



# Proposed Amendments for the Environmental Emergency Regulations Under Section 200 of the Canadian Environmental Protection Act (CEPA) 1999

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# CEPA

## Section 199

- Authority to require the preparation and implementation of Environmental Emergency (E2) Plans for CEPA toxics (Schedule 1: List of Toxic Substances) or for substances the Ministers of the Environment and Health have recommended be added to the List.

## Section 200

- Regulation-making authority of Part 8
- Authority to establish a list of toxic and other hazardous substances with related threshold quantities (not limited to CEPA toxics)
- Authority to require the preparation and implementation of E2 Plans for the listed substances at or above specified threshold quantities

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# Timelines

- ***Canada Gazette Part 2 : September 10, 2003***
- **E2 Regulations** come into force **90 days** after registration: November 18, 2003
- **3 Notices required after coming into force:**
  - **Within 90 days:**            **Notice of Identification of Substance and Place**
  - **Within 6 months:**        **Notice of Plan Preparation**
  - **Within 1 year:**            **Notice of Plan Implementation and Testing**

# Environmental Emergency (E2) Regulations



- Address emergency prevention, preparedness, response and recovery
- Benefits to be realized regardless of cause
  - i.e. accidental, vandalism or terrorist activity
- Flexible as opposed to prescriptive approach to be taken, however, key elements must be addressed
- Consensus on using CRAIM list and thresholds

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# E2 Regulations

- Applies to any person who uses or stores one or more of the 174 substances above the specified quantities or who has a container for that substance equal to or exceeding the threshold
- To date about 3,400 facilities have submitted declarations for the current environmental emergency regulations
- Schedule 1 of the Regulations is divided into Part 1 (76 flammables) and Part 2 (98 other hazardous) substances



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# Obligations

- E2 plans are not submitted to Environment Canada unless requested
  
- First notice of identification required if either:
  - Maximum quantity equals or exceeds threshold; OR
  - Largest container capacity equals or exceeds threshold
  
- Preparation and Implementation of an E2 plan required if both :
  - Maximum expected quantity equals or exceeds threshold;  
AND
  - Largest container capacity equal or exceed the threshold.
  
- Environment Canada must be notified accordingly

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# Exemptions

- Amounts temporarily stored for 72 hours or less in a container not normally located at the place
- Quantities in a container with capacity of 30 kg or less
- Quantities of substance when it is a component of another substance in Schedule 1
- Quantities of a substance when it is a component of natural gas
- Quantities of a substance in fuel tank supplying engine of conveyance
- Quantities of a substance regulated under *Transportation of Dangerous Goods Act*

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# Contents of an E2 plan

- Identification of any potential environmental emergencies that can possibly occur, including both on-site and off-site consequences to human health and the environment;
- Description of associated prevention efforts underway as well as the preparedness, response and recovery capabilities of the facility;
- A list of individuals who are to respond to an environmental emergency and a description of their roles and responsibilities;
- Identification of the training required for each of those individuals; and
- A list of the equipment which may be used in emergency response and is included as part of the environmental emergency plan and the equipment's location



# Improving the Regulations

## Proposed Amendments

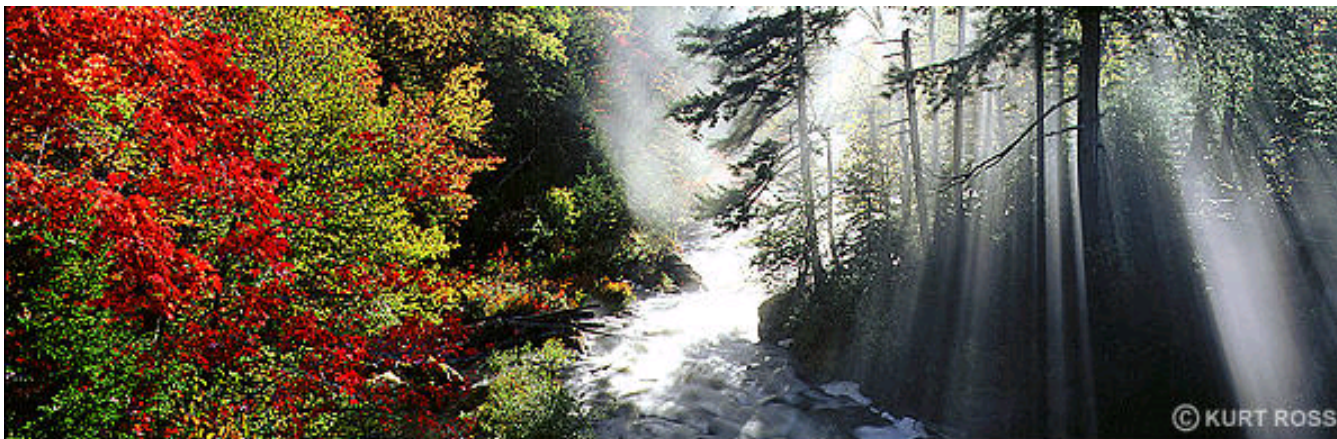
- **Clarify Requirements;**
  - ❑ Exception to farmers using ammonia as agricultural nutrient
  - ❑ Exception for propane when stored in a container with a capacity of less than 10 tonnes and located from at least 360 m from the property limit
  - ❑ Specify TDGA exemption to everything except loading/unloading
- **Notification and Reporting**
  - ❑ Limit notification/reporting to mixtures captured
  - ❑ Use of existing provincial or TDG threshold for E2 notification and reporting
- **New provision exempting slag, waste rock in tailings, ores and ore concentrates**
- **New provision for permanently closed or decommissioned sites**
- **Add 31 substances from the Toxic Substances List (some from within classes of substances, Inorganic fluorides – sulphur hexafluoride) and 3 substances of concern based on toxic assessment results**

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# E2 Amendments Background:

## “Toxic Substances” list

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## E2 Amendments Background:

- List made up of substances, that had been released to the environment (i.e. effluents, emissions, spills), that have been detected in sufficient quantities to cause harm to the environment
- Do these need emergency plans?



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# List of Toxic Substances (Schedule 1)

[http://www.ec.gc.ca/ceparegistry/subs\\_list/Toxicupdate.cfm](http://www.ec.gc.ca/ceparegistry/subs_list/Toxicupdate.cfm)

- 49 Toxic Substances were examined
  - A total of 97 substances were reviewed as some Toxics Substances are classes of substances (i.e Inorganic fluorides – Sulphur hexafluoride)
  
- 31 Substances are being proposed for addition to the E2 Regulations plus an additional 3 substances of concern

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## **E2 Analysis of Substances:**

- **Acute catastrophic spills**
- **Stored**
- **Toxic via Inhalation?**
- **Vapour Cloud Explosion?**
- **Toxic to Aquatic Life?**
- **Carcinogenic to humans or wildlife?**
- **Reactive?**

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## E2 Analysis of Substances (cont.):

### Not Included:

- ❑ Effluents
- ❑ Emissions
- ❑ By-products or contaminants
- ❑ Laboratory reagents
- ❑ No emergency pathway
- ❑ Substances covered under other acts
- ❑ Not in Canadian commerce
- ❑ Banned or prohibited.

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# Proposed Environmental Emergency Amendments – Explosive

- Boiling Liquid Expanding Vapour Explosive (BLEVE)
- Under pressure they can explode
- Decompose explosively
- This category still under investigation

# Proposed Environmental Emergency Amendments – Explosive

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
100-42-5	Styrene	4.5	10
6484-52-2	Ammonium nitrate (in liquid form only)	20	81
6484-52-2	Ammonium nitrate (in solid form only)	20	60



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# Why styrene?

- Highly Flammable, Polymerizable, Peroxidizable Compound.
  - Involved in the worst industrial accident that happened in Canada, the runaway of a polystyrene reactor at the Monsanto plant in 1966 that caused 11 fatalities and 7 injuries.
- Involved in several industrial explosions caused by violent, exothermic polymerization
- Reference:
  - Lacoursière, J-P., RECOMMENDATION FOR INCLUDING STYRENE TO THE ENVIRONMENTAL EMERGENCY REGULATION LIST UNDER THE CANADIAN ENVIRONMENTAL PROTECTION ACT (1999), 2004

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# Styrene Video



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Taiwan, 2003 – Tank Truck BLEVE

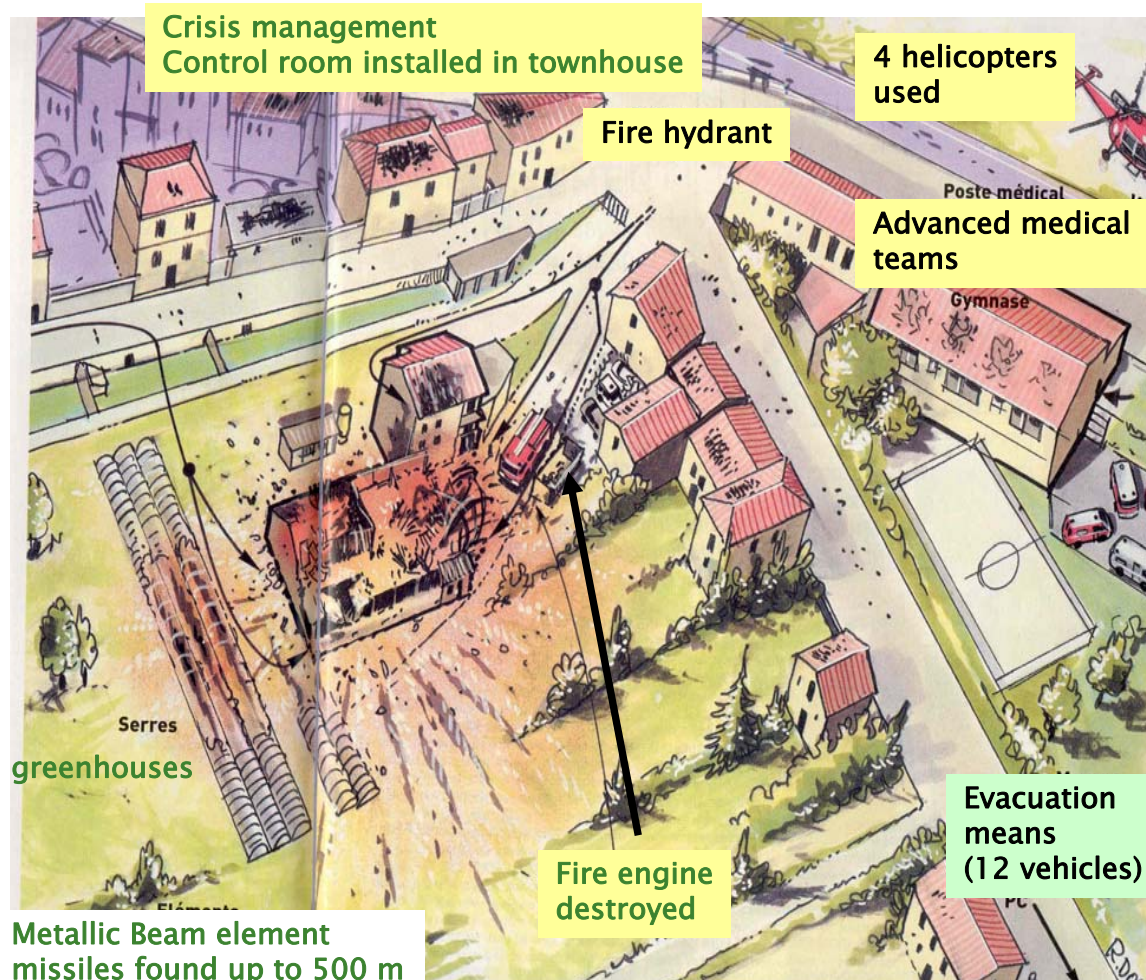
# Why Ammonium nitrate?

- Many accidents around the world:
  - Toulouse, Oklahoma City Security: easily usable for terrorists
- Ammonium nitrate is capable of detonating with the blast effect of about half that of explosives, if heated under confinement that permits high-pressure build-up or if subjected to strong shocks (NFPA Code 490, A.4.1.4)
- The sensitivity of ammonium nitrate to detonation is increased by elevated temperatures or by contamination (NFPA Code 490, A.4.1.4)
- Capable of releasing toxic fumes during fire
- Reference: See document:
  - Robert Reiss, RECOMMANDATION POUR INCLURE LE NITRATE D'AMMONIUM DANS LA LISTE DU RÈGLEMENT SUR LES URGENCES ENVIRONNEMENTALES D'ENVIRONNEMENT CANADA, CRAIM, 2004

# *Ammonium Nitrate*

## *Fire in a Farm Supply Store*

### *St-Romain (France) 2003/10/02*



- 3-5 t AN
- Fire involving plastic container and AN
- 26 casualties including 18 firemen (3 of which suffered injuries compromising life), 3 policemen and 5 civilians
- 82 houses suffered structural damage of varying severity

# *Fire in a Farm Supply Store* St-Romain (France) 2003/10/02

View of the  
building before the  
accident





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*Fire in a Farm Supply Store*  
**St-Romain (France) 2003/10/02**



View of building in ruins after the explosion

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# Proposed Environmental Emergency Amendments – Inhalation

- Greater than or equal to a vapour pressure of 10 mmHg
- Chemicals potential to become airborne and disperse
- Immediately Dangerous to Life and Health
  - Escape time of 30 minutes
  - Vapours potential to obstruct eyesight
- Emergency Response Planning Guidelines II

# Proposed Environmental Emergency Amendments – Inhalation

<b>CAS Number</b>	<b>Name of Substance</b>	<b>Threshold Quantity (Tonnes)</b>	<b>Concentration (%)</b>
64-19-7	Acetic acid	6.8	95
75-09-2	Dichloromethane	9.1	1
2551-62-4	Sulphur hexafluoride	9.1	10



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# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

- Carcinogenic
  - Persistent for at least 5 years
  - Carcinogenic to humans or wildlife
- Cause harm to aquatic life (fish)
  - Persistent and toxic
  - Bioaccumulative and toxic
  - Persistent and Bioaccumulative and toxic

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
56-23-5	Carbon tetrachloride (Tetrachloromethane)	0.22	1
79-01-6	Trichloroethylene	1.13	1
91-20-3	Naphthalene (in liquid form only)	4.5	10
91-94-1	3,3'-dichlorobenzidine	1.13	1

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
117-81-7	Bis(2-ethylhexyl) phthalate (DEHP)	0.22	1
127-18-4	Tetrachloroethylene (Perchloroethylene, Perc)	1.13	1
373-02-4	Nickel acetate	0.22	10
1303-28-2	Arsenic pentoxide	0.22	10
1306-19-0	Cadmium oxide	0.22	10

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
1306-23-6	Cadmium sulphide (Cadmium sulfide)	0.22	10
1313-99-1	Nickel oxide	0.22	10
1327-53-3	Arsenic trioxide (Arsenic(III) oxide)	0.22	10
3333-67-3	Nickel carbonate	0.22	10
7440-38-2	Arsenic	0.22	10

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
7718-54-9	Nickel chloride	0.22	10
7775-11-3	Sodium chromate	0.22	10
7778-39-4	Arsenic acid	0.22	10
7778-43-0 10048-95-0	Sodium arsenate	0.22	10
7784-46-5	Sodium arsenite	0.22	10

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
7786-81-4; 10101-97-0	Nickel sulphate	0.22	10
7789-00-6	Potassium chromate	0.22	10
7738-94-5; 1333-82-0	Chromic acid (Chromium trioxide)	0.22	10
10108-64-2	Cadmium chloride	0.22	10

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
10124-36-4	Cadmium sulphate (Cadmium sulfate)	0.22	10
10588-01-9	Sodium dichromate	0.22	10
13138-45-9 13478-00-7	Nickel nitrate	0.22	10
15699-18-0	Nickel ammonium sulphate (Nickel ammonium sulfate)	0.22	10

# Proposed Environmental Emergency Amendments – Aquatic/Carcinogenic

CAS Number	Name of Substance	Threshold Quantity (Tonnes)	Concentration (%)
81741-28-8	Tributyl tetradecyl phosphonium chloride (TTPC)	0.22	10
25154-52-3 104-40-5 84852-15-3	Nonylphenol	1.13	10



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# Timelines for Amendments to the E2 Regulations

- Initial stakeholder consultations began in July 2005
- Publication in *Canada Gazette Part 1* targeted for Winter 2006
- Publication in *Canada Gazette Part 2* likely by Summer 2007
- Revise Implementation Guidelines for re-publication by Summer 2007

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# Conclusion

- Completes our analysis of some 97 individual substances found within classes or unique compounds on the “Toxic Substances” list
  - ❑ 2 substances are added to Part 1 – Explosive
  - ❑ 3 substances are added to Part 2 – Inhalation
  - ❑ 29 substances are added to Part 3 – Aquatic / Carcinogenic

# Want to know more?

For further information:

- *Canada Gazette Part II* publication:  
<http://canadagazette.gc.ca>
- CEPA Registry [www.ec.gc.ca/CEPARRegistry](http://www.ec.gc.ca/CEPARRegistry)
- Environmental Emergencies Division Website  
[www.ec.gc.ca/ee-ue/](http://www.ec.gc.ca/ee-ue/)
- E2 Regulations on-line notification system  
<https://cepae2-lcpeue.ec.gc.ca/>



Or contact:

- Environment Canada's Environmental Emergencies Program at [CEPAE2@ec.gc.ca](mailto:CEPAE2@ec.gc.ca)