STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

In the Matter of Remedial Action by:	AGREED ORDER
The Boeing Company Developmental Center 9725 East Marginal Way South Tukwila, Washington	No. DE 16275

TO: The Boeing Company
c/o Mr. Steven Shestag
Director, Environment
Environment, Health & Safety
PO Box 3707, M/C 9U4-08
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TABLE OF CONTENTS

EXHIBIT C: Scope of Work and Schedule
EXHIBIT D: Interim Action Work Plan
EXHIBIT E: SEPA Checklist for Interim Action
EXHIBIT F: SEPA DNS for Interim Action

I. INTRODUCTION

The mutual objective of the State of Washington, Department of Ecology (Ecology) and The Boeing Company (Boeing) under this Agreed Order (Order) is to assess investigation and remediation implemented to date at a facility where there has been a release or threatened release of hazardous substances and, provide for additional investigation and remedial action. This Order requires Boeing to complete a remedial investigation (RI), Feasibility Study (FS), implement the Interim Action Work Plan, and prepare a preliminary draft cleanup action plan (DCAP) at the Boeing Developmental Center facility. Ecology believes the actions required by this Order are in the public interest.

II. JURISDICTION

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

III. PARTIES BOUND

This Agreed Order shall apply to and be binding upon the Parties to this Order, 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 the Order. Boeing agrees to undertake all actions required by the terms and conditions of this Order. No change in ownership or corporate status shall alter Boeing's responsibility under this Order. Boeing 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 RCW 70.105D and WAC 173-340 shall control the meanings of the terms used in this Order.

A. Additional Work: Any activity or requirement not expressly covered by this Order, but determined by Ecology and Boeing to be necessary to meet objectives of this Order. If the "additional work" results in a substantial change to the work to be performed, it shall be necessary to amend this Order pursuant to Section VIII.J (Amendment of Order).

B. 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.

C. 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.

D. Cleanup Action Plan (CAP): Refers to the document issued by Ecology under WAC 173-340-380 that selects Facility-specific corrective measures and specifies cleanup standards (cleanup levels, points of compliance, and other requirements for the corrective measures).

E. 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.

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

G. 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 WAC 173-340,

including WAC 173-340-360. Corrective measures may include interim actions as defined by WAC 173-340. Interim actions will not necessarily be set forth in a Facility-specific CAP.

H. 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 WAC 173-303; and any constituent defined as a hazardous substance under RCW 70.105D.020(13).

I. 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).

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

K. 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.

L. Facility: Refers to the property known as the Boeing Developmental Center, shown in the Facility Location Diagram (Exhibit A), and generally located at 9725 East Marginal Way South, Tukwila, Washington. Based upon factors currently known to Ecology, the Facility constitutes as all property contiguous to the Boeing Developmental Center also controlled by Boeing; 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).

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

N. Parties: Refers to the State of Washington, Department of Ecology, and The Boeing Company.

O. Potentially Liable Person (PLP): Refers to The Boeing Company.

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

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

R. RCRA Facility Assessment (RFA): Refers to the EPA conducted investigation of release(s) and potential release(s) at the Dangerous Waste Management Facility and the information contained in the report entitled *RCRA Facility Assessment Report for Boeing Developmental Center, Tukwila, Washington,* prepared for U.S. Environmental Protection Agency, prepared by Science Applications International Corporation, September 1994 (RFA Report). The RFA Report is incorporated into this Order by this reference as if fully set forth herein.

S. 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(32).

T. Remedial Investigation (RI): Refers to a facility-wide investigation and characterization performed in accordance with the requirements of WAC 173-340 and the RI/FS Scope of Work attached to this Order, which includes the substantive requirements for a RCRA

Facility Investigation (RFI), undertaken in whole or in part to fulfill the corrective action requirements of WAC 173-303-64620.

U. Site: Used interchangeably in this document with the term "Facility."

V. 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 WAC 173-303.

V. FINDINGS OF FACT

Ecology makes the following Findings of Fact, without any express or implied admissions of such facts by Boeing:

A. Boeing is and has been the operator or owner of the Developmental Center since on or about 1956. Boeing currently owns or leases, and operates the Boeing Developmental Center.

B. Boeing operated the Boeing Developmental Center 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 WAC 173-303.

C. On August 15, 1980, Boeing notified EPA of its dangerous waste management activities. In the notification, Boeing identified itself as managing the following dangerous wastes at the Developmental Center: F001 and F002 (halogenated solvents such as tetrachloroethylene, trichloroethylene, etc.), F003 and F005 (nonhalogenated solvents such as benzene, xylene, toluene, ethylbenzene, etc.), F007, F008 and F009 (cyanide from electroplating operations), F017 (paint residues), D001 (ignitable), D002 (corrosive), D003 (reactive), and D000 (toxic chemicals listed

in WAC 173-303-090(8)). Since the first notification, Boeing has revised the Dangerous Waste Activity Notification six times, and the following dangerous wastes codes were added: D005 (barium), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), D010 (selenium), D011 (silver), D018 (benzene), D026 (cresol), D035 (methyl ethyl ketone), D039 (tetrachloroethylene), W001 (PCBs), WL01 and WL02 (labpack), WT01 and WT02 (State-only toxic wastes), WC01 and WC02 (State-only carcinogenic wastes), WP01 and WP02 (State-only halogenated organic wastes), and U075 (dichlorodifluoromethane). Also, Boeing reported approximately 2.5 million pounds of dangerous wastes generated from the Site on the 1988 revised notification, and approximately 30 million pounds of contaminated groundwater on the 1994 revised notification.

D. Pursuant to the August 15, 1980 first Dangerous Waste Activity Notification, Boeing was issued identification number WAD 093639946 by EPA.

E. On November 18, 1980, Boeing submitted to EPA Part A of the RCRA permit application. In the Part A application, Boeing identified itself as managing the following dangerous wastes at the Boeing Developmental Center: F001, F002, F003, F005, F007 and F009. Approximately 660,000 pounds of hazardous wastes per year was reported on this form, along with a storage capacity of 22,000 gallons in containers and 5,000 gallons in tanks.

Boeing has amended Part A of the dangerous waste permit application three times. The Part A permit was revised in April 1985 increasing the annual waste quantity generated at the Site to 1,017,000 pounds. The waste amount was reduced to 488,000 pounds and the tank storage was removed from the Part A permit revised in April 1988. Boeing submitted another revised Part A permit in 2002 to update the property boundary since the northeast corner parcel was transferred to the King County Museum of Flight.

F. All interim status container storage areas in Buildings 9-50, 9-60 and 9-69/70 and an aboveground storage tank near Building 9-101 were properly closed, and Ecology accepted the final closure certification in September 1997. Currently, Boeing Developmental Center Facility

operates as a large quantity generator since all RCRA treatment, storage and disposal (TSD) units were closed. However, the Facility's interim status will not be terminated until the RCRA corrective action is completed.

G. In September 1994, EPA performed an RFA at the Boeing Developmental Center Facility. The purpose of the RFA is to identify those areas at the Dangerous Waste Management Facility where release(s) of hazardous substances, as defined in RCW 70.105D.020(13), may have occurred or may be occurring. The RFA identified 157 solid waste management units (SWMUs) and 5 areas of concern (AOCs). Release(s) and/or potential release(s) of hazardous substances including, but not limited to petroleum hydrocarbons, volatile organic compounds, and metals from SWMUs and AOCs at the Dangerous Waste Management Facility are documented in the RFA Report

H. Pursuant to the RFA Report and other information, the following 4 SWMUs and 5 AOCs were identified for further action: SWMU-16 (waste container storage area), SWMU-17 (UST DC-5), SWMU-20 (degreaser pit), SWMU-43 (stormwater sewer system), AOC-01/02 (USTs DC-14 and DC-13), AOC-03/04 (USTs DC-20 and DC-21) and AOC-05 (UST DC-1). The following reports summarize the independent cleanup work conducted before Boeing applied for the VCP in 1999, and cleanup work conducted under the VCP at SWMU-16, SWMU-17, SWMU-20, AOC-01/02, AOC-03/04 and AOC-05: 1) *Summary Report Corrective Action Boeing Developmental Center,* prepared by Landau Associates, February 27, 2002; 2) *2017 Annual Report AOC-05 Remedial Action Enhanced Anaerobic Bioremediation of Gasoline-Range Petroleum Hydrocarbon,* Boeing Developmental Center, June 15, 2018, prepared by Landau Associates; 3) *2017 Annual Report SWMU-17 Remedial Action Enhanced Anaerobic Bioremediation,* Boeing Developmental Center, March 27, 2018, prepared by Landau Associates; and 4) Semiannual Groundwater Monitoring Reports, including the most recent *May 2018 Semiannual Groundwater Monitoring Report,* dated July 16, 2018, prepared by Landau Associates.

a. SWMU-16 is a former dangerous waste container storage area located in and adjacent to Building 9-69/70.

i. In 1996, the building structure was removed, and concrete slab, surface soil, and soils beneath the concrete slab and asphalt area were sampled. The soil samples contained volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), metals and PCBs. Approximately 800 cubic yards of contaminated soils were excavated.

ii. After the excavation, confirmation soil samples were collected from the bottom and side walls of the excavation, and VOCs, cPAHs, PCBs and metals were still detected. Additional soil was excavated from the PCB detected area, and three confirmation soil samples were collected. Two of three samples contained PCBs, and the average concentration of the two samples was 0.33 mg/kg.

iii. During closure of this container storage area, soil was excavated beyond the boundaries of the storage unit. At the easternmost edge of the excavation, PCB was detected in soil (7.1 mg/kg). In 2001, groundwater was sampled in this area, and PCBs were not detected at the lab reporting limit of 1 to 2 ug/L.

b. SWMU-17 is located near Building 9-64 and is the former location of a 4,000-gallon waste oil UST and associated 67-gallon sump.

i. The sump and UST were removed in 1986. Soil samples collected in the vicinity of the sump/UST in 1985 indicated hydrocarbon impacts. Soil samples collected after the sump/UST removal reportedly indicated minor hydrocarbon impacts.

ii. Groundwater monitoring has been performed at this location periodically since 1986. Hazardous chemicals in groundwater at SWMU-17 include halogenated volatile organic compounds (VOCs) (tetrachloroethene (PCE), trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride) and metals (primarily arsenic and copper).

iii. In 2008, a pilot test suggested that anaerobic bioremediation would be an appropriate remedy. Water amended with vegetable oil, sodium lactate, ferrous sulfate, and yeast was injected through well BDC-05-02 in October 2008.

iv. Further characterization was conducted in 2010 and additional groundwater wells installed. Full scale injections were completed in 2011 and quarterly groundwater monitoring conducted. In 2017, following groundwater results, an additional injection event was conducted with molasses as the substrate to continue to enhance bioremediation.

v. The recent groundwater monitoring results show that halogenated VOCs and metals are still detected.

c. SWMU-20 is located in the northwest corner of Building 9-101 and is the former location of a degreaser pit and sumps in which waste chlorinated solvents from a vapor degreaser had accumulated. The pit and sumps were closed in 1984.

i. Approximately 1,400 tons of soil contaminated with PCE and TCE were removed from this area in 1989.

ii. Soil and groundwater samples collected from soil borings and monitoring wells installed between 1989 and 1991 confirmed the presence of chlorinated solvents in soil and groundwater, including PCE, TCE, DCE, and vinyl chloride.

iii. A groundwater pump-and-treat system was installed in 1993 to remove the chlorinated VOCs from groundwater and preclude migration of chlorinated VOCs in groundwater, and was operated until 2001.

iv. *In situ* anaerobic bioremediation was enhanced with multiple electron donor injection events which have been conducted from 2004 to 2015. Subsequent groundwater monitoring results and the most recent groundwater monitoring results indicate that chlorinated VOCs concentrations have decreased over time, but are still detected in this area.

d. AOC-01/02 is located north of Building 9-52 and is the location of a 1,100-gallon gasoline UST and 550-gallon diesel UST. These USTs were replacements for similar USTs which were found to have leaked in the early 1990s.

i. The original USTs were removed in 1990 and an unknown quantity of soil was excavated to a depth of approximately 2 feet below the water table. Confirmation soil samples were analyzed, and benzene was detected in one sample at the base of the excavation at a concentration of 130 micrograms per kilogram (µg/kg).

ii. Three monitoring wells were installed and sampled periodically between 1991 and 2001, and the samples were analyzed for BTEX, diesel-range TPH and gasoline-range TPH, PCBs and metals. Diesel-range TPH was detected at a maximum concentration of 2.97 mg/l in December 2000, but was not detected in December 2001. Cadmium (12 µg/l) and copper (24 ug/L) were detected in one sample in November 1999.

iii. The 2002 RCRA Corrective Action Summary Report indicates the monitoring wells were to be sampled biannually until gasoline-range TPH, diesel-range TPH and BTEX were not detected in two consecutive events (during dry and wet seasons). Boeing conducted two samplings and the COCs were not detected.

e. AOC-03/04 is located west of Building 9-50 (the steam plant) and is the location of two 20,000-gallon fuel oil USTs. These USTs were replacements for similar USTs which were found to have leaked in the early 1990s.

i. Approximately 250 cubic yards of petroleum-impacted soil and up to 500 gallons of free-phase product were removed at the time the original USTs were removed.

ii. Groundwater monitoring was performed periodically between 1992 and 2001. Diesel was reportedly detected at concentration of higher than 500 µg/l in December 2000, but was not detected in December 2001.

iii. The 2002 Corrective Action Summary Report indicated two wells were to be sampled biannually until four consecutive groundwater samples are obtained that are

non-detect for diesel-range TPHs. On May 7, 2003, Boeing submitted the sampling data showing that diesel and motor oil range TPHs were not detected during the four consecutive quarterly sampling events.

f. AOC-5 is located near Building 9-61 and is the former location of a 1,000-gallon gasoline UST.

i. Approximately 830 gallons of gasoline were released from the UST in 1985, and the UST was removed. Approximately 500 to 600 gallons of free-phase product was removed from the excavation along with an unspecified quantity of gasoline-impacted soil.

ii. Subsequent sampling results indicated that high concentrations of gasoline and BTEX were present in groundwater. However, during the 2017 and 2018 groundwater monitoring, gasoline and BTEX were not detected.

iii. To address gasoline and BTEX contamination, oxygen release compound (ORC) was applied (by injection) in 2002, but not successful because of high oxygen demand in the naturally anaerobic aquifer. Since then, nitrate, instead of ORC, has been injected 11 times until 2017.

iv. The most recent groundwater monitoring event was performed in February and May 2018, and gasoline and BTEX concentrations have been below the MTCA Method A groundwater cleanup levels since February 2017.

I. There are currently 19 active stormwater outfalls associated with the Site (DC1 through DC19), each of which discharges to the LDW. Eighteen of the 19 outfalls are exclusively private Boeing outfalls which convey surface water runoff from roof drains and from catch basins in paved and landscaped portions of the Site. The southernmost outfall (DC1) is the Norfolk Storm Drain/Combined Sewer Overflow (SD/CSO) which includes runoff from the parking lot areas in the southern portion of the Site. The locations of these outfalls are shown in Exhibit B.

J. Sampling of solids in the Site's storm drain system (SWMU-43) and of building materials suspected of being sources of contaminants have been performed at the Site.

a. Sampling of stormwater solid and construction materials in the south storm drain (i.e., DC2) was conducted in 2000 as described in the *Data Summary of PCB Sampling from Accumulated Solids and Construction Materials in and around Storm Sewer Lines at the Developmental Center,* Prepared by Project Performance Corporation for the Boeing Company on July 12, 2001.

i. PCBs (specifically Aroclor 1254) were detected at concentrations of 0.3 to 1,100 mg/kg in solids samples from manholes and catch basins located upstream of the outfall.

ii. Building materials including caulk, roofing, tar sealant, asphalt sealant, and felt in sidewalk joints were sampled. PCB Aroclor 1254 was detected at concentrations of 0.74 to 2.1 mg/kg, with the maximum concentration of 2.1 mg/kg in "newer joint sealant caulk." Aroclor 1260 was detected at a concentration of 1.1 mg/kg in "older black tar like material". PCB Aroclor 1248 was detected in roofing materials (Building 9-101) at concentrations of 0.660 to 28 mg/kg.

b. Sampling for PCBs was performed in 2002 at oil/water separators throughout the Site as describe in the *Data Quality Review/Assessment Sampling and Analysis of PCBs in Stormwater System Oil/Water Separators Developmental Center*, January 17, 2003, prepared by Project Performance Corporation. Total PCBs were detected in sludge/solids samples at concentrations of 0.34 to 16.7 mg/kg, and in water samples at concentrations of 0.4 to 4.4 µg/l.

c. Pressure cleaning of an approximately 500-foot section of the south storm drain (southern side of the Building 9-101) was performed in 2002 as described in the *Draft Summary of Drain Line Cleanout Work, South Storm Drain from Developmental Center 9-101 Building*, September 10, 2002, prepared by Project Performance Corporation. Wastewater generated during the cleaning was stored in a Baker tank, and three solid samples were collected from the bottom of the tank. Aroclor 1248 concentrations in the samples were 1,900 mg/kg, 2,500 mg/kg and 2,800 mg/kg.

d. Stormwater solids samples have been collected annually for PCB analysis upstream and downstream of the sediment trap in the South Storm Drain System, located near Building 9-101. The most recent data reviewed is included in the *2016 and 2017 Annual Sampling Report South Storm Drain System and Source Tracing Within the Boeing Developmental Center*, February 2018, prepared by Calibre Systems. For the 2016 and 2017 sampling events, sediment trap samples contained total PCBs at a maximum concentration of 43.1 mg/kg. Metals, PAHs and petroleum hydrocarbons were also detected in the sediment trap samples. Additional samples were collected from selected locations at Building 9-101 to trace the source of elevated PCB concentrations detected in the trap sampler. One wipe sample was collected inside of a 4-inch drain stand pipe (Aroclor 1248: 0.52 ug/wipe, and Aroclor 1254: 0.45 ug/wipe) and 6 solid samples were collected from solids accumulation located near drains on the roof of the 9-101 building (Aroclor 1248: up to 115 ug/kg; Aroclor 1254: up to 112 ug/kg, and Aroclor 1260: up to 53.3 ug/kg). Samples from passive filter bags contained total PCBs at concentrations of 5.0 mg/kg (downstream of the sediment trap) and 6.8 mg/kg (upstream of the sediment trap) during the 2015 sampling event (*2015 Annual Sampling Report South Storm Drain System Boeing Developmental Center*, May 2016, prepared by Calibre Systems). During this sampling period, total PCBs in the sediment trap was 12.5 mg/kg.

K. A lateral loading study for the LDW was performed during the 2010 - 2011 wet season, and the results of the study were reported in the *Stormwater Lateral Loading Study Lower Duwamish Waterway, WA, Data Report*, prepared by SAIC and NewFields in December 2011. The study included collection and analysis of whole water (storm flow and base flow), filtered solids, and sediment trap solids samples for two of the drainage basins associated with the Site, the Norfolk CSO (KC2095) and the BDC-12 outfall (KC2088). The study identified hazardous chemicals at concentrations which indicate a potential for contamination of LDW sediments as described below.

a. Norfolk CSO 2095: [Note: The sampling station for the Norfolk outfall was located upstream of the King County CSO input to avoid any potential contributions from untreated sewage or wastewater from the King County CSO].

i. In whole water samples, PCBs (Aroclor 1254: 0.014 ug/L), metals (copper: 7.1 ug/L, zinc: 57 ug/L), PAHs (total HPAHs: 1.1 ug/L, total LPAHs: 0.19 ug/L), and polybrominated diphenyl ethers (total PBDEs: 53,800 pg/L) were detected.

ii. In sediment trap solids samples, dioxin/furans (21.6 ng/kg), PAHs (total HPAHs: 4.5 mg/kg, total LPAHs: 0.67 mg/kg) and PBDEs (total: 1,050,000 ng/kg) were detected. PCBs were not included in the analytes for sediment trap solids.

b. BDC-12 2088: The sampling station was located at a maintenance manhole approximately 170 feet upstream from the outfall.

i. In whole water samples, PCBs (Aroclor 1254: 0.019 ug/L), metals (copper: 14.5 ug/L, zinc: 191 ug/L), PAHs (total HPAHs: 50 ug/L, total LPAHs: 6.9 ug/L), and PBDEs (total: 41,600 pg/L) were detected. Whole water samples included only storm flow samples as base flow was insufficient for sampling.

ii. In filtered solids samples, PCBs (Aroclor 1254: 0.6 mg/kg, Aroclor 1260: 0.22 mg/kg), metals (copper: 168 mg/kg, zinc: 1,520 mg/kg), and PAHs (total HPAHs: 33 mg/kg) were detected. Dioxins/furans were also detected (27.6 pg/g).

iii. In sediment trap solids samples, hazardous chemicals detected were PAHs (total HPAHs: 120 mg/kg, total LPAHs: 15 mg/kg). PCBs were not analyzed for sediment trap solids.

L. In 1999, King County dredged impacted sediment from an area adjacent to the Norfolk CSO outfall, the DC2 outfall, and the DC3 outfall, and backfilled with clean material. A 5-year monitoring program was initiated by King County following completion of the remedial action. Suspected potential sources of recontamination included discharges from outfalls adjacent to the dredged area, and erosion of nearshore/bank sediment. The remedial action and the 5-year

monitoring program are summarized in the *Lower Duwamish Waterway Source Control Action Plan for Early Action Area 7*, September 2007, Ecology Publication No. 07-09-003.

a. Hazardous chemicals above the Ecology's sediment quality standards (SQS) and/or cleanup screening level (CSL) values that were identified in surface sediments in the dredged area during sampling events performed between 1999 (after completion of dredging) and 2005 included PCBs, benzo(g,h,i)perylene, bis(2-ethylhexyl)phthalate, butyl benzyl phthalate, and hexachlorobenzene.

b. Additional chemicals (2,4-dimethylphenol, 2-methylnaphthalate, dibenzo(a,h) anthracene, hexachlorobutadiene and n-nitrosodiphenylamine) were identified as non-detect but the associated method detection limits exceeded the SQS or CSL values.

M. Ecology evaluated PCBs in the vicinity of the Boeing South Storm Drain (i.e., DC2) and the results are summarized in the *Norfolk Combined Sewer Overflow (Duwamish River) Sediment Cap Recontamination Phase I Investigation,* February 2003, Ecology Publication No. 03-03-00. In 2002, 21 sediment samples were collected from intertidal areas between the Norfolk CSO/SD outfall and the DC2 outfall. Total PCBs were detected at concentrations up to 330 milligrams per kilogram (mg/kg) (carbon-normalized), with six samples above the SQS criteria of 12 mg/kg and three above the CSL of 65 mg/kg. Data for Sampling Station 6 provide evidence for recontamination of the Norfolk CSO sediment cleanup area since this sampling station is located inside the 1999 cleanup boundary. The highest PCB concentration was detected at Sampling Station 4 (Aroclor 1248: 7,550 ug/kg). Sampling Station 7 was contaminated with Aroclor 1254 (5,900 ug/kg). These two sampling stations are located near Boeing Outfall, DC2, outside the 1999 cleanup boundary.

N. In 2003, Boeing removed approximately 60 cubic yards of PCB-impacted sediment near the DC2 outfall and adjacent to the 1999 dredge area, and backfilled the excavation areas with a clean "sand cap" over a layer of carbon fabric at the bottom of the excavated area. Twelve initial

confirmation sediment samples were collected after the sediment removal, and the second round of confirmation sampling was conducted after the additional excavation based on the initial sampling data. PCB concentrations in the three samples out of 6 second round samples exceeded the CSL of 65 mg/kg (concentrations ranged from 61 to 2,190 mg/kg carbon-normalized). Results of this investigation are summarized in the *Cleanup Action Report, Sediment Removal Near South Storm Drain Outfall, Boeing Developmental Center, Tukwila, Washington*, prepared by Project Performance Corporation on December 19, 2003.

O. Sediment samples have been collected annually (since 2004) from the "sand cap" that was installed near the DC2 outfall in 2003. Sand cap samples collected in September 2017 (the most recent data reviewed) contained PCBs at concentrations up to 0.919 mg/kg. Sediment sampling results are described in the *2016 and 2017 Annual Sampling Report South Storm Drain System and Source Tracing within the Boeing Developmental Center*, prepared by Calibre Systems for the Boeing Company in February 2018.

P. EPA added the LDW to the federal Superfund list on September 13, 2001, and EPA issued a cleanup action plan (*Record of Decision Lower Duwamish Waterway Superfund Site*, prepared by the U.S. Environmental Protection Agency Region 10 in November 2014). Remedial investigation (RI) was completed in 2010. Based on the RI data and other previous investigation data, PCBs are widespread in the LDW sediment. Other sediment contaminants identified during the EPA investigations include metals, cPAHs, other semi-volatile organic compounds, phthalates, chlorobenzene, pesticides and dioxins/furans. Ecology listed the LDW on the Confirmed and Suspected Contaminated Sites List (CSCSL) on February 26, 2002.

Q. In 2008, the northeast corner of the Boeing property was transferred to the Museum of Flight. Before this property transfer, Boeing conducted the soil and groundwater investigation in this area, and the investigation results are summarized in the *2004 Annual Groundwater Monitoring Gate J-28/Museum of Flight* report, dated July 23, 2004, prepared by Landau Associates. The report concluded petroleum hydrocarbons were present above MTCA Method A

cleanup levels in one upgradient groundwater monitoring well. Groundwater and storm water in this area discharge to Slip 6. An environmental covenant is attached to this parcel.

R. On February 8, 2017, Ecology issued an Administrative Order for Industrial Stormwater General Permit No. WAR000146, Docket No. 14012. The Administrative Order required Boeing to revise and resubmit the Stormwater Pollution Prevention Plan (SWPPP), submit an Engineering Report, and implement the revised SWPPP, inclusive of approved treatment BMPs. During June 2017, Boeing resubmitted the revised SWPPP and submitted the Engineering Report (*Engineering Report, Level Three Stormwater Corrective Action, Boeing Developmental Center*, dated June 16, 2017, prepared by Landau Associates). Boeing completed the installation of the treatment BMPs specified in the Engineering Report by December 29, 2017, after concurrence by Ecology. The selected treatment technologies included installation of CleanWay Storm Clean® catch basin filtration inserts with MetalZorb™ metals removal media (CleanWay filters), installation of MetalZorb metals removal media in mesh bags in select drainage structures, bulk installation of MetalZorb metals removal media in an oil/water separator (OWS5), and installation of a mixed media roof drain downspout treatment filter unit.

S. On December 21, 2017, Ecology issued a second Administrative Order for Industrial Stormwater General Permit No. WAR000146, Docket No. 15600. This Administrative Order required Boeing to increase the frequency of stormwater monitoring, include monitoring at 8 additional outfalls, added TPH and PCB parameters for stormwater sampling, and specified the requirements for implementing advanced treatment.

T. On September 28, 2018, Boeing prepared an Engineering Report for Advanced Stormwater Treatment for the Developmental Center (*Engineering Report, Advanced Stormwater Treatment, Boeing Developmental Center*, dated September 28, 2018, prepared by Geosyntec Consultants). The Engineering Report summarized treatment alternatives that were evaluated, explanation of proposed treatment option, design data for the proposed options, and a description of treatment processes, operations and expected results. The advanced treatment option was

designed and configured to meet permit benchmarks and effluent limits, as well as address PCBs. Substantial modifications to the storm drain system (re-routing conveyance lines, addition of pumping stations, and combining/elimination of outfalls) will be required to implement the planned stormwater treatment operations. The detailed construction design work and installation of treatment systems will occur after Ecology approval of the final Engineering Report.

U. In November 2014, EPA issued a Record of Decision (ROD) for the Lower Duwamish Waterway (LDW) site. The ROD provides a description of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Selected Remedy for the in-waterway portion of the LDW CERCLA site. The in-waterway portion and cleanup, as defined in the ROD, addresses contaminated sediments and surface water below the mean higher high water (MHHW) level (in the LDW, MHHW is 11.3 feet above the mean lower low water [MLLW] level). The coordination between Ecology and EPA for source control and in-waterway cleanup activities has been established in a 2014 Memorandum of Agreement (MOA). The MOA designates EPA as the Lead Agency for the in-waterway portion of the LDW site.

VI. ECOLOGY DETERMINATIONS

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

A. Boeing is a person within the meaning of RCW 70.105D.020(24).

B. Boeing is the owner or operator of a Dangerous Waste Management Facility that has operated, is operating, or should have been operating under interim status permit, subject to RCRA, 42 U.S.C. §§ 6925, and regulations promulgated thereunder, including authorized state regulations in WAC 173-303. Boeing is also an "owner or operator" as defined by RCW 70.105D.020(22) of a "facility" as defined by RCW 70.105D.020(8).

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

D. These dangerous wastes and dangerous constituents are considered hazardous substances within the meaning of RCW 70.105D.020(13).

E. 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.

F. Based on credible evidence, Ecology issued a PLP status letter to Boeing dated March 20, 2018, pursuant to RCW 70.105D.040, .020(26), and WAC 173-340-500. By letter dated April 19, 2018, Boeing voluntarily waived its rights to notice and comment and accepted Ecology's determination that Boeing is a PLP under RCW 70.105D.040.

G. Pursuant to RCW 70.105D.030(l) and .050(1), Ecology may require Boeing 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.

H. 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 plan.

Due to releases or spills of hazardous chemicals or petroleum products at or from SWMU-16, SWMU-17, SWMU-20, AOC-01/02, AOC-03/04, and AOC-05, as described in Section V.H, Boeing has been conducting cleanup actions independently, or under Ecology's Voluntary Cleanup Program (VCP). Completion of ongoing voluntary work as an interim action is required to reduce a threat to human health and the environment. Based on these circumstances, Ecology

has determined that an interim action is warranted under WAC 173-340-430 at SWMU-17, SWMU-20 and AOC-05.

Either party may propose an additional interim action under this Order. If the Parties are in agreement concerning the interim action, the Parties will follow the process in Section VII.G. If the Parties are not in agreement, Ecology reserves its authority to require interim action(s) under a separate order or other enforcement action under RCW 70.105D, or to undertake the interim action itself.

VII. WORK TO BE PERFORMED

Based on the Findings of Fact and Ecology Determinations, it is hereby ordered that Boeing take the following remedial action(s) at the Facility. These remedial actions must be conducted in accordance with WAC 173-340:

A. Boeing will submit a Remedial Investigation Work Plan, implement the Remedial Investigation Work Plan, complete a remedial investigation (RI), complete a Feasibility Study (FS) and submit a draft cleanup action plan (DCAP) for the Facility in accordance with the schedule and terms of the Scope of Work and Schedule (Exhibit C), and all other requirements of this Order. The following naming conventions shall be used for documents: Agency Review Draft (designation for a document received for Ecology review); Public Review Draft (designates a document ready for public comment); Final (designation for a document after public comment and Ecology approval); and the preliminary Draft Cleanup Action Plan (designation for the PLP's version of the DCAP). .

B. Boeing shall implement the Interim Action Work Plan (Exhibit D) in accordance with the schedule included in the plan for SWMU 17, SWMU 20 and AOC 5.

C. If Boeing learns of a significant change in conditions at the Facility, including but not limited to a statistically significant increase in contaminant and/or chemical concentrations in media (e.g.: soil, groundwater, and air), Boeing, within seven (7) days of learning of the change in

condition, shall notify Ecology in writing of said change and provide Ecology with any reports or records (including laboratory analyses, sampling results) relating to the change in conditions.

D. Boeing shall submit to Ecology monthly Progress Reports that describe the actions taken during the previous month to implement the requirements of this Order. Boeing may reduce the frequency of progress report submittals to quarterly if approved by Ecology. Boeing shall submit all Progress Reports by the fifteenth (15th) day following the month (or quarter) in which they are due after the effective date of this Order. Unless otherwise specified by Ecology, Progress Reports submitted pursuant to this Order may be sent by email, or by other means agreed to by Ecology, to Ecology's project coordinator. The Progress Reports shall include the following:

1. A list of activities that have taken place at the Facility during the month and a list of upcoming activities.

2. Detailed description of any deviations from required tasks not otherwise documented in project plans or amendment requests.

3. Description of all deviations from the Scope of Work and Schedule (Exhibit C) during the current month and any planned deviations in the upcoming month.

4. For any deviations in schedule, a plan for recovering lost time and maintaining compliance with the schedule.

5. All raw data (including laboratory analyses) received during the previous quarter (if not previously submitted to Ecology), together with a detailed description of the underlying samples collected.

6. A list of deliverables for the upcoming month if different from the schedule.

E. Financial Assurance

1. Financial assurance for corrective action is required by WAC 173-303-64620. Ecology's Financial Assurance Officer shall determine when Boeing's actions and submissions meet the requirements of WAC 173-303-64620.

2. Ecology's Financial Assurance Officer is:

Kimberly Goetz
Washington State Department of Ecology
P.O. Box 47600
Olympia, WA 98504-7600
Phone: 360-407-6754
Fax: 360-407-6715
Email: kgoe461@ecy.wa.gov

Ecology may change the name and contact information for the Financial Assurance Officer with a written notification to Boeing.

F. All plans or other deliverables submitted by Boeing for Ecology's review and approval under the Scope of Work and Schedule (Exhibit C) shall, upon Ecology's approval, become integral and enforceable parts of this Order.

G. If the Parties agree on an additional interim action under Section VI.H, Boeing shall prepare and submit to Ecology an 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). Boeing 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 this Order, and Boeing is required to conduct the interim action in accordance with the approved Interim Action Work Plan.

H. Boeing 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 7 calendar 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 attached Exhibit C (Scope of Work and Schedule).

I. If Ecology determines that Boeing has failed to make sufficient progress or failed to implement the remedial action, in whole or in part, Ecology may, after notice to Boeing, perform

any or all portions of the remedial action or at Ecology's discretion allow Boeing the opportunity to correct. In an emergency, Ecology is not required to provide notice to Boeing, or an opportunity for dispute resolution. Boeing shall reimburse Ecology for the costs of doing such work in accordance with Section VIII.A (Remedial Action Costs). Ecology reserves the right to enforce requirements of this Order under Section X (Enforcement).

J. Except where necessary to abate an emergency situation or where required by law, Boeing shall not perform any remedial actions at the Facility outside those remedial actions required by this Order to address the contamination that is the subject of this Order, unless Ecology concurs, in writing, with such additional remedial actions pursuant to Section VIII.J. (Amendment of Order). In the event of an emergency, or where actions are taken as required by law, Boeing must notify Ecology in writing of the event and remedial action(s) planned or taken as soon as practical but no later than within twenty-four (24) hours of the discovery of the event.

K. For purposes of the identification requirement of Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), performance of requirements under this Section VII is restitution or required to come into compliance with law.

VIII. TERMS AND CONDITIONS

A. Payment of Remedial Action Costs

Boeing 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 RCW 70.105D, 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). For all Ecology costs incurred, Boeing 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. Ecology will provide a general statement of work performed 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.

B. Designated Project Coordinators

The project coordinator for Ecology is:

Byung Maeng
3190 160th Ave SE, Bellevue, WA 98008
425-649-7253
bmae461@ecy.wa.gov

The project coordinator for Boeing is:

Lindsey Mahrt
PO Box 3707 M/C 1P-310
206-327-0404
lindsey.e.mahrt@boeing.com

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 Boeing, 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.

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.

C. Performance

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

All engineering work performed pursuant to this Order shall be under the direct supervision of a professional engineer registered by 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 by 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 RCW 18.43 and 18.220.

Boeing 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. Review of the credentials of professionals conducting Work prepared in connection with Stormwater Programs will be referred to Ecology's Water Quality Section.

D. Access

Ecology or any Ecology authorized representative shall have access to enter and freely move about all property at the Facility that Boeing either owns, controls, 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 Boeing's 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 Boeing. Boeing shall make all reasonable efforts to secure access rights for those properties within the Facility not owned or controlled by Boeing 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 Boeing 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. Ecology employees or an Ecology authorized representative shall, however, follow any appropriate Boeing access, camera, or security procedures related to the Facility that the Project Coordinators work out in advance.

E. Sampling, Data Submittal, and Availability

With respect to the implementation of this Order, Boeing 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 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, Boeing shall allow Ecology and/or its authorized representative to take split or duplicate samples of any samples collected by Boeing pursuant to implementation of this Order. Boeing shall notify Ecology seven (7) days in advance of any sample collection or work activity at the Facility pursuant to this Order. Ecology shall, upon request, allow Boeing and/or its 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.D (Access),

Ecology shall notify Boeing 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 WAC 173-50 for the specific analyses to be conducted, unless otherwise approved by Ecology.

F. Public Participation

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

1. If agreed to by Ecology, develop appropriate mailing list, 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 meetings related to remedial action work to be performed at the Facility with the interested public and/or local governments. Likewise, Ecology shall notify Boeing prior to the issuance of all press releases and fact sheets, and before meetings related to the Facility with the interested public and local governments. For all press releases, fact sheets, meetings, and other outreach efforts by Boeing that do not receive prior Ecology approval, Boeing 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) South Park Library
8604 Eighth Avenue South at Cloverdale Street
Seattle, WA 98108

(b) Ecology's Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008

At a minimum, copies of all public notices, fact sheets, and documents relating to public comment periods shall be promptly placed in these repositories. A copy of all documents related to this Facility shall be maintained in the repository at Ecology's Northwest Regional Office in Bellevue, Washington.

G. 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, Boeing 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, Boeing shall make all records available to Ecology and allow access for review within a reasonable time. There shall be no requirement, however, to retain redundant copies or paper copies of reports that are identically retained electronically.

Nothing in this Order is intended to waive any right Boeing may have under applicable law to limit disclosure of documents protected by the attorney work-product privilege and/or the attorney-client privilege. If Boeing withholds any requested records based on an assertion of privilege, Boeing shall provide Ecology with a privilege log specifying the categories of records withheld and the applicable privilege. No Facility-related data collected pursuant to this Order shall be considered privileged.

H. Resolution of Disputes

1. In the event that Boeing elects to invoke dispute resolution, Boeing must utilize the procedure set forth below.

a. Upon the triggering event (receipt of Ecology's project coordinator's written decision or an itemized billing statement), Boeing has fourteen (14) calendar days within which to notify Ecology's project coordinator in writing of its dispute ("Informal Dispute Notice").

b. The Parties' project coordinators shall then confer in an effort to resolve the dispute informally. The parties shall informally confer for up to fourteen (14) calendar days from receipt of the Informal Dispute Notice. If the project coordinators cannot resolve the dispute within those 14 calendar days, then within seven (7) calendar days Ecology's project coordinator shall issue a written decision (Informal Dispute Decision) stating: the nature of the dispute; Boeing's position with regards to the dispute; Ecology's position with regard to the dispute; and the extent of resolution reached by informal discussion.

c. Boeing may then request regional management review of the dispute. Boeing must submit this request (Formal Dispute Notice) in writing to the Northwest Region Hazardous Waste and Toxics Reduction Section Manager within seven (7) calendar days of receipt of Ecology's Informal Dispute Decision. The Formal Dispute Notice shall include a written statement of dispute setting forth: the nature of the dispute; the disputing Party's position with respect to the dispute; and the information relied upon to support its position.

d. The Section Manager shall conduct a review of the dispute and shall issue a written decision regarding the dispute (Decision on Dispute) within thirty (30) calendar days of receipt of the Formal Dispute Notice. The Decision on Dispute 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.

4. In case of a dispute, failure to either proceed with the work required by this Order or timely invoke dispute resolution may result in Ecology's determination that insufficient progress is being made in preparation of a deliverable, and may result in Ecology undertaking the work under Section VII.F (Work to be Performed) or initiating enforcement under Section X (Enforcement).

I. Extension of Schedule

1. Boeing shall make any requests for an extension of schedule in a timely fashion, generally at least thirty (30) days prior to expiration of the deadline for which the extension is requested, and only when 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 Boeing 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. However, any such Boeing request will not be unreasonably denied. Good cause may include, but may not be limited to:

a. Circumstances beyond the reasonable control and despite the due diligence of Boeing 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 Boeing;

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

c. Endangerment as described in Section VIII.K (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 Boeing.

3. Ecology shall act upon any Boeing's written request for extension in a timely fashion. Ecology shall give Boeing 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.J (Amendment of Order) when a schedule extension is granted.

4. At Boeing's request, 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.K (Endangerment).

J. 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.L (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 both Ecology and Boeing. Ecology will provide its written consent to a formal amendment only after public notice and opportunity to comment on the formal amendment.

When requesting a change to the Order, Boeing shall submit a written request to Ecology for approval. Ecology shall indicate its approval or disapproval in writing and in a timely manner

after the written request is received. If Ecology determines that the change is substantial, then the Order must be formally amended. Reasons for the disapproval of a proposed change to this Order shall be stated in writing. If Ecology does not agree to a proposed change, the disagreement may be addressed through the dispute resolution procedures described in Section VIII.H (Resolution of Disputes).

K. Endangerment

In the event Ecology determines that any activity being performed at the Facility under this Order is creating or has the potential to create a danger to human health or the environment on or surrounding the Facility, Ecology may direct Boeing to cease such activities for such period of time as it deems necessary to abate the danger. Boeing shall immediately comply with such direction.

In the event Boeing determines that any activity being performed at the Facility under this Order is creating or has the potential to create a danger to human health or the environment, Boeing may cease such activities. Boeing 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, Boeing shall provide Ecology with documentation of the basis for the determination or cessation of such activities. If Ecology disagrees with Boeing's cessation of activities, it may direct Boeing to resume such activities.

If Ecology concurs with or orders a work stoppage pursuant to this section, Boeing's 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.I (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.

L. Reservation of Rights

This Order is not a settlement under RCW 70.105D. 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 Boeing to recover remedial action costs paid to and received by Ecology under this Order. In addition, Ecology will not take additional enforcement actions against Boeing regarding remedial actions required by this Order, provided Boeing complies with this Order.

Ecology nevertheless reserves its rights under RCW 70.105D, 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, Boeing does not admit to any liability for the Facility. Although Boeing is committing to conducting the work required by this Order under the terms of this Order, Boeing 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.

M. 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 Boeing 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 Boeing's transfer of any interest in all or any portion of the Facility, and during the effective period of this Order, Boeing 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, Boeing shall notify Ecology of said transfer. Upon transfer of any

interest, Boeing shall notify all transferees of the restrictions on the activities and uses of the property under this Order and incorporate any such use restrictions into the transfer documents. If requested in writing by Boeing, Ecology may waive the requirement that Boeing notify Ecology of said transfer at least 30 days prior to any transfer.

N. Compliance with Applicable Laws

1. *Applicable Laws.* All actions carried out by Boeing pursuant to this Order shall be done in accordance with all applicable federal, state, and local requirements, including requirements to obtain necessary permits or approvals, except as provided in RCW 70.105D.090. At this time, no federal, state, or local requirements have been identified as being applicable to the actions required by this Order. Boeing has a continuing obligation to identify additional applicable federal, state, and local requirements which apply to actions carried out pursuant to this Order, and to comply with those requirements. As additional federal, state, and local requirements are identified by Ecology or Boeing, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order, and Boeing must implement those requirements.

2. *Relevant and Appropriate Requirements.* All actions carried out by Boeing pursuant to this Order shall be done in accordance with relevant and appropriate requirements identified by Ecology. At this time, no relevant and appropriate requirements have been identified as being applicable to the actions required by this Order. If additional relevant and appropriate requirements are identified by Ecology or Boeing, Ecology will document in writing if they are applicable to actions carried out pursuant to this Order and Boeing must implement those requirements.

3. Pursuant to RCW 70.105D.090(1), Boeing may be exempt from the procedural requirements of RCW 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 and of any laws requiring or authorizing local government permits or approvals. However, Boeing shall comply with the substantive requirements of such permits or approvals. For permits and approvals covered under RCW 70.105D.090(1) that have been issued by local government, the Parties agree that Ecology

has the non-exclusive ability under this Order to enforce those local government permits and/or approvals. At this time, no state or local permits or approvals have been identified as being applicable but procedurally exempt under this section.

4. Boeing 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 Order. In the event either Ecology or Boeing determines 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 party of its determination. Ecology shall determine whether Ecology or Boeing shall be responsible to contact the appropriate state and/or local agencies. If Ecology so requires, Boeing 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 Boeing and on how Boeing must meet those requirements. Ecology shall inform Boeing in writing of these requirements. Once established by Ecology, the additional requirements shall be enforceable requirements of this Order. Boeing 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 that is necessary for the state to administer any federal law, the exemption shall not apply and Boeing 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 or approvals.

O. Indemnification

Boeing agrees 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 Boeing, its officers, employees, agents, or contractors in entering into and implementing this Order. However, Boeing 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 Boeing's receipt of written notification from Ecology that Boeing has completed the corrective actions required by this Order, as amended by any modifications, and that Boeing has 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. A liable party who refuses, without sufficient cause, to comply with any term of this Order will be liable for:

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

2. Civil penalties of up to twenty-five thousand dollars ($25,000) per day for each day it refuses 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: July 23, 2019

The Boeing Company

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