



Depollution Attestation for the Pulp and Paper Industry

*NCASI Canadian Meeting
Montreal – November 4, 2014*

Industrial Waste Reduction Program Directorate

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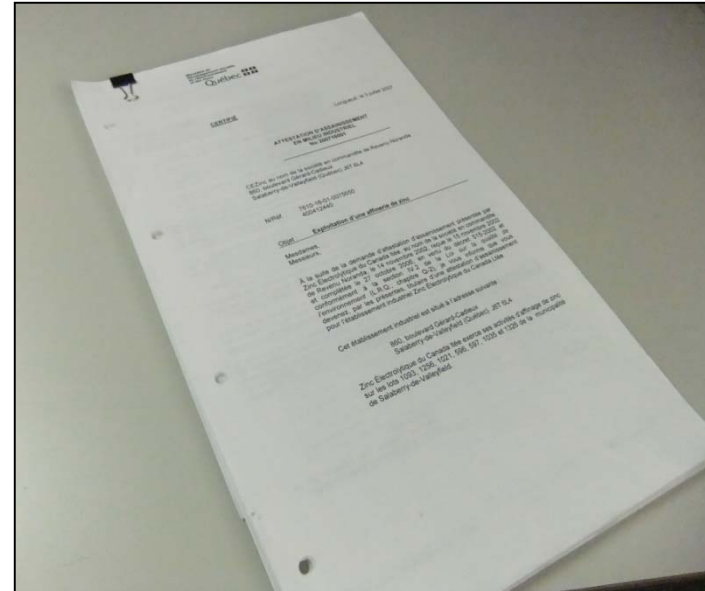
Overview of Presentation

- **What is a Depollution Attestation (DA)?**
- **Continuous Improvement Process**
 - **1st Pulp and Paper Depollution Attestation**
(steps and requirements)
 - **2nd Pulp and Paper Depollution Attestation**
(steps and requirements)
- **Fee Structure**
- **Status of Other Regulated Industrial Sectors**



What is a DA?

- Environmental **operating permit**
- **Customized legal document** that lists **all operating requirements** (discharge limits, monitoring requirements, studies and action plans) that an industrial facility must comply with.



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What is a DA?

- The DA targets all forms of discharges:
 - waste water
 - air emissions and noise
 - waste and mine tailings
- and all receiving environments:
 - surface water and groundwater
 - ambient air
 - soil



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What is a DA?

- Must be renewed every 5 years
 - Intended to gradually reduce discharges
- Submitted for public consultation
 - Public location and Ministry's website (voluntary basis)
- Subject to a fee
 - \$ based on quantities discharged



What is a DA?

- Used to assess each facility's situation at regular intervals based on:
 - the need to further protect the receiving environment
 - knowledge development
 - technological development
 - the financial capability of the facility
- Used to set more stringent limits and requirements than those in the regulations based on the condition of the receiving environment.



Legal Framework – Pulp & Paper

Each mill must comply with:

- *Environment Quality Act*
- Regulations such as:
 - *Regulation Respecting Pulp and Paper Mills*
 - *Clean Air Regulation*
- Depollution Attestation (DA)
 - Customized legal document developed for each mill

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History

- **1988:** Section IV.2 (Depollution Attestation) added to the *Environment Quality Act*
- **1993:** *Regulation Respecting Industrial Depollution Attestations* adopted
- **1993:** Order in Council for the pulp and paper sector
- **2000-2001:** 1st DAs issued
- **2007-2008:** 2nd DAs issued
- **2015 ?:** 3rd DAs issued



1st Depollution Attestation

In 2000-2001, additional requirements were incorporated in the DAs of 62 mills:

- Waste water:
 - Knowledge studies (characterization)
 - Assessment of effluent based on the conditions of the receiving environment using effluent discharge objectives (EDOs) to determine if further protection was required and to identify the additional requirements to be included in the 2nd DA.
- Air emissions and waste:
 - Knowledge studies (characterization)

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1st Depollution Attestation

Depollution Attestation (EQA, s.31.15):

- legal tool available to set discharge limits more stringent than those in the regulations
- the criteria used to set the limits must be made public

Key elements of the methodology:

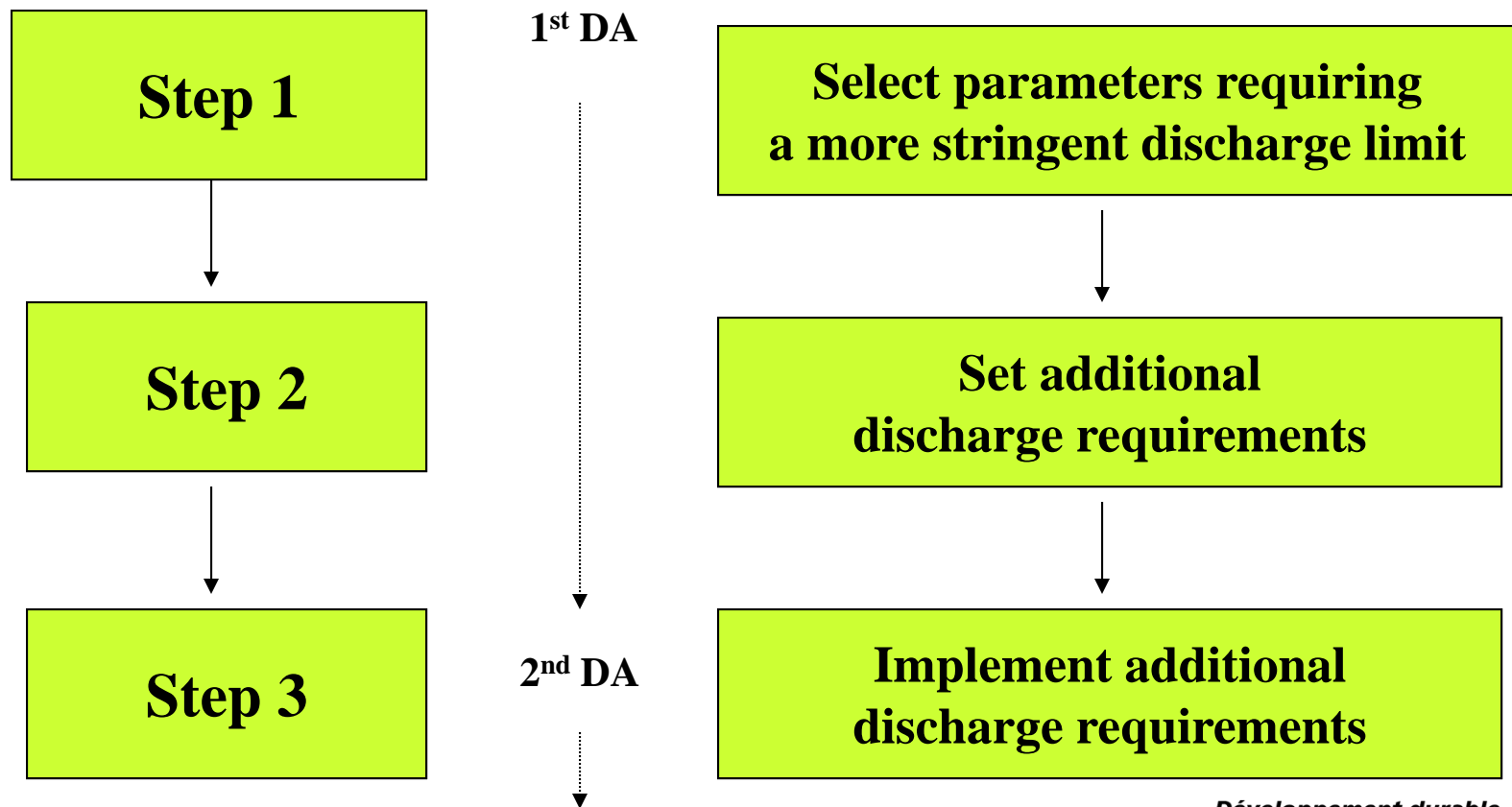
- discharge characterization studies
- identification of parameters of concern based on EDOs*
- setting priorities for action
- setting additional requirements

*EDOs (environmental discharge objectives) = concentration to be achieved in each effluent to maintain its various uses (water supply, protection of aquatic life, etc.)

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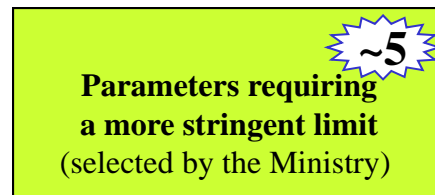
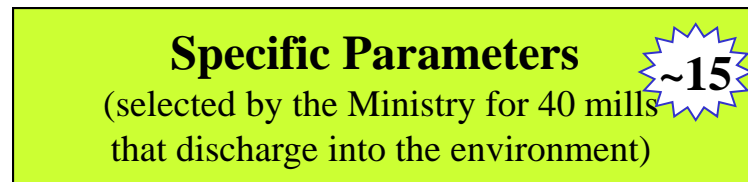
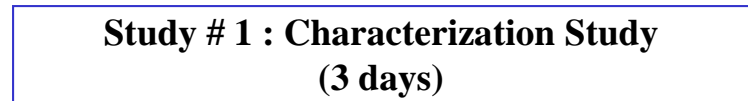
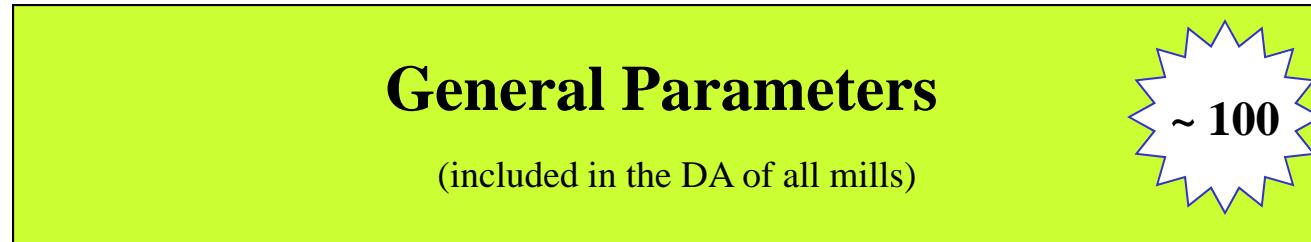
1st Depollution Attestation



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1st Depollution Attestation



1st Depollution Attestation

Parameters reviewed after the 2nd characterization study was completed:

- BOD₅, **TSS**, **Phosphorus**
- Cyanide, **H₂S**, Chronic Toxicity
- **PCB**, **Dioxins and Furans_c**
- Formaldehyde
- Non-Ionic Surfactants
- Metals (Al, Ag, Cd, **Cu**, Fe, Mn, Hg, Pb, V, **Zn**)

<http://www.mddelcc.gouv.qc.ca/programmes/prri/eval-rejet-eauxusees-usinepp.pdf>

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1st Depollution Attestation

1st LEVEL Assessment: Criteria

- Extent and frequency of EDO exceedance (environmental risk)
- Mill contribution and magnitude of contribution from other sources in the watershed or section of stream
- Issue associated with the parameter (eutrophication, virtual elimination)
- Global assessment of the discharge (number of parameters exceeding the EDO, data on chronic and acute toxicity)

This assessment is done for each mill.

1st Depollution Attestation

2nd LEVEL Assessment: Criteria

- Is it a sector-specific parameter?
- Is direct control possible (known measures)?
- Is indirect control possible?
- What is the magnitude of the load discharged (absolute and by unit of production)
- How realistic is the action vs the magnitude of the discharge?
- How do the requirements compare with those in permits in the U.S.?
- How reliable are the test measures?

This assessment is done for each parameter.

1st Depollution Attestation

Parameters of Concern?

- Few parameters exceed the EDOs in a significant way across the sector.
- Parameters that stand out:
 - Phosphorus
 - PCB, Dioxins and Furans_c (but concentrations are low)
 - **TSS** (but exceedances are generally not very high)

1st Depollution Attestation

Approach chosen:

- Tighter control of key parameters (BOD₅, TSS and phosphorus)
 - Known sources and known control measures
 - Coincidental reduction of other parameters
- Better understanding of other parameters

<http://www.mddelcc.gouv.qc.ca/programmes/prri/Methodologie.pdf>

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2nd Depollution Attestation

Additional requirements for the discharge of waste water:
Incorporated in the DAs in 2007-2008

Parameter	Requirements	Number of Mills
Phosphorus (target = 1 mg/l)	Limit (reduction) Monitoring	8 (5) 8
PCB (>25,000 pg/l and > 500 mg/d)	Study (reduction) Monitoring	5 (2) 12
Chlorinated D&F (>0.2 pg/l and >10 ug/d)	Study Monitoring	3 8
BOD₅	Limit	6
TSS	Limit	7

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2nd Depollution Attestation

Other Requirements:

Waste Water:

- Stormwater management study (32 mills)

Air Emissions:

- Monitoring combustion sources (based on the type of equipment in the mill)
- Point source inventory (all mills)
- Air dispersion modeling (12 mills)



2nd Depollution Attestation

Other Requirements (con't):

Waste:

- No additional requirement

Receiving Environment:

- Groundwater characterization study (36 mills)

Preventive Measures:

- Containment work: outdoor storage tanks and chemical unloading stations (based on the type of equipment at the mill)



3rd Depollution Attestation

Additional Requirements:

- Discussions ongoing
- To be issued in 2015 (planned)

Approach chosen:

- Waste water:
 - Continue BOD₅, TSS and phosphorus reductions
- Air Emissions:
 - Clarify the regulatory approach
- Follow up on the studies carried out during the 2nd DA
 - Air dispersion modeling
 - Groundwater characterization
 - Preventive measures



Fee Structure

Annual Fees

- Set fee:
 - \$2,851 in 2014
 - indexed on January 1st of each year
- Variable fees:
 - fee for an industrial discharge in the aquatic environment
 - fee for an industrial discharge in the atmospheric environment

For the period of January 1st to December 31st

To be paid by April 1st of the following year



Fee Structure

Annual Fee Calculation

Annual Fee = Set Fee + Variable Fees

- Water or air discharge (for all contaminants discharged and covered by the *Regulation Respecting Industrial Depollution Attestations*):

$$\sum_{c=1}^n T_c \times F_c \times 2\$$$

T : amount of contaminant (c) discharged (metric tonnes)

F : weight factor for each contaminant discharged, as set in the Regulation

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Contaminants Discharged in Water

Contaminant	Weight Factor	
	Before	2014
Biochemical Oxygen Demand (BOD ₅) (into system / outside system)	0.4 / 2	0.4 / 2
Total Suspended Solids (TSS) (into system / outside system)	0.2 / 1	0.2 / 1
Aluminum (Al)	50	50
Iron (Fe), Manganese (Mn)		50
Arsenic (As), Cadmium (Cd), Chromium (Cr)		200
Lead (Pb)	50	200
Adsorbable Organic Halogens (AOX)	100	100
Copper (Cu), Nickel (Ni), Zinc (Zn)	50	100
Selenium (Se)		100
Cyanide (CN)	100	100
Dioxins and Furans – Total (PCDD-PCDF)		1,000,000
Total Fluoride		50
Polycyclic Aromatic Hydrocarbons (PAH)	1,000	1,000
Lithium (Li), Thorium (Th), Titanium (Ti), Vanadium (V), Uranium (U)		100
Mercury (Hg)		100,000
Radium (Ra)		200

Contaminants Discharged in the Atmosphere

Contaminant	Weight Factor	
	Before	2014
Sulphuric Acid (H ₂ SO ₄)		100
Arsenic (As), Cadmium (Cd), Chromium (Cr), Lead (Pb)		200
Hydrogen Chloride (HCl)		100
Total Reduced Sulphur Compounds (TRS)	50	50
Volatile Organic Compounds (VOC)	20	20
Dioxins and Furans - Total (PCDD-PCDF)		1,000,000
Sulphur Dioxide (SO ₂)	2	4
Total Fluoride	2	50
Polycyclic Aromatic Hydrocarbons (PAH)	1,000	1,000
Mercury (Hg)		100,000
Nitrogen Oxides (NO _x)		4
Particulates (P)	1	1

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Status of Other Regulated Sectors

Mineral Industry and Prime Metal Manufacturing (~ 50 mills): targeted in 2002

Zinc Plants:

- 2nd DA issued

Aluminum Smelters and Copper Plants:

- 1st DA issued
- 2nd DA in the works

Mines :

- 1st DA issued to 9 mines

Ferroalloy Plants:

- 1st DA issued

Cement Plants:

- 1st DA issued

Steel Mills, Quicklime Plants and Others:

- 1st DA in the works

Next Sectors to be Targeted

3rd Order in Council – Organic and Inorganic Chemical Industry

- Assessment ongoing
- Sectors targeted include:
 - Oil refineries
 - Petrochemicals
 - Organic and inorganic commodity chemicals
 - Other sectors to be identified
- ~ 20 facilities

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Questions



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