UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
ENVIRONMENTAL CLEANUP

March 28, 2012

Mr. Todd Slater
Legacy Site Services, LLC
468 Thomas Jones Way
Exton, PA 19341

Sent via email only

RE: Engineering Evaluation/Cost Analysis Technical Briefing – Arkema Early Action Sediments Site

Dear Todd,

This letter presents EPA's comments on the Engineering Evaluation/Cost Analysis Removal Action Alternatives Briefing – Arkema Non-Time Critical Removal Action (NTCRA) Site presentation given February 16, 2012 by Integral Consulting Inc. for Retia USA/Legacy Site Services, LLC (Retia/LSS). The briefing included a PowerPoint presentation consisting of 11 text slides, 10 figures, and a preliminary schedule. EPA understands that the intent of the presentation was to provide an overview of the technical approach being used by Retia/LSS for the Arkema Sediments Site to develop Engineering Evaluation/Cost Analysis (EE/CA) alternatives. The developed alternatives will be used to evaluate potential remedial actions to be considered as part of a NTCRA at the Arkema Sediments Site.

The purpose of the technical briefing was to fulfill the requirements of the Statement of Work (SOW) for the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC).[1] The purposes of the SOW for the Arkema Sediments Site project are to:

> "1) implement the Administrative Order on Consent for Removal Action (AOC);
>
> 2) facilitate and expedite the feasibility study and implementation of controls on upland sources to the Willamette River; and
>
> 3) expedite the characterization, feasibility study, cleanup alternatives analysis, and performance of cleanup on the principal threat in the intertidal area and submerged lands on and adjacent to the Arkema Site."

EPA and related stakeholder comments on the EE/CA presentation from February 16, 2012 are enclosed. These comments are divided into two sets. The first set is comments or questions that stem from the presentation. The second set is comments that reiterate important agreements made between EPA and Retia/LSS over the last several years. EPA understands that the presentation focused on some of the key

[1] Statement of Work to the ADMINISTRATIVE ORDER ON CONSENT FOR REMOVAL ACTION, Portland Harbor Superfund Site, Arkema Inc. Facility, Portland, Oregon, U.S. EPA Region 10 CERCLA Docket No. 10-2005-0191, dated June 27, 2005., Appendix B, p.1.

aspects of the alternatives analysis, and was not intended to be comprehensive. Thus, the second set are not comments on the presentation or Retia/LSS' approach per se. Instead, EPA is taking this opportunity to reiterate key agreements for Retia/LSS' reference.

EPA looks forward to delivery of the draft EE/CA 90 days following the technical briefing. Please contact me at 206.553.1220 or Sheldrake.sean@epa.gov with any questions or concerns.

Sincerely,

Sean Sheldrake, RPM

Cc:

via email only
Kristine Koch, EPA
Chip Humphrey, EPA
Lori Cora, EPA
Lance Peterson, CDM/S

Enclosure

Comments on Retia/LSS Presentation

EPA recognizes the preliminary nature of the presentation. The presentation did stimulate a good deal of thinking about the necessary components of the EE/CA. EPA would like to highlight the following issues for Retia/LSS' consideration within the EE/CA or for further discussion if so desired.

1. **Definition of Vertical Extent of the Removal Action Area (RAA)** – In accordance with the Opalski decisions[2] [3], Retia/LSS will use a range of concentrations of DDx and other chemicals of interest (COIs) in evaluating the vertical boundary of the RAA. This agreement was reiterated during the presentation, but detail regarding evaluation of the vertical boundary was not provided. Retia/LSS likely has some concept of how they will use the range of concentrations that might include: screening level values (SLVs) based on various endpoints, Portland Harbor preliminary remediation goals (PRGs) and remedial action levels (RALs), and Portland Harbor background estimates in assessing vertical extent. Evaluation of the vertical boundary must be consistent with the Opalski Decisions and may be a key consideration from the standpoint of long-term effectiveness.

2. **River Bank** – In previous discussions[4], Retia/LSS agreed that the river bank in uncharacterized areas would be assumed to be contaminated to the same extent and to similar depths as suggested by limited river bank data and adjacent in-river sediment. The river bank is included in the Removal Action Objectives (RAOs) for the Arkema Early Action (e.g., reduce human health risks to acceptable levels from direct contact with and incidental ingestion of chemicals of concern [COCs] in sediments and riverbank within the RAA). In addition, the scope of the RAA, as defined in the AOC, extends to the top of the river bank.[5] Therefore, evaluation of the river bank is critical for the EE/CA so that the selected remedy provides a seamless transition between Oregon Department of Environmental Quality (DEQ) and EPA oversight boundaries such that a complete remedy can be implemented that addresses upland and early action sediment objectives.

   Although river bank stabilization was identified as a common element of all removal action alternatives, except for the nearshore confined disposal facility (CDF) alternative, excavation of contaminated river bank material is not contemplated. The river bank is known to be contaminated with DDx and dioxins and furans and contains significant quantities of electrolytic cell debris/waste. Consequently, Retia/LSS must evaluate additional options beyond stabilization to address the river bank upstream and adjacent to the RAA in the EE/CA. For example,

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[2] EPA. 2008. Memorandum from Daniel Opalski re: Final Decision On Disputes of February 19, 2008 and March 27, 2008 by Legacy Site Services LLC (LSS) Regarding U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. U.S. EPA Region 10. May 23, 2008.

[3] EPA. 2011b. Memorandum from Daniel Opalski re: Final Decision on Disputes of June 3, 2011, by Legacy Site Services LLC (LSS) Regarding Technical Direction for Completion of the Removal Action Area Characterization Report, In the Matter of U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. U.S. EPA Region 10. August 31, 2011.

[4] LSS. 2009. Letter from J. Todd Slater to Sean Sheldrake, EPA re: Response to EPA March 5, 2009 Review Comments on the Field Sampling Plan Technical Memorandum, Arkema EE/CA, U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. LSS. March 23, 2009.

[5] AOC paragraph 21.

composite samples RB-12 and RB-13, located in the upstream corner of the site (Willbridge Cove dogleg), contained DDx and dioxins/furans above source control screening levels. River bank source control in the RB-12 and RB-13 areas will likely be necessary to support the planned EE/CA action because this area of the riverbank is upstream from the RAA and could be a source of recontamination. The agreement with Retia/LSS requires that the entire river bank in this area, including at depth, will be assumed to be contaminated to the extent indicated in the above composite samples for the purpose of evaluating recontamination as part of the EE/CA.

3. **River Bank** – The river bank represents the interface between in-water and upland portions of the site and poses a risk to terrestrial and aquatic receptors that inhabit the riparian zone as well as an in-water recontamination risk. As a result, Retia/LSS should consider the entire river bank along the site during development of the EE/CA. In particular, downstream portions of the river bank might be included to address the potential for recontamination of the downstream portion of the RAA and because Retia/LSS has proposed downstream portions of the river bank as areas for possible habitat restoration/mitigation. By incorporating the entire river bank in the EE/CA, Retia/LSS might be able to achieve a final remedy for the river bank through the removal action and facilitate the proposed habitat mitigation/restoration component downstream of Dock 2.

   In order to achieve the RAOs, risks to terrestrial receptors must also be considered. As a result, river bank risk and contamination factors must be incorporated into the EE/CA:

   a) The DEQ-approved ecological terrestrial risk assessment concluded that river bank soils present a risk to mammals and birds. To protect burrowing mammals which are present at the site (i.e., ground squirrel) and to prevent bank remedy failure from burrowing mammal bioturbation, at least one alternative must consider placement of three feet of clean fill over any significant residual contamination. Alternatives should address habitat mitigation and restoration requirements where contamination is to remain in place.

   b) Much of the river bank is mantled/armored with chlor-alkali electrolytic cell debris/waste. While this debris has not been characterized, it is reasonable to suspect it to be a source of dioxins and furans. The conceptual model developed by Retia/LSS for dioxin/furan sources as presented in its 2009 upland data gaps assessment work plan and the response to the DEQ/EPA review of this work plan supports this suspicion.

   c) River bank dioxin/furan soil data indicate that the upper 6 inches contains much higher concentrations of dioxins/furans than soil from 18 to 24 inches below grade. These data also support the possibility that electrolytic cell debris/waste may be a source. Habitat mitigation/restoration downstream of the RAA will need to consider removal of cell debris and soil remediation as part of the alternatives analysis.

   d) As part of alternatives that involve habitat mitigation/restoration, river bank alternatives will need to evaluate the need for removal and/or treatment of high concentration hot spot soils. Previously, Retia/LSS agreed to use the EPA ecological soil screening levels (Eco SSLs) for DDx to define hot spots based on bioaccumulation. Retia/LSS appears to have sufficient data to identify the location of DDx hot spots, which should allow adequate evaluation during development of the EE/CA.

e) Retia/LSS and DEQ agreed to conduct a site-specific worm uptake study to characterize dioxin/furan concentration in earthworms. This study may be needed to refine estimates of ecological risk associated with dioxins/furans in river bank soil. The study may also aid in the identification of any hot spots. Available study results will need to be factored into the evaluation of habitat mitigation/restoration efforts that will be part of some alternatives.

4. **Use of Capping as a Primary EE/CA Alternative** - Retia/LSS agreed during informal dispute resolution that, "it will not evaluate capping as a primary remedial approach. The evaluation will be limited to localized, isolated areas that may or may not have been dredged."[6] Thus, the capping-only alternative discussed in the February 16, 2012 presentation is not appropriate for consideration in the EE/CA.

5. **Habitat Mitigation/Restoration** – The viability of on-site mitigation may hinge on the success of the upland remedy. Further, as discussed briefly after the February 16, 2012 presentation, space available for on-site mitigation could be insufficient for some alternatives, perhaps in particular for the CDF. These considerations will need careful consideration during development of the EE/CA.

6. **Upland Conceptual Site Model** – Section 300.415 (d) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) states, "Removal actions shall, to the extent practicable, contribute to the efficient performance of any anticipated long-term remedial action with respect to the release concerned." As a result, the EE/CA must consider the presence of upland soil and groundwater contamination at the Arkema site. Retia/LSS has developed a conceptual site model (CSM) for upland sources at Arkema. This model will be useful during EE/CA development to help assess potential effectiveness of alternatives. Specifically, the RAA as currently defined does not encompass upland soil and groundwater contamination between the proposed groundwater barrier wall and surface water in the Willamette River. DDx soil and groundwater contamination in this area could represent a source of recontamination that will need to be considered along with actions to prevent recontamination by river bank material. In particular, contaminant migration via groundwater could be a key recontamination pathway as suggested in the Phase II, Stage 1 & 2 In-River Groundwater and Sediment Investigation Report (Integral 2003), which presents DDx concentrations in these groundwater zones.

7. **Environmental Visualization System (EVS) Model** – The use of the current EVS model was accepted for defining the horizontal boundary of the RAA only. EPA noted in comments on the October 2011 Final Removal Action Characterization Report (USEPA, 2011b) that improvements to the model in the form of calibrated semivariograms might be needed, particularly for analysis of COI concentrations downstream of Dock 2 where uncertainty is relatively high. To the extent that Retia/LSS will use the EVS model to help define the vertical boundary and/or evaluate alternatives, Retia/LSS should provide justification for the current model or perform more rigorous calibrations and address associated uncertainties with respect to concentration, volume, mass, and risk estimates.

[6] EPA. 2009. Letter from Sean Sheldrake to LSS re: Resolution of Disputed Issues Pertaining to the EE/CA Work Plan Addendum and Evaluation of a CDF in the EE/CA. See Attachment - January 29, 2009 E-mail from Steve Parkinson to Lori Cora. U.S. EPA Region 10. February 21, 2009.

8. **Dioxin/Furan Data Uncertainties** - The EE/CA briefing figures that present conceptual alternatives include a red line on slides number 18 and 19 and a purple line on slides number 20 and 21 that identify the boundary of the area containing 90% of the dioxin/furan mass. It should be noted that the release mechanism for dioxins and furans at the Arkema site differs from that of DDx. Discharges to the Willamette River from plant operations that may have contained dioxin/furans occurred for a much longer duration (decades) than the DDT manufacturing. Consequently, the distribution of dioxin/furans in sediments would be expected to be shallower and extend further downstream than DDx. This is generally confirmed by the available dioxin/furan data which shows higher concentrations in surface and near surface sediment. Because dioxin/furan data are limited downstream from the docks, it is not possible to confirm this assumption. However, the EE/CA should consider the uncertainty associated with the limited dioxin/furan data set in the EE/CA.

9. **Risk Reduction** – EPA directed "…that the EE/CA shall proceed with analyses that consider the implications of dredging to a range of concentrations vertically, with that range to include at least the SLVs and the approximate 5 ppm concentration suggested by LSS' mass-based analysis. The EE/CA alternatives analysis shall consider constraints such as the feasible limits of conventional dredging techniques, as well as other appropriate factors, in evaluating various extents of dredging."[7] In the EE/CA, EPA expects that an analysis of risk reduction (i.e., an evaluation of how mass removal will help reduce future risks) will accompany the evaluation of alternatives. A formal risk assessment is not anticipated; however, Retia/LSS should be able to use the results from the second draft of the Lower Willamette Group's human health risk assessment for a semi-quantitative analysis.

10. **Monitoring Plan (Implementation of Early Action)** – Monitoring to minimize short term effects during implementation of the removal action will be a key component of the evaluation of alternatives in the EE/CA. This monitoring will take two forms. First, a baseline will need to be established for DDx and other COIs in surface water, biota, and sediment upstream of the site in the Willamette River. Such a baseline is essential for monitoring of releases of material from within the RAA during remediation activities. Justification for this baseline is provided in the EE/CA Work Plan. Second, a plan will be needed to monitor releases during implementation of the Early Action, and for establishing criteria for halting activities and taking corrective actions. Monitoring was not specifically discussed in the February 16, 2012 presentation.

11. **Monitoring Plan (Post Removal Action)** – Post removal monitoring of the success of the Early Action will also need to be included in any of the EE/CA alternatives. Monitoring should include performance monitoring to evaluate whether the removal action was completed as intended and long-term monitoring to evaluate whether the RAOs are being achieved. As discussed in the EE/CA Work Plan, long-term monitoring might include collection and analysis of tissue samples of benthic macroinvertebrates (e.g., clams and crayfish) as well as fish that feed at different trophic levels. A baseline for DDx and other COIs will be needed prior to the implementation of the Early Action to provide a basis for comparison. Subsequently, a plan for monitoring tissue concentrations after the Early Action has been complete will need to be developed. Monitoring

[7] EPA. 2008. Memorandum from Daniel Opalski re: Final Decision On Disputes of February 19, 2008 and March 27, 2008 by Legacy Site Services LLC (LSS) Regarding U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. U.S. EPA Region 10. May 23, 2008.

of tissue concentrations will need to address several issues, such as existing communities (or lack thereof), re-colonization times, time periods for monitoring, target species, etc. This long-term monitoring plan should be developed through coordination with the broader harbor-wide Remedial Investigation/Feasibility Study (RI/FS). EPA recommends that Retia/LSS discuss these issues with EPA prior to the submittal of the draft EE/CA.

12. **Monitoring Plan (Recontamination)** – A final aspect of any monitoring plan will be assessing the longer term success of reducing concentrations of DDx and other COIs in biologically active sediments. Retia/LSS will need to justify available data as adequate to estimate a current baseline, then will need to propose post-action monitoring to demonstrate that (a) sediment concentrations have been reduced and (b) that recontamination is not unduly compromising the remedy.

13. **Portland Harbor FS Mitigation Process** – This process should be used in the cost analysis for the EE/CA to maintain consistency with the harbor-wide process. Please refer to EPA's July 15, 2011 comment letter to Bob Wyatt of the Lower Willamette Group (which provides EPA's feedback on the FS Key Elements Check-in Meeting held June 21 and 22, 2011 in Portland) for guidance on mitigation costing.

14. **Disposal** – Retia/LSS should incorporate sediment acceptance criteria and the costs associated with any necessary treatment associated with any on-site or off-site disposal options.

15. **Treatment of Dredge Spoils** – The presentation did not include any mention of treatment of dredged materials. In the informal dispute resolution (February 2009), Retia/LSS agreed that, consistent with CERCLA's general "preference for treatment", it will conduct a desk top evaluation of all the technologies put forth by LSS and EPA for all potential disposal options as part of the EE/CA. The focus of the evaluation will be on treatment options that may reduce the overall timeframe, toxicity, or mobility of contaminants within the confines of a CDF with the goal of maximizing the long-term effectiveness of containment and minimizing the long-term operation and maintenance of a CDF.

    Also, EPA desires clarification as to what is meant by "Conventional Treatment of Construction Water" as a potential treatment technology.

16. **Hot Spots of Contamination** - The EE/CA briefing did not discuss how hot spots of contamination as defined by Oregon Administrative Rule (OAR) will be addressed. EPA guidance states that, as a matter of policy, removal actions must comply with state and federal applicable or relevant and appropriate requirements (ARARs) to the extent practicable (EPA Publication 9234.2-03/FS). Consequently, the EE/CA must identify hot spots of contamination consistent with OAR 340-122-0110 and evaluate the feasibility of remediating the hot spots per OAR 340-122-0085. EPA will need to select or approve a remedial action that satisfies the requirements for hot spots of contamination as identified in OAR 340-122-0090(4).

17. **Dock Evaluation** – Retia/LSS should consider incorporating dock replacement and/or rehabilitation with dock removal to facilitate the removal of contaminated sediments beneath and adjacent to the current dock structure while minimizing the permitting requirements that would be

associated with dock replacement outside of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process.

18. **Institutional Controls** – Institutional controls evaluated as part of an alternative need to consider potential regulated navigation area requirements.

19. **EE/CA and Portland Harbor Integration Schedule** – The "EE/CA and Portland Harbor Integration" schedule shall consider the following additional elements: public comment period, review of the selected remedy by the National Remedy Review Board and the Contaminated Sediments Technical Advisory Group, and EPA writing of the action memorandum.

Previous Agreements and Comments

20. **Use of Mechanical Dredging and Silt Curtain Containment** – In previous discussions between Retia/LSS and EPA[8], substantive concerns were voiced by EPA in general with the use of mechanical dredging and in particular with the use of silt curtains as means of primary containment to control contaminant losses during dredging activities. Retia/LSS and EPA agreed to only evaluate silt curtains in conjunction with other control devices (e.g., sheet pile/coffer dam). Dredging buckets can be evaluated consistent with the EE/CA Work Plan addendum. LSS should consider evaluating the use of multiple bucket types across a dredge prism.

21. **EE/CA Work Plan and Dispute Outcomes** -- The EE/CA Early Action Work Plan (Parametrix, May 11, 2007), as later amended by Retia/LSS (Work Plan Addendum, July 22, 2008), is still the basic document that controls development of the EE/CA. Retia/LSS should discuss compliance with the work plan in its presentations and in preparation of the EE/CA. EPA does not expect this issue to be a source of contention, since the work plan was relatively general and Retia/LSS is now delving into the details of the analysis. Retia/LSS should also carefully consider past dispute resolutions when developing the draft EE/CA; specifically dispute decisions by Daniel Opalski, dated May 23, 2008 and August 31, 2011, and the resolution of disputed issues on the EE/CA Work Plan and CDF evaluation contained in an EPA letter to LSS, dated February 21, 2009.

22. **CDF Evaluation** – Evaluation of a CDF alternative in the EE/CA has been the subject of several sets of comments and responses. The Retia/LSS presentation did not specifically mention this background, nor was such a discussion needed for their conceptual presentation. EPA lists the set of controlling documents for the evaluation of a CDF in the reference section provided at the end of these comments as a means to document previous discussions.

    These letters supply significant information on EPA's expectations for consideration of the CDF alternative. In general, these expectations address five general areas – necessary design considerations, floodway issues, needs and methods for treatment of sediments, performance information gathered from the Terminal 4 experience, and the regulatory framework for CDF evaluation.

[8] EPA. 2009. Letter from Sean Sheldrake to LSS re: Resolution of Disputed Issues Pertaining to the EE/CA Work Plan Addendum and Evaluation of a CDF in the EE/CA. See Attachment - January 29, 2009 E-mail from Steve Parkinson to Lori Cora. U.S. EPA Region 10. February 21, 2009.

23. **Source Attribution** – In accordance with the 2011 Opalski decision, a discussion of source attribution, with appropriate documentation, will be allowed in the EE/CA. EPA does not see great value in this information since the preliminary horizontal boundary of the RAA has been defined, and the vertical boundary may well be defined on the basis of DDx and chlorinated dioxins/furans, both of which have a clear connection to historical operations at Arkema. An exception to this general opinion of source attribution may be upstream sources that could be important for recontamination. Specific source attribution would not seem necessary to address this issue, however. EPA has from the start envisioned a "one-and-done" approach to the Arkema Early Action within the final RAA boundary. Except as source attribution pertains to recontamination, EPA expects that Retia/LSS will evaluate vertical extent based on SLVs, PRGs, RALs and risk reduction, and will evaluate alternatives primarily on effectiveness, implementability, and cost.

24. **Data Evaluation of COIs** – Retia/LSS agreed to put a complete analysis of data for COIs other than DDx in the EE/CA. EPA still anticipates the opportunity to review and comment on this analysis. Of particular importance will be the evaluation of detection limits for PCBs and their impact on definition of the vertical boundary of the RAA and on the evaluation of recontamination. PCBs are significant risk drivers for Portland Harbor as a whole and need careful attention in the EE/CA.

25. **Asbestos** – EPA again notes the limitations of and uncertainty in data for asbestos in sediment waste characterization samples. The asbestos issue is not directly part of the EE/CA evaluation (i.e., asbestos is not a COI), but asbestos content of sediments could affect cost estimates for and disposal of dredged sediments. Retia/LSS will have to assume any risk for cost increases should an action that involves dredging and disposal be selected, and dredged spoils do not meet criteria for the selected disposal facility and increased worker protection is required.

Reference Documents

Integral Consulting Inc. (Integral). 2003. Phase II Stage 1 & 2 In-River Groundwater and Sediment Investigation. Prepared for ATOFINA Chemicals, Inc. December 2003.

Integral. 2008. Arkema Early Action EE/CA Work Plan, Work Plan Addendum. Prepared for Legacy Site Services, LLC. July 22, 2008.

Parametrix. 2007. Arkema Early Action EE/CA Work Plan. Prepared for U.S. Environmental Protection Agency. May 11, 2007.

U.S. Environmental Protection Agency (USEPA). 2008a. Memorandum from Daniel D. Opalski, Director of the Office of Environmental Cleanup, to file, regarding Final Decision on Disputes of February 19, 2008 and March 27, 2008 by Legacy Site Services LLC (LSS) Regarding U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. USEPA Region 10, Office of Environmental Cleanup, Seattle, WA. May 23, 2008.

USEPA. 2008b. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Arkema CDF Evaluation. USEPA Region 10, Seattle, WA. June 19, 2008.

USEPA. 2008c. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Arkema CDF Evaluation. USEPA Region 10, Seattle, WA. October 3, 2008.

USEPA. 2008d. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Arkema CDF Evaluation. USEPA Region 10, Seattle, WA. December 23, 2008.

USEPA. 2009. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services LLC, regarding Resolution of Disputed Issues Pertaining to the EE/CA Work Plan Addendum and Evaluation of a CDF in the EE/CA. USEPA Region 10, Seattle, WA. February 21, 2009.

USEPA. 2010a. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Draft Preliminary Confined Disposal Facility (CDF) Screening Evaluation, Arkema Early Action, Portland, Oregon. USEPA Region 10, Office of Environmental Cleanup, Seattle, WA. April 11, 2010.

USEPA. 2010b. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Legacy Site Services LLC (LSS) Response to Comments on Preliminary Confined Disposal Facility (CDF) Screening Evaluation, Arkema Early Action, Portland, Oregon. USEPA Region 10, Seattle, WA. June 10, 2010.

USEPA. 2011a. Letter from Daniel D. Opalski, Director, to Mr. Todd Slater, Legacy Site Services, LLC and Mr. Sean Sheldrake, USEPA, regarding Final Decision on Disputes of June 3, 2011, by Legacy Site Services LLC (LSS) Regarding Technical Direction for Completion of the Removal Action Area Characterization Report, In the Matter of U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191. USEPA Region 10, Office of Environmental Cleanup, Seattle, WA. August 31, 2011.

USEPA. 2011b. Letter from Sean Sheldrake, RPM, to Mr. Todd Slater, Legacy Site Services, LLC, regarding Final Removal Action Characterization Report, Arkema Inc., Portland Facility, AOC for Removal Action, U.S. EPA Region 10 Docket No. CERCLA 10-2005-0191; Conditional Approval. December 2, 2011.