibenz(a,h)anthracene	0.186	U	0.0832	0.119	44.8	63.8	1	15.0-132		J3	35.0	27
Fluoranthene	0.186	0.00183	0.0759	0.101	39.8	53.4	1	13.0-139		J3	28.6	28
Fluorene	0.186	U	0.0823	0.115	44.2	61.6	1	27.0-122		J3	32.8	22
Indeno(1,2,3-cd)pyrene	0.186	U	0.0795	0.112	42.7	60.1	1	11.0-133		J3	33.7	29
Naphthalene	0.186	U	0.0901	0.107	48.5	57.7	1	18.0-136			17.4	21
Phenanthrene	0.186	0.00146	0.0861	0.123	45.5	65.2	1	15.0-133		J3	35.1	25
Pyrene	0.186	0.00152	0.0840	0.128	44.4	67.7	1	11.0-146		J3	41.1	29
1-Methylnaphthalene	0.186	U	0.0822	0.109	44.2	58.7	1	24.0-137		J3	28.2	22
2-Methylnaphthalene	0.186	U	0.0784	0.103	42.2	55.2	1	23.0-136		J3	26.8	22
2-Chloronaphthalene	0.186	U	0.0770	0.0974	41.4	52.3	1	36.0-120		J3	23.3	20
(S) Nitrobenzene-d5					*70.3*	*69.2*		*14.0-149*				
(S) 2-Fluorobiphenyl					*65.2*	*60.3*		*34.0-125*				
(S) p-Terphenyl-d14					*66.2*	*73.2*		*23.0-120*				

Item B 000348

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

(dry)	Results are reported based on the dry weight of the sample. [this will only be present on a dry report basis for soils].
MDL	Method Detection Limit.
MDL (dry)	Method Detection Limit.
RDL	Reported Detection Limit.
RDL (dry)	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
V	The sample concentration is too high to evaluate accurate spike recoveries.

Item B 000349

ACCREDITATIONS & LOCATIONS

ONE LAB. NATIONWIDE.

ESC Lab Sciences is the only full service environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T 104704245-17-14
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

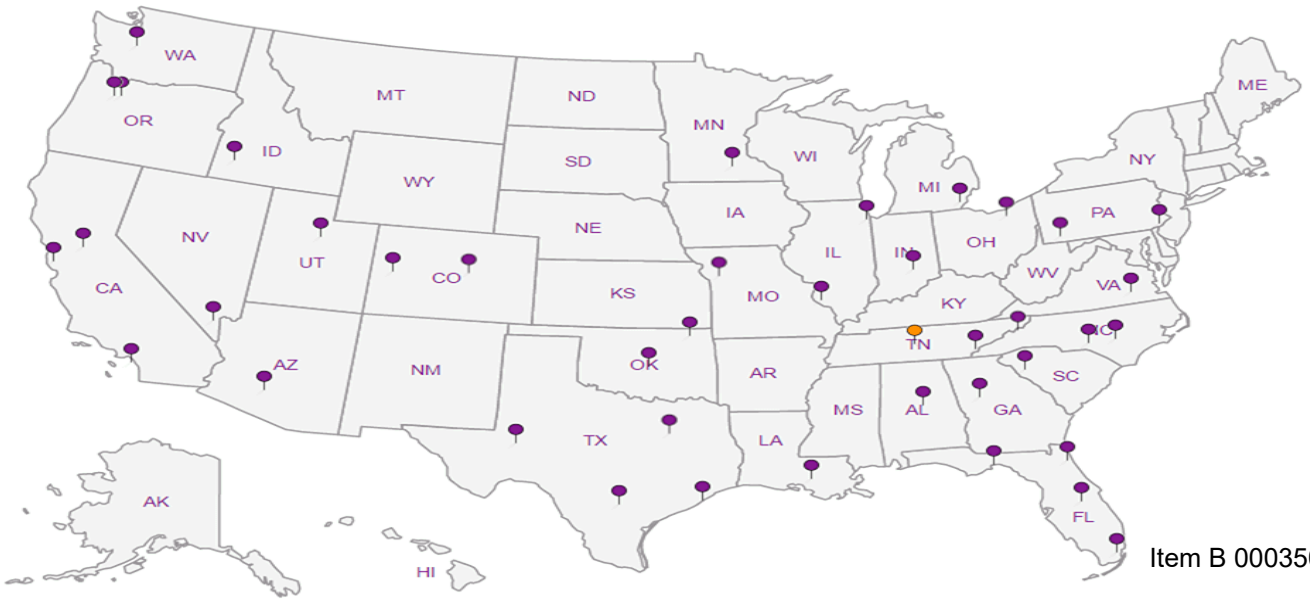
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. ESC Lab Sciences performs all testing at our central laboratory.



Item B 000350

SLR International Corp. - West Linn, OR

1800 Blankenship Road, Suite 440

Report to: Tyler Weber

Billing Information: ~~Accounts Payable~~ ~~1800 Blankenship Rd, Ste 440~~ ~~West Linn, OR 97068~~ Selmet

Email To: tweber@slrconsulting.com

Project Description: Selmet F006 Delisting

City/State Collected: Albany, OR

Phone: 503-723-4423 Fax:

Client Project #: —

Lab Project #: SLRWLOR-WEBER

Collected by (print): Tyler Weber

Site/Facility ID #: —

P.O. #: —

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified) ___ Same Day ___ Five Day ___ Next Day ___ 5 Day (Rad Only) ___ Two Day ___ 10 Day (Rad Only) ___ Three Day

Quote #: —

Date Results Needed: —

Chain of Custody Page 1 of 1

ESC LABORATORIES

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L987450

B022

Acctnum: SLRWLOR
Template: T132913
Prelogin: P639719
TSR: 110 - Brian Ford
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	Cyanide, F, Cr6IC 8ozClr-NoPres	SV8082 PCBs 4ozClr-NoPres	SV8270D SVOCs 4ozClr-NoPres	SV8270PAHSIMD LL PAH 4ozClr-NoPres	Total Metals* 2ozClr-NoPres	V8260 VOCs 2ozClr-NoPres	V8260 VOCs 40ml/NaHS04/Syr/MeOH	Remarks	Sample # (lab only)
Pond Composite A	Comp	SS	—	4/18/18	1415	5	X	X	X	X	X				-01
Pond Composite C	Comp	SS	—	4/18/18	1405	5	X	X	X	X	X				-02
Pond Composite D	Comp	SS	—	4/18/18	12:55	5	X	X	X	X	X				-03
Pond Grid 16	Grab	SS	—	4/18/18	13:35	5	X TW					X	X		-04
Pond Grid 26	Grab	SS	—	4/18/18	~~1405~~ 13:15 TW	5						X	X		-05
Pond Grid 42	Grab	SS	—	4/18/18	1355	5						X	X		-06
Pond Grid 59	Grab	SS	—	4/18/18	1130	5						X	X		-07
Trip Blank	—	SS	—	4/16/18	—	1							X	Please Run TB for VOCs	-08
		SS													
		SS													

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other_____

Remarks: *Total Metals=please list metals needed here

pH _____ Temp _____

Flow _____ Other _____

Samples returned via: ___ UPS ___ FedEx ___ Courier ___ _____

Tracking # 4196 3258 7853

Sample Receipt Checklist
COC Seal Present/Intact: NP Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
If Applicable
VOA Zero Headspace: Y N
Preservation Correct/Checked: Y N

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCl / MeoH TBR	If preservation required by Login: Date/Time
	4/19/18	11:00			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: 1.12 °C Bottles Received: 35	
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 4-20-18 Time: 0845	Hold: Condition: NCF / OK

Brian Ford

From: Tyler Weber <tweber@slrconsulting.com>
Sent: Monday, April 23, 2018 11:12 AM
To: Brian Ford
Subject: RE: ESC Lab Sciences Selmet F006 Delisting L987450

Brian,

Please run the Pond Composite A, C, and D samples for the following metals:

Antimony
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Lead
Manganese
Mercury
Molybdenum
Nickel
Selenium
Silver
Thallium
Vanadium
Zinc

Thanks,

Tyler

SLR

Tyler Weber, E.I.
Project Engineer
503-905-3208
503-939-5488
503-723-4423
tweber@slrconsulting.com

SLR International Corporation
[illegible]

From: Brian Ford [mailto:BFord@esclabsciences.com]
Sent: April 20, 2018 11:55 AM
To: Tyler Weber
Subject: ESC Lab Sciences Selmet F006 Delisting L987450

Tyler,

See attached COC. Please let me know the list of metals needed.

Thanks,

Brian Ford
Technical Service Representative
ESC Lab Sciences-a subsidiary of Pace Analytical
12065 Lebanon Road | Mt. Juliet, TN 37122
615.773.9772
bford@esclabsciences.com | www.esclabsciences.com

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 04, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting

Dear Tyler Weber: Order No.: 1804111

Specialty Analytical received 2 sample(s) on 4/13/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804111**
Date: **5/4/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting

This sample was hand delivered by the client on 4/13/2018 at 12:22.

Notes relating to quality control samples:

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Specialty Analytical

Date Reported: 04-May-18

CLIENT: SLR International Corp.
Collection Date: 4/12/2018 4:00:00 PM
Project: Selmet F006 Delisting
Lab ID: 1804111-001
Client Sample ID: Composite B (Pond)
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	72.0	0		wt%	1	4/16/2018 3:00:13 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	1290000	31300		µg/Kg-dry	100	4/18/2018 9:21:52 AM

QC SUMMARY REPORT

WO#: **1804111**
18-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25542**
Client ID: **ICV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5180	100	5000	0	104	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25542**
Client ID: **CCV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4960	100	5000	0	99.3	90	110				

Sample ID **LCS-11716**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/17/2018**	RunNo: **25542**
Client ID: **LCSS**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4920	100	5000	0	98.4	80	120				

Sample ID **1804137-001ADUP**	SampType: **DUP**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/17/2018**	RunNo: **25542**
Client ID: **ZZZZZZ**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**	SeqNo: **342910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	ND	960						0	0	20	RF

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804111**

18-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID	**1804137-001AMS**	SampType:	**MS**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**ZZZZZZ**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	6410	925	4626	145.6	136	70	130				SMI

Sample ID	**1804137-001AMSD**	SampType:	**MSD**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**ZZZZZZ**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342912**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5750	943	4715	145.6	119	70	130	6415	10.9	20	

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:		RunNo:	**25542**
Client ID:	**CCV**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4770	100	5000	0	95.4	90	110				

Sample ID	**MB-11716**	SampType:	**MBLK**	TestCode:	**6020_S**	Units:	**µg/Kg**	Prep Date:	**4/17/2018**	RunNo:	**25542**
Client ID:	**PBS**	Batch ID:	**11716**	TestNo:	**SW6020A**	**SW3050B**		Analysis Date:	**4/18/2018**	SeqNo:	**342916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	ND	100									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804111**

18-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:				RunNo: **25542**	
Client ID: **CCV**	Batch ID: **11716**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **4/18/2018**				SeqNo: **342920**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4800	100	5000	0	96.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/17/2018 10:00:0**
Prep End Date: **4/17/2018 1:51:25**

Prep Batch ID **11716** Prep Code **3050_MS** Method No **3050** Technician **Ben Walker**

Prep Factor Units: **mL / g**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11716		Soil			0.5	0	0	50	100.000	4/17/2018	4/17/2018
LCS-11716		Soil			0.5	0	0	50	100.000	4/17/2018	4/17/2018
1804137-001A	100-2-041418	Unknown			0.514	0	0	50	97.276	4/17/2018	4/17/2018
1804137-001ADUP		Unknown			0.5209	0	0	50	95.988	4/17/2018	4/17/2018
1804137-001AMS		Unknown			0.5404	0	0	50	92.524	4/17/2018	4/17/2018
1804137-001AMSD		Unknown			0.5302	0	0	50	94.304	4/17/2018	4/17/2018
1804111-001A	Composite B (Pond)	Solid			0.5715	0	0	50	87.489	4/17/2018	4/17/2018
1804112-001A	Period 3 Filter Press	Solid			0.5414	0	0	50	92.353	4/17/2018	4/17/2018
1804134-001A	Rinse Water Sludge	Solid			0.5481	0	0	50	91.224	4/17/2018	4/17/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/27/2018 12:00:5**
Prep End Date: **4/27/2018 2:43:00**

Prep Batch ID **11781** Prep Code **3010_WMS** Method No **3010** Technician **Julie Clay**

Prep Factor Units: **mL / mL**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11781		Aqueous			50	0	0	50	1.000	4/27/2018	4/27/2018
LCS-11781		Aqueous			50	0	0	50	1.000	4/27/2018	4/27/2018
1804111-001A	Composite B (Pond)	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001ADUP		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001AMS		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001AMSD		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804112-001A	Period 3 Filter Press	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804238-001C	CE Ground Seep	Groundwater			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001A	Composite B (Pond)	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001ADUP		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001AMS		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001AMSD		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 4/12/18 | Page: 1 of: 1 | Laboratory Project No (internal): 1804111

Client: SLR | Project Name: Selmet Food Delisting | Temperature on Receipt:

Address: 1800 Millrace Rd, Ste 440 | Project No: | PO No: | Custody Seal: Y (N) - N/A

City, State, Zip: West Linn, OR 97068 | Collected by: Tyler Weber | Shipped Via: Client - SLR

Telephone: 503-723-4423 | State Collected: OR [X] WA [ ] OTHER | Notes:

Invoice To: Selmet | Report To (PM): Tyler Weber | Sample Disposal: [ ] Return to client [ ] Disposal by lab (after 60 days)

PM Email: tweber@slrconsulting.com

Requested Tests

Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Ignitability	TCLP VOCs and SVOCs	TCLP Fluoride, Hex Chrome, Cyanide and Metals**		VOC	PCBs							Comments
1 Composite A			SL	3	✓	✓	✓										Hold all TCLP tests
2 Composite B (Pool)	4/12/18	1600	SL	3	✓	✓	✓				⊗						Hold all TCLP tests
3 ~~Composite C~~			~~SL~~	~~3~~	✓	✓	✓										~~Hold all TCLP tests~~
4 ~~Composite D~~			~~SL~~	~~3~~	✓	✓	✓										~~Hold all TCLP tests~~
5																	* - metals include; antimony,
6																	arsenic, barium, beryllium, cadmium,
7																	chromium, cobalt, copper, lead,
8																	manganese, mercury, molybdenum,
9																	nickel, selenium, silver, thallium,
10 Trip Blank			W	4					⊗								Vanadium, Zinc, and Zirconium

⊗ Additional Test per client request EC 4/13/18

Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): [ ] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	4/12/18 / 20:00	x	
Relinquished	Date/Time	Received	Date/Time
x		x	4/13/18 12:22

www.specialtyanalytical.com

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 09, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting

Dear Tyler Weber: Order No.: 1805036

Specialty Analytical received 1 sample(s) on 5/3/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1805036**
Date: **5/9/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting

This sample was hand delivered by the client on 4/13/2018 at 12:22.

Notes relating to quality control samples:

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

HT flags reported in this batch reflect that samples were analyzed outside of recommended holding time at client's request.

TCLP extracts for the samples in this job were extracted within designated hold times at request of client. Notes stating prep exceeded hold times should be disregarded.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Specialty Analytical

Date Reported: 09-May-18

CLIENT: SLR International Corp.
Collection Date: 4/12/2018 4:00:00 PM
Project: Selmet F006 Delisting
Lab ID: 1805036-001
Client Sample ID: Composite B (Pond)
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	72.0	0		wt%	1	4/16/2018 3:00:13 PM
TCLP ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **JRC**
Arsenic, TCLP	17.4	5.00		µg/L	10	4/27/2018 5:00:10 PM
Chromium, TCLP	63.2	5.00		µg/L	10	4/27/2018 5:00:10 PM
Selenium, TCLP	65.6	50.0		µg/L	10	4/27/2018 5:00:10 PM
Silver, TCLP	20.8	5.00		µg/L	10	4/27/2018 5:00:10 PM
Thallium TCLP	ND	25.0		µg/L	10	4/30/2018 11:44:17 AM
TCLP SEMIVOLATILE ORGANICS-LOW LEVEL		**SW8270D**				Analyst: **CK**
2,4-Dinitrotoluene, TCLP	ND	12.8		µg/L	1	5/2/2018 6:42:00 PM
2,6-Dinitrotoluene	ND	12.8		µg/L	1	5/2/2018 6:42:00 PM
3,3´-Dichlorobenzidine	ND	12.8		µg/L	1	5/2/2018 6:42:00 PM
Benzidine	ND	5.13		µg/L	1	5/2/2018 6:42:00 PM
Bis(2-chloroethyl)ether	ND	5.13		µg/L	1	5/2/2018 6:42:00 PM
Hexachlorobenzene, TCLP	ND	2.56		µg/L	1	5/2/2018 6:42:00 PM
Hexachlorobutadiene, TCLP	ND	5.13		µg/L	1	5/2/2018 6:42:00 PM
N-Nitrosodimethylamine	ND	2.56		µg/L	1	5/2/2018 6:42:00 PM
N-Nitrosodi-n-propylamine	ND	5.13		µg/L	1	5/2/2018 6:42:00 PM
Pentachlorophenol, TCLP	ND	12.8		µg/L	1	5/2/2018 6:42:00 PM
Surr: 2,4,6-Tribromophenol	80.4	33.1-129.7		%REC	1	5/2/2018 6:42:00 PM
Surr: 2-Fluorobiphenyl	61.1	33.1-126.2		%REC	1	5/2/2018 6:42:00 PM
Surr: 2-Fluorophenol	47.2	13.4-127.1		%REC	1	5/2/2018 6:42:00 PM
Surr: 4-Terphenyl-d14	61.8	41-122		%REC	1	5/2/2018 6:42:00 PM
Surr: Nitrobenzene-d5	64.0	28.9-129.9		%REC	1	5/2/2018 6:42:00 PM
Surr: Phenol-d6	25.5	10.6-128.5		%REC	1	5/2/2018 6:42:00 PM
PCB'S IN SOLIDS		**SW 8082A**				Analyst: **ajr**
Aroclor 1016	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1221	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1232	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1242	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1248	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1254	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1260	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1262	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Aroclor 1268	ND	23.8	HT	µg/Kg-dry	1	5/2/2018 2:54:00 PM
Surr: Decachlorobiphenyl	86.3	56.5-130	HT	%REC	1	5/2/2018 2:54:00 PM

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **ICV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344557**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	50.1	0.100	50.00	0	100	90	110				
Chromium, TCLP	50.2	0.100	50.00	0	100	90	110				
Selenium, TCLP	51.7	1.00	50.00	0	103	90	110				
Silver, TCLP	45.9	0.100	50.00	0	91.8	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25685**
Client ID: **CCV**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	47.8	0.100	50.00	0	95.7	90	110				
Chromium, TCLP	48.2	0.100	50.00	0	96.5	90	110				
Selenium, TCLP	47.3	1.00	50.00	0	94.5	90	110				
Silver, TCLP	45.0	0.100	50.00	0	90.0	90	110				

Sample ID **MB-11781**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **4/27/2018**	RunNo: **25685**
Client ID: **PBW**	Batch ID: **11781**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **4/27/2018**	SeqNo: **344561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	ND	0.100									
Chromium, TCLP	ND	0.100									
Selenium, TCLP	ND	1.00									
Silver, TCLP	ND	0.100									

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID **LCS-11781** SampType: **LCS** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **4/27/2018** RunNo: **25685**
Client ID: **LCSW** Batch ID: **11781** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/27/2018** SeqNo: **344562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	47.8	0.100	50.00	0	95.6	80	120				
Chromium, TCLP	49.6	0.100	50.00	0	99.2	80	120				
Selenium, TCLP	46.8	1.00	50.00	0	93.6	80	120				
Silver, TCLP	46.0	0.100	50.00	0	92.1	80	120				

Sample ID **1805036-001ADUP** SampType: **DUP** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **4/27/2018** RunNo: **25685**
Client ID: **Composite B (Pond)** Batch ID: **11781** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/27/2018** SeqNo: **344564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	ND	5.00						17.43	200	20	RF
Chromium, TCLP	60.3	5.00						63.23	4.80	20	
Selenium, TCLP	ND	50.0						65.56	200	20	RF
Silver, TCLP	19.9	5.00						20.75	4.09	20	

Sample ID **1805036-001AMS** SampType: **MS** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **4/27/2018** RunNo: **25685**
Client ID: **Composite B (Pond)** Batch ID: **11781** TestNo: **E1311/6020** **SW3010A** Analysis Date: **4/27/2018** SeqNo: **344565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	238	5.00	250.0	17.43	88.2	70	130				
Chromium, TCLP	305	5.00	250.0	63.23	96.5	70	130				
Selenium, TCLP	222	50.0	250.0	65.56	62.6	70	130				SMI
Silver, TCLP	238	5.00	250.0	20.75	86.8	70	130				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting **TestCode: 6020_TCLP**

Sample ID	1805036-001AMSD	SampType:	MSD	TestCode:	6020_TCLP	Units:	µg/L	Prep Date:	4/27/2018	RunNo:	25685
Client ID:	Composite B (Pond)	Batch ID:	11781	TestNo:	E1311/6020	SW3010A		Analysis Date:	4/27/2018	SeqNo:	344566

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	243	5.00	250.0	17.43	90.1	70	130	238.0	1.91	20	
Chromium, TCLP	309	5.00	250.0	63.23	98.3	70	130	304.6	1.44	20	
Selenium, TCLP	226	50.0	250.0	65.56	64.1	70	130	222.0	1.72	20	SMI
Silver, TCLP	238	5.00	250.0	20.75	87.0	70	130	237.6	0.296	20	

Sample ID	ICV	SampType:	ICV	TestCode:	6020_TCLP	Units:	µg/L	Prep Date:		RunNo:	25685
Client ID:	ICV	Batch ID:	11781	TestNo:	E1311/6020	SW3010A		Analysis Date:	4/30/2018	SeqNo:	344748

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	50.2	0.500	50.00	0	100	90	110				

Sample ID	CCV	SampType:	CCV	TestCode:	6020_TCLP	Units:	µg/L	Prep Date:		RunNo:	25685
Client ID:	CCV	Batch ID:	11781	TestNo:	E1311/6020	SW3010A		Analysis Date:	4/30/2018	SeqNo:	344749

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	50.7	0.500	50.00	0	101	90	110				

Sample ID	MB-11781	SampType:	MBLK	TestCode:	6020_TCLP	Units:	µg/L	Prep Date:	4/27/2018	RunNo:	25685
Client ID:	PBW	Batch ID:	11781	TestNo:	E1311/6020	SW3010A		Analysis Date:	4/30/2018	SeqNo:	344750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	ND	0.500									

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID	**MB-11781**	SampType:	**MBLK**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**4/27/2018**	RunNo:	**25685**
Client ID:	**PBW**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	**LCS-11781**	SampType:	**LCS**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**4/27/2018**	RunNo:	**25685**
Client ID:	**LCSW**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344751**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	48.7	0.500	50.00	0	97.3	80	120				

Sample ID	**1805036-001ADUP**	SampType:	**DUP**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**4/27/2018**	RunNo:	**25685**
Client ID:	**Composite B (Pond)**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	ND	25.0						0	0	20	RF

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:		RunNo:	**25685**
Client ID:	**CCV**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	49.5	0.500	50.00	0	99.0	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **6020_TCLP**

Sample ID	**1805036-001AMS**	SampType:	**MS**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**4/27/2018**	RunNo:	**25685**
Client ID:	**Composite B (Pond)**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344755**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	236	25.0	250.0	2.250	93.4	70	130				

Sample ID	**1805036-001AMSD**	SampType:	**MSD**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:	**4/27/2018**	RunNo:	**25685**
Client ID:	**Composite B (Pond)**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344756**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	239	25.0	250.0	2.250	94.7	70	130	239.0	0	20	

Sample ID	**CCV**	SampType:	**CCV**	TestCode:	**6020_TCLP**	Units:	**µg/L**	Prep Date:		RunNo:	**25685**
Client ID:	**CCV**	Batch ID:	**11781**	TestNo:	**E1311/6020**	**SW3010A**		Analysis Date:	**4/30/2018**	SeqNo:	**344757**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Thallium TCLP	50.2	0.500	50.00	0	100	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **8082LL_S**

Sample ID **MB-11813**	SampType: **MBLK**	TestCode: **8082LL_S**	Units: **µg/Kg**	Prep Date: **5/1/2018**	RunNo: **25745**
Client ID: **PBS**	Batch ID: **11813**	TestNo: **SW 8082A**	**SW3550C**	Analysis Date: **5/2/2018**	SeqNo: **345143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	ND	3.33									
Aroclor 1221	ND	3.33									
Aroclor 1232	ND	3.33									
Aroclor 1242	ND	3.33									
Aroclor 1248	ND	3.33									
Aroclor 1254	ND	3.33									
Aroclor 1260	ND	3.33									
Aroclor 1262	ND	3.33									
Aroclor 1268	ND	3.33									
Surr: Decachlorobiphenyl	5160		6667		77.4	56.5	130				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**

17-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting **TestCode:** **8270LL_W**

Sample ID **CCV MSSWS-1517**	SampType: **CCV**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date:	RunNo: **25769**
Client ID: **CCV**	Batch ID: **11810**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/2/2018**	SeqNo: **345388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexachlorobutadiene, TCLP	19.9	0.500	20.00	0	99.4	80	120				
Pentachlorophenol, TCLP	20.2	0.500	20.00	0	101	80	120				

Sample ID **MB-11810**	SampType: **MBLK**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date: **5/1/2018**	RunNo: **25769**
Client ID: **PBW**	Batch ID: **11810**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/2/2018**	SeqNo: **345389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	ND	0.500									
2,6-Dinitrotoluene	ND	0.500									
3,3´-Dichlorobenzidine	ND	0.500									
Bis(2-chloroethyl)ether	ND	0.500									
Hexachlorobenzene, TCLP	ND	0.500									
Hexachlorobutadiene, TCLP	ND	0.500									
N-Nitrosodimethylamine	ND	0.500									
N-Nitrosodi-n-propylamine	ND	0.500									
Pentachlorophenol, TCLP	ND	0.500									
Surr: 2,4,6-Tribromophenol	85.5		100.0		85.5	33.1	129.7				
Surr: 2-Fluorobiphenyl	55.0		100.0		55.0	33.1	126.2				
Surr: 2-Fluorophenol	43.4		100.0		43.4	13.4	127.1				
Surr: 4-Terphenyl-d14	77.1		100.0		77.1	41	122				
Surr: Nitrobenzene-d5	71.6		100.0		71.6	28.9	129.9				
Surr: Phenol-d6	27.7		100.0		27.7	10.6	128.5				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1805036**
17-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting **TestCode:** **8270LL_W**

Sample ID **LCS-11810**	SampType: **LCS**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date: **5/1/2018**	RunNo: **25769**
Client ID: **LCSW**	Batch ID: **11810**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/2/2018**	SeqNo: **345391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	22.2	0.500	40.00	0	55.5	40	133				
N-Nitrosodi-n-propylamine	24.7	0.500	40.00	0	61.6	33.9	138				
Pentachlorophenol, TCLP	23.3	0.500	40.00	0	58.4	43.3	113				

Sample ID **LCSD-11810**	SampType: **LCSD**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date: **5/1/2018**	RunNo: **25769**
Client ID: **LCSS02**	Batch ID: **11810**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/2/2018**	SeqNo: **345392**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	21.9	0.500	40.00	0	54.7	40	133	22.20	1.41	20	
N-Nitrosodi-n-propylamine	20.6	0.500	40.00	0	51.4	33.9	138	24.66	18.2	20	
Pentachlorophenol, TCLP	20.7	0.500	40.00	0	51.8	43.3	113	23.34	11.9	20	

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **5/1/2018 7:00:38 A**
Prep End Date: **5/2/2018 9:38:57 A**

Prep Batch ID **11810** Prep Code **3510_B** Method No **3510** Technician **Austin Mobley**

Prep Factor Units: **mL / L**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11810		Aqueous			1	0	0	1	1.000	5/1/2018	5/2/2018
LCS-11810		Aqueous			1	0	0	1	1.000	5/1/2018	5/2/2018
LCSD-11810		Aqueous			1	0	0	1	1.000	5/1/2018	5/2/2018
1804111-001A	Composite B (Pond)	Solid			0.39	0	0	1	2.564	5/1/2018	5/2/2018
	Prep hold time was exceeded by 11.625 day(s)										
1805036-001A	Composite B (Pond)	Solid			0.39	0	0	1	2.564	5/1/2018	5/2/2018
	Prep hold time was exceeded by 11.625 day(s)										

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **4/27/2018 12:00:5**
Prep End Date: **4/27/2018 2:43:00**

Prep Batch ID **11781** Prep Code **3010_WMS** Method No **3010** Technician **Julie Clay**

Prep Factor Units: **mL / mL**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11781		Aqueous			50	0	0	50	1.000	4/27/2018	4/27/2018
LCS-11781		Aqueous			50	0	0	50	1.000	4/27/2018	4/27/2018
1804111-001A	Composite B (Pond)	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001ADUP		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001AMS		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804111-001AMSD		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804112-001A	Period 3 Filter Press	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1804238-001C	CE Ground Seep	Groundwater			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001A	Composite B (Pond)	Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001ADUP		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001AMS		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018
1805036-001AMSD		Solid			10	0	0	50	5.000	4/27/2018	4/27/2018

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

Specialty Analytical

PREP BATCH REPORT

Prep Start Date **5/1/2018 1:00:47 P**
Prep End Date: **5/2/2018 1:13:00 P**

Prep Batch ID **11813** Prep Code **3550_PCB** Method No **3550** Technician **Austin Mobley**

Prep Factor Units: **mL / Kg**

Initial Temp: **°C** Final Temp **°C**

Sample ID	ClientSampleID	Matrix	pH1	pH2	SampAmt	Sol Added	Sol Recov	Fin Vol	factor	PrepStart	PrepEnd
MB-11813		Soil			0.03	0	0	2	66.667	5/1/2018	5/2/2018
LCS-11813		Soil			0.03	0	0	2	66.667	5/1/2018	5/2/2018
1804111-001AMS		Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 day(s)											
1804111-001AMSD		Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 day(s)											
1804111-001A	Composite B (Pond)	Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 day(s)											
1805017-001A	RS-PCB-01	Solid			0.00022	0	0	2	9090.909	5/2/2018	5/2/2018
1805017-002A	RS-PCB-02	Solid			0.00027	0	0	2	7407.407	5/2/2018	5/2/2018
1805036-001A	Composite B (Pond)	Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 day(s)											
1804111-001AMS		Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 days.											
1804111-001AMSD		Solid			0.015	0	0	2	133.333	5/1/2018	5/2/2018
Prep hold time was exceeded by 4.876 days.											

Type	Chemical / Reagent ID	Chemical / Reagent Name	Container#	Container ID	Amount Added	Amount Unit

Spike ID	Spike Name	Samp Type	Container#	Container ID	Amount Added	Amount Unit

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Item B 000380

Date: 4/12/16 Page: 1 of: 1
Project Name: Selmet Food Delisting
Project No: PO No:
Collected by: Tyler Weber
State Collected: OR [X] WA [ ] OTHER
Report To (PM): Tyler Weber
PM Email: tweber@slrconsulting.com

Laboratory Project No (internal): 1804111
Temperature on Receipt:
Custody Seal: Y (N) - N/A
Shipped Via: Client - SLR
Notes:
Sample Disposal: [ ] Return to client [ ] Disposal by lab (after 60 days)

Client: SLR
Address: 1800 Mountain Rd, Ste 440
City, State, Zip: West Linn, OR 97068
Telephone: 503-723-4423
Invoice To: Selmet

#	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Requested Tests: Total Zirconium	TCLP VOCs and SVOCs	TCLP Fluoride, Hex Chrome, Cyanide and Metals**	VOC	PCBs	Comments
1	Composite A			SL	3	✓	✓	✓			Hold all TCLP tests
2	Composite B (Pool)	4/12/16	1600	SL	3	✓	✓	✓		⊗	Hold all TCLP tests
3	~~Composite C~~			~~SL~~	3	✓	✓	✓			~~Hold all TCLP tests~~
4	Composite D			~~SL~~	3	✓	✓	✓			~~Hold all TCLP tests~~
5											* - metals include; antimony,
6											arsenic, barium, beryllium, cadmium,
7											chromium, cobalt, copper, lead,
8											manganese, mercury, molybdenum,
9											nickel, selenium, silver, thallium,
10	Trip Blank			W	4				⊗		Vanadium, Zinc, and Zirconium

⊗ Additional Test per client request EC 4/13/18

Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): [ ] 3 Day: [ ] 2 Day: [ ] Next Day: [ ] Same Day: [ ]

Relinquished	Date/Time	Received	Date/Time
x	4/12/18 / 20:00	x	
x		x	4/13/18 12:22

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Supporting Document 1: Delisting Petition
Nov. 15-16, 2018, EQC meeting
Page 257 of 553

Specialty Analytical

9011 SE Jannsen Rd
Clackamas, Oregon 97015
TEL: 503-607-1331 FAX: 503-607-1336
Website: www.specialtyanalytical.com

May 21, 2018

Tyler Weber
SLR International Corp.
1800 Blankenship Rd.
Ste 440
West Linn, OR 97068

TEL: (503) 723-4423
FAX
RE: Selmet F006 Delisting / 108.00256.00029

Dear Tyler Weber: Order No.: 1804173

Specialty Analytical received 8 sample(s) on 4/19/2018 for the analyses presented in the following report.

REVISED REPORT: Please see case narrative for information on revision.

There were no problems with the analysis and all data for associated QC met EPA or laboratory specifications, except where noted in the Case Narrative, or as qualified with flags. Results apply only to the samples analyzed. Without approval of the laboratory, the reproduction of this report is only permitted in its entirety.

If you have any questions regarding these tests, please feel free to call.

Sincerely,

Marty French
Lab Director

Case Narrative

WO#: **1804173**
Date: **5/21/2018**

CLIENT: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029

Notes relating to quality control samples:

B flags reported on QC in this batch reflect results where the sample has a concentration greater then ten times the hit in the method blank. This hit is considered insignificant in relation to the concentration of the sample.

RF flags reported on QC in this batch reflect results where the duplicate failed due to the result being at or near the method reporting limit.

RMI flags reported on QC in this batch reflect RPD results outside control limits due to matrix interference.

SMI flags reported on QC in this batch reflect recovery results outside control limits due to matrix interference. LCS values in this batch are within range.

TCLP extracts for the samples in this job were extracted within designated hold times at request of client. Notes stating prep exceeded hold times should be disregarded.

Revision 1-

This report has been revised to add prep batch reports. Flags have been updated to address QC failures.

Revision 2-

This report has been revised to include values for TCLP Tl on samples 002 & 003, and TCLP Sb on sample 001 per client request.

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/18/2018 2:15:00 PM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804173-001
Client Sample ID: Composite A (Pond)
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	73.5	0		wt%	1	4/19/2018 3:10:51 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	2020000	34100		µg/Kg-dry	100	5/8/2018 11:05:42 AM
ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Antimony TCLP	136	25.0		µg/L	10	5/7/2018 3:56:46 PM
Arsenic, TCLP	21.7	5.00		µg/L	10	5/7/2018 3:56:46 PM
Cadmium, TCLP	ND	5.00		µg/L	10	5/7/2018 3:56:46 PM
Chromium, TCLP	27.8	5.00		µg/L	10	5/7/2018 3:56:46 PM
Selenium, TCLP	94.2	50.0		µg/L	10	5/7/2018 3:56:46 PM
Silver, TCLP	9.85	5.00		µg/L	10	5/7/2018 3:56:46 PM
Thallium TCLP	ND	25.0		µg/L	10	5/7/2018 3:56:46 PM
TCLP SEMIVOLATILE ORGANICS-LOW LEVEL		**SW8270D**				Analyst: **CK**
2,4-Dinitrotoluene, TCLP	ND	21.0		µg/L	1	5/10/2018 6:36:00 PM
2,6-Dinitrotoluene	ND	21.0		µg/L	1	5/10/2018 6:36:00 PM
3,3´-Dichlorobenzidine	ND	21.0		µg/L	1	5/10/2018 6:36:00 PM
Benzidine	ND	8.40		µg/L	1	5/10/2018 6:36:00 PM
Hexachlorobenzene, TCLP	ND	4.20		µg/L	1	5/10/2018 6:36:00 PM
N-Nitrosodimethylamine	ND	4.20		µg/L	1	5/10/2018 6:36:00 PM
N-Nitrosodi-n-propylamine	ND	8.40		µg/L	1	5/10/2018 6:36:00 PM
Pentachlorophenol, TCLP	ND	21.0		µg/L	1	5/10/2018 6:36:00 PM
Surr: 2,4,6-Tribromophenol	100	33.1-129.7		%REC	1	5/10/2018 6:36:00 PM
Surr: 2-Fluorobiphenyl	82.5	33.1-126.2		%REC	1	5/10/2018 6:36:00 PM
Surr: 2-Fluorophenol	76.8	13.4-127.1		%REC	1	5/10/2018 6:36:00 PM
Surr: 4-Terphenyl-d14	88.2	41-122		%REC	1	5/10/2018 6:36:00 PM
Surr: Nitrobenzene-d5	86.7	28.9-129.9		%REC	1	5/10/2018 6:36:00 PM
Surr: Phenol-d6	60.0	10.6-128.5		%REC	1	5/10/2018 6:36:00 PM

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/18/2018 2:05:00 PM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804173-002
Client Sample ID: Composite C (Pond)
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	61.4	0		wt%	1	4/19/2018 3:10:51 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	803000	21700		µg/Kg-dry	100	5/8/2018 11:10:01 AM
TCLP ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Arsenic, TCLP	ND	5.00		µg/L	10	5/7/2018 4:10:17 PM
Selenium, TCLP	ND	50.0		µg/L	10	5/7/2018 4:10:17 PM
Silver, TCLP	12.1	5.00		µg/L	10	5/7/2018 4:10:17 PM
Thallium TCLP	ND	25.0		µg/L	10	5/7/2018 4:10:17 PM
TCLP SEMIVOLATILE ORGANICS-LOW LEVEL		**SW8270D**				Analyst: **CK**
2,4-Dinitrotoluene, TCLP	ND	13.2		µg/L	1	5/10/2018 7:04:00 PM
2,6-Dinitrotoluene	ND	13.2		µg/L	1	5/10/2018 7:04:00 PM
3,3´-Dichlorobenzidine	ND	13.2		µg/L	1	5/10/2018 7:04:00 PM
Benzidine	ND	5.29		µg/L	1	5/10/2018 7:04:00 PM
Hexachlorobenzene, TCLP	ND	2.65		µg/L	1	5/10/2018 7:04:00 PM
N-Nitrosodimethylamine	ND	2.65		µg/L	1	5/10/2018 7:04:00 PM
N-Nitrosodi-n-propylamine	ND	5.29		µg/L	1	5/10/2018 7:04:00 PM
Pentachlorophenol, TCLP	ND	13.2		µg/L	1	5/10/2018 7:04:00 PM
Surr: 2,4,6-Tribromophenol	95.8	33.1-129.7		%REC	1	5/10/2018 7:04:00 PM
Surr: 2-Fluorobiphenyl	76.7	33.1-126.2		%REC	1	5/10/2018 7:04:00 PM
Surr: 2-Fluorophenol	77.1	13.4-127.1		%REC	1	5/10/2018 7:04:00 PM
Surr: 4-Terphenyl-d14	86.9	41-122		%REC	1	5/10/2018 7:04:00 PM
Surr: Nitrobenzene-d5	89.5	28.9-129.9		%REC	1	5/10/2018 7:04:00 PM
Surr: Phenol-d6	49.7	10.6-128.5		%REC	1	5/10/2018 7:04:00 PM

Specialty Analytical

Date Reported: 21-May-18

CLIENT: SLR International Corp.
Collection Date: 4/18/2018 12:55:00 PM
Project: Selmet F006 Delisting / 108.00256.00029
Lab ID: 1804173-003
Client Sample ID: Composite D (Pond)
Matrix: SOLID

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
PERCENT MOISTURE		**D2216**				Analyst: **AM**
Percent Moisture	60.4	0		wt%	1	4/19/2018 3:10:51 PM
ICP/MS METALS-TOTAL RECOVERABLE		**SW6020A**				Analyst: **BW**
Zirconium	1130000	23300		µg/Kg-dry	100	5/8/2018 11:11:05 AM
TCLP ICP/MS METALS-TCLP LEACHED		**E1311/6020**				Analyst: **BW**
Arsenic, TCLP	ND	5.00		µg/L	10	5/7/2018 4:13:40 PM
Selenium, TCLP	ND	50.0		µg/L	10	5/7/2018 4:13:40 PM
Thallium TCLP	ND	25.0		µg/L	10	5/7/2018 4:13:40 PM
TCLP SEMIVOLATILE ORGANICS-LOW LEVEL		**SW8270D**				Analyst: **CK**
2,4-Dinitrotoluene, TCLP	ND	15.5		µg/L	1	5/10/2018 7:31:00 PM
2,6-Dinitrotoluene	ND	15.5		µg/L	1	5/10/2018 7:31:00 PM
3,3´-Dichlorobenzidine	ND	15.5		µg/L	1	5/10/2018 7:31:00 PM
Benzidine	ND	6.19		µg/L	1	5/10/2018 7:31:00 PM
Hexachlorobenzene, TCLP	ND	3.10		µg/L	1	5/10/2018 7:31:00 PM
N-Nitrosodimethylamine	ND	3.10		µg/L	1	5/10/2018 7:31:00 PM
N-Nitrosodi-n-propylamine	ND	6.19		µg/L	1	5/10/2018 7:31:00 PM
Pentachlorophenol, TCLP	ND	15.5		µg/L	1	5/10/2018 7:31:00 PM
Surr: 2,4,6-Tribromophenol	85.1	33.1-129.7		%REC	1	5/10/2018 7:31:00 PM
Surr: 2-Fluorobiphenyl	63.1	33.1-126.2		%REC	1	5/10/2018 7:31:00 PM
Surr: 2-Fluorophenol	60.5	13.4-127.1		%REC	1	5/10/2018 7:31:00 PM
Surr: 4-Terphenyl-d14	69.2	41-122		%REC	1	5/10/2018 7:31:00 PM
Surr: Nitrobenzene-d5	80.1	28.9-129.9		%REC	1	5/10/2018 7:31:00 PM
Surr: Phenol-d6	44.4	10.6-128.5		%REC	1	5/10/2018 7:31:00 PM

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25809**
Client ID: **ICV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	5230	100	5000	0	105	90	110				B

Sample ID **MB-11771**	SampType: **MBLK**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/26/2018**	RunNo: **25809**
Client ID: **PBS**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	428	100									

Sample ID **LCS-11771**	SampType: **LCS**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date: **4/26/2018**	RunNo: **25809**
Client ID: **LCSS**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4650	100	5000	0	93.0	80	120				B

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:	RunNo: **25809**
Client ID: **CCV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**	SeqNo: **345839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4690	100	5000	0	93.8	90	110				B

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **1804173-001AMS** SampType: **MS** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/26/2018** RunNo: **25809**
Client ID: **Composite A (Pond)** Batch ID: **11771** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/8/2018** SeqNo: **345842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1990000	34700	17330	2016000	-165	70	130				SMI

Sample ID **1804173-001AMSD** SampType: **MSD** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/26/2018** RunNo: **25809**
Client ID: **Composite A (Pond)** Batch ID: **11771** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/8/2018** SeqNo: **345843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	1600000	36100	18070	2016000	-2280	70	130	1988000	21.4	20	SRMI

Sample ID **CCV** SampType: **CCV** TestCode: **6020_S** Units: **µg/Kg** Prep Date: RunNo: **25809**
Client ID: **CCV** Batch ID: **11771** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/8/2018** SeqNo: **345847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4510	100	5000	0	90.2	90	110				B

Sample ID **1804173-001ADUP** SampType: **DUP** TestCode: **6020_S** Units: **µg/Kg-dry** Prep Date: **4/26/2018** RunNo: **25809**
Client ID: **Composite A (Pond)** Batch ID: **11771** TestNo: **SW6020A** **SW3050B** Analysis Date: **5/8/2018** SeqNo: **345848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	2730000	332000						2016000	30.2	20	RMI

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_S**

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_S**	Units: **µg/Kg**	Prep Date:				RunNo: **25809**			
Client ID: **CCV**	Batch ID: **11771**	TestNo: **SW6020A**	**SW3050B**	Analysis Date: **5/8/2018**				SeqNo: **345849**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Zirconium	4780	100	5000	0	95.6	90	110				B

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **ICV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	50.5	0.500	50.00	0	101	90	110				
Arsenic, TCLP	50.7	0.100	50.00	0	101	90	110				
Cadmium, TCLP	50.0	0.100	50.00	0	100	90	110				
Chromium, TCLP	50.2	0.100	50.00	0	100	90	110				
Selenium, TCLP	51.7	1.00	50.00	0	103	90	110				
Silver, TCLP	47.3	0.100	50.00	0	94.6	90	110				
Thallium TCLP	47.6	0.500	50.00	0	95.2	90	110				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **CCV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	50.5	0.500	50.00	0	101	90	110				
Arsenic, TCLP	51.8	0.100	50.00	0	104	90	110				
Cadmium, TCLP	52.1	0.100	50.00	0	104	90	110				
Chromium, TCLP	54.6	0.100	50.00	0	109	90	110				
Selenium, TCLP	52.2	1.00	50.00	0	104	90	110				
Silver, TCLP	46.7	0.100	50.00	0	93.3	90	110				
Thallium TCLP	47.2	0.500	50.00	0	94.3	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **MB-11850**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **PBW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	ND	0.500									
Cadmium, TCLP	ND	0.100									
Chromium, TCLP	ND	0.100									
Selenium, TCLP	ND	1.00									
Silver, TCLP	ND	0.100									
Thallium TCLP	ND	0.500									

Sample ID **LCS-11850**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **LCSW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	50.5	0.100	50.00	0	101	80	120				
Cadmium, TCLP	53.3	0.100	50.00	0	107	80	120				
Chromium, TCLP	48.5	0.100	50.00	0	97.0	80	120				
Selenium, TCLP	49.4	1.00	50.00	0	98.9	80	120				
Silver, TCLP	45.6	0.100	50.00	0	91.1	80	120				
Thallium TCLP	47.9	0.500	50.00	0	95.7	80	120				

Sample ID **1804173-001ADUP**	SampType: **DUP**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **Composite A (Pond)**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/7/2018**	SeqNo: **345877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	68.7	25.0						136.3	65.9	20	R

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **1804173-001ADUP** SampType: **DUP** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **5/7/2018** RunNo: **25812**
Client ID: **Composite A (Pond)** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/7/2018** SeqNo: **345877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	6.08	5.00						21.74	113	20	RF
Cadmium, TCLP	ND	5.00						0	0	20	RF
Chromium, TCLP	28.1	5.00						27.75	1.37	20	
Selenium, TCLP	ND	50.0						94.16	200	20	RF
Silver, TCLP	9.80	5.00						9.850	0.479	20	
Thallium TCLP	ND	25.0						0	0	0	

Sample ID **1804173-001AMS** SampType: **MS** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **5/7/2018** RunNo: **25812**
Client ID: **Composite A (Pond)** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/7/2018** SeqNo: **345878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	199	25.0	250.0	136.3	25.1	70	130				SMI
Arsenic, TCLP	268	5.00	250.0	21.74	98.4	70	130				
Cadmium, TCLP	274	5.00	250.0	1.051	109	70	130				
Chromium, TCLP	288	5.00	250.0	27.75	104	70	130				
Selenium, TCLP	260	50.0	250.0	94.16	66.3	70	130				SMI
Silver, TCLP	225	5.00	250.0	9.850	86.1	70	130				
Thallium TCLP	227	25.0	250.0	1.100	90.4	70	130				

Sample ID **1804173-001AMSD** SampType: **MSD** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **5/7/2018** RunNo: **25812**
Client ID: **Composite A (Pond)** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/7/2018** SeqNo: **345879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **1804173-001AMSD** SampType: **MSD** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: **5/7/2018** RunNo: **25812**
Client ID: **Composite A (Pond)** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/7/2018** SeqNo: **345879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	196	25.0	250.0	136.3	23.9	70	130	199.0	1.51	20	SMI
Arsenic, TCLP	266	5.00	250.0	21.74	97.7	70	130	267.8	0.634	20	
Cadmium, TCLP	259	5.00	250.0	1.051	103	70	130	273.7	5.41	20	
Chromium, TCLP	288	5.00	250.0	27.75	104	70	130	288.1	0.0972	20	
Selenium, TCLP	266	50.0	250.0	94.16	68.5	70	130	259.8	2.18	20	SMI
Silver, TCLP	226	5.00	250.0	9.850	86.4	70	130	225.1	0.269	20	
Thallium TCLP	228	25.0	250.0	1.100	90.8	70	130	227.0	0.483	20	

Sample ID **ICV** SampType: **ICV** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: RunNo: **25812**
Client ID: **ICV** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/9/2018** SeqNo: **346258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	49.5	0.100	50.00	0	99.0	90	110				

Sample ID **CCV** SampType: **CCV** TestCode: **6020_TCLP** Units: **µg/L** Prep Date: RunNo: **25812**
Client ID: **CCV** Batch ID: **11850** TestNo: **E1311/6020** **SW3010A** Analysis Date: **5/9/2018** SeqNo: **346296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	48.1	0.100	50.00	0	96.2	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **6020_TCLP**

Sample ID **MB-11850**	SampType: **MBLK**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **PBW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/9/2018**	SeqNo: **346297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic, TCLP	ND	0.100									

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **ICV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	45.7	0.500	50.00	0	91.4	90	110				

Sample ID **LCS-11850**	SampType: **LCS**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date: **5/7/2018**	RunNo: **25812**
Client ID: **LCSW**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	51.4	0.500	50.00	0	103	80	120				

Sample ID **CCV**	SampType: **CCV**	TestCode: **6020_TCLP**	Units: **µg/L**	Prep Date:	RunNo: **25812**
Client ID: **CCV**	Batch ID: **11850**	TestNo: **E1311/6020**	**SW3010A**	Analysis Date: **5/21/2018**	SeqNo: **348345**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Antimony TCLP	46.6	0.500	50.00	0	93.2	90	110				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**

21-May-18

Specialty Analytical

Client: SLR International Corp.

Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **8270LL_W**

Sample ID	**CCV MSSWS-1517**	SampType:	**CCV**	TestCode:	**8270LL_W**	Units:	**µg/L**	Prep Date:		RunNo:	**25870**
Client ID:	**CCV**	Batch ID:	**11861**	TestNo:	**SW8270D**	**SW 3510C**		Analysis Date:	**5/9/2018**	SeqNo:	**346681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol, TCLP	17.0	0.500	20.00	0	85.0	80	120				

Sample ID	**MB-11861**	SampType:	**MBLK**	TestCode:	**8270LL_W**	Units:	**µg/L**	Prep Date:	**5/8/2018**	RunNo:	**25870**
Client ID:	**PBW**	Batch ID:	**11861**	TestNo:	**SW8270D**	**SW 3510C**		Analysis Date:	**5/9/2018**	SeqNo:	**346682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	ND	0.500									
2,6-Dinitrotoluene	ND	0.500									
3,3´-Dichlorobenzidine	ND	0.500									
Hexachlorobenzene, TCLP	ND	0.500									
N-Nitrosodimethylamine	ND	0.500									
N-Nitrosodi-n-propylamine	ND	0.500									
Pentachlorophenol, TCLP	ND	0.500									
Surr: 2,4,6-Tribromophenol	59.8		100.0		59.8	33.1	129.7				
Surr: 2-Fluorobiphenyl	64.1		100.0		64.1	33.1	126.2				
Surr: 2-Fluorophenol	50.1		100.0		50.1	13.4	127.1				
Surr: 4-Terphenyl-d14	64.8		100.0		64.8	41	122				
Surr: Nitrobenzene-d5	65.0		100.0		65.0	28.9	129.9				
Surr: Phenol-d6	38.8		100.0		38.8	10.6	128.5				

Qualifiers:

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

QC SUMMARY REPORT

WO#: **1804173**
21-May-18

Specialty Analytical

Client: SLR International Corp.
Project: Selmet F006 Delisting / 108.00256.00029 **TestCode:** **8270LL_W**

Sample ID **LCS-11861**	SampType: **LCS**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date: **5/8/2018**	RunNo: **25870**
Client ID: **LCSW**	Batch ID: **11861**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/9/2018**	SeqNo: **346683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	25.8	0.500	40.00	0	64.5	40	133				
N-Nitrosodi-n-propylamine	28.5	0.500	40.00	0	71.2	33.9	138				
Pentachlorophenol, TCLP	22.9	0.500	40.00	0	57.2	43.3	113				

Sample ID **LCSD-11861**	SampType: **LCSD**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date: **5/8/2018**	RunNo: **25870**
Client ID: **LCSS02**	Batch ID: **11861**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/9/2018**	SeqNo: **346684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene, TCLP	28.2	0.500	40.00	0	70.6	40	133	25.79	9.07	20	
N-Nitrosodi-n-propylamine	30.3	0.500	40.00	0	75.7	33.9	138	28.48	6.09	20	
Pentachlorophenol, TCLP	25.1	0.500	40.00	0	62.8	43.3	113	22.86	9.34	20	

Sample ID **CCV MSSWS-1517**	SampType: **CCV**	TestCode: **8270LL_W**	Units: **µg/L**	Prep Date:	RunNo: **25870**
Client ID: **CCV**	Batch ID: **11861**	TestNo: **SW8270D**	**SW 3510C**	Analysis Date: **5/10/2018**	SeqNo: **346685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Pentachlorophenol, TCLP	21.7	0.500	20.00	0	109	80	120				

Qualifiers:
B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
O RSD is greater than RSDlimit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted reco

KEY TO FLAGS

A This sample contains a Gasoline Range Organic not identified as a specific hydrocarbon product. The result was quantified against gasoline calibration standards

A1 This sample contains a Diesel Range Organic not identified as a specific hydrocarbon product. The result was quantified against diesel calibration standards.

A2 This sample contains a Lube Oil Range Organic not identified as a specific hydrocarbon product. The result was quantified against a lube oil calibration standard.

A3 The result was determined to be Non-Detect based on hydrocarbon pattern recognition. The product was carry-over from another hydrocarbon type.

A4 The product appears to be aged or degraded diesel.

B The blank exhibited a positive result great than the reporting limit for this compound.

CN See Case Narrative.

D Result is based from a dilution.

E Result exceeds the calibration range for this compound. The result should be considered as estimate.

F The positive result for this hydrocarbon is due to single component contamination. The product does not match any hydrocarbon in the fuels library.

G Result may be biased high due to biogenic interferences. Clean up is recommended.

H Sample was analyzed outside recommended holding time.

HT At clients request, samples was analyzed outside of recommended holding time.

J The result for this analyte is between the MDL and the PQL and should be considered as estimated concentration.

K Diesel result is biased high due to amount of Oil contained in the sample.

L Diesel result is biased high due to amount of Gasoline contained in the sample.

M Oil result is biased high due to amount of Diesel contained in the sample.

MC Sample concentration is greater than 4x the spiked value, the spiked value is considered insignificant.

MI Result is outside control limits due to matrix interference.

MSA Value determined by Method of Standard Addition.

O Laboratory Control Standard (LCS) exceeded laboratory control limits, but meets CCV criteria. Data meets EPA requirements.

Q Detection levels elevated due to sample matrix.

R RPD control limits were exceeded.

RF Duplicate failed due to result being at or near the method-reporting limit.

RP Matrix spike values exceed established QC limits; post digestion spike is in control.

S Recovery is outside control limits.

SC Closing CCV or LCS exceeded high recovery control limits, but associated samples are non-detect. Data meets EPA requirements.

* The result for this parameter was greater that the maximum contaminant level of the TCLP regulatory limit.

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Client: SLR
Address: 1800 Blankenship Rd, St 440
City, State, Zip: West Linn, OR 97068
Telephone: 503-723-4423
Invoice To: Selmet

Date: 4/19/18 Page: 1 of: ~~3~~ 2 TW
Project Name: Selmet F006 Delisting
Project No: 108.00256.00029 PO No: —
Collected by: Tyler Weber
State Collected: OR [X] WA [ ] OTHER
Report To (PM): Tyler Weber
PM Email: tweber@slrconsulting.com

Laboratory Project No (internal): 1804173
Temperature on Receipt: 7.1
Custody Seal: (Y) N – Cooler
Shipped Via: Client
Notes:
Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 60 days)

Requested Tests

#	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	Total Zirconium	TCLP VOCs and SVOCs	TCLP Fluoride, Hex Chrome, Cyanide and Metals*	Comments
1	Composite A (Pond)	4/18/18	1415	SL	3	✓	✓	✓	Hold all TCLP tests
2	~~Composite B~~			~~SL~~		~~✓~~	~~✓~~	~~✓~~	~~Hold all TCLP tests~~ TW
3	Composite C (Pond)	4/18/18	1405	SL	3	✓	✓	✓	Hold all TCLP tests
4	Composite D (Pond)	4/18/18	1235	SL	3	✓	✓	✓	Hold all TCLP tests
5	—								* – metals include: antimony,
6	—								arsenic, barium, beryllium, cadmium,
7	—								chromium, cobalt, copper, lead,
8	—								manganese, mercury, molybdenum,
9	—								nickel, selenium, silver, thallium,
10	—								vanadium, zinc, and zirconium

*Matrix: A=Air, AQ=Aqueous, O=Other, P=Product, S=Soil, SD=Sediment, SL=Solid, W=Water, DW=Drinking Water, GW=Ground Water, SW=Storm Water, WW=Waste Water **Metals

Turn-around Time: Standard (5-7 Business): ☐ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Relinquished	Date/Time	Received	Date/Time
x [signature]	4/19/18 1150	x [signature]	4/19/18 11:50
x		x	

www.specialtyanalytical.com

Specialty Analytical
9011 SE Jannsen Rd
Clackamas, OR 97015
Phone: 503-607-1331
Fax: 503-607-1336

Chain of Custody Record

Date: 4/19/2018 | Page: #2 TW of: #2 TW | Laboratory Project No (internal): 1804173

Project Name: Selmet F006 Delisting | Temperature on Receipt: 7.1

Client: SLR | Project No: 108.00256.00029 PO No: - | Custody Seal: (Y) N -Coolers

Address: 1800 Blankenship Rd, Suite 440 | Collected by: Tyler Weber | Notes: Client

City, State, Zip: West Linn, OR, 97068 | State Collected: OR ✓ WA ☐ OTHER | Shipped Via:

Telephone: 503-723-4423 | Report To (PM): Tyler Weber | Sample Disposal: ☐ Return to client ☐ Disposal by lab (after 60 days)

Invoice To: Selmet | PM Email: tweber@slrconsulting.com

Item B 000398

Requested Tests

	Sample Name	Sample Date	Sample Time	Sample Matrix*	# of Containers	TCLP VOCs*										Comments
1	Pond Grid 16	4/18/2018	1335	SL	1	✓										Wait to Run Analysis*
2	Pond Grid 26	4/18/2018	1315	SL	1	✓										Wait to Run Analysis*
3	Pond Grid 42	4/18/2018	1355	SL	1	✓										Wait to Run Analysis*
4	Pond Grid 59	4/18/2018	1130	SL	1	✓										Wait to Run Analysis*
5	Trip Blank	4/18/18	—	—	1											Hold
6	—															
7	—															
8	—															
9	—															
10	—															

* Matrix: A = Air, AQ = Aqueous, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water ** Metals

Turn-around Time: Standard (5-7 Business): ☐ 3 Day: ☐ 2 Day: ☐ Next Day: ☐ Same Day: ☐

Relinquished	Date/Time	Received	Date/Time
x	4/19/18 1150	x	4/19/18 11:50
Relinquished	Date/Time	Received	Date/Time
x		x	

APPENDIX I

SELMET MATERIAL SAFETY DATA SHEETS (MSDS)

Selmet MSDSs are included on enclosed Data CD

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APPENDIX J

DRAS ANALYSES FILES

DRAS analyses files are included on enclosed Data CD

Delisting Project Memorandum

June 26, 2018
Re: Delisting Petition #2018-DP-001a (Process Waste)
Delisting Petition #2018-DP-001b (Pond Sediment)

Contact: Eileen Naples
DEQ Headquarters
700 NE Multnomah St., Ste. 600
Portland, OR 97232-1400

Background

Selmet Inc. (Selmet) is a manufacturer of titanium alloy castings and machined parts located in Albany, Oregon. Selmet uses the investment casting process to produce parts for the aerospace industry. In addition, past activities include the production of castings for the medical and golf industries. Operations at the site consist of the following: developing wax molds of the parts; creating shells with ceramic and yttrium, aluminium and/or zirconium oxides; melting the wax out of the ceramic shells; casting molten titanium alloys into those shells; mechanically removing the shells; cleaning finished casting using electroplating acid solution baths; welding and grinding to remove defects; and visual and X-ray inspection. The facility has been operating since its inception in 1969 and has grown considerably in size.

In 2017, the Oregon Department of Environmental Quality notified Selmet it considers sludges from liquids used in the Selmet chemical milling process to be F006 listed hazardous waste as regulated by the Resource Conservation and Recovery Act (RCRA). The United States Environmental Protection Agency (EPA) defines chemical etching and milling as an electroplating process. Historically, Selmet managed electroplating sludges as a non-hazardous industrial waste and sent the sludges to a non-hazardous waste Subtitle D landfill; however in 2017, due to an updated review of electroplating operations at titanium casting facilities in Oregon, DEQ notified Selmet that their electroplating sludges should be handled as F006 listed hazardous waste.

In May 2018, Selmet submitted a petition to delist sludges from the treatment of process liquids from their electroplating operations to DEQ. This delisting petition includes electroplating sludges generated by Selmet's current process, as well as sludges that were historically accumulated in their evaporation pond. To characterize sludges generated currently and historically from this process, following consultation with DEQ, Selmet sampled electroplating sludges and evaporation pond sediment, as described in this document.

In order for a listed hazardous waste to be delisted from being hazardous waste pursuant to OAR 340-100-0020 and OAR 340-100-0022, the petitioner must comply with 40 C.F.R. 260.22. To summarize, the petition must show the waste does not contain the constituents for which the EPA originally listed the waste in concentrations above risk-based standards using the EPA's risk-based software (DRAS). The risk-based evaluation would also include any other chemicals likely to be present in the waste. In addition, the waste must not be characteristic of a hazardous waste.

Basis for Need

SLR International Corporation (SLR) has prepared this petition for delisting on behalf of Selmet to petition the state of Oregon DEQ to no longer consider hazardous sludges from liquids used in the Selmet electroplating process to be F006 listed hazardous waste. The hazardous waste constituents for which the EPA lists F006 sludges are cadmium, hexavalent chromium, nickel, and complexed cyanide. The Selmet process that generates the currently listed F006 waste does not use any of the hazardous constituents for which F006 was listed, or hazardous concentrations of other constituents.

Since November 2017, Selmet has managed the electroplating sludges as a F006 hazardous waste, at an approximate cost of $25,000 per month. In addition, the process sludges that historically went into the evaporation pond will need to be managed as a listed hazardous waste upon generation during the pond decommissioning. Selmet contends that it is not necessary to manage the electroplating sludges or sediment pond sludges as hazardous waste. The waste does not contain constituents of concern that originally caused EPA to list the waste as an F006 hazardous waste.

Technical Review

Historically, the evaporation pond was used to store and recycle liquids from various plant process areas, including the chemical mill. Sediment, primarily expected to be composed of various salts from historical acid neutralization, has accumulated in the bottom of the pond. The evaporation pond is expected to be decommissioned and closed in 2018, pending a successful delisting of the sediment. Sediment from the pond will be excavated and disposed of offsite. The pond will then be backfilled, compacted, and graded for future use.

Prior to testing, DEQ consulted with Selmet and their contractor, SLR, to review the materials that are currently used in all stages of the titanium casting process, as well as any processes which have led to wastes being deposited in the evaporation pond since 1974. Selmet and SLR additionally consulted with DEQ on an appropriate sampling and analysis plan. After working through a comprehensive discussion of these issues, DEQ staff approved sampling and analysis plans for the electroplating sludges and the evaporation pond sediment in March 2018.

Selection of Appropriate Parameters for Analysis

In order for DEQ to consider delisting currently listed hazardous waste, it must be free of hazardous levels of the constituents for which it is listed, and any underlying hazardous constituents. The filter cake material is representative of the current process, which is quite limited in the chemicals which are used, while the pond sediment has the potential to contain other chemicals which may have been used in the past.

Based on DEQ's review of chemicals used in the current processes, the electroplating process sludges were analyzed for cadmium, manganese, molybdenum, nickel, silver, vanadium, total chromium, hexavalent chromium, cyanide and fluoride (see petition Table 3a). Due to concern that not all of their historic electroplating processes are fully understood or documented, in addition to sampling and analysis of chemicals that are used in current processes, Selmet developed a longer list of chemicals for inclusion in the sediment pond sampling and analysis plan. The longer list of chemicals includes fluoride, cyanide, antimony, arsenic, beryllium, cadmium, chromium, hexavalent chromium, cobalt, copper, lead,

manganese, mercury, molybdenum, nickel, selenium, silver, vanadium, zinc, zirconium, polychlorinated biphenyls, and a scan for volatile organic compounds and semi-volatile organic compounds.

Selection of Appropriate Screening Criteria

The electroplating sludges and evaporation pond sediment sludges are solids. Samples of each are screened against concentrations derived from the EPA Delisting Risk Assessment Software (DRAS). DRAS uses knowledge of the volume of waste and final disposition along with toxicity information to determine an acceptable concentration for the waste to be placed in a landfill. For DRAS calculations, it is planned that wastes will be disposed of in a Subtitle D landfill, the settling pond sludges will not exceed 3,800 cubic yards as a one-time disposal, and the electroplating wastes will not exceed 3,120 cubic yards per year. These estimates are relatively conservative, meaning that there is room for error in the estimated volume of the pond and room for growth of Selmet's operations without re-opening this decision. DRAS calculations were targeted to a carcinogenic risk not to exceed one in a million excess cancer and a non-carcinogenic hazard index of 1, similar to other DEQ programs that use risk-based screening levels. The most conservative screening level calculated by DRAS for both total concentrations and TCLP concentrations are chosen for each waste unit.

Sampling and Analysis

In accordance with the RCRA Waste Sampling Draft Technical Guidance, random unbiased composite sampling techniques were used to sample waste representing the electroplating process sludges and evaporation pond sediment. Random unbiased sampling is best suited for sampling a waste that is reasonably expected to have spatial variability. Selmet collected four composite samples from the electroplating sludges, each separated by duration of approximately 10 days. Composites samples were taken over four consecutive periods of generation to capture temporal waste variability that included variations in the alloys used, in accordance with the EPA's 2009 delisting guidance (USEPA, 2009, pg. 16). The samples were collected on March 22, 2018; April 2, 2018; April 12, 2018; and April 20, 2018. Each composite sample consisted of 5 aliquots from the same waste bin. Locations of the aliquots within the bin were randomly selected from a grid.

For the samples representing the evaporation pond sediment, a random unbiased sampling strategy was also used. This is because the lateral spatial variability was expected to be minor throughout the sediment; records also indicate Selmet historically used pond aerators to keep the pond well-mixed. Some vertical spatial variability was expected in the sediment as a result of chemistry changes to the pond throughout its lifetime. Therefore, discrete samples and composite aliquots were collected as complete sediment columns spanning from the water-sediment interface down to the sediment-native soil interface. The depth of the sediment cores was approximately one to two feet. Four composite samples were collected from the evaporation pond sediment. To capture spatial variability that may exist, composite samples collected from the pond consisted of three aliquots. A discrete sample was collected from the third aliquot location of every composite sample for volatile organic compound (VOC) analysis.

Samples were composited and collected for each analysis and shipped to analytical laboratories. Most analytical work was done by ESC Lab Sciences and some additional analysis was done by Specialty Analytical. Both labs are certified by the Oregon Environmental Laboratory Accreditation Program.

Results and Risk Screening

Electroplating composite samples were measured for selected metals by the EPA method 6010B, cyanide by method 9012, fluoride by method 9056A, and hexavalent chromium by method 7199. Sample results are presented in the delisting petition and summarized in the attached tables. From the electroplating, concentrations of toxic metals, fluoride, and cyanide are relatively low (see Table 1). All measured concentrations are below the allowable total concentrations derived from the DRAS software. Analytes with total concentrations exceeding 20 times the DRAS TCLP output were measured following a TCLP method and these measurements were below the appropriate screening concentrations.

Pond sludges sediment samples were analyzed for the above analytes, along with additional metals, PCBs (method 8082), semi-volatile organic compounds (method 8270) and VOCs (method 8260B, see Table 2). Samples that were not detected for any analyte have been removed from the table for this document but are available in the original petition along with analytical data reviewed by DEQ staff. All measured concentrations are below the allowable total concentrations derived from the DRAS software. Analytes with total concentrations exceeding 20 times the DRAS TCLP output were measured following a TCLP method and these measurements were below the appropriate screening concentrations.

Recommendation

The requirements for delisting a hazardous waste can be found in Oregon Administrative Rules 340-100-0020 and 100-0022. Based on the technical review of the petition and the results of the delisting risk assessment data, we recommend that the petition be brought before the Environmental Quality Commission for approval of the subsequent proposed rule adoptions (amendments).

DEQ will provide documents upon request in an alternate format for individuals with disabilities or in a language other than English for people with limited English skills. To request a document in another format or language, call DEQ in Portland at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696; or email deqinfo@deq.state.or.us.