STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by: Lockheed Martin Corporation and NSC Smelter, LLC	AGREED ORDER No. DE 10483

TO: Scott Tillman, Manager
NSC Smelter, LLC
3313 West Second Street
The Dalles, OR 97058

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Lockheed Martin Corporation
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I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology), NSC Smelter, LLC (NSC) , and the Lockheed Martin Corporation (Lockheed Martin) under this Agreed Order (Order) is to provide for remedial action at a facility where there has been a release or threatened release of hazardous substances. This Order requires the Potentially Liable Persons (PLPs) to develop a Remedial Investigation Work Plan, conduct a Remedial Investigation/Feasibility Study (RI/FS), and develop a Draft Cleanup Action Plan (DCAP) for the former Columbia Gorge Aluminum Smelter located at 85 John Day Dam Road, Goldendale, WA. Ecology believes the actions required by this Order are in the public interest. Interim actions may be performed by NSC and Lockheed Martin under this Order, as defined in WAC 173-340-430.

II. JURISDICTION

This Order is issued pursuant to the Model Toxics Control Act (MTCA), RCW 70.105D.050(1). This Order also satisfies the requirements of WAC 173-303-646-64630.

III. PARTIES BOUND

This Order shall apply to and be binding upon the Parties to this Order and their successors and assigns. The undersigned representative of each party hereby certifies that he or she is fully authorized to enter into this Order and to execute and legally bind such party to comply with this Order. PLPs agree to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter the PLPs' responsibility under this Order. PLPs shall provide a copy of this Order to all agents, contractors, and subcontractors retained to perform work required by this Order, and shall ensure

that all work undertaken by such agents, contractors, and subcontractors complies with this Order.

IV. DEFINITIONS

Unless otherwise specified herein, the definitions set forth in Chapter 70.105D RCW and Chapter 173-340 WAC shall control the meanings of the terms in this Order.

A. Agreed Order or Order: Refers to this Order and each of the exhibits to this Order. All exhibits are integral and enforceable parts of this Order. The terms "Agreed Order" or "Order" shall include all exhibits to this Order.

B. Area of Concern (AOC): Refers to any area of the Facility where a release of dangerous constituents (including dangerous waste and hazardous substances) has occurred, is occurring, is suspected to have occurred, or threatens to occur.

C. Cleanup Action Plan (CAP): Refers to the document issued by Ecology under WAC 173-340-360 which selects Facility-specific corrective measures and specifies cleanup standards (cleanup levels, points of compliance, and other requirements for the corrective measures).

D. Cleanup Standards: Refers to the standards promulgated under RCW 70.105D.030(2)(e) and include (1) hazardous substance concentrations (cleanup levels) that protect human health and the environment, (2) the location at the Facility where those cleanup levels must be attained (points of compliance), and (3) additional regulatory requirements that apply to a cleanup because of the type of action and/or the location of the Facility.

E. Corrective Action: Refers to any activities including investigations, studies, characterizations, and corrective measures, including actions taken pursuant to Chapter 70.105D RCW and Chapter 173-340 WAC, undertaken in whole or in part to fulfill the requirements of WAC 173-303-64620.

F. Corrective Measure: Refers to any measure or action to control, prevent, or mitigate release(s) and/or potential release(s) of dangerous constituents (including dangerous waste and hazardous substances) reviewed and approved by Ecology for the Facility and set forth

in a Facility-specific CAP prepared in compliance with the requirements of Chapter 173-340 WAC, including WAC 173-340-360. Corrective measures may include interim actions as defined by Chapter 173-340 WAC. Interim actions will not necessarily be set forth in a Facility-specific CAP.

G. Dangerous Constituent or Dangerous Waste Constituent: Refers to any constituent identified in WAC 173-303-9905 or 40 C.F.R. Part 264 Appendix IX, any constituent that caused a waste to be listed or designated as dangerous under the provisions of Chapter 173-303 WAC, and any constituent defined as a hazardous substance under RCW 70.105D.020(13).

H. Dangerous Waste: Refers to any solid waste designated in WAC 173-303-070 through -100 as dangerous or extremely hazardous or mixed waste. Dangerous wastes are considered hazardous substances under RCW 70.105D.020(13).

I. Dangerous Waste Management Facility: Used interchangeably in this document with the term "Facility."

J. Dangerous Waste Management Unit (DWMU): Refers to a contiguous area of land on or in which dangerous waste is placed, or the largest area in which there is a significant likelihood of mixing dangerous waste constituents in the same area, as defined in WAC 173-303-040.

K. Facility: Refers to the former Columbia Gorge Aluminum smelter DWMU controlled by NSC, located at 85 John Day Dam Road, Goldendale, WA; all property contiguous to the DWMU also controlled by NSC; and all property, regardless of control, affected by release(s) or threatened release(s) of hazardous substances, including dangerous wastes and dangerous constituents, at and from these areas. "Facility" also includes the definition found in RCW 70.105D.020(8). The Facility is more particularly described in the Facility Diagram (Exhibit A).

L. Feasibility Study (FS): Refers to the investigation and evaluation of potential corrective measures performed in accordance with the FS requirements of WAC 173-340-350,

and the Scope of Work attached to this Order, which includes the substantive requirements for a Resource Conservation and Recovery Act Corrective Measures Study, and which is undertaken in whole or in part to fulfill the corrective action requirements of WAC 173-303-64620.

M. Parties: Refers to the State of Washington, Department of Ecology, NSC, and Lockheed Martin.

N. Potentially Liable Person (PLP): Refers to NSC and Lockheed Martin.

O. Permit or Permitting Requirement: Unless otherwise specified, refers to the requirements of Chapter 173-303 WAC for applying for, obtaining, maintaining, modifying, and terminating Dangerous Waste Management Facility permits.

P. RCRA: Refers to the Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992k.

Q. RCRA Facility Assessment (RFA): Refers to the Ecology conducted investigation of release(s) and potential release(s) at the Dangerous Waste Management Facility and the information contained in the report entitled *Site Inspection Report May 1989* (RFA Report). The RFA Report is incorporated into this Order by this reference as if fully set forth herein.

R. Release: Refers to any intentional or unintentional spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of dangerous waste or dangerous constituents into the environment. It also includes the abandonment or discarding of barrels, containers, and other receptacles containing dangerous waste or dangerous constituents and includes the definition of "release" in RCW 70.105D.020(25).

S. Remedial Investigation (RI): Refers to a Facility-wide investigation and characterization performed in accordance with the requirements of Chapter 173-340 WAC, and the Scope of Work attached to this Order, which includes the substantive requirements for a RCRA Facility investigation, undertaken in whole or in part to fulfill the corrective action requirements of WAC 173-303-64620.

T. Solid Waste Management Unit (SWMU): Refers to any discernible location at the Dangerous Waste Management Facility where solid wastes have been placed at any time, irrespective of whether the location was intended for the management of solid or dangerous waste. Such locations include any area at the Dangerous Waste Management Facility at which solid wastes, including spills, have been routinely and systematically released and include regulated units as defined by Chapter 173-303 WAC.

V. FINDINGS OF FACT

Ecology makes the following findings of fact, without any express or implied admissions of such facts by PLPs:

A. The Columbia Gorge Aluminum smelter was constructed in or around 1969-70 on a site north of the Columbia River. Aluminum and aluminum products were produced at the smelter for nearly 30 years. The smelter is located 17 miles southeast of Goldendale, Washington, one mile north of the John Day Dam on the Columbia River in Klickitat County, Washington. This 350 acre area is zoned industrial and the land use will likely remain industrial in the future. The contiguous smelter facility consists of 7,000 acres of which approximately 350 acres were in active use. Exhibit A shows the Facility Diagram.

B. The smelter is also within a treaty usual and accustomed area of the Confederated Tribes and Bands of the Yakama Nation and adjacent to the North Shore Treaty Fishing Access Site (TFAS). Enrolled Yakama tribal members exercise treaty reserved fishing rights for ceremonial, subsistence, and commercial purposes from numerous traditional platforms on the Washington shore of the Columbia River within a mile of the smelter site, and also on the Oregon shore within two miles of the site. The TFAS, a boat launch area owned by the Army Corps of Engineers (Corps), is situated approximately one half mile from the smelter on the Washington shore upstream from John Day Dam. This TFAS was established by the Corps as an Indian reservation following the 1988 signing of Public Law 100-581, Title IV—Columbia River Treaty Access Sites. Pursuant to 25 CFR Part 247, the TFAS is operated and maintained under

the exclusive regulatory jurisdiction of the Yakama Nation and the United States. Fisheries in this area of the main stem Columbia River (designated "Zone 6") are currently co-managed by the Yakama Nation and the states of Washington and Oregon under the 2008 U.S. v. Oregon Management Agreement.

C. Harvey Aluminum began the construction of the smelter in 1969. Martin Marietta Corporation (MMC)[1], purchased the smelter from Harvey Aluminum via several stock transactions. Once the stock transactions were complete in 1971 and Harvey Aluminum became a subsidiary of MMC, it was renamed Martin Marietta Aluminum (MMA). MMA owned and operated the smelter until September 30, 1984**.** .

D. MMA owned and operated the smelter as a Dangerous Waste Management Facility on or after November 19, 1980, the date which subjects facilities to RCRA permitting requirements, including interim status requirements pursuant to RCRA, 42 U.S.C. § 6925, and implementing regulations thereunder, and including authorized state regulations promulgated in Chapter 173-303 WAC**.**

E. On January 14, 1981, MMA submitted to EPA Part A of the RCRA permit application. In the Part A Application, MMA identified itself as managing dangerous waste, Spent Potliner (SPL), at the facility. Pursuant to the January 14, 1981, notification, EPA issued MMA identification number WAD 990828642. On August 6, 1982, MMA submitted to Ecology Part A of the RCRA permit application and notified Ecology of MMA's storage of dangerous waste at the facility.

F. SPL was listed as a RCRA hazardous waste in July of 1980 due to cyanide content. SPL was then delisted as a RCRA hazardous waste on January 16, 1981 due to a congressional mandate which excluded mineral processing wastes.

G. In 1982, Ecology tested SPL at the Facility for extraction procedure (EP) toxicity and fish bioassay toxicity. MMA tested SPL in 1984 for fish and rat toxicity. The SPL passed these characteristic tests and did not designate as a dangerous waste.

[1] Lockheed merged with MMC in 1995 to become Lockheed Martin Corporation.

H. On July 3, 1984, MMA submitted a modified Part A permit application to Ecology which removed the delisted SPL and added treatment and storage of primary sulfur dioxide scrubber wastewater in their East Surface Impoundment (ESI) and West Surface Impoundment (WSI). The scrubber wastewater was designated as a Washington State Dangerous Waste due to bioassay failure (fish bioassay at 1,000 ppm level).

I. In September 1984, MMC entered into a Purchase Agreement with Comalco Holding, Inc. (Comalco) to transfer all outstanding MMA shares to Comalco. The sale, finalized in January 1985, transferred ownership of the Goldendale Facility to Comalco; Comalco then changed MMA's corporate name to Commonwealth Aluminum Corporation (Commonwealth).

J. Commonwealth operated the smelter until February 1987 and shut it down at that time.

K. The ESI was closed under RCRA in 1987.

L. In August 1987, the Columbia Aluminum Corporation (CAC) purchased and restarted the smelter. CAC operated the smelter until May 1996. After purchasing the Facility, CAC submitted a modified Part A application to Ecology on August 5, 1987, to update the name and ownership of the Facility.

M. On September 13, 1988, EPA again listed SPL as a hazardous waste (K088). Ecology responded by modifying WAC 173-303-9904 to list SPL.

N. CAC owned and operated the Facility as a Dangerous Waste Management Facility on or after EPA relisted SPL as a hazardous waste on September 13, 1988, and became subject to RCRA permitting requirements, including interim status requirements pursuant to RCRA, 42 U.S.C. § 6925, and implementing regulations thereunder, and including authorized state regulations promulgated in Chapter 173-303 WAC**.**

O. On April 7, 1991, the WAC modifications became effective, and the North SPL Storage Containment Building, the South SPL Storage Building and SPL Handling Containment Building became regulated DWMUs. CAC then submitted to Ecology a modified Part A of the RCRA permit application. CAC also submitted a Part B application to Ecology and EPA. The

Part B included the North and South SPL Storage Buildings, the Handling Containment Building and the WSI. The closure plan for the WSI was updated in February 1995.

P. In April 1996, EPA adopted land disposal restrictions (land ban) for SPL. Under the land ban, CAC was required to remove its enclosed SPL waste piles or change its dangerous waste management status to an acceptable classification.

Q. In May 1996, the CAC employees bought out the majority ownership and immediately resold the smelter to a new company, Goldendale Aluminum Corporation (GAC). GAC owned and operated the Facility as a Dangerous Waster Management Facility on or after EPA relisted SPL as a hazardous waste in September 13, 1988, and became subject to RCRA permitting requirements, including interim status requirements pursuant to RCRA, 42 U.S.C. § 6925, and implementing regulations thereunder, and including authorized state regulations promulgated in Chapter 173-303 WAC**.**

R. Prior to the land ban effective date of October 1997, GAC chose to convert its enclosed waste pile buildings to containment buildings. GAC submitted a modified Part A application to Ecology to include the change. Ecology approved the revised application on January 2, 1997. In 1997, GAC submitted a modified Part B application for the SPL Containment Buildings.

S. In 2004, GAC began the RCRA closure process for the WSI. GAC submitted a revised Part B application in August 2004 to reflect the closure of the WSI. Shortly after the Part B was submitted, the smelter temporarily suspended production operations. Ecology approved the WSI closure plan in October 2004. Ecology approved the closure of the WSI and it was closed on November 30, 2005. Aluminum smelter operations were never restarted and the smelter permanently shut down on March 30. 2003 when all cell operations ceased.

T. Pursuant to a Chapter 11 bankruptcy plan of reorganization (administered under Case No. 303-44107) presented to the United State Bankruptcy Court for the District of Oregon on or about January 12, 2005, GAC transferred all assets and liabilities to NSC (doing business

as Columbia Gorge Aluminum). NSC is and has been the owner and operator of the facility since on or about April 2005.

U. NSC owned the Dangerous Waster Management Facility on or after EPA relisted SPL as a hazardous waste in September 13, 1988, and became subject to RCRA permitting requirements, including interim status requirements pursuant to RCRA, 42 U.S.C. § 6925, and implementing regulations thereunder, and including authorized state regulations promulgated in Chapter 173-303 WAC**.**

V. A final status permit has not been issued and the Facility continues as a RCRA interim status facility.

W. The Ecology Hazardous Waste Investigations and Cleanup Program performed a Preliminary Assessment/Site Investigation (PA/SI) at the Facility beginning in August of 1987. The purpose of a PA/SI is to identify those areas at the Dangerous Waste Management Facility where release(s) or threat of release(s) of hazardous substances, as defined in RCW 70.105D.020(10), may have occurred or may be occurring. The inspection is used to determine if a site should be placed on the Superfund National Priorities List (NPL).

X. Ecology's final Site Inspection Report was completed in May of 1989. The site did not rank high enough to be placed on the federal NPL. The PA/SI was converted to a Model Toxics Cleanup Program Site Hazard Assessment (SHA) during the summer of 1990. The Facility was listed on Ecology's Hazardous Sites List (Site Register) on August 28, 1990 with a ranking of 3. Sites with a ranking of 1 are the state's highest priority and 5 the lowest priority.

Y. During the 35-year life of the Facility, the various owners have managed hazardous and non-hazardous solid wastes at several locations onsite. Information concerning the active life, size, and type of these solid waste management units (SWMUs) varies from extensive to none depending on the specific unit.

Z. Pursuant to the SHA Report and other information, Ecology has identified the following SWMUs:

NPDES Ponds (SWMU #1)

East Surface Impoundment (ESI) (SWMU #2)

Intermittent Sludge Disposal Ponds (SWMU #3)

West Surface Impoundment (SWMU #4)

Line A Secondary Scrubber Recycle Station (SWMU #5)

Line B, C, D Secondary Scrubber Recycle Stations (SWMU #6)

Decommissioned Air Pollution Control Equipment (SWMU #7)

Tertiary Treatment Plant (SWMU #8)

Paste Plant Recycle Water System (SWMU #9)

North Potliner Soaking Station (SWMU #10)

South Potliner Soaking Station (SWMU #11)

East SPL Storage Area (SWMU #12)

West SPL Storage Area (SWMU #13)

North SPL Storage Containment Building (SWMU #14)

South SPL Storage Building (SWMU #15)

SPL Handling Containment Building (SWMU #16)

East End Landfill (SWMU #17)

West End Landfill (SWMU #18)

Plant Construction Landfill (SWMU #19)

Drum Storage Area (SWMU #20)

Construction Rubble Storage Area (SWMU #21)

Wood Pallet Storage Area (SWMU #22)

Reduction Cell Skirt Storage Area (SWMU #23)

Carbon Waste Roll-off Area (SWMU #24)

Solid Waste Collection Bin and Dumpsters (SWMU #25)

HEAF Filter Roll-Off Bin (SWMU #26)

Tire and Wheel Storage Area (SWMU #27)

90-Day Drum Storage Area (SWMU #28)

Caustic Spill (SWMU #29)

Paste Plant Spill (SWMU #30)

Smelter Sign Area (SWMU #31)

Stormwater pond and appurtenant facilities (SWMU #32)

A brief description of each SWMU and release is provided in Exhibit C.

AA. Ecology has identified the following AOCs:

Columbia River Sediments (Area of Concern)

Groundwater in the Uppermost Aquifer at the Facility (Area of Concern)

Wetlands (Area of Concern)

Rectifier Yard (Area of Concern)

A brief description of each area of concern is provided in Exhibit D.

AB. Release(s) and/or potential release(s) of dangerous waste constituents including, but not limited to, polycyclic aromatic hydrocarbons (PAHs), arsenic, aluminum, total cyanide, fluoride, sulfate, and volatile organic compounds (VOCs) from SWMUs and in AOCs at the Dangerous Waste Management Facility are documented in the PA/SI Report, RCRA Part B Application, and in reports of subsequent sampling conducted by PLP.

AC. Dangerous waste constituents may have been and might continue to be released from the Dangerous Waste Management Facility into the environment including surface water drainage areas, groundwater beneath and beyond the Dangerous Waste Management Facility, air, human work areas, and floral and faunal habitats.

AD. Since 1993, NSC and Lockheed Martin have conducted independent investigations and remedial actions at the Facility. NSC and Lockheed Martin have each conducted work at locations of the Facility in accordance with their responsibilities as identified in a November 3, 1993 Settlement Agreement, filed in the United States District Court, Western District of Washington. With technical assistance from Ecology, independent investigations and remedial actions were conducted at SWMUs 1, 5, 14, 15, and 16.

VI. ECOLOGY DETERMINATIONS

Ecology makes the following determinations, without any express or implied admissions of such determinations (and underlying facts) by PLPs

A. NSC is a person within the meaning of RCW 70.105D.020(19).

B. Lockheed Martin is a person within the meaning of RCW 70.105D.020(19).

C. NSC is the owner of a Dangerous Waste Management Facility that has operated, is operating, or should have been operating under interim status or a final Facility permit, subject to RCRA, 42 U.S.C. §§ 6924 and 6925, and regulations promulgated thereunder, including authorized state regulations in Chapter 173-303 WAC. NSC is also an "owner or operator" as defined by RCW 70.105D.020(17) of a "facility" as defined by RCW 70.105D.020(5). NSC currently owns property that is part of the Facility.

D. Lockheed Martin was the owner of a Dangerous Waste Management Facility that has operated, is operating, or should have been operating under interim status or a final Facility permit, subject to RCRA, 42 U.S.C. §§ 6924 and 6925, and regulations promulgated thereunder, including authorized state regulations in Chapter 173-303 WAC. Lockheed Martin is also a "owner or operator" as defined by RCW 70.105D.020(17) of a "facility" as defined by RCW 70.105D.020(5).

E. Certain waste and constituents found at the Facility are dangerous wastes and/or dangerous constituents as defined by Chapter 173-303 WAC, and in Section IV (Definitions), of this Order.

F. These dangerous wastes and dangerous constituents are considered hazardous substances within the meaning of RCW 70.105D.020(10).

G. Based on the Findings of Fact and the administrative record, Ecology has determined that release(s) and potential release(s) of hazardous substances at and/or from the Facility present a threat to human health and the environment.

H. Based upon credible evidence, Ecology issued a PLP status letter to CGA dated

February 2, 2011, pursuant to RCW 70.105D.040, -.020(21), and WAC 173-340-500. By letter dated February 11, 2008, CGA voluntarily waived its right to notice and comment and accepted Ecology's determination that CGA is a PLP under RCW 70.105D.040.

I. Based on credible evidence, Ecology issued a PLP status letter to NSC dated April 15, 2013, pursuant to RCW 70.105D.040, -.020(21), and WAC 173-340-500. After providing for notice and opportunity for comment, reviewing any comments submitted, and concluding that credible evidence supported a finding of potential liability, Ecology issued a determination that NSC is a PLP under RCW 70.105D.040 and notified NSC of this determination by letter dated June 13, 2013.

J. Based upon credible evidence, Ecology issued a PLP status letter to Lockheed Martin dated May 1, 2008 pursuant to RCW 70.105D.040, -.020(21), and WAC 173-340-500. By letter dated June 25, 2008, Lockheed Martin voluntarily waived its right to notice and comment and accepted Ecology's determination that Lockheed Martin is a PLP under RCW 70.105D.040.

K. Pursuant to RCW 70.105D.030(l) and RCW 70.105D.050(1), Ecology may require PLPs to investigate or conduct other remedial actions with respect to any release or threatened release of hazardous substances, whenever it believes such action to be in the public interest. Based on the foregoing facts, Ecology believes the remedial actions required by this Order are in the public interest.

L. Under WAC 173-340-430, an interim action is a remedial action that is technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance, that corrects a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed, or that is needed to provide for completion of a site hazard

assessment, remedial investigation/feasibility study, or design of a cleanup action Ecology or PLPs may propose interim actions at the Facility. After consulting with PLPs, Ecology will determine if the interim action(s) is/are warranted under WAC 173-340-430. Any interim action must be approved by Ecology under Section VII.M.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that PLPs take the following remedial actions at the Facility and that these actions be conducted in accordance with Chapter 173-340 WAC unless otherwise specifically provided for herein:

A. PLPs shall prepare a Draft Remedial Investigation Work Plan for the Facility that meets the requirements of Chapter 173-340 WAC and Chapter 173-204 WAC.

B. The draft RI Work Plan – Phase 1 shall include a summary of all past independent field investigations and remedial actions.

C. The draft RI Work Plan – Phase 1 shall also include a Conceptual Site Model and a schedule of work to be performed. The Conceptual Site Model shall describe the conceptual understanding of the Facility, as set out in WAC 173-340-200, to identify potential or suspected sources of hazardous substances, types and concentrations of hazardous substances, potentially contaminated media, and actual and potential exposure pathways and receptors.

D. Following the review of the draft Work Plan – Phase 1 by Ecology, PLPs shall submit a draft RI Work Plan – Phase 2 which includes a Sampling and Analysis Plan, Quality Assurance Project Plan, and Health and Safety Plan that collectively meet the requirements of WAC 173-340-810 through 840.

E. The draft RI Work Plan – Phase 2 shall also include cultural resource protocols for the sampling, which shall comply with federal, state and local laws and regulations in accordance with Section VIII.P (Compliance with Applicable Laws).

F. Following approval of both phases of the draft RI Work Plan by Ecology, PLPs shall conduct remedial investigations in accordance with the Ecology-approved RI Work Plan.

G. PLPs shall submit a draft RI to Ecology for approval. The draft RI shall fully define the nature and extent of contamination pursuant to WAC173-340-350 for the purpose of developing and evaluating cleanup actions for the facility.

H. Following approval of the draft RI by Ecology, PLPs shall conduct a FS to evaluate cleanup action alternatives following the requirements of WAC 173-340-350 through 370.

I. PLPs shall submit a draft FS to Ecology for approval. Following approval of the draft FS by Ecology, PLPs shall prepare a draft Cleanup Action Plan (DCAP) that meets the requirements of Chapter 173-340 WAC and Chapter 173-204 WAC.

J. A scope of work for the RI, FS, and DCAP is more particularly described in Exhibit E, "Scope of Work" and is incorporated by reference as an enforceable part of this Order. To plan and manage the RI, FS, and DCAP, the project tasks and management strategies summarized in the RI Work Plan will be reviewed, revised as necessary, and approved by Ecology in accordance with the Scope of Work. The schedule of performance and list of deliverables is described in Exhibit F, "Schedule of Deliverables", and is incorporated by reference as an enforceable part of this Order.

K. PLPs shall notify Ecology's project coordinator in writing of any newly-identified SWMU(s), newly-discovered release(s) from known SWMU(s), and newly-discovered AOCs at the Facility no later than fifteen (15) days after discovery, and shall investigate and report on these areas as directed by Ecology's project coordinator. If required, the investigation (assessment) and reporting shall be done in accordance with Exhibit E, "Scope of Work."

L. PLPs shall submit all data collected for the RI/FS in both printed form and an electric form capable of being transferred into Ecology's data management system as provided in WAC 173-340-840(5). This requirement for electronic submittal shall be complete when Ecology confirms all data are properly submitted into Environmental Information Management (EIM) database.

M. If Ecology determines an interim action is warranted under Section VI.L, PLPs shall prepare and submit to Ecology and Interim Action Work Plan, including a scope of work and schedule, by the date determined by Ecology. Ecology will provide public notice and opportunity to comment on the Interim Action Work Plan in accordance with WAC 173-340-600(16). The PLPs shall not conduct the interim action until Ecology approves the Interim Action Work Plan. Upon approval by Ecology, the Interim Action Work Plan becomes an integral and enforceable part of the Order, and PLPs are required to conduct the interim action in accordance with the approved Interim Action Work Plan.

N. If, at any time after the first exchange of comments on drafts, Ecology determines that insufficient progress is being made in the preparation of any of the deliverables required by this Section, Ecology may complete and issue the final deliverable.

VIII. TERMS AND CONDITIONS OF ORDER

A. Public Notice

RCW 70.105D.030(2)(a) and WAC 173-340-600(11)(c) require that, at a minimum, this Order and accompanying permit be subject to concurrent public notice. If public notice on the Order and permit are done concurrently, the notice period shall be the longer of the two time periods required in WAC 173-340-600 and WAC 173-303-840(3)(d). Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Order should public comment disclose facts or considerations which indicate to Ecology that the Order is inadequate or improper in any respect.

B. Remedial Action Costs

PLPs shall pay to Ecology costs incurred by Ecology pursuant to this Order and consistent with WAC 173-340-550(2). These costs shall include work performed by Ecology or its contractors for, or on, the Facility under Chapter 70.105D RCW, including remedial actions and Order preparation, negotiation, oversight, and administration. These costs shall include work performed both prior to and subsequent to the issuance of this Order. Ecology's costs shall

include costs of direct activities and support costs of direct activities as defined in WAC 173-340-550(2). Ecology has accumulated $76,855.92 in remedial action costs related to this Facility as of December 31, 2013. Payment for this amount shall be submitted within thirty (30) days of the effective date of this Order. For all costs incurred subsequent to December 31, 2013, PLPs shall pay the required amount within thirty (30) days of receiving from Ecology an itemized statement of costs that includes a summary of costs incurred, an identification of involved staff, and the amount of time spent by involved staff members on the project. A general statement of work performed will be provided upon request. Itemized statements shall be prepared quarterly. Pursuant to WAC 173-340-550(4), failure to pay Ecology's costs within ninety (90) days of receipt of the itemized statement of costs will result in interest charges at the rate of twelve percent (12%) per annum, compounded monthly.

In addition to other available relief, pursuant to RCW 19.16.500, Ecology may utilize a collection agency and/or, pursuant to RCW 70.105D.055, file a lien against real property subject to the remedial actions to recover unreimbursed remedial action costs.

In order to assure these payments get to the proper staff as soon as possible, the address for mailing via the post office is:

Department of Ecology
Cashiering Section
P.O. Box 5128
Lacey, WA 98509-5128

If you choose to send a check by messenger/overnight delivery service, the address to use is:

Department of Ecology
Cashiering Section
300 Desmond Drive
Lacey, WA 98503

In order to ensure that your payment is properly credited, please enclose the bottom portion of Ecology’s invoice and indicate that the check is for cost recovery on the Columbia Gorge Aluminum Smelter.

C. Implementation of Remedial Action

If Ecology determines that PLPs have failed without good cause to implement the remedial action, in whole or in part, Ecology may, after notice to PLPs, perform any or all portions of the remedial action that remain incomplete. If Ecology performs all or portions of the remedial action because of PLPs' failure to comply with their obligations under this Order, PLPs shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.B. (Remedial Action Costs), provided that PLPs are not obligated under this section to reimburse Ecology for costs incurred for work inconsistent with or beyond the scope of this Order.

Except where necessary to abate an emergency situation, PLPs shall not perform any remedial actions at the Facility outside those remedial actions required by this Order, unless Ecology concurs, in writing, with such additional remedial actions.

D. Designated Project Coordinators

The project coordinator for Ecology is:

James DeMay
Industrial Section
Department of Ecology
P.O. Box 47706
Olympia, WA 98504-7706
(360) 407- 6999

The project coordinator for NSC is:

Peter Trabusiner
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1500 Adair Drive
Richland, WA 99352-9419
(509) 521-6531

The project coordinator for Lockheed Martin is:

Bill Bath
Lockheed Martin Corporation
Enterprise Business Services - EESH
2550 N. Hollywood Way, Suite 406
Burbank, CA 91505-5047
(720) 842-6106

Each project coordinator shall be responsible for overseeing the implementation of this Order. Ecology's project coordinator will be Ecology's designated representative for the Facility. To the maximum extent possible, communications between Ecology and PLPs, and all documents, including reports, approvals, and other correspondence concerning the activities performed pursuant to the terms and conditions of this Order shall be directed through the project coordinators. The project coordinators may designate, in writing, working level staff contacts for all or portions of the implementation of the work to be performed required by this Order. Wherever possible, the PLPs shall jointly prepare and submit each deliverable to Ecology as detailed in this Order.

Any party may change its respective project coordinator. Written notification shall be given to the other party at least ten (10) calendar days prior to the change.

E. Performance

All geologic and hydrogeologic work performed pursuant to this Order shall be under the supervision and direction of a geologist or hydrogeologist licensed in the State of Washington or under the direct supervision of an engineer registered in the State of Washington, except as otherwise provided for by Chapters 18.220 and 18.43 RCW.

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

All construction work performed pursuant to this Order shall be under the direct supervision of a professional engineer or a qualified technician under the direct supervision of a professional engineer. The professional engineer must be registered in the State of Washington, except as otherwise provided for by RCW 18.43.130.

Any documents submitted containing geologic, hydrologic, or engineering work shall be under the seal of an appropriately licensed professional as required by Chapter 18.220 RCW or RCW 18.43.130.

PLPs shall notify Ecology in writing of the identity of any engineer(s) and geologist(s), contractor(s) and subcontractor(s), and others to be used in carrying out the terms of this Order, in advance of their involvement at the Facility.

F. Access

Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Facility that PLPs either own, control, or has access rights to at all reasonable times for the purposes of, *inter alia*: inspecting records, operation logs, and contracts related to the work being performed pursuant to this Order; reviewing PLPs' progress in carrying out the terms of this Order; conducting such tests or collecting such samples as Ecology may deem necessary; using a camera, sound recording, or other documentary type equipment to record work done pursuant to this Order; and verifying the data submitted to Ecology by PLPs. PLPs shall make all reasonable efforts to secure access rights for those properties within the Facility not owned or controlled by PLPs where remedial activities or investigations will be performed pursuant to this Order. Ecology or any Ecology authorized representative shall give reasonable notice before entering any Facility property owned or controlled by PLP unless an emergency prevents such notice. All persons who access the Facility pursuant to this section shall comply with any applicable health and safety plan(s). Ecology employees and their representatives shall not be required to sign any liability release or waiver as a condition of Facility property access.

G. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, PLPs shall make the results of all sampling, laboratory reports, and/or test results generated by them or on their behalf available to Ecology. Pursuant to WAC 173-340-840(5), all sampling data shall be submitted to Ecology in both printed and electronic formats in accordance with Section VII (Work to be Performed), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

If requested by Ecology, PLPs shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by PLPs pursuant to implementation of

this Order. PLPs shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Facility. Ecology shall, upon request, allow PLPs and/or their authorized representative to take split or duplicate samples of any samples collected by Ecology pursuant to the implementation of this Order, provided that doing so does not interfere with Ecology's sampling. Without limitation on Ecology's rights under Section VIII.F. (Access), Ecology shall notify PLPs prior to any sample collection activity unless an emergency prevents such notice.

In accordance with WAC 173-340-830(2)(a), all hazardous substance analyses shall be conducted by a laboratory accredited under Chapter 173-50 WAC for the specific analyses to be conducted, unless otherwise approved by Ecology.

H. Public Participation

A Public Participation Plan is required for this Facility. Ecology shall review any existing Public Participation Plan to determine its continued appropriateness and whether it requires amendment, or if no plan exists, Ecology shall develop a Public Participation Plan alone or in conjunction with PLPs.

Ecology shall maintain the responsibility for public participation at the Facility. However, PLPs shall cooperate with Ecology, and shall:

1. If agreed to by Ecology, develop appropriate mailing list and prepare drafts of public notices and fact sheets at important stages of the remedial action, such as the submission of work plans, remedial investigation/feasibility study reports, cleanup action plans, and engineering design reports. As appropriate, Ecology will edit, finalize, and distribute such fact sheets and prepare and distribute public notices of Ecology's presentations and meetings.

2. Notify Ecology's project coordinator prior to the preparation of all press releases and fact sheets, and before major meetings with the interested public and local governments. Likewise, Ecology shall notify PLPs prior to the issuance of all press releases and fact sheets, and before major meetings with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by PLPs that do not receive prior

Ecology approval, PLPs shall clearly indicate to its audience that the press release, fact sheet, meeting, or other outreach effort was not sponsored or endorsed by Ecology.

3. When requested by Ecology, participate in public presentations on the progress of the remedial action at the Facility. Participation may be through attendance at public meetings to assist in answering questions or as a presenter.

4. When requested by Ecology, arrange and/or continue information repositories to be located at the following locations:

a. Goldendale Public Library
131 West Burgen
Goldendale, WA 98620
(509) 773-4487

b. Industrial Section
Department of Ecology
300 Desmond Drive SE
Lacey, Washington 98503
(360) 407-6916

At a minimum, copies of all public notices, fact sheets, and press releases; all quality assured monitoring data; remedial action plans and reports, supplemental remedial planning documents, and all other similar documents relating to performance of the remedial action required by this Order shall be promptly placed in these repositories.

I. Retention of Records

During the pendency of this Order, and for ten (10) years from the date of completion of work performed pursuant to this Order, PLPs shall preserve all records, reports, documents, and underlying data in its possession relevant to the implementation of this Order and shall insert a similar record retention requirement into all contracts with project contractors and subcontractors. Upon request of Ecology, PLPs shall make all records available to Ecology and allow access for review within a reasonable time.

Nothing in this Order is intended to waive any right PLPs may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If PLPs withhold any requested records based on an assertion of

privilege, PLPs shall provide Ecology with a privilege log specifying the records withheld and the applicable privilege. No Facility-related data collected pursuant to this Order shall be considered privileged.

J. Resolution of Disputes

1. In the event a dispute arises as to an approval, disapproval, proposed change, or other decision or action by Ecology's project coordinator, or an itemized billing statement under Section VIII.B. (Remedial Action Costs), the Parties shall utilize the dispute resolution procedure set forth below.

a. Upon receipt of Ecology's project coordinator's written decision or the itemized billing statement, PLPs have fourteen (14) days within which to notify Ecology's project coordinator in writing of its objection to the decision or itemized statement.

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute. If the project coordinators cannot resolve the dispute within fourteen (14) days, Ecology's project coordinator shall issue a written decision.

c. PLPs may then request section management review of the decision. This request shall be submitted in writing to the Industrial Section Manager within seven (7) days of receipt of Ecology's project coordinator's written decision.

d. The Section Manager shall conduct a review of the dispute and shall endeavor to issue a written decision regarding the dispute within thirty (30) days of PLPs' request for review. The Section Manager's decision shall be Ecology's final decision on the disputed matter.

2. The Parties agree to only utilize the dispute resolution process in good faith and agree to expedite, to the extent possible, the dispute resolution process whenever it is used.

3. Implementation of these dispute resolution procedures shall not provide a basis for delay of any activities required in this Order, unless Ecology agrees in writing to a schedule extension.

K. Extension of Schedule

1. An extension of schedule shall be granted only when a request for an extension is submitted in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and good cause exists for granting the extension. All extensions shall be requested in writing. The request shall specify:

a. The deadline that is sought to be extended;

b. The length of the extension sought;

c. The reason(s) for the extension; and

d. Any related deadline or schedule that would be affected if the extension were granted.

2. The burden shall be on PLPs to demonstrate to the satisfaction of Ecology that the request for such extension has been submitted in a timely fashion and that good cause exists for granting the extension. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of PLPs including delays caused by unrelated third parties or Ecology, such as (but not limited to) delays by Ecology in reviewing, approving, or modifying documents submitted by PLP;

b. Acts of God, including fire, flood, blizzard, extreme temperatures, storm, or other unavoidable casualty; or

c. Endangerment as described in Section VIII.M (Endangerment).

However, neither increased costs of performance of the terms of this Order nor changed economic circumstances shall be considered circumstances beyond the reasonable control of PLPs.

3. Ecology shall act upon any written request for extension in a timely fashion. Ecology shall give PLPs written notification of any extensions granted pursuant to this Order. A requested extension shall not be effective until approved by Ecology. Unless the extension is a

substantial change, it shall not be necessary to amend this Order pursuant to Section VIII.L. (Amendment of Order) when a schedule extension is granted.

4. An extension shall only be granted for such period of time as Ecology determines is reasonable under the circumstances. Ecology may grant schedule extensions exceeding ninety (90) days only as a result of:

a. Delays in the issuance of a necessary permit which was applied for in a timely manner;

b. Other circumstances deemed exceptional or extraordinary by Ecology; or

c. Endangerment as described in Section VIII.M. (Endangerment).

L. Amendment of Order

The project coordinators may verbally agree to minor changes to the work to be performed without formally amending this Order. Minor changes will be documented in writing by Ecology within seven (7) days of verbal agreement.

Except as provided in Section VIII.N. (Reservation of Rights), substantial changes to the work to be performed shall require formal amendment of this Order. This Order may only be formally amended by the written consent of Ecology and PLPs. PLPs shall submit a written request for amendment to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner after the written request for amendment is received. If the amendment to this Order represents a substantial change, Ecology will provide public notice and opportunity to comment. Reasons for the disapproval of a proposed amendment to this Order shall be stated in writing. If Ecology does not agree to a proposed amendment, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.J. (Resolution of Disputes).

M. Endangerment

In the event Ecology determines that any activity being performed at the Facility is creating or has the potential to create a danger to human health or the environment on or surrounding the Facility, Ecology may direct PLPs to cease such activities for such period of

time as it deems necessary to abate the danger. PLPs shall immediately comply with such direction.

In the event PLPs determine that any activity being performed at the Facility is creating or has the potential to create a danger to human health or the environment, PLPs may cease such activities. PLPs shall notify Ecology's project coordinator as soon as possible, but no later than twenty-four (24) hours after making such determination or ceasing such activities. Upon Ecology's direction, PLPs shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with PLPs' cessation of activities, it may direct PLPs to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to Section VIII.M (Endangerment), PLPs' obligations with respect to the ceased activities shall be suspended until Ecology determines the danger is abated, and the time for performance of such activities, as well as the time for any other work dependent upon such activities, shall be extended in accordance with Section VIII.K (Extension of Schedule) for such period of time as Ecology determines is reasonable under the circumstances.

Nothing in this Order shall limit the authority of Ecology, its employees, agents, or contractors to take or require appropriate action in the event of an emergency.

N. Reservation of Rights

This Order is not a settlement under Chapter 70.105D RCW. Ecology's signature on this Order in no way constitutes a covenant not to sue or a compromise of any of Ecology's rights or authority. Ecology will not, however, bring an action against PLPs to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against PLPs regarding remedial actions required by this Order, provided PLPs comply with this Order.

Ecology nevertheless reserves its rights under Chapter 70.105D RCW, including the right to require additional or different remedial actions at the Facility should it deem such actions necessary to protect human health and the environment, and to issue orders requiring such

remedial actions. Ecology also reserves all rights regarding the injury to, destruction of, or loss of natural resources resulting from the release or threatened release of hazardous substances at the Facility.

By entering into this Order, PLPs do not admit to any liability for the Site. Although PLPs are committing to conducting the work required by this Order under the terms of this Order, PLPs expressly reserves all rights available under law, including but not limited to the right to seek cost recovery or contribution against third parties, and the right to assert any defenses to liability in the event of enforcement.

O. Transfer of Interest in Property

No voluntary conveyance or relinquishment of title, easement, leasehold, or other interest in any portion of the Facility shall be consummated by PLPs without provision for continued implementation of all requirements of this Order and implementation of any remedial actions found to be necessary as a result of this Order.

Prior to PLPs' transfer of any interest in all or any portion of the Facility, and during the effective period of this Order, PLPs shall provide a copy of this Order to any prospective purchaser, lessee, transferee, assignee, or other successor in said interest; and, at least thirty (30) days prior to any transfer, PLPs shall notify Ecology of said transfer and provide a plan for continued implementation of this Order. Upon transfer of any interest, PLPs shall restrict uses and activities to those consistent with this Order and notify all transferees of the restrictions on the use of the property.

P. Compliance with Applicable Laws

1. All actions carried out by PLPs pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits, except as provided in RCW 70.105D.090. The permits or specific federal, state, or local requirements that the agency has determined are applicable and that are known at the time of entry of this Order have been identified in Exhibit G.

2. Pursuant to RCW 70.105D.090(1), PLPs are exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 RCW and of any laws requiring or authorizing local government permits or approvals. However, PLPs shall comply with the substantive requirements of such permits or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this section.

PLPs have a continuing obligation to determine whether additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order. In the event Ecology or PLPs determine that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Order, it shall promptly notify the other parties of its determination. Ecology shall determine whether Ecology or PLPs shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, PLPs shall promptly consult with the appropriate state and/or local agencies and provide Ecology with written documentation from those agencies of the substantive requirements those agencies believe are applicable to the remedial action. Ecology shall make the final determination on the additional substantive requirements that must be met by PLPs and on how PLPs must meet those requirements. Ecology shall inform PLPs in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. PLPs shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

3. Pursuant to RCW 70.105D.090(2), in the event Ecology determines that the exemption from complying with the procedural requirements of the laws referenced in RCW 70.105D.090(1) would result in the loss of approval from a federal agency that is necessary for the State to administer any federal law, the exemption shall not apply and PLPs shall comply with both the procedural and substantive requirements of the laws referenced in RCW 70.105D.090(1), including any requirements to obtain permits.

Q. Indemnification

PLPs agree to indemnify and save and hold the State of Washington, its employees, and agents harmless from any and all claims or causes of action (1) for death or injuries to persons or (2) for loss or damage to property to the extent arising from or on account of acts or omissions of PLPs, their officers, employees, agents, or contractors in entering into and implementing this Order. However, PLPs shall not indemnify the State of Washington nor save nor hold its employees and agents harmless from any claims or causes of action to the extent arising out of the negligent acts or omissions of the State of Washington, or the employees or agents of the State, in entering into or implementing this Order.

IX. SATISFACTION OF ORDER

The provisions of this Order shall be deemed satisfied upon PLPs' receipt of written notification from Ecology that PLPs have completed the remedial activity required by this Order, as amended by any modifications, and that PLPs have complied with all other provisions of this Order.

X. ENFORCEMENT

Pursuant to RCW 70.105D.050, this Order may be enforced as follows:

A. The Attorney General may bring an action to enforce this Order in a state or federal court.

B. The Attorney General may seek, by filing an action, if necessary, to recover amounts spent by Ecology for investigative and remedial actions and orders related to the Facility.

C. In the event PLPs refuse, without sufficient cause, to comply with any term of this Order, PLPs shall be liable for:

a. Up to three (3) times the amount of any costs incurred by the State of Washington as a result of their refusal to comply; and

b. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day they refuse to comply.

D. This Order is not appealable to the Washington Pollution Control Hearings Board. This Order may be reviewed only as provided under RCW 70.105D.060.

Effective date of this Order: _____

NSC Smelter, LLC

Scott Tillman
Manager
NSC Smelter, LLC
Telephone: (646) 256-1254

DEPARTMENT OF ECOLOGY

Garin Schrieve, P.E.
Industrial Section Manager
Waste 2 Resources Program
Telephone: (360) 407-6868

LOCKHEED MARTIN CORPORATION

Carol B. Cala
Vice President, EESH
Lockheed Martin Corporation
Telephone: (301) 548-2212

Effective date of this Order: _____

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EXHIBIT A
FACILITY DIAGRAM

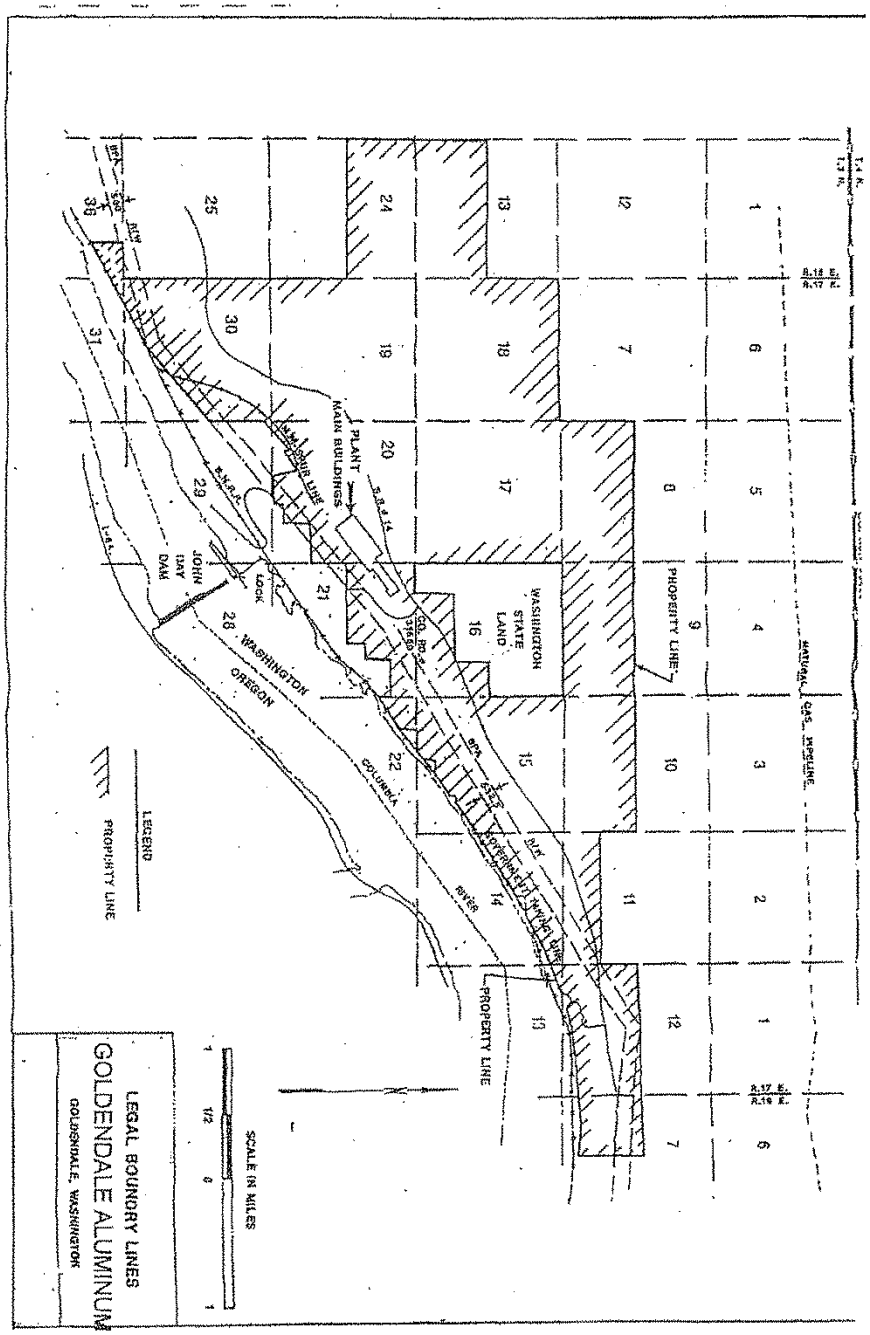

EXHIBIT B
History of Dangerous Waste Activities

While in operation, the Facility consisted of three major production areas: carbon plant, reduction lines, and cast house. Prior to 1983, the Facility consisted of 340 pots (electrolytic reduction cells) in two potlines. A third potline of 186 pots was added in 1983. The rated capacity of the smelter was 507 tons per day or 180,000 tons per year. Petroleum coke and coal tar pitch were processed in the carbon plant to replenish the carbon in the pots. The three potlines continuously reduced alumina to molten aluminum metal. The molten metal was siphoned from the pots in batches, shipped off-site in hot crucibles, or transported to the cast house where it was degassed, alloyed, and cast into various sized and shaped ingots.

The smelting operations required an extensive dry materials handling system for raw materials. Aluminum ore was received by rail from a marine unloading facility located in Portland, Oregon. Other raw material such as petroleum coke, coal tar pitch, and cryolite bath were received by rail.

Petroleum coke was stored in concrete silos and the pitch was stored in the carbon plant storage building. The coke was sorted and crushed to achieve the required particle size distribution, heated, and then mixed with pitch in the carbon plant. This coke/pitch mixture was formed into briquettes and cooled. The briquettes were moved by a covered conveyor to the potlines and used as a carbon source for the anodes.

Air emissions from the carbon plant (paste plant) consisting of carbon dust from the petroleum coke and hydrocarbon vapors, including polycyclic aromatic hydrocarbons (PAHs) from the hot pitch, were cleaned in a wet air pollution control scrubber. The scrubber water was originally discharged to settling ponds. In 1986, the Facility changed to a recirculated water system. The recirculated water system proved to be a continuing problem for the Facility (SWMU #9 Paste Plant Recycle Water System and SWMU #30 Paste Plant Spill) and in 1990 a dry air pollution control system was installed. The solids from the air filtration system at the

paste plant were disposed of as extremely hazardous waste (EHW) at the ChemWaste Management facility in Arlington, Oregon.

In a smelter reduction cell, alumina is dissolved in molten cryolite where the aluminum metal is reduced by electrolysis. The anode in the electrolytic cell is composed of carbon which reacts with the released oxygen to form carbon dioxide gas. This reaction causes the anode to be consumed and the carbon in the anode must be continually replenished with coke/pitch briquettes from the paste plant. The alumina ore used in the aluminum production process was received by rail and stored in large silos on the smelter site. A slip stream of alumina was routed through the dry fluoride scrubbers in the smelter's primary emission control system prior to being stored in enriched ore silos. After absorbing fluoride from potline exhaust gases, the alumina was delivered and placed in pots by specially designed transport vehicles.

The aluminum metal produced in the pots accumulated as a liquid in the bottom of the cell. Some of the molten metal was placed in steel crucibles and shipped off-site. The remaining molten metal was transported from the potlines to the cast house where it was transferred to large gas-fired casting furnaces. In the casting furnaces, the metal was alloyed and cast into foundry ingots, sheet rolling ingots, and extrusion billets.

The average life of a pot was approximately eight years before heat stress, erosion, and absorption of chemicals requires replacement of the carbon lining and refractory brick. The failed pots were removed from the potline as a single unit and transported to a demolition area. After a pot was taken out of service, carbon and brick were removed from the shell of the tank until the steel shell was clean. The broken carbon block generated during this process is termed spent potliner waste (SPL). SPL is a dry solid material containing silica, fluoride, cyanide, aluminum, and other metals.

Prior to 1990, SPL was water cooled at two cooling stations located at the east end of the potlines (SWMUs #10 and #11 North and South Potliner Soaking Areas). This practice was changed in 1990 to air cooling. The demolition of SPL and the relining of pots with new carbon

block were first located inside of the east end of Potline Building B. In the mid-1990s, Goldendale Aluminum installed a SPL Handling Building at the end of Potline Building D.

From the start of smelter operations in 1971 to 1984, SPL was transported to a concrete storage slab in the southeast corner of the smelter (SWMU #12 East SPL Storage Area). SPL quickly exceeded the capacity of this slab. As a result, SPL was stored on the ground adjacent to the slab. In 1984, a new slab was designed and installed in the northwest corner of the site, just east of the West Surface Impoundment (SWMU #13 West SPL Storage Area). Approximately 105,000 tons of SPL were transferred from the original slab to the new location. An additional 23,000 tons of SPL were added to the new slab from 1984 to 1988. In 1988, the second SPL storage slab was closed in accordance with the Washington State Solid Waste Regulations (Chapter 173-304 WAC). SPL generated at the Facility since 1988 was stored in two waste piles enclosed in buildings on the north and south side of the facility (SWMUs #14 and #15 North and South Containment Buildings). During 1994 – 1995, all SPL stored in the North and South Containment Buildings was removed and shipped to the ChemWaste, Arlington facility.

During the aluminum smelting process, gases generated in the pots were collected in the skirts surrounding the cells. The gases contained particulates, carbon dioxide, sulfur dioxide, hydrogen fluoride, metals, and a number of complex organics including PAHs. Wet electrostatic precipitators (WESP) (SWMU #7 Decommissioned Air Pollution Control Equipment) were used in the primary emission control system from 1971, when the plant began operations until 1978. The WESP wastewater was treated on-site in the NPDES Ponds (SWMU #1 Four NPDES Ponds) during this time. From 1978 to present, contaminated wastewater, cooling water, storm water, and treated sanitary wastes have been discharged to and treated at the NPDES ponds. Treated water was discharged to the Columbia River under a permit issued by Department of Ecology (currently permit WA 000054-0). The air emission controls effluent including the WESP, was discharged to Pond A and flowed sequentially through Ponds B, C, and D prior to discharge to the Columbia River upstream of the John Day Dam.

Rapid solids accumulation in Ponds A and B necessitated dredging of the ponds several times between 1973 and 1978. The dredged solids were disposed of in an unlined natural depression east of the potlines. This disposal area was later developed into a wastewater evaporation pond called the East Surface Impoundment (ESI) (SWMU #2 East Surface Impoundment). During the dredging of the NPDES ponds, the piping used to fill the ESI broke and deposited sludge south of the ESI in a series of small ponds known as the Intermittent Sludge Disposal Ponds (SWMU #3 Intermittent Sludge Disposal Ponds).

In 1978, the WESPs were replaced with a multistage dry/wet scrubber system. In the first scrubber stage, large particulates were removed in a dry cyclone separator. Alumina was injected into the separator to absorb hydrogen fluoride. The fluoride enriched alumina was removed from the gas stream along with other reduction cell particulates in a baghouse. The enriched alumina was recycled back into the reduction cells. The air stream was routed to a wet scrubber where sulfur dioxide (SO_2) was added to the scrubber water to control pH and form soluble sodium sulfate. The SO_2 scrubber water from Potlines 1 and 2 was originally discharged to the ESI and evaporated. In 1983, the SO_2 scrubber water from Potline 3 was rerouted to the WSI (SWMU #4 West Surface Impoundment). Beginning in 1985, scrubber water from all three potlines was discharged to the WSI.

Particulates and HF gases which escape the primary emission control system and travel into the pot room working area are collected by the secondary emission control system. Gas collected in the secondary emission control system was cleaned by water scrubbing through 1983. In 1983, the scrubber system was modified to a recirculated water system using a 130-foot diameter clarifier and recirculation pumps (SWMU #8 Tertiary Treatment Plant), which eliminated scrubber effluent discharges to the NPDES ponds. A tertiary treatment system was installed at the same time to further treat the scrubber water for fluoride. The scrubber water was disposed of in the ESI and WSI. Filter presses were installed in 1991 to further reduce the scrubber water discharge to the WSI. The filter cake from the filter presses was disposed of in the WSI.

EXHIBIT C
Summary of Solid Waste Management Units

These Solid Waste Management Units (SWMUs) can be divided into four categories as follows:

- Wastewater Management Units
- Spent Potliner Management Units
- Other Waste Management Units
- Releases to the Environment

Wastewater Management Units. This group of SWMUs includes wastewater treatment and disposal systems used at the smelter. A total of 12 SWMUs are included in the wastewater category.

NPDES Ponds (SWMU #1). Storm water, process water, and sanitary waste from the smelter flowed through NPDES settling ponds prior to discharge into the Columbia River. Ponds A, B, C, and D were formed by installing earthen dikes across natural depressions in the natural surface drainage pathway from the smelter site to the river. Ponds A and B were constructed as a part of the original smelter to remove suspended solids from contaminated wastewater generated by briquette cooling and paste plant and reduction cell gas cleaning systems. Other contaminated wastewater, cooling water, storm water, and treated sanitary waste were combined with the effluent from Pond B prior to the permitted discharge to the Columbia River. In 1972 and 1973, additional earthen dikes were installed across another natural depression downstream from the original ponds to form Ponds C and D.

From 1978 to 1986, several efforts were made to reduce effluent volume and improve water quality from the ponds. In 1986, the first of several studies were completed as independent actions to determine the sludge quality and quantity in the four ponds. Those studies identified several million gallons of sludge with elevated concentrations of PAH, aluminum, and other metals. In 1990, further studies were completed to determine the levels of PAHs in the ponds. PAH levels were found to be below the 1% EHW threshold. In 2008, Lockheed Martin

completed sampling the NPDES ponds and found pockets of material containing PAH levels above the 1% total carcinogenic EHW limit. In a 2010 independent action by Lockheed Martin, the sludge was removed and disposed at off-site, permitted disposal sites. Post excavation soil sampling was done to confirm the remaining soil met MTCA residential standards.

East Surface Impoundment (ESI) (SWMU #2). The ESI is a 5.8-acre natural topographic depression located at the east end of the potlines. The impoundment was used as an unlined surface impoundment for disposal of NPDES pond sludges and blow down from the North SO_2 scrubber. The ESI operated from 1973 to 1985, when it was taken out of service and replaced with the West Surface Impoundment (WSI), an engineered, lined, earthen disposal unit. In 1987 the ESI, which contained 70,000 cubic yards of sludge, was closed under RCRA by installing an engineered impermeable cap. The RCRA cap design consisted of: 1-foot cover sand, 30-mil PVC liner, a 0.05-inch geotextile fabric, 1 foot of transitional material, and 1 foot of rip rap. A RCRA groundwater monitoring program has been conducted at this unit.

In 1985, the sludge was tested as an independent action for EP toxicity, ignitability, and reactivity and did not designate as a RCRA characteristic waste. The sludge was, however, found to be toxic at the 1,000 ppm level in a fish bioassay, therefore, in 1985, the sludge was classified as a Washington State dangerous waste.

The geology at the site is dominated by a sequence of layered basalt lava flows with a total thickness of over 700 feet. Individual flows form five water bearing zones beneath the ESI. The deepest zone has static water levels of about 265 feet above mean sea level, which is the normal pool stage for the Columbia River. In 1985, a hydrologic analysis performed as part of Ecology's Groundwater Quality Assessment Program identified five water bearing zones beneath the site and determined that each of the zones had elevated concentrations of some constituents found in the ESI sludge.

Intermittent Sludge Disposal Ponds (SWMU #3). Following the closure of the ESI, it was discovered that there were other areas east of the smelter that had been used for disposal of sludges from the NPDES Ponds. Thirteen small ponds were discovered after a range fire

removed the majority of the native overgrowth. Although these were "ponds" in the 1970s when sludge was pumped from the NPDES ponds, many of the "ponds" dried out after cessation of this practice. Accordingly, this SWMU has also been referred to as the "east surface deposits." In 2006, Lockheed Martin analyzed the ponds as an independent action and detected PAHs, fluoride, and sulfate. In 2007, Lockheed Martin performed an independent cleanup action and removed sludge from all thirteen "ponds" such that remaining soil met MTCA A industrial levels.

West Surface Impoundment (SWMU #4). The WSI was constructed in 1981 as part of a major smelter expansion, modernization, and pollution control program. The WSI is a 10-acre lined earthen impoundment located on the west side of the smelter. The impoundment was formed by excavating into the hillside and using the excavated material to form the downhill retaining wall. The excavation is lined with 6 inches of sand and a 30-mil Hypalon liner. The maximum depth is 18 feet and the design capacity is 181,000 cubic yards.

The WSI was designed to concentrate the emission control wastewater through evaporation and for storage/disposal of emission control sludges. In 1982, the unit began receiving waste from the North SO_2 scrubber and the Tertiary Treatment Plant. In 1985, the ESI was closed and the South SO_2 scrubber water was diverted to the WSI.

The WSI historically received state-only dangerous wastes. These wastes designated as WT02 through the fish bioassay test performed by MMC. MMC reported this designation in its Part A submitted on August 6, 1982. In November of 1995, Ecology revised WAC 173-303, and changed the bioassay criteria. Under the new criteria, the wastes would not designate as dangerous.

There are 16 groundwater monitoring wells located around the WSI. Elevated levels of sulfate and fluoride measured in the downgradient wells indicate that the WSI has released contaminants into the groundwater. A RCRA groundwater monitoring program has been conducted at this unit.

In September of 2004, the WSI was closed under RCRA with a RCRA cap consisting of a sand layer, a geosynthetic clay layer, 30-mil PVC geomembrane, a geotextile drainage layer, and soil cover.

Line A Secondary Scrubber Recycle Station (SWMU #5). The recycle station consisted of a 36-foot diameter clarifier, cyclone separators, and reagent storage tanks and appurtenant pipes. Blow down from the gas cleaning system was cleaned in the recycle station and returned to the secondary scrubber water system. There is no record of releases from the system.

Line B, C, D Secondary Scrubber Recycle Stations (SWMU #6). The secondary scrubber recycle system was installed as a part of the 1983 smelter upgrade. The recycle system consisted of 130-foot diameter clarifier, an emergency backup 90-foot clarifier, two recycle pump tanks, and 3 bulk reagent tanks, and appurtenant pipes. There is no data available on potential releases to soil or groundwater.

Decommissioned Air Pollution Control Equipment (SWMU #7). Prior to the installation of the dry alumina air scrubber equipment at the smelter, air emissions from Line A and B were removed using wet electrostatic precipitators, redwood towers, and concrete bubblers. The units were located on the roof between the pot rooms, but were subsequently removed.

Tertiary Treatment Plant (SWMU #8). In 1983, a tertiary treatment plant was installed to treat blow down water from the secondary scrubber systems. The treatment plant removed fluoride from the wastewater using calcium chloride to promote chemical precipitation. The plant consisted of a 12-foot thickener, 28-foot diameter clarifier, pump tanks, and sand filters, and appurtenant pipes. There is no history of releases of hazardous or toxic constituents from the Tertiary Treatment Plant.

Paste Plant Recycle Water System (SWMU #9). In 1986, a recirculated water system with settling tanks and a cooling tower was installed at the paste plant to remove solids discharged to the NPDES pond system. In 1990, the wet gas cleaning system was converted to a

dry HEAF filter system. In 1990, the recirculated system overflowed, resulting in PAH soil contamination in a small area south of the paste plant. There is no record of any other releases at the paste plant.

North Potliner Soaking Station (SWMU #10). The North Potliner Soaking Station consisted of a below ground concrete tank, recycle pumps, and a spray station. Spent cathodes were brought to the soaking station and filled with water to quench the hot carbon and brick lining to promote thermocracking. This simplified the rebuilding of the potliner in the steel cathode shells. Because there is a potential for leaching of cyanide and fluoride from the potliner, the water was treated with sodium hypochlorite to oxidize any cyanide that was present. Any of the water used to quench and treat the cathode shells was collected and drained back to a recycle sump. The north soaking station was operated from 1971 through 1990 when it was shut down. Data was collected by Lockheed Martin as an independent action in 2008.

South Potliner Soaking Station (SWMU #11). This unit is exactly the same as the North Potliner Soaking Station SWMU #10. There is no history of spills or releases of hazardous or toxic constituents to soil or groundwater from this unit. Data was collected by Lockheed Martin as an independent action in 2008.

Spent Potliner Management Units. Potliner is the carbon lining in an aluminum reduction cell that contains the molten metal and bath, and acts as the cathode in the electric cell. The pot consists of an outer steel shell that supports the inner lining of fire brick, insulating refractory brick, and carbon blocks. Over time, the thickness of the carbon blocks is reduced by chemical and physical erosion and the electrical efficiency of the cell is reduced. The chemicals of concern deposited in the carbon lining and insulation are fluoride absorbed from the raw materials (cryolite bath) and cyanide produced in the cell. The cyanide is formed when the carbon in the cathode and nitrogen from inadvertent air infiltration are subjected to the highly reducing environment in the cell. At the end of a pot's life, the carbon is broken and removed from the steel shell and a new lining is installed. The carbon waste produced during the

demolition of the pot lining is spent potliner (SPL). There are five on-site SPL management units identified at the smelter. A brief description of each of these SWMUs is provided below.

East SPL Storage Area (SWMU #12). The East SPL Storage area was located east of A-Line and received SPL from 1971–1984. A concrete pad 100 feet by 160 feet was originally designed for SPL storage. The quantity generated by the smelter quickly exceeded the capacity of the pad and the storage area was expanded to adjacent unpaved areas. In 1984, a larger storage area was constructed west of the smelter and 105,000 tons of SPL was transferred to the new pad. Soils in the area were not sampled when the SPL was removed. Data was collected by Lockheed Martin as an independent action in 2008.

West SPL Storage Area (SWMU #13). The West Storage Area is located on the west side of the smelter next to the WSI. This storage area was operated from 1984–1988 and then closed as a Solid Waste landfill. The West SPL Storage Area consisted of a curbed concrete pad approximately 300 feet by 500 feet. In 1984, 105,000 tons of SPL from the East SPL Storage Area was relocated to this storage area. Between 1984 – 1988, an additional 23,000 tons of SPL was generated at the smelter and placed on the storage pad. In 1988, Columbia Aluminum Corporation ceased using the West Storage Area and installed a cap. The cap consisted of a soil cover, 30-mil PVC liner, sand layer, and riprap for erosion control. Three groundwater monitoring wells were installed as an independent action downgradient of the landfill near the WSI monitoring wells. The unit was closed in 1988 under applicable regulations for solid waste. Monitoring wells on the west side of the storage area show elevated cyanide values that are below MTCA ground water standards.

North SPL Storage Containment Building (SWMU #14). The North SPL Storage Containment Building was constructed east of the Tertiary Water Treatment Plant in 1987. The storage building is a 20,000 square foot structure with a concrete foundation and 4-foot high concrete perimeter walls. The concrete floor slab is underlain with a PVC secondary containment liner. The building consists of structural steel framing with aluminum siding and roofing.

The building was full of SPL by 1988 and sealed shut. Newly generated SPL was taken to the South SPL Storage Building. During 1994–95, all of the SPL was removed from the building and taken off-site for permanent disposal and the building was cleaned. In 1996, Ecology certified that the building met the requirements of a containment building. The building was clean closed under RCRA in July 2009. Based on the design of the building, characteristics of the SPL stored within the building, and sampling data collected during closure, no releases of hazardous or toxic constituents to the soil or groundwater are anticipated from this unit.

South SPL Storage Building (SWMU #15). The South SPL Storage Building was constructed in 1988 south of the cast house. The storage building had a 15,000 cubic yard capacity and consisted of a 22,000-square foot structure with a concrete floor and PVC liner. The construction is similar to the North SPL Storage Building (SWMU #14). All SPL was removed from the building in 1995. The building was clean closed under RCRA in 1996 and used for other purposes. Based on the design of the building, characteristics of the SPL stored within the building, and the results of samples collected during closure, no releases of hazardous or toxic constituents to soil or groundwater are anticipated from this unit.

SPL Handling Containment Building (SWMU #16). Columbia Aluminum constructed the SPL Handling Containment Building in 1990. It was used to demolish failed cathode shells prior to the material being stored in the South SPL Storage Building or shipped off-site for disposal. The SPL Handling Containment Building is an 8,500 square foot structure with a concrete foundation and 5-foot high concrete perimeter walls. The concrete floor slab is underlain with a PVC secondary containment liner. The building consists of structural steel framing with aluminum siding and roofing. It is equipped with a dust control system consisting of fans and two bag house dust collectors. It was modified in 1996, independently certified, and approved by Ecology as a containment building in January 1997. The structure was clean closed under RCRA and demolished in November 2011. Based on the design of the building, characteristics of the SPL stored within the building, and the results of samples collected during

closure, no releases of hazardous or toxic constituents to soil or groundwater are anticipated from this unit.

Other Waste Management Units. This category of SWMUs includes those units that are not associated with wastewater or SPL. A total of 13 SWMUs are included in this category. The following sections describe each unit.

East End Landfill (SWMU #17). The East Landfill was an unlined landfill located south of the paste plant. This landfill operated from 1971–82 and was closed prior to RCRA by covering it with native soil. The landfill received all smelter wastes except food waste, SPL, waste oil, and spent solvents. Interviews with smelter staff indicate that waste oil and solvents were disposed of off-site as fuel during the life of the landfill. SPL was stored and disposed of in separate on-site facilities. Material disposed in the East End Landfill included wood, demolition waste, carbon waste, contaminated alumina, and general trash. Data on the material found in this landfill was collected by Lockheed Martin as an independent action and will be included in Phase 1 of the Remedial Investigation Work Plan.

West End Landfill (SWMU #18). The West End Landfill was an unlined landfill located west of the main parking area for the smelter. The landfill was approximately 300 feet by 600 feet and was operated between 1982 and 1987 when it was closed by covering it with native soil. During its five year life, the landfill received all smelter wastes except food waste, SPL, waste oil, and spent solvents. Material disposed in the West End Landfill included wood, demolition waste, carbon waste, contaminated alumina, asbestos, and general trash. Data collected by Lockheed Martin as an independent action is available on the material found in this landfill and is described in the 2010 “Final Draft Remedial Investigation Report.”

Plant Construction Landfill (SWMU #19). During the construction of the smelter in 1969-1970, the construction contractor disposed of general debris at the site of the present WSI and west of the rectifier yard (Plant Construction Landfill). Due to the long period of time since smelter construction, little is known about the exact contents of the landfill.

Drum Storage Area (SWMU #20). The Drum Storage Area consisted of a concrete pad. This area was formerly the foundation of a redi-mix concrete plant built during the original construction of the smelter. It is located on the hillside northeast of the WSI. Drums stored on the pad were empty or contained waste materials. The date the drum storage area began operating is unknown. The drum storage area was used until 1987, when about 400 drums were removed and disposed of at approved off-site locations. This area has not been used for drum storage since 1987. Data was collected by Lockheed Martin as an independent action in 2008.

Construction Rubble Storage Area (SWMU #21). Construction rubble was disposed of in the West Landfill until the landfill closed in 1987. After that, this material was diverted to a storage area east of the WSI. The construction rubble storage area was active until the smelter closed. Because of the inert nature of the construction rubble, the possibility of soil or groundwater contamination is unlikely. This SWMU includes any disposal site for demolition debris generated during plant demolition.

Wood Pallet Storage Area (SWMU #22). Wood waste, primarily shipping containers and pallets, were disposed of in the West End Landfill until the landfill was closed in 1987. After that, this material was diverted to a storage and burning area northwest of the smelter and north of the rectifier yard. The aluminum company employees were allowed to remove and reuse the wood waste. The excess wood at the site was burned periodically under a permit from the county fire department.

Reduction Cell Skirt Storage Area (SWMU #23). Between 1988 and 1995, an area between Cell Room D and the Drum Storage Area (SWMU # 20) was used for the storage of failed “skirts” from the reduction cells. These steel skirts have solid bath (cryolite salts) attached to the steel. The skirts were stored in the area until the steel was recycled off-site. After 1995, the skirts were stored on a concrete pad next to the paste plant before recycling. In 1995, Columbia Aluminum Corporation (CAC) removed all of the skirts and residual bath in soils at the site.

Carbon Waste Roll-off Area (SWMU #24). In 1987, Columbia Aluminum began using a 20-cubic yard roll off bin, located between pot rooms to collect, store, and transport various RCRA wastes to an off-site landfill. Materials managed in the Carbon Waste Roll-off Area included: fume system carbon, waste briquettes, production room floor sweepings, silo top paste, and waste stud hole paste. These wastes were disposed of in the West End Landfill prior to its closure. There is no information available on any potential releases of hazardous or toxic constituents to soil or groundwater from this area.

Solid Waste Collection Bin and Dumpsters (SWMU #25). Miscellaneous, non-hazardous solid waste from all departments of the smelter were placed in small dumpsters or roll-off bins located at various collection points throughout the smelter. Wastes found at these collection points included: transite, empty cans, floor sweepings, PVC/glass pipe and secondary treatment plant screenings. These wastes were picked up by a local waste hauler and transported to the Rabanco landfill near Roosevelt, WA. Because of the small volume and characteristics of the wastes, the possibility of a release from these collection points is very low.

HEAF Filter Roll-Off Bin (SWMU #26). In 1990, CAC converted the paste plant emission control system from a wet scrubber to a dry High Efficiency Air Filtration (HEAF) filter system. Particulates containing high concentrations of PAHs were removed from the off gases onto fabric filters. A 20 cubic yard roll-off bin was located near the paste plant for storage of the spent HEAF filters. When the bin was full, it was transported to the ChemWaste facility in Arlington, Oregon. Because of the nature of the storage operation, a release of hazardous constituents from the roll-off bin to soil or groundwater is unlikely.

Tire and Wheel Storage Area (SWMU #27). In 1987, when the East End Landfill was closed, CAC began storing worn out rubber tires and steel wheels on a concrete pad northeast of the WSI. This practice continued until the summer of 1994 when a grass fire, started by the nearby railroad, consumed the Tire and Wheel Storage Area. Following the fire, CAC conducted an independent cleanup of the site and it has not been used since. After the independent cleanup,

all used tires were taken off-site and recycled. This SWMU may overlap with the Tire and Wheel Storage Area (SWMU #20).

90-Day Drum Storage Area (SWMU #28). In 1987 when the Drum Storage Area was closed under RCRA, CAC established the 90-Day Drum Storage Area. This storage area is located at the west end of A-Room/Line near the capacitor yard. The 90-Day Drum Storage Area handled both RCRA and non-RCRA waste. Drums received from the different departments of the smelter were catalogued and dated. The storage area was inspected and inventoried on a weekly basis to ensure that drums were not leaking and that regulated wastes were not stored longer than 90 days.

In 1990, an 800-square foot metal building was constructed over the concrete pad and a six-inch concrete lip/berm was added to the perimeter of the concrete pad to retain any spills. An epoxy was applied to the concrete pad to seal any cracks. Only authorized personnel had access to the building. The design and operation of this unit, together with the frequent inspections makes the likelihood of a release of hazardous or toxics constituents from this building to the environment unlikely.

Releases to the Environment. This category includes four spills or releases to the environment from production equipment and plant operations.

Caustic Spill (SWMU #29). On October 3, 1990, approximately 5,000 gallons of 20% caustic solution (NaOH) was spilled on the ground near the A-Room/Line recycle water system during a transfer between tanks. The smelter responded to the spill by flushing the caustic to the nearest storm drain and monitoring the NPDES treatment system. There were no exceedances of the NPDES permit limits reported during the spill. The soil in the area was flushed with water. There is no data available on any residual soil contamination.

Paste Plant Spill (SWMU #30). In 1990, an undetermined volume of recirculated scrubber water overflowed to the ground causing PAH contamination of soil in a small area south of the paste plant. In the same area, storm water runoff from an uncontrolled briquette

storage area was identified as a source of PAH soil contamination. The contaminated soils were excavated and disposed of as an independent action. There is no data available on any residual soil contamination. A portion of the contaminated soils were excavated and disposed of as an independent action. A 1991 letter report documenting the cleanup action stated that "soils inside the fence could not be cleaned to below MTCA cleanup levels." This letter report further described the presence of landfill-type material in the vicinity of the paste plant spill that was attributed to the East End Landfill. Because the East End Landfill is located further to the east, the landfill-type material described in the investigation and cleanup of the paste spill could be another feature.

Smelter Sign Area (SWMU #31). Ecology was notified in 2011 by Lockheed Martin of potential historic land disposal of carbon waste. These waste material appeared to extend from near the smelter sign to the area between the closed ESI and State Highway 14. This SWMU has not been investigated.

Stormwater pond and appurtenant conveyances/basins (SWMU #32). Stormwater is collected in a series of catch basins that are conveyed to the stormwater retention pond, located at the southern portion of the site. This pond is excavated into bedrock and is used to store accumulated stormwater runoff from the site prior to discharge under the NPDES permit. This pond receives all stormwater from the Facility, and solids settle out in the pond. These solids may include contaminants that accumulate in the Facility and move through the stormwater collection system. Potential contaminants may include PAHs, fluoride and oil and grease. Stormwater collected in the pond is pumped to the industrial sump where it comingled with process cooling water prior to discharge under the NPDES permit.

EXHIBIT D

Summary of Areas of Concern

Areas of Concern. There are four areas located at the smelter site that have the potential to be considered SWMUs. These areas are described below.

Columbia River Sediments. The NPDES outfall, sheet flow from the property near the river, and two intermittent streams have the potential to contaminate sediments in the Columbia River adjacent to the smelter. In 1994, sediment samples were collected by CAC near the NPDES outfall following Ecology NPDES sampling protocols for that time period. The sampling was required in CAC's 1990 NPDES permit.

Groundwater in the Uppermost Aquifer at the Facility. There is groundwater data from wells located downgradient of the WSI, ESI, and a few of the other SWMUs onsite. However, the full extent of groundwater contamination in the uppermost aquifer is unknown. A site wide groundwater study was completed by Lockheed Martin in 2011.

Wetlands. The designated wetlands onsite have not been sampled to determine if any fallout from aluminum smelter emissions affected these areas.

Rectifier Yard. This area includes PCB containing rectifiers and transformers that were used during plant operations. This type of facility has the potential to release contaminants to soils if electrical equipment fails. PCBs would comprise the potential contaminants at this location.

EXHIBIT E
SCOPE OF WORK (SOW)

PURPOSE

The work under this Agreed Order (AO) involves preparing a Remedial Investigation (RI) Work Plan, conducting a RI and FS, completion of a RI/FS report, and preparing a Draft Cleanup Action Plan (DCAP) for Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) found at the former Columbia Gorge Aluminum Facility in Goldendale, WA. The purpose of the RI, FS, and DCAP is to provide sufficient data, analysis, and evaluations to enable Ecology to select a cleanup alternative for each SWMU and AOC.

NSC Smelter, LLC (NSC) and Lockheed Martin Corporation (Lockheed Martin) shall coordinate with Ecology throughout the development of the RI, FS, and DCAP and shall keep Ecology informed of changes to the work plan and other project plans and issues as they develop. Changes in the work plan shall be addressed in accordance with Section VIII.L of the Agreed Order.

The SOW is divided into six major work tasks as follows:

Task 1: RI Work Plan
Task 2: Remedial Investigation
Task 3: Interim Actions (if necessary)
Task 4:. Feasibility Study
Task 5: Draft Cleanup Action Plan
Task 6: Progress Reports

Task 1: Prepare RI Work Plan

PLP shall prepare a draft Remedial Investigation (RI) Work Plan (Work Plan). The Work Plan shall include an overall description of the RI activities. The Work Plan shall clearly describe the project management strategy for implementing and reporting on RI activities. The responsibility and authority of all organizations and key personnel involved in conducting the Work Plan will be outlined.

The Work Plan shall include the following as deliverables: description of general facility information; SWMU and AOC history and conditions; project background; a conceptual site model; contaminant migration pathways; geology and groundwater system characteristics; land use; natural resources and ecological receptors including wetlands; hazardous substances sources; contaminants of concern; etc., in compliance with WAC 173-340-350 and WAC 173-204-560.

The draft Work Plan shall be submitted to Ecology in two separate submittals, Phase 1 and Phase 2. Phase 1 will be focused on the project background and Phase 2 will focus on additional investigation necessary to develop cleanup options.

Phase 1 must include a summary of all past independent field investigations and remedial actions. All existing environmental data (soil, groundwater, surface water and sediment) for each SWMU and AOC shall be compiled and evaluated for data gaps. The data gaps will be

used as the basis for conducting additional SWMU or AOC investigations, developing a feasibility study, and selecting a remedial alternative for each SWMU or AOC. Phase1 of the draft Work Plan will be submitted to Ecology for review and comment

Following resolution of comments on Phase1, Phase 2 must be submitted for Ecology's review. Phase 2 must identify specific data collection procedures in a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP) in compliance with WAC 173-340-820 and WAC 173-204-600 for defining the nature and extent of the contamination. Phase 2 must also include a Health and Safety plan for work on the Facility in accordance with the most recent OSHA, WISHA rules and their implementing regulations. Phase 2 must also include cultural resource protocols for the sampling, which shall comply with federal, state, and local laws and regulations.

The SAP must identify the proposed number, locations, and approximate depths of all samples (including soil borings, groundwater monitoring wells, soil, groundwater, stormwater, seep, sediment and catch basin samples, as necessary to meet the objectives of the RI). If a second phase of RI sampling is necessary, then an addendum to the SAP will be prepared to identify the proposed number, locations, and approximate depths of samples that are necessary to meet the objectives of the RI.

The SAP shall describe the sampling objectives, the rationale for the sampling approach (based upon the identified data gaps), a process for dynamic changes and Ecology approval, and plans for data use, and provide a detailed description of sampling tasks. The SAP shall describe specifications for sample identifiers; sampling equipment; the type, number, and location of samples to be collected; the analyses to be performed; descriptions of the sampling equipment and methods to be used; sample documentation; sample containers, collection and handling procedures; data and records management; and schedule. The sampling plan must not be implemented until approved by Ecology. The plan shall provide 14 days advanced notice to Ecology prior to sampling initiation, whenever possible. Ecology may elect to obtain split samples.

The Quality Assurance Project Plan (QAPP) and any addendum to the QAPP (if a second phase of the RI is necessary) shall be prepared in accordance with the Guidance for Preparation of Quality Assurance Project Plans, EPA Region 10, Quality Data Management Program, QA/R-5 and requirements of the EPA Contract Laboratory Program. The QAPP shall also follow Ecology's Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies (July 2004) and Sediment Sampling and Analysis Plan Appendix (February 2008). These documents can be found at http://www.ecy.wa.gov/pubs/wac173204.pdf and http://www.ecy.wa.gov/biblio/0309043.html respectively. Examples of completed QAPPs can be found at http://www.ecy.wa.gov/biblio/qapp.html. Laboratories must meet the accreditation standards established in Chapter 173-50 WAC. Data quality objectives shall reflect the criteria or threshold values used for the cleanup alternative evaluation.

PLPs or their contractors shall submit all new sampling data generated under this SAP and any other recently collected data to be entered in Ecology's Environmental Information Management System (EIM) in accordance with WAC 173-340-840(5) and Ecology's Toxic Cleanup Program Policy 840: Data Submittal Requirements. Only validated data will be entered into the EIM database.

RI investigation tasks and subtasks will include the following:

- Developing contaminants of concern for the Facility;

- Sampling and analysis of soil, groundwater, seeps, wetlands and river sediments, as necessary to meet the objective of the Remedial Investigation at each SWMU, AOC and adjacent areas of the Columbia River;

- Sampling and analysis of surface and subsurface sediments, as necessary to meet the objective of the Remedial Investigation in the Columbia River; and

- Sampling and analysis of stormwater and catch basins solids, as necessary, to determine whether the stormwater system is a source of contamination to surface water or sediments.

- Evaluating the following pathways for their potential to recontaminate sediments:

    - Direct discharges
    - Stormwater discharges
    - Sheet flow
    - Groundwater discharges and seeps
    - Soil erosion
    - Other activities at the Facility
    - Spills, dumping, leaks, housekeeping, and management practices

The Work Plan shall not be implemented until approved by Ecology. Once approved by Ecology, PLPs shall implement the Work Plan according to the schedule contained in Exhibit F unless schedules contained or revised in the Work Plan are approved by Ecology, in which case the revised schedules shall govern.

PLPs shall coordinate to prepare one document. PLPs shall then jointly submit two (2) copies of the Draft RI Work Plan and any addendum documents, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats to Ecology for review and comment. After receiving Ecology's comments, PLPs shall coordinate to prepare one document. PLPs shall then jointly submit two (2) copies of the revised Draft RI Work Plan and any addendum documents, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats to Ecology for review and comment. After Ecology approval, PLPs shall jointly submit two (2) copies of the final Work Plan and any addendum documents, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats for distribution.

Task 2: Remedial Investigation

PLPs shall conduct an RI that meets the requirements of WAC 173-340-350(7) and WAC 173-204-560 according to the Work Plan approved by Ecology and the schedule contained in Exhibit E. The RI will determine the nature and extent of the contamination exceeding Model Toxics Control Act (MTCA) cleanup levels, appropriate to the proposed land use, maximum contaminant levels and other regulatory requirements. The RI must provide sufficient data and information to define the nature and extent of the contamination.

PLPs must continuously consider and evaluate information regarding releases, suspected releases, or potential releases of hazardous substances, including dangerous waste and dangerous constituents as defined by WAC 173-303-64610(4), at the Facility. If the data collected during this investigation is insufficient to define the full nature and extent of the contamination, an additional phase of investigation shall be conducted to define the nature of the contamination. PLPs shall submit a Work Plan Addendum that addresses the next phase of RI sampling. The Work Plan Addendum will include a Sampling and Analysis Plan, Quality Assurance Plan, and Health and Safety Plan. After submittal of the Work Plan Addendum, PLP shall incorporate

Ecology's comments on the Work Plan Addendum and implement the Plan according to the Schedule. Information received from implementation of the Work Plan Addendum will be incorporated into the draft Final RI/FS Report.

Field sampling and analysis will be completed in accordance with the SAP and QAPP. Deviation(s) from the approved SAP or QAPP must be communicated to Ecology immediately and documented as required by Ecology. If any archaeological resources are discovered during RI field activities including any excavations (although none are anticipated), work must be stopped immediately and Ecology, the Department of Archaeology and Historic Preservation (DAHP) and the Yakama Nation's Cultural Resource Program will be notified by the close of business. In the event of an inadvertent discovery of human remains, work will be immediately halted in the discovery area, the remains will be covered and secured against further disturbance, and the Goldendale Police Department and Klickitat County Medical Examiner will be immediately contacted, along with DAHP and authorized Tribal representatives. If archaeological resources or human remains are discovered at the Facility, a treatment plan by a professional archaeologist shall be developed in consultation with the above listed parties consistent with RCW 27.44 and RCW 27.53 and implemented according to WAC 25-48.

PLP shall provide interim data reports and updates to Ecology as new data from each SWMU and AOC becomes available. Laboratory data shall be provided in electronic format as it becomes available and has been validated.

During SWMU and AOC investigations, remedial actions might be identified that, if taken, will reduce or eliminate contamination in the SWMU or AOC or sources of contamination to the Columbia River. Ecology will determine if the remedial actions identified should be implemented prior to completion of the RI and FS. Remedial actions implemented prior to completion of the RI and FS will be considered interim actions and will be implemented in accordance with WAC 173-340-430 and the AO. Remedial actions for contaminated sediments will be designated partial cleanup actions and will be implemented pursuant to WAC 173-204-550(3)(d). Should an interim action be identified and required under the AO, Ecology will request a work plan for approval and implementation (see Task 3).

PLPs shall compile the results of the SWMU and AOC investigations into a Draft RI Report. PLPs shall coordinate to prepare one document. PLPs shall jointly prepare two (2) copies of the draft RI Report and submit them, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats, to Ecology for review and comment. After addressing Ecology's comments on the draft report, PLPs shall jointly prepare two (2) copies of the final draft RI Report and submit them to Ecology for distribution and public comment. Electronic survey data for monitoring locations, electronic lab data, and GIS maps of contaminant distribution shall also be provided for both the draft and final reports.

If the data collected during this investigation is insufficient to define the full nature and extent of contamination, an additional phase of investigation shall be conducted to define the extent of contamination.

Task 3: Interim Actions.

Remedial actions completed prior to the completion of the RI and FS that:

- Are technically necessary to reduce a threat to human health or the environment by eliminating or substantially reducing one or more pathways for exposure to a hazardous substance;

- Correct a problem that may become substantially worse or cost substantially more to address if the remedial action is delayed; or

- Are needed to provide for completion of the remedial investigation and feasibility study or design of the cleanup action

will be considered interim actions, will be implemented in accordance with WAC 173-340-430 and the AO, and will designed in a manner that will not foreclose reasonable alternatives for any final action that may be required.

If required by Ecology, or if proposed by NSC or Lockheed Martin and approved by Ecology, the PLPs will implement an interim action. Based on information in the draft RI Report, interim action(s) may be needed to expedite control of impacts to public health and releases to sediments or other environmental media pursuant to WAC 173-340-430.

The scope of the interim actions may include, but not be limited to, typical source control or containment elements such as:

- Soil or sediment removal
- Groundwater remediation
- Repair, slip lining, replacement, or closure of stormwater conveyances or other structures such as conduit, vaults, catch basins, etc.
- Removal of underground storage tanks and pipes
- Removal of old drain fields or former surface impoundments
- Proper abandonment of old wells
- Removal of contaminated building or other structural material
- Construction of a treatment facility
- Shoreline stabilization such as bulkhead repair, erosion or seepage control, and grading or clearing

If an interim action is to be performed, PLPs will prepare and submit to Ecology for approval a draft Interim Action Work Plan (IAWP) with detail commensurate with the work to be performed. The draft IAWP shall include, as appropriate:

- Description of the interim action including its purpose, general requirements, and relationship to the final cleanup action to the extent known at the time of the project;

- Summary of the relevant RI and FS information, including at a minimum existing SWMU or AOC conditions and alternative interim actions considered;

- Information regarding design and construction requirements, including a proposed schedule, personnel roles, and personnel responsibilities;

- Compliance monitoring plan;

- SAP/QAPP

PLPs shall also submit a copy of the Health and Safety Plan for the project.

Once approved by Ecology, PLPs shall implement the interim action according to the schedule contained in the IAWP.

PLPs shall coordinate to prepare one document. PLPs shall jointly prepare two (2) copies of the draft IAWP Report and submit them, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats, to Ecology for review and approval. After Ecology approval, PLPs shall jointly prepare two (2) copies of the final draft IAWP Report and submit them to Ecology for distribution and public comment. Electronic survey data for monitoring locations, electronic lab

data, and GIS maps of contaminant distribution shall also be provided for both the draft and final reports.

Upon successful completion of the interim action work, an Interim Action Report will be prepared as a separate deliverable. PLPs shall jointly prepare two (2) copies of the Interim Action Report and submit them, including one electronic copy each in Word and Adobe format to Ecology for review and comment. After addressing Ecology's comments on the Interim Action Report and after Ecology approval, PLPs shall jointly prepare two (2) final copies of the Interim Action Report, including one electronic copy in Word (.doc) and Adobe (.pdf) format.

Task 4: Feasibility Study

PLPs shall use the information obtained in the RI to prepare a Feasibility Study (FS) that meets the requirements of WAC 173-340-350(8) according to the approved Work Plan and schedule (Exhibit E).

The FS Report will evaluate remedial alternatives for each SWMU and AOC, consistent with MTCA requirements to ensure protection of human health and the environment by eliminating, reducing, or otherwise controlling risk posed through each exposure pathway and migration route at the facility.

The FS Report will provide a detailed analysis of each remedial alternative according to the applicable requirements of WAC 173-340-350, MTCA Remedial Investigation and Feasibility Study, and WAC 173-204-560, SMS Cleanup Study. The remedial alternatives will be evaluated for compliance with the applicable requirements of WAC 173-340-360, Selection of Cleanup Actions, and WAC 173-204-560(4), including a detailed evaluation of remedial alternatives relative to the following criteria:

- Compliance with cleanup standards and applicable laws
- Protection of human health
- Protection of the environment
- Provision for a reasonable restoration time frame
- Use of permanent solutions to the maximum extent practicable
- The degree to which recycling, reuse, and waste minimization are employed
- Short-term effectiveness
- Long-term effectiveness
- Net environmental benefit
- Implementability
- Provision for compliance monitoring
- Cost effectiveness
- Prospective community acceptance

The remedial alternative that is judged to best satisfy the evaluation criteria will be identified. Justification for the selection, including a disproportionate cost analysis of the different cleanup alternatives, will be provided and the recommended alternative further developed in the FS Report.

PLPs shall coordinate to prepare one document. PLPs shall jointly prepare two (2) copies of the draft FS Report and draft final FS Report and submit them, including one electronic copy in Word (.doc) and Adobe (.pdf) formats, to Ecology for review and comment.

After addressing Ecology comments on the draft FS Report and draft final FS Report, and after Ecology approval, PLPs shall jointly prepare two (2) copies of the draft final FS Report and submit them, including one electronic copy each in Word (.doc) and Adobe (.pdf) formats to Ecology for distribution and public comment.

Task 5: Prepare Draft Cleanup Action Plan

Upon Ecology approval of the draft RI Report and draft FS Report, PLPs shall prepare a draft Cleanup Action Plan (DCAP) in accordance with WAC 173-340-380 that provides a proposed remedial action to address the contamination present at each of the SWMUs and AOCs. Where contaminated sediments are included in the remedial action, the cleanup plan will comply with WAC 173-204-580, in addition to the MTCA requirements cited above.

The DCAP shall include a general description of the proposed remedial actions, cleanup standards developed from the RI and FS and the rationale used in the selection, a schedule for implementation, description of any institutional controls proposed, and a summary of the applicable local, state, and federal laws pertinent to the proposed cleanup actions.

PLPs shall submit a Draft Cleanup Action Plan. The DCAP shall include, but not be limited to, the information listed under WAC 173-340-380. PLPs shall coordinate to prepare one document. PLPs shall jointly prepare two (2) copies of the DCAP and submit them, including one electronic copy in Word (.doc) and Adobe (.pdf) formats.

Task 6: Progress Reports

PLPs shall submit progress reports monthly. Progress Reports shall be submitted to Ecology until the satisfaction of the Agreed Order in accordance with Section VII of the Agreed Order. Progress Reports shall be submitted to the Ecology project coordinator by the 15th of the month following the reporting month. If this day is a weekend or holiday, deliverables will be submitted to Ecology on the next business day. At a minimum, progress reports shall contain the following information regarding the preceding reporting period:

- A description of the actions which have been taken to comply with the AO.
- Summaries of sampling and testing reports and other data reports received by PLPs.
- Summaries of deviations from approved work plans.
- Summaries of contacts with representatives of the local community, public interest groups, press, and federal, state, or tribal governments
- Summaries of problems or anticipated problems in meeting the schedule or objectives set forth in the SOW and Work Plan

- Summaries of solutions developed and implemented or planned to address any actual or anticipated problems or delays
- Changes in key personnel
- A description of work planned for the next reporting period.

EXHIBIT F
SCHEDULE OF DELIVERALBES

The schedule for deliverables described in Exhibit C of this Agreed Order is summarized below to complete the RI, FS, and DCAP. If at any time during the RI/FS/DCAP process, unanticipated conditions or changed circumstances are discovered which might result in a schedule delay, PLPs shall bring such information to the attention of Ecology. Ecology will determine whether a schedule extension is warranted under the Agreed Order. Any completion times that fall on a holiday or weekend will extend to the next working day.

Deliverable	Date
Progress Reports	15th of each month beginning 30 days after the effective date of the AO
Draft Remedial Investigation (RI) Work Plan – Phase 1, including SWMU and AOC history and conditions; project background; a conceptual site model; contaminant migration pathways; and Independent remedial action report	Within one hundred and forty (140) days of the effective date of the AO
Draft Remedial Investigation (RI) Work Plan – Phase 2, including Sampling and Analysis Plan, Quality Assurance Project Plan, Health and Safety Plan, Cultural Resource Protocol, and Independent remedial action report	Within sixty (60) days following Ecology's comments on draft RI Work Plan - Phase 1
Final RI Work Plan	Within thirty (30) days of receiving Ecology's written comments on the Revised Draft RI Work Plan
Draft RI Report	Within ninety (90) days of completion of RI field activities
Work Plan Addendum, including Sampling and Analysis Plan, Quality Assurance Project Plan, Health and Safety Plan, Cultural Resource Protocol (if needed)	Within sixty (60) days of Ecology's written notification that a Work Plan Addendum is necessary and identifying data gaps in the RI
Implement Work Plan Addendum (if needed)	Within thirty (30) days of Ecology approval of Work Plan Addendum
Revised Draft RI Report incorporating Work Plan Addendum RI field activities (if needed)	Within sixty (60) days of completing Work Plan Addendum RI field activities
Final Draft RI Report incorporating Work Plan Addendum RI field activities	• If Work Plan Addendum is required: Within forty-five (45) days of receiving Ecology's written

	comments on Revised Draft RI/FS Report • If Work Plan Addendum is not required: Within forty five (45) days of receiving Ecology's written comments on the draft RI report.
Draft FS Report	Within ninety (90) days of Final Draft RI Report
Final Draft FS Report	Within thirty (30) days of receiving Ecology's written comments on Draft Final RI/FS Report
EIM Data Submittal	Submit ninety (90) days following receipt of final data reports from laboratories
Draft Interim Action Work Plan	Within ninety (90) days of Ecology's written notification that an Interim Action is necessary
Final Interim Action Work Plan	Within forty-five (45) days of receiving Ecology's written comments on the draft Interim Action Work Plan
Initiate implementation of Interim Action	Within sixty (60) days of Ecology's approval of the Final Interim Action Work Plan
Draft Cleanup Action Plan (DCAP)	Within sixty (60) days of completion of final FS Report

EXHIBIT G
APPLICABLE PERMITS

- Chapter 70.105D RCW (Model Toxics Control Act), and Chapter 173-340 WAC (MTCA Regulations);
- Chapter 70.105 RCW (Washington State Hazardous Waste Management Act), and Chapter173-303 WAC (State Dangerous Waste Regulations);
- Chapter 90.48 RCW (State Water Pollution Control Act);
- Chapter 70.95 RCW (Solid Waste Management – Reduction and Recycling);
- Chapter 70.94 RCW (Washington Clean Air Act);
- Chapter 173-160 RCW (Minimum Standards for Construction and Maintenance of Wells);
- Chapter 43.21C RCW (State Environmental Policy Act), and Chapter 197-11 WAC (State Environmental Policy Act Rules);
- Washington Industrial Safety and Health Act (WISHA);
- Klickitat County Building Code – Chapter 70 (Uniform Building Code – Excavation and Grading);
- Klickitat County Health Department (Waste Disposal Authorization).
- National Pollution Discharge Elimination System (NPDES) Permit WA 000054-0;
- Klickitat County Building Permit Department, Demolition Permit MIS11-0001 (expires May 2014)