



Final December 2010

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

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November 9, 2010

Mr. Barry Hullett
Alcoa Intalco Works
4050 Mountain View Road
Ferndale, WA 98248-0937

Dear Mr. Hullett:

Regional Haze Best Available Retrofit Technology (BART) Determination

Best Available Retrofit Technology (BART) is required to reduce the regional haze impacts of emissions of your facility. The enclosed Order #7837, Revision 1, contains our BART determination for your facility including a schedule for compliance.

This revision is in response to a request by the company to repeat the emission limitation, monitoring, recordkeeping, and reporting requirements contained in Order No. DE02AQIS-3967 rather than incorporating them by reference.

If you have questions or requests relating to this order, please contact Alan Newman at (360) 407-6810 or alan.newman@ecy.wa.gov.

Sincerely,

Jeff Johnston, Ph.D.
Manager, Science and Engineering Section
Air Quality Program

JJ/lb

Enclosure

cc: Kathryn Mitchell, Intalco Ferndale
Alan Newman, Ecology
Rick Graw, USFS Portland

James Jones, EHS Services North America
Judy Schwieters, Industrial Section
John Bunyak, National Park Service



STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

IN THE MATTER OF AN
ADMINISTRATIVE ORDER AGAINST:

Alcoa Intalco Works

ORDER NO. 7837, Revision 1

TO: Mr. Barry Hullett
Alcoa Intalco Works
4050 Mountain View Road
Ferndale, WA 98248-0937

This is an Administrative Order requiring your company to comply with WAC 173-400-151 by taking the actions that are described below. Chapter 70.94 RCW authorizes the Washington State Department of Ecology's Air Quality Program (Ecology) to issue Administrative Orders to require compliance with the requirements of Chapter 70.94 RCW and regulations issued to implement it.

Ecology has determined that portions of your facility are subject to the provisions of the federal and state visibility protection program (WAC 173-400-151 and 40 CFR Part 51, Subpart P). The rules require that the State determine what technologies and level of emission control constitutes Best Available Retrofit Technology (BART) for the eligible emission units at your facility.

FINDINGS

- A. The Alcoa Intalco Works (Intalco) is a primary aluminum smelter facility subject to BART.
- B. The BART-eligible emission units at Intalco are the three potlines, anode bake furnace, 13 aluminum holding furnaces, material handling and transfer operations, and a number of small miscellaneous units.
- C. Emissions from existing BART units are controlled by:
 - a. Use of six existing primary control systems each consisting of a dry alumina injection system followed by a baghouse for the primary control of PM and fluoride emissions from the potline buildings.
 - b. Use of a series of 159 wet roof scrubbers to control secondary PM and fluoride emissions from the potline buildings.
 - c. Use of a dry alumina injection system followed by a baghouse for control of PM and fluoride emissions from the Anode Bake Furnace.

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BART Compliance Order #7837, Revision 1
July 7, 2010

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- d. Use of sulfur content limitations to limit SO₂ emissions due to the manufacture and consumption of anodes.
 - e. Use of baghouses and fabric filters to control PM emissions from various Material Handling and Transfer Operations throughout the facility.
 - D. Ecology has determined that the emission controls currently installed at Intalco meet the requirements of BART.
 - E. Ecology has determined that Intalco has met the requirements of Administrative Order No. #5070 which required submittal of a BART Technical Analysis for the Intalco facility.
 - F. On July 29, 2010 Intalco requested the original BART order to be revised to:
 - a. Incorporate the specific emission limitations, monitoring and reporting requirements contained in Order DE02AQIS-3967 rather than incorporate that order and its requirements by reference as done in the original version of this order, and
 - b. To include specific NO_x emission rates, especially a revised NO_x emission rate for the potlines based on recent source test information.

Additional information and analysis is available in the BART Determination Support Document for Alcoa Intalco Works, Ferndale, Washington, prepared by the Washington State Department of Ecology, and the BART Determination for Alcoa Intalco Works Ferndale, Washington, prepared by ENVIRON Corporation on behalf of Alcoa Intalco Works, November 2007.

YOU ARE ORDERED: To operate existing emission control equipment in accordance with the following conditions:

1. BART Emission Limitations are contained in the tables contained in Attachment A to this Order.
2. Schedule for Compliance
 - 2.1. Compliance with the emission limitations for particulate matter, nitrogen oxides, and sulfur dioxide is required upon the effective date of this Order.
3. Monitoring and Recordkeeping, Requirements are contained in Attachment A to this Order
4. Recordkeeping Requirements

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4.1. Intalco shall submit a monthly air monitoring report which contains the respective results of the monitoring required in the conditions of this order. The report shall be submitted within 30 days of the end of each calendar month. Intalco shall report the data in a format that will allow a comparison of all the data to the respective emission limits. The format shall include a table which summarizes the required source tests conducted during that month and the dates when they were completed. Intalco shall submit the results of source tests to Ecology in the air monitoring report for the month that the results are received by Intalco. This reporting requirement applies to all Conditions in Attachment A of this Order.

Failure to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

You have a right to appeal this Order. To appeal you must:

- File your appeal with the Pollution Control Hearing Board within 30 days of the "date of receipt" of this document. Filing means actual receipt by the Board during regular office hours.
- Serve your appeal on the Department of Ecology within 30 days of the "date of receipt" of this document. Service may be accomplished by any of the procedures identified in WAC 371-08-305(10). "Date of receipt" is defined at RCW 43.21B.001(2).

If you appeal, you must:

- Include a copy of this document with your Notice of Appeal.
- Serve and file your appeal in paper form; electronic copies are not accepted.

To file your appeal with the Pollution Control Hearing Board:

Mail appeal to:

The Pollution Control Hearings Board
P.O. Box 40903
Olympia, WA 98504-0903

Deliver your appeal in person to:

The Pollution Control Hearings Board
OR 4224-6th Avenue SE Rowe Six, Bldg 2
Lacey, WA 98503

To serve your appeal on the Department of Ecology:

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Mail appeal to:

Department of Ecology
Appeals Coordinator
P.O. Box 47608
Olympia, WA 98504-7608

Deliver your appeal in person to:

OR
Department of Ecology
Appeals Coordinator
300 Desmond Drive SE
Lacey, WA 98503

And send a copy of your appeal packet to:

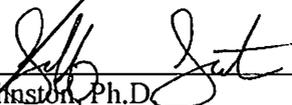
Alan Newman
Department of Ecology
Air Quality Program
P.O. Box 47600
Olympia, WA 98504-7600

For additional information, go to the Environmental Hearings Office website at <http://www.eho.wa.gov>.

To find laws and agency rules, go to the Washington State Legislator website at <http://www1.leg.wa.gov/CodeReviser>.

Your appeal alone will not stay the effectiveness of this Order. Stay requests must be submitted in accordance with RCW 43.21B.320. These procedures are consistent with Chapter 43.21B RCW.

DATED this 15 day of November, 20 10 at Olympia, Washington.



Jeff Johnston, Ph.D.
Manager, Science and Engineering Section
Department of Ecology
Air Quality Program

Attachment A
 BART Emission limitations, Monitoring, Recordkeeping and Reporting Requirements

Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
Plant Wide Limitations					
A1	Plantwide Natural gas Usage (not including Bake furnace)	Nitrogen oxides (NO _x)	341 lb/day, calendar month average	<p>Intalco shall demonstrate compliance by using the following equation:</p> <p>Natural gas NO_x from sources excluding the Bake Ovens and the Remelt Furnace = Plant wide natural gas – bake oven natural gas – remelt natural gas</p> <p>Intalco shall maintain a record of natural gas usage at the plant. Records maintained shall be sufficiently complete to quantify natural gas used in the bake furnace and remelt furnace.</p> <p>Natural gas usage shall be converted to a calendar month average NO_x emission rate through the use of an Ecology specified emission factor of 140 lb/1.0x10⁶scf of natural gas.</p>	30 days after the end of each calendar month
A2	Plantwide SO ₂ Emissions	Sulfur dioxide (SO ₂)	Comply with the emission limitation contained in WAC 173-415-030(5); Total emissions of SO ₂ from all emissions units shall not exceed thirty grams of sulfur dioxide per kilogram of aluminum produced on a monthly average (sixty pounds per ton of aluminum produced).	<p>a. Intalco shall conduct source tests upon Ecology's request using EPA RM 6 per 40 CFR Part 60, Appendix A, or another EPA approved method.</p> <p>b. Intalco shall determine total facility-wide SO₂ emissions by summing the SO₂ generated from the potlines, the anode bake ovens and natural gas usage. Intalco shall calculate SO₂ emissions from the potlines, anode bake ovens, and paste plant by using the following mass balance equations and information:</p>	30 days after the end of each calendar month or, for source tests, 30 days after the end of the month the source test report is received by Intalco

Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				<p>Total SO₂ = Raw Material SO₂ (Coke and Pitch) + Natural Gas SO₂</p> <p>Raw material SO₂ (coke and pitch) will be determined by using the following mass balance equation:</p> <p>Coke and Pitch SO₂ = (total Pet coke weight %S) + (total pitch weight %S) + (total packing coke weight %S) – (COS x 64/60)</p> <p>Carbon consumption ratio is pounds of carbon consumed per pounds of Aluminum produced.</p> <p>Intalco shall assume 95% of the sulfur in green anodes is converted to SO₂ and 5% is converted to COS (Carbonyl Sulfide).</p> <p>Intalco shall calculate the SO₂ generated by natural gas combustion using an Ecology approved emission factor.</p>	
Miscellaneous Materials Handling systems					
A3	Unspecified emission units	PM	Meet the more restrictive applicable emission limitation contained in <ul style="list-style-type: none"> • WAC 173-400-060, or • WAC 173-415- 	Intalco shall conduct source tests upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, The test method required to demonstrate compliance with an applicable particulate matter control requirement of 40 CFR Part 63 Subpart	30 days after the end of the month the source test report is received by Intalco.

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
			030(2), or <ul style="list-style-type: none"> 40 CFR Part 63, Subpart RRR 	RRR, or another EPA approved method.	
A4	Autogenous Mill - Unit #209	PM	Emissions of PM shall not exceed 5.0 tons of PM per year AND Emissions of PM shall not exceed 0.01 grains per dscf.	Intalco shall conduct source tests once every 5 years and upon Ecology's request using EPA RM 5 per 40 CFR 60, Appendix A, or another EPA approved method.	30 days after the end of the month the source test report is received by Intalco.
Aluminum Production					
A5		Aluminum Production Limit	Net potline production of Aluminum shall be limited to $\leq 307,000$ tons of aluminum per calendar year.	Intalco shall maintain a record of the daily net production of aluminum and report the average daily net aluminum production in the monthly air monitoring. Net production of aluminum is the total mass of molten metal produced from tapping all pots in all operating potlines, measured at the casthouse scales and the rod shop scales	30 days after the end of each calendar month
A6	Potline Primary and Secondary Control Systems	Operational limits	The following limits shall not be exceeded : Operating < 720 pots/day ≤ 3.0 % sulfur in coke ≤ 0.6 % sulfur in pitch $\leq 150,000$ amps of current ≤ 0.4250 carbon consumption ratio (pounds of carbon consumed per pound of Aluminum produced)	Intalco shall maintain a record of the data collected for the parameters listed below, compute the monthly average, and report the monthly average (unless another average is noted below) for each parameter in the monthly air monitoring report submitted to Ecology: <ul style="list-style-type: none"> Number of pots operated per day (potdays) Percent sulfur in pitch (Intalco shall 	30 days after the end of each calendar month

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				<p>analyze each incoming load or batch of pitch for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods)</p> <ul style="list-style-type: none"> • Percent sulfur in coke (Intalco shall analyze each incoming load or batch of coke for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods) • Carbon consumption ratio as a daily average computed monthly • Amperes of current 	
A7		Particulate (PM)	<p>Emissions of PM shall not exceed a combined total of 5050 pounds per day (calculated on a monthly average) from the potlines (primary and secondary control systems) and the bake ovens AND Emissions of PM shall not exceed a combined total of 6.0 pounds per ton of aluminum (calculated on a three month average) produced from the potlines (primary and secondary control systems) and the bake ovens</p>	<p>Unless a different testing schedule is contained in an Ecology approved Air Monitoring Plan, Intalco shall determine PM emissions by testing the primary and secondary control systems and the bake furnace using the following methodology:</p> <p>Primary control system: Intalco shall test 4 cells (1 run/cell) per month per potline (2 cells from each of the 2 baghouse centers) for a minimum of 5 hours using EPA RM 5 per 40 CFR Part 60 Appendix A, Alcoa method B-54, or another EPA approved method.</p> <p>Secondary control system: Intalco shall test three roof scrubbers simultaneously (1 run/test) three times per month per potline using EPA RM 5 per 40 CFR Part 60 Appendix A, Alcoa method B-54b, or</p>	30 days after the end of each calendar month

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				<p>another EPA approved method.</p> <p>Bake Ovens: Intalco shall conduct a source test (3 runs/source test) once per year and upon Ecology's request using EPA RM 5 per 40 CFR Part 60 Appendix A</p>	
A8		Sulfur dioxide (SO ₂)	Emissions of SO ₂ shall not exceed 37, 780 pounds per day	<p>Intalco shall determine the SO₂ emitted by using the following formula:</p> $\text{SO}_2 \text{ emissions in lbs. /day} = (\text{carbon consumption ratio}) (2000 \text{ pounds Aluminum per ton}) \times (\% \text{ sulfur in baked anodes}/100) \times (\% \text{ S converted to SO}_2/100) \times (2 \text{ lb sulfur dioxide per lb sulfur}) \times (\text{Tons of Aluminum per month}) / \text{days per month.}$ <p>Carbon consumption ratio is pounds of carbon consumed per pound of Aluminum.</p> <p>Percent sulfur in baked anode material (Intalco shall analyze baked anode material for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods).</p> <p>%S converted to SO₂ is 95%</p> <p>Intalco shall report the monthly average of pounds of SO₂ per day.</p> <p>Intalco shall maintain records of</p>	Intalco shall report the 3monthly average of pounds of SO ₂ per day in each month 30 days after the end of each calendar month

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				production data used to develop carbon consumption ratio and tons of aluminum produced. Intalco shall provide the records to Ecology upon request	
A9		Sulfur dioxide (SO ₂)	Emissions of SO ₂ shall not exceed 44.8 pounds per ton of aluminum produced (calculated on a three month average).	<p>Intalco shall determine the SO₂ emitted by using the following formula:</p> $\text{SO}_2 \text{ emissions in lbs. /month} = (\text{carbon consumption ratio}) (2000 \text{ pounds Aluminum per ton}) \times (\% \text{ sulfur in baked anodes}/100) * (\% \text{ S converted to SO}_2/100) \times (2 \text{ lb sulfur dioxide per lb sulfur}) \times (\text{Tons of Aluminum per month})$ <p>Carbon consumption ratio is pounds of carbon consumed per pound of Aluminum.</p> <p>Percent sulfur in baked anode material (Intalco shall analyze baked anode material for sulfur content using the procedures in ASTM D4239 or other ASTM sulfur methods)..</p> <p>%S converted to SO₂ is 95%</p>	Intalco shall report the 3 month average of pounds of SO ₂ per ton of aluminum produced 30 days after the end of each calendar month
A10		Nitrogen oxides (NOx)	Emissions of NOx shall not exceed 219 pounds per day (calculated on a one month average).	Intalco shall determine plant wide emissions of NOx by using the plant specific emission factor of 0.26 lb NOx/ton of Aluminum produced.	30 days after the end of each calendar month

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
Anode Production and Baking					
A11	Green Carbon Pitch Fume Treatment System	PM10	Emissions of PM10 shall not exceed 2.36 lb/hour	<p>Intalco shall conduct a source test once every two years and upon Ecology's request using EPA RM 5 per 40 CFR Part 60, Appendix A, or another EPA approved method.</p> <p>Intalco can reduce monitoring frequencies if each of three consecutive source tests demonstrates that the emission rate is < 75% of the applicable limit. Intalco shall resume the original source testing frequency any time a source test demonstrates emissions have increased above 75% of the applicable limit. Intalco shall submit a letter notifying Ecology that the monitoring frequency will be reduced. The notification shall demonstrate the justification for the reduced monitoring frequency and schedule.</p>	30 days after the end of the month the source test report is received by Intalco.
A12	Anode Baking	Nitrogen oxides (NOx)	933 lb/calendar day, 30 day average	Intalco shall determine NOx emissions from its anode baking furnace operation by multiplying the Ecology approved site-specific emission factor of 2.02 lbs of NOx per ton of baked anodes times the tons of baked anodes produced during the month divided by the number of operating days during the month. Intalco shall report the monthly average of pounds of Baking	30 days after the end of the month the source test report is received by Intalco.

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				Furnace NOx per day. Baking Furnace NOx Equation: $\frac{\text{Pounds NOx}}{\text{day}} = \frac{\text{tons of Aluminum}}{\text{month}} \times \frac{2.02 \text{ lb}_{\text{NOx}}}{\text{ton}_{\text{Al}}} \times \frac{\text{days per month}}{\text{month}}$	
Metal Products Area					
A13	Remelt Furnace	Nitrogen oxides (NOx)	NOx emissions shall not exceed: 5.72 tons for the most recent 12-month period or 0.48 tons for any single month or 32 lb/calendar day, 30 day average. Remelt furnace NOx is, also included in plantwide natural gas NOx emission limit	Intalco shall determine Remelt Furnace NOx emission by the following method: Natural gas usage shall be converted to a calendar month average NOx emission rate through the use of an Ecology specified emission factor of 0.048 tons NOx /1.0x10 ⁶ scf of natural gas. For each month Intalco shall report: <ul style="list-style-type: none"> • The volume of natural gas consumed during the month (1.0x10⁶scf) • The volume of natural gas consumed (1.0x10⁶scf) in the most recent 12-month period • The tons of NOx emitted 	30 days after the end of each calendar month

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Approval Condition	Process Area	Pollutant	Emission limit	Monitoring and Recordkeeping requirements	Reporting requirements
				<p>during the month,</p> <p>The total tons of NOx emitted for the most recent 12-month period</p>	
A14	Homogenization Furnace – Unit #314	NOx	Emissions of NOx shall not exceed 83 ppm corrected to 3% oxygen.	<p>Intalco shall conduct an annual source test on the furnace during full operation using EPA RM 7E for NOx and RM 3A for Oxygen as per 40 CFR Part 60, Appendix A, or another EPA approved method.</p> <p>Intalco can reduce the frequency of source testing to once every 5 years if each of three consecutive source tests demonstrates that the emission rate is < 75% of the applicable limit. Intalco shall resume the original source testing frequency any time a source test demonstrates emissions have increased above 75% of the applicable limit. Intalco shall submit a letter notifying Ecology that the monitoring frequency will be reduced. The notification shall demonstrate the justification for the reduced monitoring frequency and schedule. Intalco shall submit the notification to Ecology within 60 days after the last source test used to make the demonstration.</p>	30 days after the end of the month the source test report is received by Intalco.

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