

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF REMEDIAL ACTION BY:

The Boeing Company
Boeing Commercial Airplanes – Everett Plant
3003 West Casino Road
Everett, WA 98203

THIRD AMENDMENT TO
AGREED ORDER NO.
DE 96HS-N274

To: The Boeing Company
c/o Kirk J. Thomson
Company Environmental Director
33-08 Building MC 7A-UU
2610 160th SE
Bellevue, WA 98008

I.

INTRODUCTION

Agreed Order No. DE 96HS-N274 (“Order”) entered into by the Department of Ecology (“Ecology”) and The Boeing Company (“The Boeing Company”) on February 12, 1997, as amended on October 22, 1998 (“First Amendment”) and as amended on July 26, 2004 (“Second Amendment”), requires that The Boeing Company perform a Remedial Investigation, Feasibility Study (“RI/FS”) and certain interim actions at the Boeing Commercial Airplanes, Everett Plant (“Facility”).

By this Third Amendment to Agreed Order No. DE 96HS-N274 (“Third Amendment”), Ecology requires The Boeing Company to perform the following two additional interim actions: (1) remove freshwater sediments containing PCBs to the extent and in accordance with the Engineering Design Report; and (2) conduct groundwater remediation to remove chlorinated solvents within the Esperance Sand Aquifer, to the extent and in accordance with the Source Area Interim Action Work Plan. These interim actions, the scope of which is described in this

Amendment and Exhibits hereto, are to be completed prior to implementation of a final cleanup action; however, during subsequent completion of Feasibility Studies and a Cleanup Action Plan, Ecology may determine that the interim actions satisfy, in part or in full, the final cleanup action.

I.

JURISDICTION

This amendment to the Order is issued pursuant to the authority of RCW 70.105D.050 (1) and WAC 173-303-64630.

II.

FINDINGS OF FACT

Ecology makes the following Findings of Fact in addition to those Findings set forth in the Order and the Second Amendments to the Order, without admission or agreement of the accuracy or completeness of such facts by The Boeing Company:

Work performed under the Second Amendment confirmed and further delineated the extent of dangerous constituents at and/or from the Facility, including chlorinated solvents in groundwater within the Esperance Sand Aquifer, chlorinated solvents in surface waters of Powder Mill Creek, and PCBs, polyaromatic hydrocarbons (PAHs), and metals in Powder Mill Creek and associated wetlands.

1. Chlorinated Solvents in Groundwater and Surface Water

Additional groundwater investigations in 2004, 2005, and 2006, conducted pursuant to the Remedial Investigation (“RI”), have identified: (1) elevated concentrations of trichloroethylene (TCE) (up to 31,000 ppb) and vinyl chloride (up to 17.8 ppb) in the Esperance Sand Aquifer beneath the Boeing Everett stormwater detention basin; (2) elevated concentrations of TCE (up to 3,000 ppb) and vinyl chloride (up to 1.5 ppb) at points between the area directly downgradient of the detention basin and Seaway Blvd. and (3) elevated concentrations of TCE (up to 1120 ppb) at points offsite and upward of 1600 feet downgradient of the Boeing Everett northern property boundary. These detected TCE and vinyl chloride groundwater concentrations are all above Model Toxics Control Act (MTCA) Method B cleanup levels for potable

groundwater, which levels were used as screening levels during the course of the Remedial Investigation. In 2004, 2005, and 2006, TCE was also detected in Powder Mill Creek at concentrations up to 38 ppb on the Boeing Everett property and up to 26 ppb off site and downstream of the Boeing Everett northern property boundary. In 2005 and 2006, TCE was also detected in seeps discharging to Powder Mill Creek at concentrations up to 390 ppb off site and downstream of the Boeing Everett northern property boundary. These detected TCE concentrations in surface water and seeps are above the MTCA Method B surface water cleanup level, which level was used as a screening level during the course of the RI.

Site specific cleanup levels protective of human health and the environment have not yet been established at the Facility for the interim or final cleanup action for volatile organic compounds in Esperance Sand groundwater beneath, or surface water within, Powder Mill Creek.

2. PCBs in Sediments.

In compliance with the Toxic Substances Control Act (“TSCA”), the Facility removed PCB-containing joint compound material from the Flightline, which is located on the southwest side of the Facility. The removal of PCB-containing sealant in areas subject to stormwater, which was required and approved by the U.S. Environmental Protection Agency, Region 10, was completed by December 31, 2005. Removal of PCB-containing joint compound from the Flightline removed a significant source of PCBs to Powder Mill Creek and associated wetlands.

After work was initiated under the Second Amendment, additional polychlorinated biphenyls (PCB) data were collected within the sediments and surface waters of Powder Mill Creek, associated wetlands, and the accumulated solids of the stormwater detention basin and sedimentation basin.

The RI and additional investigation conducted in 2004, 2005, and 2006 detected concentrations of PCBs in freshwater sediments in Powder Mill Creek above the RI screening level of 21 ppb. The highest concentrations were detected near the detention basin discharge point and lower concentrations were detected in downstream portions of the Creek and at the mouth of the Creek. RI data indicates that PCBs have migrated and are migrating downstream

from the detention basin discharge point at the head waters of Powder Mill Creek. Areas and media where PCBs have been detected are: (1) accumulated solids in the Facility's paved detention basin and sedimentation basin; (2) accumulated solids in the concrete stilling basin spillway at the outlet of the detention basin; (3) accumulated solids in the peat filter portion of the stormwater treatment system; (4) sediment in the upper and lower Powder Mill Creek associated wetlands on The Boeing Company property ; (5) sediment in Powder Mill Creek on and downstream of the Boeing Company property; and (6) surface water in Powder Mill Creek on and downstream of the Boeing Company property. In addition, one or more of the following constituents were detected in solids collected from the detention and sedimentation basins and within the freshwater sediments in the upstream portions of Powder Mill Creek: chromium, lead, barium, zinc, copper, carcinogenic and non-carcinogenic polyaromatic hydrocarbons (cPAHs and PAHs).

III.

ECOLOGY DETERMINATIONS

In addition to the determinations contained in the Order, Ecology makes the following determinations:

1. Ecology has determined that Additional Work in the form of certain interim actions, as described herein, is necessary. Ecology specified the basis for this determination in writing to The Boeing Company by certified letters dated August 19, 2005 and November 28, 2005.

2. Based on the foregoing facts, Ecology believes the additional work to be performed as required by this Third Amendment is in the public interest.

3. Based on all information known to Ecology, Ecology has determined that the additional interim actions required by this Third Amendment are technically necessary to reduce a threat to human health or the environment by substantially reducing one or more pathways for exposure, to correct a problem that may become substantially worse or cost substantially more to

address if remedial action is delayed, and to help provide for completion of an RI/FS or design of a cleanup action. WAC 173-340-430(1).

4. RCW 70.105D.030(2)(a) requires that, at a minimum, this Third Amendment be subject to concurrent public notice. Ecology shall be responsible for providing such public notice and reserves the right to modify or withdraw any provisions of this Third Amendment should public comment disclose facts or considerations which indicate to Ecology that the Third Amendment is inadequate or improper in any respect.

V.

AMENDMENT

This Third Amendment does not attempt to recite all of the provisions of the Order, First Amendment or Second Amendment. Provisions of the Order, First Amendment, and Second Amendment not specifically addressed in this amendment remain in full force and effect.

By entering into this Third Amendment, The Boeing Company makes no admissions of fact or law.

The Order is hereby amended to incorporate the following information and requirements:

1. Section IV, paragraph 11 is amended to include subsections (L), (M), (N), (O), (P), and (Q) as follows:

- (L) URS, June 15, 2005, Section 21 Powder Mill Gulch Groundwater Remedial Investigation Report, Volume 1 (Revision 3.0)
- (M) URS, September 7, 2005, Draft Interim Action Workplan, Sediment Removal in Powder Mill Creek.
- (N) Landau Associates, September 27, 2005, PMG Source Area Characterization Draft Results Letter Report.
- (O) Landau Associates, October 3, 2005, PMG Source Area Characterization Draft Results – ARI Split Samples Letter Report.
- (P) URS, September 26, 2005, Monitoring Results for Stormwater, Surface Water, Accumulated Solids and sediments in the Stormwater Storage and Treatment System, Powder Mill Gulch, BCA Everett Plant
- (Q) URS, January 11, 2005, 2005 PMG Surface Water & Stormwater Sampling Data Excel tables.

2. Attachment 6 to the Order is amended, by insertion of the following language, to incorporate SWMU/AOC No. 180, but the timeframes within which all work plans are to be submitted for SWMU/AOC 180 will be determined according to this Third amendment:

8. No. 180 Chlorinated Solvent Contamination in Groundwater within Esperance Sand Aquifer and Powder Mill Creek

3. Attachment 6A is amended to incorporate the following additional requirements:

PCB Source Control Interim Action (No. 181)

The Boeing Company will conduct an interim action consistent with the scope of work presented in the Draft Engineering Design Report, designed to remove PCB-contaminated freshwater sediments within Powder Mill Creek/Gulch in an area from the detention basin spillway to approximately 120 feet downstream of the spillway which Draft Engineering Design Report is attached as Exhibit A to this Third Amendment. The Boeing Company shall submit to Ecology the Final Engineering Design Report, according to the content requirements and schedule in this Third Amendment. Upon Ecology's review and approval of the Final Engineering Design Report, The Boeing Company shall then perform the interim action in accordance with any applicable Ecology-approved documents contained herein as of the date of this Amendment and the schedule provided in this subsection, unless Ecology approves an extension in writing.

- Within **30-calendar days** after receipt of Ecology's comments on the Draft Engineering Design Report, The Boeing Company shall submit to Ecology the Final Engineering Design Report, which addresses Ecology's comments, for Ecology's approval. The Final Engineering Design Report shall consist of at a minimum, all of the following: engineering documents, reports and drawings; procedures to conduct this interim action; dangerous waste and residual management procedures; implementation, construction and reporting schedules; construction plans and specifications; work plans for post-construction monitoring and reporting thereafter; and other general project schedules. Ecology will approve or reject the Engineering Design Report. If the Final Engineering Design Report is approved, The Boeing Company will implement the interim action as provided in the Final Engineering Design Report. If rejected, the parties shall meet to discuss the changes deemed necessary by Ecology.
- Performance of sediment removal activities that are a part of this interim action (the "Sediment Removal") must be completed no later than **September 30, 2006** (the "Sediment Removal Completion Date"); provided, however, that completion is

conditional upon Ecology approving the Sediment Removal component of the Final Engineering Design Report by no later than June 5, 2006. In the event Ecology does not approve the Sediment Removal component of the Final Engineering Design Report by June 5, 2006, then the Sediment Removal Completion Date shall be extended by one (1) day for every day thereafter until Ecology provides final approval. For example, if Ecology approves the Sediment Removal component of the Final Engineering Design Report on June 15, 2006, the Sediment Removal Completion Date shall be extended to October 10, 2006. Notwithstanding the provisions of this paragraph, in the event Ecology does not approve the Sediment Removal component of the Final Engineering Design Report by June 25, 2006, then The Boeing Company may, at its option, postpone the PCB Source Control Interim Action (No. 181) until a mutually agreeable date, and pursuant to a mutually agreeable schedule, in 2007. Boeing and Ecology agree to use their best efforts to reach agreement on the Sediment Removal component of the Final Engineering Design Report so Ecology can approve it by June 5, 2006. All aspects of construction shall be performed per WAC 173-340-400(6)(b) and in accordance with the Ecology approved Final Engineering design report.

- **Within 90-calendar days** of completion of the interim action, The Boeing Company shall submit to Ecology a completion report for the interim action. This report shall include at a minimum all of the following: final drawings, tabulated data, laboratory data summary sheets, quality assurance and quality control (QA/QC) narrative, a narrative describing the interim action performed and results of sampling during and post-construction, plans for post-interim action monitoring, and operation and maintenance plans and procedures.

Chlorinated Solvent Contaminated Groundwater Interim Action: (No. 180)

The Boeing Company will conduct an interim action for source control of TCE in groundwater consistent with the scope of work presented in the Draft Source Area Interim Action Work Plan, attached hereto as Exhibit B. This work plan will address an interim action for source control of chlorinated solvents in groundwater within the Esperance Sand Aquifer, through the installation, testing and use of in-situ electrode wells to volatilize chlorinated solvents within the source area, vapor extraction systems to capture the chlorinated solvent generated vapors, and contingency use of injection wells to enhance bioremediation within the source area. Upon Ecology's review and approval of the work plan, The Boeing Company shall perform the interim action in accordance with any applicable Ecology-approved documents and the schedule contained herein, unless Ecology approves an extension in writing.

- **Within 30-calendar days** after receipt of Ecology's comments on the Draft Source Area Interim Action Work Plan, The Boeing Company shall submit to Ecology the Final Source Area Interim Action Work Plan, which shall address Ecology's comments, for Ecology's approval. The Final Source Area Interim Action Work Plan will include, at a minimum, all of the following: engineering documents, reports and drawings; dangerous waste and residual management procedures; construction plans

and specifications; operation and maintenance plans and procedures; testing plans and procedures; construction and reporting schedules; plans for post-construction monitoring; general project schedule/timelines and contingency plans for less than acceptable treatment results. Ecology will approve or reject the Final Source Area Interim Action Work Plan. If the Final Source Area Interim Action Work Plan is approved, The Boeing Company will implement the interim action as provided in the plan. If the plan is rejected, the parties shall meet to discuss the changes deemed necessary by Ecology.

- The construction and testing of the in-situ electrode wells and associated power control units at the source area (inside the detention basin) and the initiation of in-situ heating and vapor recovery (collectively, the “Equipment Installation Work”) must be completed no later than September 30, 2006 (the “Equipment Installation Completion Date”); provided, however, that completion is conditional upon Ecology providing final approval of the Final Source Area Interim Action Work Plan by no later than June 5, 2006. In the event Ecology does not provide final approval of the Final Source Area Interim Action Work Plan by June 5, 2006, then the schedule for the Final Source Area Interim Action Work Plan shall be extended by one (1) day for every day thereafter until Ecology provides final approval. Notwithstanding the provisions of this paragraph, in the event Ecology does not approve the Final Source Area Interim Action Work Plan by June 25, 2006, The Boeing Company may, at its option, postpone the “Chlorinated Solvent Contaminated Groundwater Interim Action: (No. 180)” until a mutually agreeable date, and pursuant to a mutually agreeable schedule, in 2007. Boeing and Ecology agree to use their best efforts to reach agreement on the Final Source Area Interim Action Work Plan so Ecology can approve it by June 5, 2006. All aspects of construction shall be performed per WAC 173-340-400(6)(b) and in accordance with the Ecology approved Final Source Area Interim Action Work Plan.

4. All actions carried out by The Boeing Company pursuant to this Third Amendment 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. Pursuant to RCW 70.105D.090(1), The Boeing Company is 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, The Boeing Company shall comply with the substantive requirements of such permits or approvals. The permits or specific federal, state or local requirements that are applicable and the exempt permits or approvals and the applicable substantive requirements of those permits or approvals, as they are known at the time of entry of this Third Amendment, have been identified by The Boeing Company in Exhibit C.

The Boeing Company has 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 Third Amendment. In the event either Ecology or The Boeing Company determines that additional permits or approvals addressed in RCW 70.105D.090(1) would otherwise be required for the remedial action under this Third Amendment, it shall promptly notify the other party of its determination. Ecology shall determine whether Ecology or The Boeing Company shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, The Boeing Company 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 The Boeing Company and on how The Boeing Company must meet those requirements. Ecology shall inform The Boeing Company in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Third Amendment. The Boeing Company shall not begin or continue the remedial action potentially subject to the additional requirements until Ecology makes its final determination.

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 which is necessary for the state to administer any federal law, the exemption shall not apply and The Boeing Company 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.

5. With respect to the implementation of this Third Amendment, The Boeing Company shall make the results of all sampling, laboratory reports, and/or test results generated by it or on its 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 V (Amendment), Ecology's Toxics Cleanup Program Policy 840 (Data Submittal Requirements), and/or any subsequent procedures specified by Ecology for data submittal.

6. Section VII.14(1) is amended as follows:

(1) Unforeseeable circumstances beyond the reasonable control of The Boeing Company or any person or entity controlled by The Boeing Company that delays or prevents the timely performance of any obligations under this order, including unknown site conditions, adverse weather conditions, delayed site access authorization, requests for additional work by federal, state or local agencies, delayed receipt of permits, delayed comments or input from State or local agencies, despite The Boeing Company's best efforts to fulfill the obligations; or

7. Section VII.4 (Page 23, lines 12-13) is amended as follows: “. . . The Boeing Company, within ten (10) days after receipt of Ecology's comments or required modifications, may request. . . .”

8. Section VII.10(B) (Page 28, lines 12-13) is amended as follows: “This request shall be submitted in writing to the Program manager within ten (10) days of receipt of the Ecology Project Coordinator's letter of disapproval.”

EFFECTIVE DATE of this Third Amendment: _____.

THE BOEING COMPANY, by, through,
and for its BOEING COMMERCIAL
AIRPLANE GROUP - EVERETT PLANT

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Kirk J. Thomson
Company Environmental Director

Julie Sellick, Section Manager
Hazardous Waste and Toxics Reduction
Northwest Regional Office

Date: _____

Date: _____