

ENVIRONMENTAL PROTECTION NOTICE

Application for a **Permit amendment** Under The Provisions of the *Environmental Management Act*

We/I, Alcan Inc. P.O. Box 1800, Kitimat BC, intend to submit this amendment application to the Director to amend *Permit P2-00001*, issued December 7, 1999 and last amended 6 May 2005 / which authorizes the *discharge of (air emissions/effluent/refuses)*, from an aluminum smelter.

The land upon which the facility is situated and the discharge occurs is District Lots 90, 91, 92, 93, 96, 102A, 186 and 5469: Ranges 4 and 5, Coast District, Kitimat, British Columbia, located at/on/near No. 1 Smeltersite Road, Kitimat, British Columbia, within the District of Kitimat.

The amendment requests that the following conditions be changed from *(describe before conditions)* to *(describe after conditions)*.

<i>Name Change</i> _____	4
<i>Section 1.1</i> _____	4
<i>Section 1.2.1</i> _____	5
<i>Section 1.2.2</i> _____	7
<i>Section 3.1.1</i> _____	8
<i>Section 3.1.2 B-Lagoon Effluent Discharge</i> _____	9
<i>Section 3.1.2.2</i> _____	10
<i>Section 3.2.1</i> _____	10
<i>Section 3.2.2</i> _____	11
<i>Section 3.2.2.1</i> _____	11
<i>Section 3.2.2.2</i> _____	12
<i>Section 3.2.2.3</i> _____	12
<i>Section 3.2.3</i> _____	12
<i>Section 3.4.1</i> _____	13
<i>Section 4.1.2</i> _____	13
<i>Section 4.1.3</i> _____	14
<i>Section 4.1.3.2</i> _____	15
<i>Section 4.1.3.3</i> _____	15
<i>Section 4.1.4</i> _____	16

<i>Section 4.3.2</i>	16
<i>Section 4.4.4 SF₆ Consumption</i>	17
<i>Section 4.5.2</i>	18
<i>Section 4.5.3</i>	18
<i>Section 4.6.2</i>	19
<i>Section 4.6.3</i>	19
<i>Section 4.7</i>	20
<i>Section 4.7.1</i>	20
<i>Section 4.7.2</i>	20
<i>Section 4.7.3</i>	21
<i>Section 4.9.2</i>	21
<i>Section 5.1.2</i>	22
<i>Section 5.2.3</i>	22
<i>Section 5.3.1</i>	22
<i>Section 5.3.2</i>	23
<i>Section 5.3.5</i>	24
<i>Section 5.3.5.1</i>	24
<i>Section 5.4.1</i>	24
<i>Section 5.4.2</i>	25
<i>Section 5.4.2.1</i>	26
<i>Section 6.1.1</i>	27
<i>Section 6.1.2</i>	27
<i>Section 6.2.1</i>	27
<i>Section 6.2.2</i>	28
<i>Section 6.3.1</i>	28
<i>Section 6.3.2</i>	28
<i>Section 6.4.1</i>	28
<i>Section 6.4.2</i>	29
<i>Section 6.4.3</i>	29
<i>Section 6.4.4</i>	29
<i>Section 6.5.1</i>	29
<i>Section 6.5.2</i>	30
<i>Section 6.6.1</i>	30
<i>Section 6.6.3</i>	30
<i>Section 6.7.1</i>	30
<i>Section 6.7.2</i>	31

<i>Section 6.8.1</i>	<i>31</i>
<i>Section 6.8.2</i>	<i>31</i>
<i>Section 7.2.1</i>	<i>32</i>
<i>Section 7.2.2</i>	<i>32</i>
<i>Section 8.2.1</i>	<i>33</i>
<i>Section 8.2.1.1</i>	<i>34</i>
<i>Section 8.3.1</i>	<i>34</i>
<i>Section 8.4.1</i>	<i>36</i>
<i>Section 8.5.1</i>	<i>36</i>
<i>Section 8.5.1.1</i>	<i>37</i>
<i>Section 8.5.2</i>	<i>37</i>
<i>Section 8.8</i>	<i>38</i>
<i>Section 9.1.3</i>	<i>38</i>
<i>Section 10.1.2</i>	<i>39</i>
<i>Section 10.2.2</i>	<i>40</i>
<i>Section 10.3.1</i>	<i>40</i>
<i>Section 10.3.2</i>	<i>41</i>
<i>Section 10.3.3</i>	<i>42</i>
<i>Section 10.4.1</i>	<i>42</i>

Name Change**BEFORE:**

This permit represents the amalgamation of all prior existing permits for [Alcan Smelters and Chemicals Ltd](#), Kitimat Works, British Columbia and supersedes and amends Permits PE01494, PA02552, PA06884, PR02527, PS13517, and PS08114 issued previously under Part 2 Section 10 of the *Waste Management Act*.

AFTER:

This permit represents the amalgamation of all prior existing permits for [Alcan Inc.](#) Kitimat Works, British Columbia and supersedes and amends Permits PE01494, PA02552, PA06884, PR02527, PS13517, and PS08114 issued previously under Part 2 Section 10 of the *Waste Management Act*.

RATIONAL:

Alcan Smelters and Chemicals Ltd is no longer a registered company in British Columbia.

BEFORE:**Section 1.1**

Lot Locations

The location of the facilities from which the authorised effluent, air emissions, solid discharges may originate or Special Waste be managed is on the [Alcan Smelters and Chemicals Limited](#) Kitimat Works smelter site, District Lots 90, 91, 92, 93, 96, 102A, 186, and 5469: Ranges 4 and 5, Coast District, Kitimat, British Columbia.

AFTER:

Lot Locations

The location of the facilities from which the authorised effluent, air emissions, solid discharges may originate or Hazardous Waste be managed is on the [Alcan Inc.](#), Kitimat Works smelter site, District Lots 90, 91, 92, 93, 96, 102A, 186, and 5469: Ranges 4 and 5, Coast District, Kitimat, British Columbia.

RATIONAL:

Name changed. Alcan Smelters and Chemicals Ltd is no longer a registered company in British Columbia. Legislation changed the Special Waste classification to Hazardous Waste.

BEFORE:

The following parameter notation is used throughout this permit:

Section 1.2.1

Notation	Parameter	Notation	Parameter
96LC50	Rainbow Trout 96hr LC50 Bioassay	HCl	Hydrogen Chloride
Al	Aluminum (Hot Metal)	η GCS	Gas Collection System Efficiency
Al-D	Dissolved Aluminum	hr	hour
B-Bf	Burner back-up frequency	kg/Mg Al	kg of substance per metric tonne of Al
Biannual	Twice per year	Metals	Total and/or Dissolved Metals 1.2.1.1
Biennial	Once every two years	Mg	Megagram (1 metric tonne)
CN-SAD	Cyanide Strong Acid Dissociable	mo	month
CN-WAD	Cyanide Weak Acid Dissociable	No _x	Nitrous Oxides
CO	Carbon Monoxide	PAH	Polycyclic Aromatic Hydrocarbons
C-Out	Carbon Outs	PFC	Perfluorocarbons (CF ₄ and C ₂ F ₆)
CE	Current Efficiency	PM ₁₀	Particulate Matter 10 μ m or less
Cl ₂	Chlorine	ppb	Parts per Billion (vol/vol)
CO ₂	Carbon Dioxide	P-Strt	Pot Start-up
Cond	Specific Conductance	s	second
d	day	SO ₂	Sulphur Dioxide
DS-Dt	Dry Scrubber Down Time	TECO ₂	Total GHG in equivalent CO ₂
Fe-D	Dissolved Iron	TOC	Total Organic Carbon
F-G	Gaseous Fluoride	TP	Total Particulate
F-P	Particulate Fluoride	TSS	Total Suspended Solids
F-T	Total Fluoride	v/v	% Volume per volume
GHG	Greenhouse Gases	wk	week
Hard-T	Total Hardness	yr	year

AFTER:

Section 1.2.1

Notation	Parameter	Notation	Parameter
96LC50	Rainbow Trout 96hr Static Acute 100% screen (pass/fail)	η GCS	Gas Collection System Efficiency
Al	Aluminum (Hot Metal)	hr	hour
Al-D	Dissolved Aluminum	kg/Mg Al	kg of substance per metric tonne of Al
B-B _f	Burner back-up frequency	Metals	Total and/or Dissolved Metals 1.2.1.1
Biannual	Twice per year	Mg	Megagram (1 metric tonne)
Biennial	Once every two years	mo	month
CN-SAD	Cyanide Strong Acid Dissociable	NAPS	National Air Pollution Surveillance
CN-WAD	Cyanide Weak Acid Dissociable	NO _x	Nitrous Oxides
CO	Carbon Monoxide	PAH	Polycyclic Aromatic Hydrocarbons
C-Out	Carbon Outs	PFC	Perfluorocarbons (CF ₄ and C ₂ F ₆)
CE	Current Efficiency	PM _{2.5}	Particulate Matter 2.5 μ m or less
Cl ₂	Chlorine	PM ₁₀	Particulate Matter 10 μ m or less
CO ₂	Carbon Dioxide	ppb	Parts per Billion (vol/vol)
Cond	Specific Conductance	P-Strt	Pot Start-up
d	Day	s	second
DS-Dt	Dry Scrubber Down Time	SO ₂	Sulphur Dioxide
Fe-D	Dissolved Iron	TECO ₂	Total GHG in equivalent CO ₂
F-G	Gaseous Fluoride	TOC	Total Organic Carbon
F-P	Particulate Fluoride	TP	Total Particulate
F-T	Total Fluoride	TSS	Total Suspended Solids
GHG	Greenhouse Gases	v/v	% Volume per volume
Hard-T	Total Hardness	wk	week
HCl	Hydrogen Chloride	yr	year

RATIONAL:

96LC50 defined as Rainbow Trout 96hr Static Acute 100% screen (pass/fail).

Corrected the spelling of NO_x.

Added NAPS as it was missing from the glossary.

PM_{2.5} was added as this program was started after the permit was issued.

BEFORE:**Section 1.2.2**

The following abbreviations are used throughout this permit:

APP	Anode Paste Plant
AS&C	Alcan Smelters and Chemicals Limited (Kitimat Works smelter)
BC MELP	British Columbia Ministry of Environment Lands and Parks
CEM	Continuous Emission Monitoring
DS	Dry Scrubber
ECWS	Environmental Compliance Web Site
EMS	BC MELP digital Environmental Monitoring System database
ESP	Electrostatic Precipitator
GCS	Gas Collection System
MOU	The British Columbia Pollution Prevention Project Memorandum of Understanding (June 1996)
P2	Pollution Prevention
PAC	Public Advisory Committee
NAPS	National Air Pollution Survey
HTM	Heat Transfer Material
PUFF	Polyurethane Foam Filter
RMI	Records of Maintenance and Inspections
SPL	Spent Potlining

AFTER:**Section 1.2.2**

The following abbreviations are used throughout this permit:

APP	Anode Paste Plant
Alcan	Alcan Inc.
BC MWLAP	British Columbia Ministry of Water, Land and Air Protection
CEM	Continuous Emission Monitoring
DS	Dry Scrubber
ECWS	Environmental Compliance Web Site
EMS	BC MWLAP digital Environmental Monitoring System database
ESP	Electrostatic Precipitator
GCS	Gas Collection System
MOU	The British Columbia Pollution Prevention Project Memorandum of Understanding (June 1996)
P2	Pollution Prevention
PAC	Public Advisory Committee
NAPS	National Air Pollution Survey
HTM	Heat Transfer Material
PUFF	Polyurethane Foam Filter
RMI	Records of Maintenance and Inspections
SPL	Spent Potlining

RATIONAL:

The Ministry and Alcan both changed name.

BEFORE:**Section 3.1.1**

This subsection applies to effluent discharged from B-Lagoon to Kitimat Arm (Figure 2). B-Lagoon is an unlined settling basin which provides treatment for effluent and storm water. The authorised discharge consists of all effluent and surface runoff received from the smelter site which is sent into B-Lagoon via North B, Middle B, J-Stream, and other minor sources. The influents include, but are not limited to, cooling water from casting operations, rectifiers and miscellaneous minor sources, effluent generated from the de-watering of the short term Waste Cells, surface runoff, waste water from a steam plant, car wash rinse water, and neutralised effluent from Casting DC4 Met Lab etching facilities.

AFTER:**Section 3.1.1**

This subsection applies to effluent discharged from B-Lagoon to Kitimat Arm (Figure 2). B-Lagoon is an unlined settling basin which provides treatment for effluent and storm water. The authorised discharge consists of all effluent and surface runoff received from the smelter site which is sent into B-Lagoon via North B, Middle B, J-Stream, **D to B** and other minor sources. The influents include, but are not limited to, cooling water from casting operations, rectifiers and miscellaneous minor sources, effluent generated from the de-watering of the short term Waste Cells, surface runoff, waste water from a steam plant, car wash rinse water, Drain 1.9a, D lagoon and associated catchment and Drain 1.13.

RATIONAL:

The D lagoon and associated catchment and Drain 1.13. were redirected to B lagoon through **D to B** discharge. The neutralised effluent from Casting DC4 Met Lab etching facilities was removed from this lagoon. Drain 1.9a was redirected from Moore Creek to B Lagoon drainage system.

BEFORE:

Section 3.1.2 B-Lagoon Effluent Discharge

Discharge of effluent from B-Lagoon is authorised on a continuous basis and the effluent quality/quantity shall comply with the following limits:

Parameter	Limit	Sample Type	Reference source not found.	Sample Frequency
Maximum Discharge	175 000 m ³ /d	Continuous		Daily
Typical Discharge	32 000 m ³ /d	Continuous		Daily
Dissolved Aluminum	3.0 mg/L	24hr Composite & Grab		Daily & Monthly
Dissolved Fluoride	10.0 mg/L	24hr Composite & Grab		Daily & Monthly
pH	6.0 - 8.5	24hr Composite & Grab		Daily & Monthly
Total Suspended Solids	50.0 mg/L	24hr Composite & Grab		Daily & Monthly
Cyanide-SAD	0.5 mg/L	Grab		Monthly
Temperature	30 °C	Continuous		Daily & Monthly
PAH ^{3.1.2.2}	not applicable	Grab		Monthly
Seawater Addition	2-5% v/v	Continuous		Daily
96LC50 Bioassay	100%	Grab		Monthly

AFTER:

Section 3.1.2

Discharge of effluent from B-Lagoon is authorised on a continuous basis and the effluent quality/quantity shall comply with the following limits:

Parameter	Limit	Sample Type	Sample Frequency
Maximum Discharge	210 000 m ³ /d	Continuous	Daily
Typical Discharge	32 000 m ³ /d	Continuous	Daily
Dissolved Aluminum	3.0 mg/L	24hr Composite & Grab	Daily & Monthly
Dissolved Fluoride	10.0 mg/L	24hr Composite & Grab	Daily & Monthly
pH	6.0 - 8.5	24hr Composite & Grab	Daily & Monthly
Total Suspended Solids	50.0 mg/L	24hr Composite & Grab	Daily & Monthly
Cyanide-SAD	0.5 mg/L	Grab	Monthly
Temperature	30 °C	Continuous	Continuous
PAH ^{3.1.2.2}	Not applicable	Grab	Monthly
Seawater Addition	2-5% v/v	Continuous	Daily
96LC50 Bioassay	100%	Grab	Monthly

RATIONAL:

Maximum discharge/Typical discharge: The maximum discharge was reviewed based on a number of changes done to the B-lagoon system since the P2 Permit was issued. The most important change is the diversion of D-lagoon to B-lagoon. D-lagoon accounts for a maximum of 35,000 m³/day. Therefore the redirection of the D lagoon to B lagoon could result in the increased discharge 175,000 + 35, 000 for a total of 210,000 m³/d. Effluent discharges from D lagoon had a history of non-compliances, numerous methods were investigated to treat the effluent to prevent the non-compliances. None of the methods were found to be effective and therefore the discharge was rerouted into B Lagoon where the larger volume of the lagoon and phytoremediation in the lagoon eliminated the non-compliances. This change eliminates one of the routine discharges into the marine environment. The total volume of effluent discharged into the marine environment will not change.

Temperature: change sample frequency from Daily & Monthly to Continuous, currently measured continuous.

BEFORE:**Section 3.1.2.2**

PAH data will be reviewed by the Regional Waste Manager in 2002 with the objective of establishing discharge limits.

AFTER:

PAH data will be reviewed by the [Manager - Environmental Protection Regional Operations](#)

RATIONAL:

The 2002 objective was not achieved although the data was provided for review. No regional discharge limits were established as the federal government is currently investigating establishing national objectives.

BEFORE:**Section 3.2.1**

This subsection applies to the effluent discharged from D-Lagoon to Kitimat Arm D-Lagoon is a concrete and asphalt lined settling basin serviced by two filtration trenches installed upstream of the storm water sewer system. The influents to this lagoon consist of surface runoff from courtyards and buildings in the Anode Paste Plant area, Buildings 503 and 504, and the Coke Calciner plant. Runoff from the green coke storage piles, paved parking and storage areas, and the area from the former bulk fuel facility is also treated by D-Lagoon.

AFTER:

Section 3.2.1

Under normal operating conditions, all of this effluent is sent to B Lagoon via the D to B diversion system. In case of pumping system failure and/or an extreme storm event, this subsection applies to the effluent discharged from D-Lagoon to Kitimat Arm. D-Lagoon is a concrete and asphalt lined settling basin serviced by three filtration trenches plus associated stormwater drains installed upstream of the storm water sewer system. The influents to this lagoon consist of surface runoff from courtyards and buildings in the Anode Paste Plant area, Buildings 503 and 504, a portion of the Wharf and the Coke Calciner plant. Runoff from the green coke storage piles, paved parking and storage areas, and the area from the former bulk fuel facility is also treated by D-Lagoon.

RATIONAL:

The D-lagoon diversion project was initiated in 2001 and completed in March 2002. This project was realized as part of Kitimat Works Environmental Improvement Program. D-lagoon discharge is authorized during extreme rain events only where the current drainage system cannot contain all of the runoff water from the site.

BEFORE:**Section 3.2.2**

D-Lagoon discharge is authorized on a continuous basis and the effluent quality/quantity shall comply with the following limits:

Parameter	Limit	Sample Type ⁰	Sample Frequency
Maximum Discharge	35 000 m ³ /d	Continuous Flow	Daily Total
Typical Discharge	1 500 m ³ /d	Continuous Flow	Daily Total
Dissolved Aluminum	1.0 mg/L	24hr Composite & Grab	Daily & Monthly
Dissolved Fluoride	10.0 mg/L	24hr Composite & Grab	Daily & Monthly
pH	6.0 - 8.5	24hr Composite & Grab	Daily & Monthly
Total Suspended Solids	75.0 mg/L	24hr Composite & Grab	Daily & Monthly
PAH ^{3.2.2.2}	not applicable	Grab	Monthly
Seawater Addition	2-5% v/v	Continuous Flow	Daily
96LC50 Bioassay ^{3.3.2.1}	100%	Grab	Monthly

AFTER:**Section 3.2.2**

D-lagoon discharge is authorized during extreme rain events and the effluent quality/quantity shall comply with the limits listed below. Samples are to be obtained within the first hour of discharge initiation and daily thereafter until the situation is back to normal.

Parameter	Limit	Sample Type	Sample Frequency
Dissolved Aluminum	1.0 mg/L	Grab	Daily During Discharge
Dissolved Fluoride	10.0 mg/L	Grab	Daily During Discharge
PH	6.0 - 8.5	Grab	Daily During Discharge
Total Suspended Solids	75.0 mg/L	Grab	Daily During Discharge
96LC50 Bioassay ^{3.3.2.1}	100%	Grab	Daily During Discharge

RATIONAL:

The D-lagoon diversion project was initiated in 2001 and completed in March 2002. This project was realized as part of Kitimat Works Environmental Improvement Program. D-lagoon discharge is authorized during extreme rain events only where the current drainage system cannot contain all of the runoff water from the site.

BEFORE:**Section 3.2.2.1**

Where both composite and grab samples are listed, compliance shall routinely be based on the daily 24hr composite sample, however, the limits also apply to grab samples.

AFTER:**Section 3.2.2.1**

Compliance shall be based on the grab samples.

RATIONAL:**Section 3.2.2.1**

Since the D-lagoon diversion project was completed in March 2002, eliminating direct discharge to the environment, there is no need for a 24hr composite sample to be collected. Therefore, grab samples are the only samples that can be collected to characterize an emergency discharge at D-lagoon outfall.

BEFORE:

Section 3.2.2.2

PAH data will be reviewed by the Regional Waste Manager in 2002 with the objective of establishing discharge limits.

AFTER:

Section 3.2.2.2

Remove from permit.

RATIONAL:

No routine discharge and sampling of this outflow therefore no data to apply discharge limits against.

BEFORE:**Section 3.2.2.3**

All monthly grab samples listed in this table shall be analyzed from samples taken concurrent to the monthly 96LC50 bioassay.

AFTER:

Section 3.2.2.3

Remove this section.

RATIONAL:

No routine discharge and sampling of this outflow.

BEFORE:**Section 3.2.3**

The works include, but are not limited to, a settling basin, ditches, pipelines, slot filters around the green coke storage piles, the D-Lagoon Seawater addition system, and related appurtenances.

AFTER:

Section 3.2.3

The works include, but are not limited to, a settling basin, ditches, pipelines, slot filters around the green coke storage piles [plus drain 1.13 which](#) was redirected into this drainage system.

RATIONAL:

Removal of the seawater addition system and related appurtenances was completed with the commissioning of the D – B pumping. The Drain 1.13 was redirected into the D Lagoon drainage system.

BEFORE:**Section 3.4.1**

This subsection applies to effluent and surface water discharged from miscellaneous unmonitored drains on the plant site

Drains	Receiving Area	Figure
1.4, 1.6, & 1.7	Anderson Creek	Figure 3
1.10	Scow Grid	Figure 3
1.11 & 1.12	Boat Basin	Figure 2
1.13	Kitimat Arm	Figure 2
1.8, 1.8a, 1.8b, 1.8c, 1.9, 1.9a, & 1.9b & Condensate Drains	Moore Creek	Figure 2

AFTER:**Section 3.4.1**

This subsection applies to effluent and surface water discharged from miscellaneous unmonitored drains on the plant site

Drains	Receiving Area	Figure
1.4, 1.6, 1.6b, 1.6c, 1.7, 1.7b,	Anderson Creek	Figure 3
1.10	Scow Grid	Figure 3
1.11, 1.12, 1.12b	Boat Basin	Figure 2
1.8, 1.8a, 1.8b, 1.8c, 1.9, & 1.9b & Condensate Drains	Moore Creek	Figure 2

RATIONAL:

Drains 1.6b, 1.6c, 1.7b and 1.12b were missed on the current permit. Drain 1.13 was redirected into the D Lagoon drainage system. Drain 1.9a was redirected into the B Lagoon drainage system.

BEFORE:**Section 4.1.2**

Four potline buildings have been deemed to be representative potlines and will be used to assess compliance for all potline buildings within the representative group. For compliance evaluation, the Permittee shall use the following discharge flow rates until alternate methods are approved by the Regional Waste Manager:

Building	Representative Potline Group	Ventilation Type	Mean Flow (m ³ /min)	Sample Type	Figure
1A ^{4.1.2.1}	1A (point break feeder)	Exhaust Fans	38300	Fan Survey	Figure 5:1
1B		Exhaust Fans	38300	Fan Survey	Figure 5:2
1C		Exhaust Fans	38800	Fan Survey	Figure 5:3
2A ^{4.1.2.1}	1B, 1C, 2A, 2B, & 2C	Exhaust Fans	43000	Fan Survey	Figure 5:4
2B		Exhaust Fans	32000	Fan Survey	Figure 5:5
2C		Exhaust Fans	32900	Fan Survey	Figure 5:6
3B ^{4.1.2.1}	3A, 3B, 4A, 4B, 5A, & 5B	Gravity Ventilators	91800	Modeled Flow	Figure 5:7
3A		Gravity Ventilators	91800	Modeled Flow	Figure 5:8
4A		Gravity Ventilators	91800	Modeled Flow	Figure 5:9
4B		Gravity Ventilators	91800	Modeled Flow	Figure 5:10
5A		Gravity Ventilators	91800	Modeled Flow	Figure 5:11
5B		Gravity Ventilators	78200	Modeled Flow	Figure 5:12
8A ^{4.1.2.1}	7B, 8A, & 8B	Gravity Ventilators	97100	Modeled Flow	Figure 6:13
7B		Gravity Ventilators	97100	Modeled Flow	Figure 6:14
8B		Gravity Ventilators	97100	Modeled Flow	Figure 6:15

AFTER:**Section 4.1.2**

Representative potlines and will be used to assess compliance for all potline buildings within the representative group. For compliance evaluation, the Permittee shall use the following discharge flow rates until alternate methods are approved by the Regional Waste Manager:

Building	Representative Potline Group	Ventilation Type	Mean Flow (m ³ /min)	Sample Type	Figure
1A ^{4.1.2.1}	1A (point break feeder)	Exhaust Fans	38300	Fan Survey	Figure 5:1
1B		Exhaust Fans	38300	Fan Survey	Figure 5:2
1C		Exhaust Fans	38800	Fan Survey	Figure 5:3
2A ^{4.1.2.1}	1B, 1C, 2A, 2B, & 2C	Exhaust Fans	43000	Fan Survey	Figure 5:4
2B		Exhaust Fans	32000	Fan Survey	Figure 5:5
2C		Exhaust Fans	32900	Fan Survey	Figure 5:6
3A		Gravity Ventilators	91800	Modeled Flow	Figure 5:7
3B ^{4.1.2.1}	3A & 3B,	Gravity Ventilators	91800	Modeled Flow	Figure 5:8
4A		Gravity Ventilators	91800	Modeled Flow	Figure 5:9
4B ^{4.1.2.1}	4A, & 4B	Gravity Ventilators	91800	Modeled Flow	Figure 5:10
5A		Gravity Ventilators	91800	Modeled Flow	Figure 5:11
5B ^{4.1.2.1}	5A & 5B	Gravity Ventilators	78200	Modeled Flow	Figure 5:12
7B		Gravity Ventilators	97100	Modeled Flow	Figure 6:13
8A ^{4.1.2.1}	7B, 8A, & 8B	Gravity Ventilators	97100	Modeled Flow	Figure 6:14
8B		Gravity Ventilators	97100	Modeled Flow	Figure 6:15

RATIONAL:

Due to the shutdown of Line 1&2 the originally agreed upon representative buildings (1A, 2A, 3B & 8A) no longer was a good measure of the plants fluoride and particulate emissions performance. As there were only two (2) representative buildings to use in the calculation of the emissions for the nine (9) operating buildings. This would result in an average of four values (2 bldgs by 2 sample periods) for a monthly emission result. Statistically this is an insufficient number of samples to calculate a meaningful emissions value. As a result additional buildings were equipped with the Alcan cassette monitoring systems, Bldg 4B and 5B.

BEFORE:**Section 4.1.3**

The secondary roof emission quality from the average of the four representative potroom buildings shall not exceed the following:

Parameter	Limit ^{4.1.3.1}	Sample Type	Sample Frequency
Gaseous Fluoride	1.9 kg/Mg Al	Cassette/Impinger ^{4.1.3.2}	Monthly
Total Particulate	7.5 kg/Mg Al	Cassette/Impinger ^{4.1.3.2}	Monthly
PAH	not applicable ^{4.1.3.3}	PUFF	Quarterly

AFTER:

Section 4.1.3 The secondary roof emission quality from the average of the representative potroom buildings shall not exceed the following:

Parameter	Limit ^{4.1.3.1}	Sample Type	Sample Frequency
Gaseous Fluoride	1.9 kg/Mg Al	Cassette	Monthly
Total Particulate	7.5 kg/Mg Al	Cassette	Monthly as a 12 month rolling average
PAH	not applicable ^{4.1.3.3}	PUFF	Quarterly

RATIONAL:

Total Particulate to be determined by measuring the particulate emissions at 6 sample sites per building per sample period of 14 days and calculated as a running average with the data from the last 12 months of monitoring.

The permit limit of 7.5 kg/tonne Al was based on an 8 month running average, the change to the cassette monitoring and the permit revision of Dec 1999 changed the calculation method. Particulate emissions are now measured in one building per sample period, as result the monthly average is of two (2) values. This is an insufficient number of values for a mathematically significant average. The two sample average results in a maximum two (2) of the three (3) representative areas being covered in the monthly average and in some cases one (1) area Line 3-5. A twelve (12) months running average would show the longer term trend and include emissions from all representative building thus generating a truer average. As particulate emissions are not acute this would be a better measure of potential impacts.

Removal of the reference to the impinger monitoring system as the cassette monitoring system has been approved by the Regional Manager as the preferred monitoring system as per section 6.4.

Removal of the reference to the number of representative buildings (four). Emissions average will be calculated with the representative building in operation at the time of sampling.

BEFORE:**Section 4.1.3.2**

The impinger method shall be used as the compliance tool until the Cassette Method has been fully deployed (Section 6.4.4). During this transition phase, compliance will be based on monthly averages of all potlines.

AFTER:

Remove from permit.

RATIONAL:

The Cassette monitoring system was fully deployed and approved by the [Manager - Environmental Protection Regional Operations](#).

BEFORE:**Section 4.1.3.3**

PAH emission data will be reviewed by the Regional Waste Manager in 2002 with the objective of establishing production based emission limits.

AFTER:

Section 4.1.3.3 PAH emission data will be reviewed by the [Manager - Environmental Protection Regional Operations](#) with the objective of establishing production based emission limits.

RATIONAL:

Change of section number due to removal of previous section. Need to update the section by the removal of the year 2002.

BEFORE:**Section 4.1.4**

The Permittee shall minimize potline secondary emissions at all times consistent with good operation and maintenance practices during routine potline operations. Minimum requirements include, but are not limited to:

4.1.4.1 An ore cover shall be promptly maintained on each reduction cell in good working order.

4.1.4.2 The GCS gas-skirts, flanges, casing, burners, laterals, sleeves, ducts, and associated burners shall be maintained in good repair.

4.1.4.3 Tap holes shall not be opened too far in advance and sealed promptly after tapping has been completed.

4.1.4.4 Dust entrainment shall be minimized during materials handling and sweeping of the working aisles.

AFTER:

Remove from permit.

RATIONAL:

Remove entire section as the fluoride and particulate emissions are measures of how well these activities are conducted.

BEFORE:**Section 4.3.2**

Emission quality/quantity from each of the dry scrubber stacks shall not exceed the following based on stack samples:

Parameter	Typical Flow	Limit	Sample Type	Sample Frequency
Total Particulate	1560 m ³ /min	70 mg/m ³	Stack	Annual
Gaseous Fluoride	1560 m ³ /min	10 mg/m ³	Stack	Annual

Dry Scrubber	Building	Figure
DS0 ^{4.3.2.1}	1A - 1B	Figure 5:126
DS1	1C - 2A	Figure 5: 127
DS2 ^{4.3.2.1}	2B - 2C	Figure 5:128
DS3	3A - 3B	Figure 5: 129
DS4 ^{4.3.2.1}	4A - 4B	Figure 5:130
DS5	5A - 5B	Figure 5:131
DS6	7B	Figure 6: 132
DS7 ^{4.3.2.1}	8A/B West	Figure 6: 132a
DS8 ^{4.3.2.1}	8A/B East	Figure 6: 133

AFTER:**Section 4.3.2**

Emission quality/quantity from each of the dry scrubber stacks shall not exceed the following based on stack samples:

Parameter	Typical Flow	Limit	Sample Type	Sample Frequency
Total Particulate	1560 m ³ /min	70 mg/m ³	Stack	Annual
Gaseous Fluoride	1560 m ³ /min	10 mg/m ³	Stack	Annual

Dry Scrubber	Building	Figure
DS0 ^{4.3.2.1}	1A - 1B	Figure 5:126
DS1	1C - 2A	Figure 5: 127
DS2 ^{4.3.2.1}	2B - 2C	Figure 5:128
DS3	3A - 3B	Figure 5: 129
DS4 ^{4.3.2.1}	4A - 4B	Figure 5:130
DS5	5A - 5B	Figure 5:131
DS6	7B	Figure 6: 132
DS7 ^{4.3.2.1}	8A/B East	Figure 6: 132a
DS8 ^{4.3.2.1}	8A/B West	Figure 6: 133

RATIONAL:

The original permit, P2-00001, was in error. Dry Scrubber #7 exhausts the East sections of Line 8 and Dry Scrubber #8 exhausts the West sections of the Line 8.

BEFORE:**Section 4.4.4 SF₆ Consumption**

No existing section.

AFTER:**Section 4.4.4**

This subsection applies to the use of sulphur hexafluoride (SF₆) as an inert blanket for the casting of high quality ingots. The SF₆ consumption for all casting operations shall not exceed the following:

Parameter	Limit	Sample Type	Sample Frequency
SF ₆ consumption	40 kg / year	SF ₆ consumption	Annual

During the fluxing process the sulphur hexafluoride is destroyed (> 99% destruction).

RATIONAL:

The use of SF₆ has been found to assist the Casting Department in producing high quality ingots.

BEFORE:**Section 4.5.2**

Emission quantity/quality from the coke calciner pollution control works shall not exceed the following:

Stack	Typical Flow (m ³ /min)	Flow Limit (m ³ /min)	TP Limit (kg/hr)	Sample Type	Sample Frequency	Figure
Pyroscrubber	1200	1400	21.1	Stack	Biannual	Figure 4:47
Cooler ^{4.5.2.1}	275	400	3.9	Stack	Biannual	Figure 4:48

4.5.2.1 Discharge for Cooler stack emissions are based on wet flows.

AFTER:**Section 4.5.2**

Emission quantity/quality from the coke calciner pollution control works shall not exceed the following:

Stack	TP Limit (kg/hr)	Sample Type	Sample Frequency	Figure
Pyroscrubber	21.1	Stack	Biannual	Figure 4:47
Cooler ^{4.5.2.1}	3.9	Stack	Biannual	Figure 4:48

4.5.2.1 Discharge for Cooler stack emissions are based on wet flows.

RATIONAL:

The permit limit is loading (kg/hr) and therefore covers both the concentration and the flow rate. The inclusion of the flow rate, limits how the system can be operated.

BEFORE:**Section 4.5.3**

The Permittee shall minimize fugitive losses of coke dust from the coke piles. Minimum requirements include, but are not limited to, application of environmentally benign dust suppressants (weather permitting), good material transfer and conveyance operation, and diligent maintenance of the slot filter collection system.

AFTER:**Section 4.5.3**

The Permittee shall minimize fugitive losses of coke dust from the coke piles. Minimum requirements include, good material transfer and conveyance operation, and diligent maintenance of the slot filter collection system.

RATIONAL:

The dust suppressants were not found to have a significant impact on the dust generation due to the limited time the suppressants could be used, e.g. non freezing weather. This section was added when there was an issue with the D Lagoon discharges exceeding the permit limit. With the completion of the D-B diversion this issue dropped from the list of compliance issues.

BEFORE:**Section 4.6.2**

Emission quality/quantity discharged from significant APP pollution control works shall not exceed the following:

Source	Typical Flow (m ³ /min)	Typical Frequency	TP Limit (mg/m ³)	Sample Type	Sample Frequency	Figure
DC10	775	24hr/d 5d/wk	120	Stack	Annual	Figure 4:27
DC11	150	24hr/d 5d/wk	120	Stack	Annual	Figure 4:28
DC12	150	24hr/d 5d/wk	120	Stack	Annual	Figure 4:29
DC13	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:30
DC14	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:31
DCF111	1000	24hr/d 7d/wk	50	Stack	Annual	Figure 4:31a
FC3	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:34

AFTER:**Section 4.6.2**

Emission quality/quantity discharged from significant APP pollution control works shall not exceed the following:

Source	Typical Flow (m ³ /min)	Typical Frequency	TP Limit (mg/m ³)	Sample Type	Sample Frequency	Figure
DC10	775	24hr/d 5d/wk	120	Stack	Annual	Figure 4:27
DC11	150	24hr/d 5d/wk	120	Stack	Annual	Figure 4:28
DC12	150	24hr/d 5d/wk	120	Stack	Annual	Figure 4:29
DC13	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:30
DC14	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:31
DCF111	1000	24hr/d 5d/wk	50	Stack	Annual	Figure 4:31a
FC3	100	24hr/d 5d/wk	120	Stack	Annual	Figure 4:34
Pitch Incinerator	100 Max 50 typical	24hr/d 3d/wk 7wk.yr	500	Stack	Annual	

RATIONAL:

Change of DCF-111 Typical Frequency from 24 hr/d 7d/wk to 24 hr/d 5d/wk as this is the operation schedule.

Addition of the pitch incinerator on the liquid pitch storage tanks to the permit. This source was not listed in the 1999 version of the P2-00001 permit.

BEFORE:**Section 4.6.3**

The Permittee shall minimize emissions at all times consistent with good operation and maintenance practices of other miscellaneous APP emission control systems including, but not limited to: DC0, DC1, DC2, DC3, DC4, DC6, DC7, DC9, and DC17.

AFTER:

4.6.3 The Permittee shall minimize emissions at all times consistent with good operation and maintenance practices of other miscellaneous APP emission control systems including, but not limited to: DC1, DC2, DC3, DC4, DC6, DC9, DC15, and DC17.

RATIONAL:

Dust collector units DC0 and DC7 do not exist. Need to remove from the permit.

Dust collector DC15 was missed from the existing permit and therefore needs to be added to the permit.

BEFORE:**Section 4.7****Ancillary Cathode Operations****AFTER:****4.7 Material Recovery****RATIONAL:**

The ancillary cathode operations in general have been shutdown and will not be restarted. The remaining functions are recovery of materials (alumina and bath). Therefore the title of this section should change to reflect the changed role.

BEFORE:**Section 4.7.1**

This subsection applies to the discharge of air contaminants from the following areas: cathode recovery, mix plant, cathode rebuild, and cathode lining. Carbon recovered from demolished cathodes is stored in a warehouse for ~12 months to release gasses prior to processing through a hammer mill/crusher in cathode recovery. Crushed carbon is then transferred to a rotary hydrator and treated with steam to remove carbides and nitrides which are subsequently incinerated. The hydrated recovered carbon (HRC) is size fractionated and returned to the material stream in the mix plant where it is combined with pitch for use as tamping blend for new cathode construction. Unrecoverable carbon is managed as a Special Waste (Spent Potlining).

AFTER:

4.7.1 This subsection applies to the discharge of air contaminants from the recovery plant, Bldg 231.

RATIONAL:

The shutdown of the cathode recovery area removes the majority of the sources in this section leaving only the recovery plant, Bldg 231.

BEFORE:**Section 4.7.2**

Emission quantity/quality discharged from the ancillary cathode operations shall not exceed the following:

Source	Typical Flow (m ³ /min)	Typical Frequency	TP Limit (mg/m ³)	Sample Type	Sample Frequency	Figure
DC231 Crusher	625	8hr/d 5 d/wk	50	Stack	Annual	Figure 6:162
B244 Dryer	200	6hr/d 2d/wk	175	Stack	Annual	Figure 6:165
B244 Mixers	100	4hr/d 5d/wk	75	Stack	Annual	Figure 6:166
DC244 Main	375	8hr/d 5d/wk	75	Stack	Annual	Figure 6:167
DC245 Shotblast	125	4hr/d 3d/wk	50	Stack	Annual	Figure 6:176

AFTER:

4.7.2 Emission quantity/quality discharged from the material recovery operations shall not exceed the following:

Source	Typical Flow (m ³ /min)	Typical Frequency	TP Limit (mg/m ³)	Sample Type	Sample Frequency	Figure
DC231 Crusher	625	8hr/d 5 d/wk	50	Stack	Annual	Figure 6:162

RATIONAL:

The sources B244 Dryer, B244 Mixers and DC244 Main have been shutdown and will not restart, therefore need to remove these sources from the permit.

The DC245 Shotblast was removed prior to the P2-00001 permit being issued. A new collector bar cleaning shotblast and associated dust collector was installed in the area. The shotblast is only used to remove mill scale from the bars for limited time. A permit limit was not established by the Ministry.

BEFORE:**Section 4.7.3**

The works include, but are not limited to, a hydrator, incinerator, grizzly crusher, mixers, grinding machines, ESP, shotblast systems, fans, ducts, vents, and related appurtenances.

AFTER:

4.7.3 The works include, but are not limited to grizzly crusher, grinding machines, dust collector systems, fans, ducts, vents, and related appurtenances.

RATIONAL:

The sources B244 Dryer, B244 Mixers and DC244 Main have been shutdown and will not restart, therefore need to remove these sources and associated equipment from the permit.

BEFORE:**Section 4.9.2**

The maximum volume authorized to be burned is 480 m³/mo. The release of visible smoke shall cease within 48 hours of the time of ignition. The characteristics of material to be burned shall be wood debris including broken lumber, pallets (excluding treated wood), and other materials deemed acceptable by the Regional Waste Manager.

AFTER:

4.9.2 The maximum volume authorized to be burned is 480 m³/mo. The release of visible smoke shall cease within 48 hours of the time of ignition. The characteristics of material to be burned shall be wood debris including broken lumber, pallets (excluding treated wood), and other materials deemed acceptable by the Regional Waste Manager as listed in the table below:

Product Category	Absorbent Material	Maximum Quantity per burn (m ³)	Annual Maximum (m ³ /yr)
Used Absorbent booms & pads	polypropylene	7	30
Used floor dry	80% wood, 20% diatomaceous earth, <0.1% crystalline silica	3	6
Oily rags	Cotton	<1% or 0.06	<1% or <0.36

Materials that are authorized to be collected (cleaned-up) by these absorbent products and placed on the open burn piles are restricted to used lubricants and grease that are not contaminated with other (non-lubricating) spilled materials.

RATIONAL:

The burning of the used absorbent was approved in Feb 2004, the volumes have been increased as the original estimates were based on a monthly collection and burn. As the burn is typically every second month (6 times / year) the volumes needed to be adjusted.

BEFORE:**Section 5.1.2**

Authorized material that can be discharged includes inert mixed industrial refuse, ash and waste from the Open Burning of wood waste (Section 4.9 Open Burning), miscellaneous scrap, municipal refuse, and cover material, but excluding all Special Waste. Discharge is authorized under the following conditions:

Discharge Limit	Typical Frequency	Sample Type	Sample Frequency	Figure
11 000 m ³ /yr	24hr/d 7d/wk	Volumetric survey	Annual	Figure 2:A

AFTER:

5.1.2 Authorized material that can be discharged includes inert mixed industrial refuse, ash and waste from the Open Burning of wood waste (Section 4.9 Open Burning), miscellaneous scrap, municipal refuse, and cover material, but excluding all Hazardous Waste. Discharge is authorized under the following conditions:

Discharge Limit	Typical Frequency	Sample Type	Sample Frequency	Figure
11 000 m ³ /yr	24hr/d 7d/wk	Volumetric survey	Annual	Figure 2:A

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:**Section 5.2.3**

Landfill B operations shall follow a trench and fill method. Asbestos wastes shall be packaged, handled, and disposed of as *Special Waste* and shall be immediately buried with a minimum of 0.3 m covering material.

AFTER:

5.2.3 Landfill B operations shall follow a trench and fill method. Asbestos wastes shall be packaged, handled, and disposed of as *Hazardous Waste* and shall be immediately buried with a minimum of 0.3 m covering material.

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:**Section 5.3.1**

This subsection applies to the storage of PAH contaminated dredgate from the Alcan Wharf area in a *Special Waste* storage cell and for the storage of fluoride contaminated overburden in a waste storage cell. The SPL overburden and the Wharf Dredgate cells (Figure 3) are located in the KCP Laydown Area, approximately 200 metres north of Anderson Creek and 200 metres east of the main smelter site road.

AFTER:

5.3.1 This subsection applies to the storage of PAH contaminated dredgate from the Alcan Wharf area in a *Hazardous Waste* storage cell and for the storage of fluoride contaminated overburden in a waste storage cell. The SPL overburden and the Wharf Dredgate cells (Figure 3) are located in the KCP Laydown Area, approximately 200 metres north of Anderson Creek and 200 metres east of the main smelter site road.

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:**Section 5.3.2**

Maximum authorized volumes to be stored on a short term basis in each cell are listed in the following table:

Area	Classification	Storage Limit (m ³)	Figure
SPL Overburden	Non Special Waste	10 500	Figure 3: D
Wharf Dredgate	Special Waste	2 000	Figure 3:E

AFTER:

5.3.2 Maximum authorized volumes to be stored on a short term basis in each cell are listed in the following table:

Area	Classification	Storage Limit (m ³)	Figure
SPL Overburden	Non Hazardous Waste	10 500	Figure 3: D
Wharf Dredgate	Hazardous Waste	2 000	Figure 3:E

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:

Section 5.3.5

The Permittee shall comply with all applicable provisions regarding operation and maintenance requirements for the temporary storage of *Special Waste*. This includes, but is not limited to:

AFTER:

5.3.5 The Permittee shall comply with all applicable provisions regarding operation and maintenance requirements for the temporary storage of *Hazardous Waste*. This includes, but is not limited to:

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:

Section 5.3.5.1

The Permittee shall collect leachate from the Wharf Dredgate cell and store the leachate in appropriate storage containers while samples are analyzed. Disposal options pursued shall be in accordance with the *Special Waste Regulation* requirements, based on the results of the analysis.

AFTER:

5.3.5.1 The Permittee shall collect leachate from the Wharf Dredgate cell and store the leachate in appropriate storage containers while samples are analyzed. Disposal options pursued shall be in accordance with the *Hazardous Waste Regulation* requirements, based on the results of the analysis.

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:

Section 5.4.1

This subsection applies to the short term storage of *Special Waste* on the smelter site. The Permittee shall comply with all applicable provisions specified in the *Special Waste Regulation*. This Section does not authorize the discharge of any waste stream resulting from the operation of any *Special Waste* storage or handling facility.

AFTER:

5.4.1 This subsection applies to the short term storage of *Hazardous Waste* on the smelter site. The Permittee shall comply with all applicable provisions specified in the *Hazardous Waste Regulation*. This Section does not authorize the discharge of any waste stream resulting from the operation of any *Hazardous Waste* storage or handling facility.

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste.

BEFORE:**Section 5.4.2**

Maximum quantities stored at any given time shall be equivalent to or less than the following:

Area	Building	Waste Type	Storage Limit	Figure
PCB Storage	157	PCB tainted material	410 litres	Figure 2:G
SPL & Carbonaceous Waste	504	Solid Special Waste	45 000 Mg	Figure 2:H
SPL Only	550	Solid Special Waste	25 000 Mg	Figure 2:I
SPL & Carbonaceous Waste	242	Solid Special Waste	700 Mg	Figure 3:J
Waste Oil Storage Tank	295	Waste Oil	100 000 litres	Figure 3: K
Waste Oil Storage Tank	174	Waste Oil	10 000 litres	Figure 2:L
Waste Oil Storage Tank	163 A	Waste Oil	2 000 litres	Figure 2:M
Waste Oil Storage Tank Mobile		Waste Oil	5 000 litres	
Oil Wastes Drums	243	Oily Sludge & Earth	407 m ³	Figure 2:O
Waste Batteries	173	Waste Lead Acid Batteries	15 Mg	Figure 2:P
Waste Paints & Solvents	163A & L7A	Waste Paints	12 000 litres	Figure 2:& 3: Q
Waste Paints & Solvents	163A & L7A	Waste Sludges	4 000 litres	Figure 2:& 3: R
Solvent Storage Area	243	Waste Solvents	40 000 litres	Figure 3: S
Smelter Process Wastes	550	Process Waste	500 Mg	

AFTER:

5.4.2 Maximum quantities stored at any given time shall be equivalent to or less than the following:

Area	Building	Waste Type	Storage Limit	Figure
PCB Storage	157	PCB tainted material	410 litres	Figure 2:G
SPL & Carbonaceous Waste	504	Solid Special Waste	45 000 Mg	Figure 2:H
Waste Oil Storage Tank	295	Waste Oil	100 000 litres	Figure 3: K
Waste Oil Storage Tank	174	Waste Oil	10 000 litres	Figure 2:L
Waste Oil Storage Tank	163 A	Waste Oil	2 000 litres	Figure 2:M
Waste Oil Storage Tank Mobile		Waste Oil	5 000 litres	
Oil Wastes Drums	243	Waste Oil, Waste fuel, Oily Sludge & Earth	407 m ³	Figure 2:O
Waste Batteries	173 or L7A	Waste Lead Acid Batteries	15 Mg	Figure 2:P
Waste Paints & Solvents	163A & L7A	Waste Paints	12 000 litres	Figure 2:& 3: Q
Waste Paints & Solvents	163A & L7A	Waste Sludges	4 000 litres	Figure 2:& 3: R
Solvent Storage Area	243	Waste Solvents	40 000 litres	Figure 3: S
Smelter Process Wastes	550	Process Waste	500 Mg	
Batteries, dry cell	243	Waste batteries	5 Mg	
Waste containing PAH	142	Waste Containing PAH	100 Mg	
Waste containing PAH	296	Waste Containing PAH	100 Mg	
Waste containing PAH	144	Waste Containing PAH	100 Mg	

RATIONAL:

Reconfiguring storage areas to better match the current use. Note Bldg 504 will be emptied of SPL during 2005.

Bldg 504 to be used as a central staging /storage facility.

BEFORE:**Section 5.4.2.1**

All *Special Waste* shall be stored in a building designed to withstand the weather associated with the Kitimat Valley. Other terms and conditions under which wastes noted in Section 5.4.2 can be stored are as follows:

Building	Condition
504 & 550	In addition to SPL material, other Special Waste materials including floor sweepings, dross, slags, and sludge from routine smelter operations may be stored in Building 504 & 550.
242	Building 242 may be used for short term storage of SPL and related contaminated materials for waste sorting purposes only. The maximum quantity permitted at this location at any time is 700 tonnes of spent potlining material for the purpose of sorting, classifying and recycling.
295/243	A maximum of 5,000 litres of Fullers Earth contaminated with waste oil, a maximum of 2,000 litres of waste greases, and maximum of 400 m ³ of oily sludge from the steam cleaning of equipment is permitted in temporary storage at any one time. Miscellaneous oily wastes shall be stored in steel 204 litre drums located adjacent to Building 295.
163A/L7A	Storage areas east of Building 163A and south of potline 7A, east of Bin #40 are authorized for short term storage of waste paints, paint sludges and solvents. Waste solvent materials may be stored in 204 litre steel drums south east of Building 295.
Smelter Process Wastes	This includes the secure and weather proof short term storage of duct scrapings, studblast fines, pitch cones, pitch condensates, fluoride bath bags, dry scrubber bags, and gas skirt cleanings. The waste shall be sorted by content and segregated into different areas for easy identification. A maximum of 500 Mg may be stored at any given time and no waste may be retained for more than 1 year after initial storage.

AFTER:

5.4.2.1 All *Hazardous Waste* shall be stored in a building designed to withstand the weather associated with the Kitimat Valley. Other terms and conditions under which wastes noted in Section 5.4.2 can be stored are as follows:

Building	Condition
504 & 550	In addition to SPL material, other Special Waste materials including floor sweepings, dross, slags, and sludge from routine smelter operations may be stored in Building 504 & 550.
295/243	A maximum of 5,000 litres of Fullers Earth contaminated with waste oil, a maximum of 2,000 litres of waste greases, and maximum of 400 m ³ of oily sludge from the steam cleaning of equipment is permitted in temporary storage at any one time. Miscellaneous oily wastes shall be stored in steel 204 litre drums located adjacent to Building 295.
163A/L7A	Storage areas east of Building 163A and south of potline 7A, east of Bin #40 are authorized for short term storage of waste paints, paint sludges and solvents. Waste solvent materials may be stored in 204 litre steel drums south east of Building 295. Waste air filters contaminated with fluoride dust and used absorbants (matasorb) will be stored in L7A.
Smelter Process Wastes	This includes the secure and weather proof short term storage of duct scrapings, studblast fines, pitch cones, pitch condensates, fluoride bath bags, dry scrubber bags, and gas skirt cleanings. The waste shall be sorted by content and segregated into different areas for easy identification. A maximum of 500 Mg may be stored at any given time and no waste may be retained for more than 1 year after initial storage.

RATIONAL:

Replacement of the Waste Management Act with the Environmental Management Act changes the definition of Special Waste to Hazardous Waste therefore the change.

Removed Bldg 242 as it is no longer used as a Hazardous Waste Storage area.

BEFORE:**Section 6.1.1**

The quality and quantity of the storm water entering B and D-Lagoon, source identification, and operational measures to limit the discharge of dissolved aluminum shall be reviewed and remedied by the Permittee to the satisfaction of the Regional Waste Manager.

AFTER:

Remove section.

RATIONAL:

The mass balance project presentation to the MWLAP completes this requirement. Remove from the permit.

BEFORE:**Section 6.1.2**

The Permittee shall submit a report to the Regional Waste Manager summarizing results and present an action plan to mitigate environmental impacts from storm water discharge to B and D-Lagoons by June 24, 2000.

AFTER:

6.1.2 The Permittee shall submit a report to the Manager - Environmental Protection Regional Operations summarizing results and present an action plan to mitigate environmental impacts from storm water discharge to B Lagoon.

RATIONAL:

Mitigating action to address storm water discharges to D Lagoon was addressed with the commissioning of the D-B diversion. The re-routing of the storm water to B lagoon eliminated the D lagoon issues. The B lagoon mitigation plan is being prepared.

BEFORE:**Section 6.2.1**

The quantity and quality of effluent from drains cited in Section 3.4 Miscellaneous Storm Drains shall be reviewed to the satisfaction of the Regional Waste Manager to assess the environmental liability of these discharges to Moore Creek, Anderson Creek, and the estuary.

AFTER:

Remove section.

RATIONAL:

Remove requirement as the work as completed March 4, 2003

BEFORE:**Section 6.2.2**

The Permittee shall submit a report to the Regional Waste Manager by June 24, 2000 which summarizes the results of the Miscellaneous Storm Drain study and provides an Action Plan which addresses the environmental concerns associated with these discharges.

AFTER:

Remove section.

RATIONAL:

Remove requirement as the work as completed March 4, 2003

BEFORE:**Section 6.3.1**

The Permittee shall determine to the satisfaction of the Regional Waste Manager, the effects of increased SO₂ emissions on the Kitimat valley. This study shall include, but is not limited to, air emission modeling of SO₂, vegetation surveys for SO₂ effects, and soil and water impacts. In addition, the Permittee shall undertake a conceptual study of SO₂ scrubbing technologies and implementation for the Pyroscrubber, Potlines and Dry Scrubbers.

AFTER:

Remove section.

RATIONAL:

This was completed in 2003 and all reports were submitted to the Ministry.

BEFORE:**Section 6.3.2**

The Permittee shall submit a report by June 30, 2000 to the Regional Waste Manager, which summarizes the results of the SO₂ impact review and the SO₂ scrubbing technology review.

AFTER:

Remove section.

RATIONAL:

Reports were submitted in 2003.

BEFORE:**Section 6.4.1**

The Permittee shall upgrade the existing water impinger system for determining secondary potline gaseous fluoride with an emission monitoring system based on the Alcan Cassette Method, to the satisfaction of the Regional Waste Manager.

AFTER:

Remove section.

RATIONAL:

Completed March 2003.

BEFORE:**Section 6.4.2**

Determination of fluoride and particulate emissions shall follow a methodology reviewed and approved by the Regional Waste Manager prior to migration to the Cassette Method for compliance purposes. Information to substantiate the equivalency between the existing impinger method and Cassette Method shall be submitted to the satisfaction of the Regional Waste Manager prior to migration.

AFTER:

Remove section.

RATIONAL:

Completed requirements, presented to MWLAP April 2003.

BEFORE:**Section 6.4.3**

Discrete Cassette systems shall be placed in one potline building for each representative potline group. Within each group, the selected building shall reflect average emissions among each potline group. Subsequent modification to a potline group (any existing potline group where physical changes increase the amount of fluoride emitted into the atmosphere by that potline group) shall require a new monitoring system approved by the Regional Waste Manager.

AFTER:

Remove section.

RATIONAL:

Completed requirements in April 2003.

BEFORE:**Section 6.4.4**

The Permittee shall complete the Cassette Method installation in all representative buildings, by January 1st, 2001.

AFTER:

Remove section.

RATIONAL:

Completed requirements.

BEFORE:**Section 6.5.1**

Suitable CEM systems for gaseous fluoride shall be implemented in the representative potline buildings selected for Cassette monitoring. All systems shall be reviewed to the satisfaction of the Regional Waste Manager prior to implementation.

AFTER:

Remove section.

RATIONAL:

CEM was installed in one potline building and results submitted to the Regional Waste Manager. No new information was discovered.

BEFORE:

Section 6.5.2

The Permittee shall complete a review and initial installation of a CEM trial system by January 1st, 2001.

AFTER:

Remove section.

RATIONAL:

Completed requirements, presented to MWLAP March 4, 2004.

BEFORE:

Section 6.6.1

The Permittee shall refine the accuracy of roof emission flow rates to the satisfaction of the Regional Waste Manager. This includes, but is not limited to, the establishment of at least one continuous flow meter in each representative potline building selected for Cassette Method monitoring.

AFTER:

6.6.1 The Permittee shall refine the accuracy of roof emission flow rates to the satisfaction of the Manager - Environmental Protection Regional Operations

RATIONAL:

No continuous flow meter was found to be acceptable. Investigating a thermal model instead.

BEFORE:

Section 6.6.3

The Permittee shall complete a review of roof emission rates and present recommendations to the Regional Waste Manager by January 1st, 2001.

AFTER:

6.6.3 The Permittee shall complete a review of roof emission rates and present recommendations to the Manager - Environmental Protection Regional Operations.

RATIONAL:

Investigating other methods of determining roof flow rates and can not at this time define a reporting deadline.

Hot wire anemometer was tested in 1987. During 1997 – 2001 a series of different anemometers (vane, optical and ultrasonic) were tested.

BEFORE:

Section 6.7.1

The Permittee shall quantify and qualify the emission characteristics from the stacks which emit contaminants as a result of fluxing in Casting Plants A and B.

AFTER:

Remove section.

RATIONAL:

Completed requirement and presented information to the Ministry.

BEFORE:**Section 6.7.2**

The Permittee shall complete a review of Casting emissions and present recommendations to the Regional Waste Manager by September 30, 2000.

AFTER:

Remove section.

RATIONAL:

Completed requirements and presented information to the Ministry.

BEFORE:**Section 6.8.1**

The Permittee shall maintain a groundwater well monitoring program for the deactivated West, Central, and East SPL landfills to the satisfaction of the Regional Waste Manager. Requirements include, but are not limited to, sufficient information necessary to estimate annual discharge of F-D, Al-D, Fe-D, pH, and CN-SAD to Kitimat Arm based on groundwater well concentrations and groundwater flow rate modeling. Any changes to the SPL landfills that may affect the quality and/or quantity of the leachate generated shall be reported to the Regional Waste Manager prior to planned modifications or immediately subsequent to the discovery of natural events (e.g. subsidence).

AFTER:

8.9.1 The Permittee shall maintain a groundwater well monitoring program for the deactivated West, Central, and East SPL landfills to the satisfaction of the Manager - Environmental Protection Regional Operations. Requirements include, but are not limited to, sufficient information necessary to estimate annual discharge of F-D, Al-D, Fe-D, pH, CN-SAD and CN-WAD to Kitimat Arm based on groundwater well concentrations and groundwater flow rate modeling. Any changes to the SPL landfills that may affect the quality and/or quantity of the leachate generated shall be reported to the Manager - Environmental Protection Regional Operations prior to planned modifications or immediately subsequent to the discovery of natural events (e.g. subsidence).

RATIONAL:

Move to the monitoring section to consolidate monitoring requirements. Added CN-WAD as this was missing and is an accepted evaluation criteria.

BEFORE:**Section 6.8.2**

An annual report assessing these landfills and the discharges associated with them shall be submitted to the Regional Waste Manager by March 31 of each calendar year.

AFTER:

8.9.2 An annual report assessing these landfills and the discharges associated with them shall be submitted to the Manager - Environmental Protection Regional Operations by March 31 of each calendar year.

RATIONAL:

Move to the monitoring section to consolidate monitoring requirements.

BEFORE:

Section 7.2.1

New Section.

AFTER:

7.2.1 In the event of the dry scrubber system failing resulting in a zero exhaust situation in the potrooms, after normal business hours the event would be reported to the Ministry of Water, Lands and Air Protection on the next business day.

RATIONAL:

Currently for after normal business hours Plant Protection calls and leaves a voice mail for the Environmental Protection officer (MWALP). As the no one is responding until the next business day, the change would allow the data to be reviewed and validated prior to reporting to MWLAP. This was discussed and approved at the September 29, 2004 meeting.

BEFORE:

Section 7.2.2

New section.

AFTER:

7.2.2 In the event of the dry scrubber system failing resulting in a no feed situation in the dry scrubber, the event would be reported to the Ministry of Water, Lands and Air Protection in the monthly source monitoring report.

RATIONAL:

Currently for after normal business hours Plant Protection calls and leaves a voice mail for the Environmental Protection officer (MWALP). As the no one is responding until the next business day, the change would allow the data to be reviewed and validated, prior to reporting to MWLAP. This was discussed and approved at the September 29, 2004 meeting.

BEFORE:**Section 8.2.1**

The Permittee shall monitor the following effluent sources at the corresponding frequencies. All monitoring is to be conducted under normal operating conditions unless specified otherwise. Bolded parameters indicate compliance indicators.

Section	Parameter(s)	Sample Type	Sample Frequency	EMS ID
3.1 B-lagoon	Flow, Temp, F-D, pH, & Cond	Continuous	Continuous	
	SeaWater Addition Downtime	Continuous	Continuous	
	F-D, Al-D, TSS, pH, & Hard-T	Composite	Daily	E103448
	F-D, Al-D, TSS, pH, Temp, & Hard-T	Grab ^{8.2.1.1}	Monthly	E103448
	96LC50, CN-SAD, CN-WAD, PAH, & Metals	Grab ^{8.2.1.1}	Monthly	E103448
3.2 D-Lagoon	Flow, pH, & Cond	Continuous	Continuous	
	SeaWater Addition Downtime	Continuous	Continuous	
	F-D, Al-D, TSS, pH, & Hard-T	Composite	Daily	E103449
	PAH, & Metals	Grab ^{8.2.1.1}	Monthly	E103449
	F-D, Al-D, TSS, pH, Hard-T, & 96LC50	Grab ^{8.2.1.1}	Monthly	E103449
3.3 F-Stream	Flow, F-D, Al-D, TSS, pH, Hard-T, & 96LC50	Grab	Overflow	

AFTER:

8.2.1 The Permittee shall monitor the following effluent sources at the corresponding frequencies. All monitoring is to be conducted under normal operating conditions unless specified otherwise. Bolded parameters indicate compliance indicators.

Section	Parameter(s)	Sample Type	Sample Frequency	EMS ID
3.1 B-lagoon	Flow, Temp, F-D, pH, & Cond	Continuous	Continuous	
	SeaWater Addition Downtime	Continuous	Continuous	
	F-D, Al-D, TSS, pH, & Hard-T	Composite	Daily	E103448
	F-D, Al-D, TSS, pH, Temp, & Hard-T	Grab ^{8.2.1.1}	Monthly	E103448
	96LC50, CN-SAD, CN-WAD, PAH, & Metals	Grab ^{8.2.1.1}	Monthly	E103448
3.2 D-Lagoon	Flow, F-D, Al-D, TSS, pH, Hard-T, & 96LC50	Grab	Overflow	
3.3 F-Stream	Flow, F-D, Al-D, TSS, pH, Hard-T, & 96LC50	Grab	Overflow	

RATIONAL:

The D-Lagoon discharge was diverted into B-Lagoon and therefore no routine discharge into the environment. The revised monitoring would be to sample (grab) only in the event of an overflow of the D-Lagoon into the environment.

BEFORE:**Section 8.2.1.1**

In the event that the Seawater Addition System is inoperable for more than three hours during any given day, additional grab samples shall be obtained and analyzed for these parameters.

AFTER:

8.2.1.1 In the event that the Seawater Addition System is inoperable for more than three hours (consecutive) during any given day, additional grab samples shall be obtained and analyzed for these parameters.

RATIONAL:

Short term lost of seawater addition will not result in the hardness of the water at the discharges to drop sufficiency to result in increase toxicity. The system normally maintain seawater addition at 5% whereas the required protection limit is 2%.

BEFORE:**Section 8.3.1**

The Permittee shall monitor the following sources at the corresponding frequencies. All monitoring is to be conducted while production in each appropriate area is under normal operating conditions unless specified otherwise. The respective calculated and/or measured volumetric emission rates shall also be submitted as part of the emission report. Bolded parameters indicate compliance indicators.

Source	Parameter(s)	Measure	Sample Type	Sample Frequency
Plant-wide	Aluminum Production	Mg/mo	Calculation	Monthly
	TP & NOx	Mg/yr	Calculation	Annual
	CO ₂ , PFCs, & TECo ₂	Mg/yr	Calculation	Annual
4.1 Potline Roof Emissions	F-G, F-P, F-T, & TP	kg/Mg Al	Roof Sample	Monthly
	PAH	kg/d	Roof Sample	Quarterly
	DS-Dt	%	Calculation	Monthly
	CE & ηGCs	%	Calculation	Monthly
	B-Bf, C-Out, & P-Strt	#/mo	Calculation	Monthly
4.2 SO ₂ Emissions	SO₂	Mg/d	Calculation	Monthly
4.3 Dry Scrubber (0-8)	F-G	mg/m ³	impinger(daily avg.)	Monthly
	DS Flow	m ³ /min	hot wire anemometer (daily avg.)	Monthly
4.3 DS(0, 2, 4, 7, 8)	TP, F-G, F-P, SO₂ & PAH	mg/m ³	Stack	Annual
4.4 F41 Casting	NOx, HCl, Cl ₂ , & TP	mg/m ³	Stack	Biannual
4.4 Casting	Cl₂ Consumption	kg/d	Calculation	Monthly
4.5 Pyroscrubber	TP, SO₂, & NOx	kg/hr	Stack	Biannual
4.5 Cooler	TP	kg/hr	Stack	Biannual
4.6 DC(11-14), FC3	TP	mg/m ³	Stack	Annual
4.6 DCF-111, DC-10	TP & PAH	mg/m ³	Stack	Annual
4.7 DC-231 & DC-244	TP	mg/m ³	Stack	Annual
4.7 Dryer & Mixer (B 244)	TP	mg/m ³	Stack	Annual
4.8 Natural Gas Operations	TP, SO ₂ , NOx, & CO	Mg/yr	Calculation	Annual
4.8 Wharf Operations	Green Coke & Alumina Loss	Mg/yr	Calculation	Annual
4.8 Liquid Pitch Incinerator	TP & PAH	mg/m ³	Stack	Annual
4.9 Open Burning	Wood Residue Burned	m ³ /mo	Calculation	As Required

AFTER:

8.3.1 The Permittee shall monitor the following sources at the corresponding frequencies. All monitoring is to be conducted while production in each appropriate area is under normal operating conditions unless specified otherwise. The respective calculated and/or measured volumetric emission rates shall also be submitted as part of the emission report. Bolded parameters indicate compliance indicators.

Source	Parameter(s)	Measure	Sample Type	Sample Frequency
Plant-wide	Aluminum Production	Mg/mo	Calculation	Monthly
	TP & NOx	Mg/yr	Calculation	Annual
	CO ₂ , PFCs, & TECo ₂	Mg/yr	Calculation	Annual
4.1 Potline Roof Emissions	F-G, F-P, F-T, & TP	kg/Mg Al	Roof Sample	Monthly
	PAH	kg/d	Roof Sample	Quarterly
	DS-Dt	%	Calculation	Monthly
	CE	%	Calculation	Monthly
	B-Bf, C-Out, & P-Strt	#/mo	Calculation	Monthly
4.2 SO ₂ Emissions	SO₂	Mg/d	Calculation	Monthly
4.3 Dry Scrubber (0-8)	F-G	mg/m ³	(daily avg.)	Monthly
	DS Flow	m ³ /min	(daily avg.)	Monthly
4.3 DS(0, 2, 4, 7, 8)	TP, F-G, F-P, SO₂ & PAH	mg/m ³	Stack	Annual
4.4 DC4 Casting	NOx, HCl, Cl ₂ , & TP	mg/m ³	Stack	Biannual
4.4 Casting	Cl₂ Consumption	kg/d	Calculation	Monthly
4.5 Pyroscrubber	TP, SO₂, & NOx	kg/hr	Stack	Biannual
4.5 Cooler	TP	kg/hr	Stack	Biannual
4.6 DC(10-14),	TP	mg/m ³	Stack	Annual
4.6 DCF-111, FC3	TP & PAH	mg/m ³	Stack	Annual
4.7 DC-231	TP	mg/m ³	Stack	Annual
4.8 Natural Gas Operations	TP, SO ₂ , NOx, & CO	Mg/yr	Calculation	Annual
4.8 Liquid Pitch Incinerator	TP & PAH	mg/m ³	Stack	Annual
4.9 Open Burning	Wood Residue Burned	m ³ /mo	Calculation	As Required

RATIONAL:

4.1 Remove requirement to report monthly gas collection efficiency. This is a theoretical calculation that is the inverse of the F-G emissions. Doesn't add any information.

4.3 Dry Scrubber remove impinger as the method of monitoring. Replace with continuous monitoring equipment, either fluoride specific ion electrode technique or LASIR, laser CEM.

4.3 Dry Scrubber remove Hot wire anemometer, replace with suitable monitoring equipment.

4.4 F41 Casting remove F41 as this is only one stack of DC4 two stacks. Replace with DC4 the casting center instead. Stack sampling on the one stack would normally result in the testing being spread over 3 days, due to batching operations.

4.6 DCF-111, DC10 remove DC10 from this row and add to row DC(11-14), FC3 as this stack was on this row by error. Should have been with DC11 – 14 as per permit PA-6884. Move FC3 to DCF-111 row as this is a PAH source.

4.7 DC-231 & DC-244 remove DC-244 as this equipment is shutdown.

4.7 Dryer & Mixer (B 244) remove row as this equipment is shutdown

4.8 Wharf Operations remove Green Coke and Alumina losses as there is no way to accurately determine the losses. Such losses would appear as particulate matter in the ambient air monitoring equipment.

BEFORE:

Section 8.4.1

The Permittee shall monitor the following sources at the corresponding frequencies. Bolded parameters indicate compliance indicators.

Section	Parameter	Measure	Sample Type	Sample Frequency
5.1 Inert Waste	Refuse Disposed	m ³ /yr	Survey	Annual
5.2 Asbestos Landfill	Refuse Disposed	m ³ /yr	Bag Counts	Annual
5.3 SPL Overburden	Leachate ^{8.4.1.1}	mg/l & volume	Grab	As Required
5.3 Wharf Dredgate	Leachate ^{8.4.1.2}	mg/l & volume	Grab	As Required
5.3 Wharf Dredgate	Cell Integrity ^{8.4.1.3}	mg/l	Grab	As Required/ Quarterly
SPL Landfill Groundwater Wells	F-D, Al-D, Fe-D, pH, & CN-SAD	mg/l	Grab	Quarterly

AFTER:

8.4.1 The Permittee shall monitor the following sources at the corresponding frequencies. Bolded parameters indicate compliance indicators.

Section	Parameter	Measure	Sample Type	Sample Frequency
5.1 Inert Waste	Refuse Disposed	m ³ /yr	Survey	Annual
5.2 Asbestos Landfill	Refuse Disposed	m ³ /yr	Bag Counts	Annual
5.3 SPL Overburden	Leachate ^{8.4.1.1}	mg/l & volume	Grab	As Required
5.3 Wharf Dredgate	Leachate ^{8.4.1.2}	mg/l & volume	Grab	As Required
5.3 Wharf Dredgate	Cell Integrity ^{8.4.1.3}	mg/l	Grab	As Required/ 4 month period
SPL Landfill Groundwater Wells	F-D, Al-D, Fe-D, pH, & CN-SAD	mg/l	Grab	4 month period

RATIONAL:

Quarterly monitoring required sampling in the winter period when snow cover limited access to the wells. Variance between the quarterly samples did not justify the fourth sample.

BEFORE:

Section 8.5.1

The Permittee shall maintain ambient air stations (Figure1) and monitor the following meteorological and ambient air characteristics:

Station	Parameter(s) ^{8.5.1.1}	Measure	Frequency	EMS ID
Haul Road (#2)	F-G, PM ₁₀ , & SO ₂	ug/m ³ or ppb	Continuous	E223616
	PAH	ug/m ³	NAPS Cycle	
	Precipitation Chemistry ^{8.5.1.2}	mg/l	Weekly	
Kitamaat Village (V)	PAH	ug/m ³	NAPS Cycle	E239498
Riverlodge (#9)	F-G & PM ₁₀	ug/m ³ or ppb	Continuous	E216670
Service Centre (#3)	F-G & SO ₂	ppb	Continuous	E224788
	PAH	ug/m ³	NAPS Cycle	
Whitesail (#4)	Meteorological Data ^{8.5.1.3}	n/a	n/a	E223615
	F-G & SO ₂	ppb	Continuous	
	PAH	ug/m ³	NAPS Cycle	

AFTER:

8.5.1 The Permittee shall maintain ambient air stations (Figure1) and monitor the following meteorological and ambient air characteristics:

Station	Parameter(s) ^{8.5.1.1}	Measure	Frequency	EMS ID
Haul Road (#2)	F-G, PM ₁₀ , & SO ₂	ug/m ³ or ppb	Continuous	E223616
	PAH	ug/m ³	NAPS Cycle	
	Precipitation Chemistry ^{8.5.1.2}	mg/l	Weekly	
Kitamaat Village (V)	PAH	ug/m ³	NAPS Cycle	E239498
Riverlodge (#9)	F-G, PM ₁₀ & PM _{2.5}	ug/m ³ or ppb	Continuous	E216670
Service Centre (#3)	F-G, SO ₂ & PM _{2.5}	ppb	Continuous	E224788
Whitesail (#4)	Meteorological Data ^{8.5.1.3}	n/a	n/a	E223615
	F-G & SO ₂	ppb	Continuous	
	PAH	ug/m ³	NAPS Cycle	

RATIONAL:

Added PM_{2.5} two (2) sites as per order of Minsitry.

Remove the PAH monitoring requirement at Service Centre as this was an error. Original agreement was that Haul Road, Kitamaat Village and Whitesail would be monitored for PAH.

BEFORE:**Section 8.5.1.1**

Suitable dataloggers and appropriate data processing methods shall be employed in conjunction with continuous monitors to enable the calculation of rolling 24 hour averages for F-G, SO₂, and PM₁₀ levels. The rolling averages shall be calculated using hourly averages which consist of an average of the discrete samples obtained by the instrument averaged over a clock hour. These hourly averages shall be retained and reported.

AFTER:

8.5.1.1 Suitable dataloggers and appropriate data processing methods shall be employed in conjunction with continuous monitors to enable the calculation of rolling 24 hour averages for F-G, SO₂, PM₁₀ and PM_{2.5} levels. The rolling averages shall be calculated using hourly averages which consist of an average of the discrete samples obtained by the instrument averaged over a clock hour. These hourly averages shall be retained and reported.

RATIONAL:

Ministry requirement that Alcan include PM_{2.5} monitoring at two sites.

BEFORE:**Section 8.5.2**

The ambient stations, including those used for precipitation chemistry and meteorological data, shall be included in the BC MELP quality assurance/quality control audit program and subject to audit by Pollution Prevention Personnel. The audit program may be run on a cost recovery basis, as provided for in the *Environmental Data Quality Assurance Regulation*.

AFTER:

8.5.2 The ambient stations, including those used for precipitation chemistry and meteorological data, shall be included in the BC MWLAP quality assurance/quality control audit program and subject to audit by Pollution Prevention Personnel. The audit program may be run on a cost recovery basis, as provided for in the *Environmental Data Quality Assurance Regulation*.

RATIONAL:

Name change for the ministry.

BEFORE:**Section 8.8**

Additional Monitoring

Based on monitoring results, inspections, and any other information relevant to the effects that the discharges may have on the receiving environment, the Regional Waste Manager may require the Permittee to modify monitoring programs or undertake additional studies to determine the effect of AS&C Kitimat Work's effluent, air emissions, and/or solid waste discharges on the receiving environment. These programs would be undertaken subject to consultation with and approval by the Regional Waste Manager with specific elements of the programs detailed in a separate letter from the Regional Waste Manager.

AFTER:

8.8 Additional Monitoring

Based on monitoring results, inspections, and any other information relevant to the effects that the discharges may have on the receiving environment, the Regional Waste Manager may require the Permittee to modify monitoring programs or undertake additional studies to determine the effect of Alcan Inc. Kitimat Work's effluent, air emissions, and/or solid waste discharges on the receiving environment. These programs would be undertaken subject to consultation with and approval by the Regional Waste Manager with specific elements of the programs detailed in a separate letter from the Regional Waste Manager.

RATIONAL:

Name change AS&C to Alcan Inc. as As&C is not a registered company in British Columbia.

BEFORE:**Section 9.1.3**

Copies of the following cited manuals may be purchased from the Queen's Printer Publication Centre, P. O. Box 9452, Stn. Prov. Govt. Victoria, British Columbia, V8W 9V7 (1-800-663-6105 or (250) 387-6409, or via fax at (250) 387-0388). The manuals are also available for review at all Pollution Prevention offices. Sampling and analyses shall be carried out in accordance with documented procedures authorized by the Regional Waste Manager or by the following specific citations:

British Columbia Field Sampling Manual for Continuous Monitoring Plus the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples (1996 Permittee Edition)

Effluent analyses, including toxicity of liquid effluent to fish, shall be carried out in accordance with procedures described in the *British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials* (1994 Permittee Edition).

Flow measurement of effluent discharge shall be carried out in accordance with the procedures described in *Field Criteria for Sampling Effluents and Receiving Waters* (April 1989).

AFTER:

MWLAP to supply current information on manuals.

RATIONAL:

Need to update as some of the manuals referred to are old and maybe out of print.

BEFORE:**Section 10.1.2**

The Permittee shall submit to the Regional Waste Manager within 30 days of the subject reporting period a digital copy of the following performance indicators and process parameters. The summary shall note any noncompliance and append additional information about the noncompliance event as per Section 10.4 Non-Compliance Reporting Requirements. Bolded parameters indicate compliance indicators:

Area	Parameter(s)	Report <i>f</i>
Plant Process	Aluminum Production & Paste Consumption	Monthly
	Summary, status, & date of significant process changes.	Monthly
3.1 B-Lagoon ^{10.1.2.1}	SeaWater Addition Downtime	Monthly
	F-D, Al-D, TSS, pH, Temp, Hard-T, 96LC50 & PAH	Monthly
	CN-SAD & CN-WAD	Monthly
3.2 D-Lagoon ^{10.1.2.1}	SeaWater Addition Downtime	Monthly
	F-D, Al-D, TSS, pH, Hard-T, 96LC50, & PAH	Monthly
3.3 F-Lagoon Overflow	Flow, F-D, Al-D, TSS, pH, Hard-T, & 96LC50	As Required
4.1 Potline 2 nd Emissions	F-G, F-P, & TP	Monthly
	CE & η GCS	Monthly
	C-Out, P-Strt, & B-Bf	Monthly
	PAH	Quarterly
4.2 SO2 Emissions	SO₂	Monthly
4.3 Dry Scrubber (0-8)	F-G	Monthly
	DS Flow	Monthly
	DS-Dt	Monthly
4.3.3 Casting	Cl₂ Consumption	Monthly
8.5 Ambient Air ^{10.1.2.2}	F-G & SO ₂ : Monthly Mean & Daily Maximum PAH: PM ₁₀ : Precipitation Chemistry	Monthly

AFTER:

10.1.2 The Permittee shall submit to the Manager - Environmental Protection Regional Operations within 30 days of the subject reporting period a report of the following performance indicators and process parameters. The summary shall note any noncompliance and append additional information about the noncompliance event as per Section 10.4 Non-Compliance Reporting Requirements. Bolded parameters indicate compliance indicators:

Area	Parameter(s)	Report <i>f</i>
Plant Process	Aluminum Production & Paste Consumption	Monthly
	Summary, status, & date of significant process changes.	Monthly
3.1 B-Lagoon ^{10.1.2.1}	SeaWater Addition Downtime	Monthly
	F-D, Al-D, TSS, pH, Temp, Hard-T, 96LC50 & PAH	Monthly
	CN-SAD & CN-WAD	Monthly
3.2 D-Lagoon Overflow ^{10.1.2.1}	F-D, Al-D, TSS, pH, Hard-T, 96LC50, & PAH	As Required
3.3 F-Lagoon Overflow	Flow, F-D, Al-D, TSS, pH, Hard-T, & 96LC50	As Required
4.1 Potline 2 nd Emissions	F-G, F-P, & TP	Monthly
	CE & η GCS	Monthly
	C-Out, P-Strt, & B-Bf	Monthly
	PAH	Quarterly
4.2 SO2 Emissions	SO₂	Monthly
4.3 Dry Scrubber (0-8)	F-G	Monthly
	DS Flow	Monthly
	DS-Dt	Monthly
4.3.3 Casting	Cl₂ Consumption	Monthly
8.5 Ambient Air ^{10.1.2.2}	F-G & SO ₂ : Monthly Mean & Daily Maximum PAH: PM ₁₀ : PM _{2.5} : Precipitation Chemistry	Monthly

RATIONAL:

As D-Lagoon discharge is now pumped to B-Lagoon there is no need to maintain a saltwater pumping system on D-Lagoon therefore not requirement to report Seawater Addition Downtime. By the same logic, no requirement for monthly sampling as there is no discharge.
 Needed to add PM_{2.5} as this is now a permit requirement by order of MWLAP.

BEFORE:**Section 10.2.2**

The Annual Report is to be in a format which is suitable for review by the public or other government agencies. The annual report for the preceding year shall be due by March 31 of the next calendar year. At least one copy of the report shall be submitted to each of the following:

BC MELP Regional Waste Manager (Skeena Region)

Kitimat Public Library

AFTER:

10.2.2 The Annual Report is to be in a format which is suitable for review by the public or other government agencies. The annual report for the preceding year shall be due by March 31 of the next calendar year. At least one copy of the report shall be submitted to each of the following:

BC MWLAP Manager - Environmental Protection Regional Operations (Skeena Region)

Kitimat Public Library

RATIONAL:

Name change for the Ministry.

BEFORE:**Section 10.3.1**

In a format approved by the Regional Waste Manager, the Permittee shall publish and contemporaneously maintain an official Environmental Compliance Web Site (ECWS) on separate page(s) under the Environment Section of AS&C Kitimat Works public Internet access site.

AFTER:

10.3.1 In a format approved by the Manager - Environmental Protection Regional Operations, the Permittee shall publish and contemporaneously maintain an official Environmental Compliance Web Site (ECWS) on separate page(s) under the Environment Section of Alcan Inc, Alcan Primary Metal –British Columbia, Kitimat Works public Internet access site.

RATIONAL:

Name Change for Alcan.

BEFORE:**Section 10.3.2**

The following compliance indicators at the associated resolution retroactive for a minimum of two years shall be presented in a line graph on the ECWS with associated measurement units and permit limits:

Section	Parameter(s)	Measure	Resolution
3.1 B-Lagoon	F-D & AI-D	mg/l	Monthly
	96LC50	Pass/Fail	Monthly
3.2 D-Lagoon	F-D & AI-D	mg/l	Monthly
	96LC50	Pass/Fail	Monthly
4.1 Potline Secondary Emissions	F-G & TP	kg/Mg Al	Monthly
	PAH	Mg/yr	Quarterly
4.2 SO2 Emissions	SO₂	Mg/mo	Monthly
4.3.3 Casting	Cl₂ Consumption	kg/mo	Monthly

AFTER:

10.3.2 The following compliance indicators at the associated resolution retroactive for a minimum of five years shall be presented in a graph on the ECWS with associated measurement units and permit limits:

Section	Parameter(s)	Measure	Resolution
3.1 B-Lagoon	F-D & AI-D	mg/l	Monthly
	96LC50	Pass/Fail	Monthly
4.1 Potline Secondary Emissions	F-G & TP	kg/Mg Al	Monthly
	PAH	Mg/yr	Quarterly
4.2 SO2 Emissions	SO₂	Mg/d	Monthly
4.3.3 Casting	Cl₂ Consumption	kg/d	Monthly

RATIONAL:

Change the minimum number of years to be reported from two (2) to five (5).

Removed internet reporting for the D-Lagoon discharge as the discharge has been discontinued.

Remove type of graph, as two charts are currently presented, line & bar.

4.2 SO2 Emissions, change unit of measure from Mg/mo to Mg/d, as the permit limit is defined as Mg/d, (tonne/day) and this is the unit of measure used for the current reporting.

4.3.3 Casting, change unit of measure from kg/mo to kg/d, as the permit limit is defined as kg/d and this is the unit of measure used for the current reporting.

BEFORE:**Section 10.3.3**

In order to present an historical perspective on emissions and discharges, the Permittee shall present permit limits (horizontal line on vertical axis) versus annual average discharge presented as bars for a minimum of five years. All parameters for the appropriate sections listed in the above table shall be presented.

AFTER:

Remove section.

RATIONAL:

Remove this section as section 10.3.2 covers the same issues.

BEFORE:**Section 10.4.1**

In the event of a non-compliance with the requirements of this permit, the Permittee shall immediately take the appropriate remedial action and notify the Regional Waste Manager or designate. The notification shall be made by telephone or facsimile to the Regional Waste Manager or designate. Written confirmation of all non-compliant events, including available relevant test results, is required by facsimile or email within 24 hr of the original notification unless otherwise directed by the Regional Waste Manager.

AFTER:

10.4.1 In the event of a non-compliance with the requirements of this permit, the Permittee shall immediately take the appropriate remedial action and notify the Manager - Environmental Protection Regional Operations or designate. The notification shall be made by telephone or facsimile to the Manager - Environmental Protection Regional Operations or designate. Written confirmation of all non-compliant events, including available relevant test results, is required by facsimile or email within 24 hr of the original notification or the next business day unless otherwise directed by the Manager - Environmental Protection Regional Operations.

RATIONAL:

As the Manager - Environmental Protection Regional Operations or designate are not available on the weekends the 24 hour written confirmation of a non-compliance event is unreasonable. Forwarding the written confirmation on the next business day would allow information to be validated.

Note the Figures all need to be reviewed and updated to reflect name changes etc. The Compendiums will be updated and forwarded as a separate item.

Any person who may be adversely affected by the proposed amendment and wishes to provide relevant information may, within 30 days after the last date of posting, publishing, service or display, send written comments to the applicant, with a copy to the Regional Manager, Environmental Protection at P.O. Box 5000, Smithers, BC, V0J 2N0. The identity of any respondents and the contents of anything submitted in relation to this application will become part of the public record.

Dated this 12th day of October, 2005

Contact person Ken Maitland

(Signature)

Telephone.250-639-8312