

**REPORT OF THE
NATIONAL POLLUTANT RELEASE INVENTORY
MULTI-STAKEHOLDER WORK GROUP ON
SUBSTANCES**

— Draft Report —

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Prepared for:

Environment Canada

July 27, 2005

This draft of the Work Group's (WG) first report summarizes the WG's current thinking on proposals and other issues relevant to the 2006 reporting year and beyond. WG members are now looking for input from other stakeholders to help inform their final positions, to be presented to EC in the form of a finalized report in October 2005. At its next meeting on September 29 and 30, 2005, the WG will review the feedback received on the current draft. To facilitate preparation for this meeting, please ensure that your comments are submitted to Environment Canada no later than **Tuesday, September 6, 2005**. Please send comments to:

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Appendix A: List of Current WG Members and Alternates

Appendix B: Terms of Reference – NPRI Multi-Stakeholder Work Group on Substances

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Appendix D: Terms of Reference – NPRI Multi-Stakeholder Sub-Group on Longer-Term Vision and Work Plan for NPRI

List of Acronyms

ACGHI	American Conference of Governmental Industrial Hygenists
ATH	Alternate Threshold
CACs	Criteria Air Contaminants
CAS	Chemical Abstract Service
CCME	Canadian Council of Ministers of the Environment
CEPA	Canadian Environmental Protection Act
CWS	Canada Wide Standards
DSL	Domestic Substances List
EC	Environment Canada
ENGO	Environmental Non-Governmental Organization
g	Grams
GHGs	Greenhouse gases
HCB	Hexachlorobenzene
IARC	International Agency for Research on Cancer
IRCH	Indiana Relative Chemical Hazard Ranking System
ITEQ	International Toxic Equivalence
kg	Kilogram
LoQ	Level of quantification
MPO	Manufactured, processed or otherwise used
MOE	Ontario Ministry of Environment
NIOSH	National Institute for Occupational Safety and Health
NGO	Non-governmental organization
NPRI	National Pollutant Release Inventory
NTP	United States National Toxicology Program
OSHA	United States Occupational Safety and Health Administration
PAH	Polycyclic Aromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PM	Particulate matter
PRTR	Pollutant Release and Transfer Register
PSL	Priority Substances List
SG	Sub Group
TEQ	Toxic Equivalency
TOR	Terms of Reference
TRS	Total Reduced Sulphur
US EPA	United States Environmental Protection Agency
US TRI	United States Toxics Release Inventory
VOCs	Volatile organic compounds
WG	2005 NPRI Work Group on Substances
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization

1. INTRODUCTION

1.1 BACKGROUND

In 1991-92, a Multi-stakeholder Advisory Committee was created to advise on the formation of the National Pollutant Release Inventory (NPRI) program. NPRI is a national source of information on site-specific releases of pollutants. NPRI data is useful for a wide variety of stakeholders, including community groups, reporting facilities, provincial and federal governments, and United States/Canada agencies. The purpose of the NPRI is as follows:

- Identify priorities
- Encourage voluntary action
- Track progress
- Improve public understanding
- Support targeted regulatory initiatives.

The chronology of key milestones in the history of the NPRI includes:

- 1993 – First inventory year for NPRI
- 1997 – General review of the NPRI
- 1998 – Multi-stakeholder Work Group on Substances formed
- 1999 – 73 substances added to NPRI
- 2000 – Guide on “Modifying the NPRI” produced
- 2002 – Criteria Air Contaminants added (NO_x, SO_x, CO, PM₁₀, PM_{2.5}).

A permanent process for modifying the NPRI was adopted by Environment Canada (EC) in 2000.¹ The permanent process includes the involvement of a NPRI Multi-stakeholder Work Group (WG) on substances to address complex or multiple requests for modifications to the NPRI. To obtain a balanced foundation for the NPRI, the WG members are drawn from industry, non-governmental organizations (health, environment, labour), aboriginal governments and organizations, and federal and provincial governments. A list of current members of the WG is included in Appendix A. Terms of Reference for the Multi-stakeholder Work Group on Substances are included in Appendix B.

Consultation with stakeholders on proposed changes to the NPRI is fundamental to the process. On an annual basis, EC notifies the public of proposed changes (drawing from suggestions that can be submitted by any party), and establishes an appropriate consultation process for input on those proposed changes.

The current Draft Report presents the WG’s views and recommendations on proposed changes considered this year. Once comments from the broader stakeholder community are received and considered, the Report will be finalized and submitted to EC in October 2005.

¹ The permanent process is fully described in a document available through the NPRI Office, or through the NPRI web site at http://www.ec.gc.ca/pdb/npri/npri_consult_e.cfm.

1.2 WORK GROUP PROCESS

The current annual tasks for the WG are to participate in a two-day meeting (June); one teleconference call (July) and a second face-to-face meeting (September) to discuss the final Draft Report. The final Draft Report will consider comments received from the broader stakeholder community. The Final Report will be submitted to EC in October 2005.

The WG met in Ottawa on June 15 and 16, 2005 to consider a number of modifications proposed to the NPRI, discuss the WG mandate, and address the longer-term vision and work plan for the NPRI. The majority of WG representatives, or their alternates, were present to participate in the discussions with federal and provincial representatives. A facilitator was also retained for the meeting to ensure balanced participation; assist in workplan and process development; assist in meeting preparation; facilitate meetings; and prepare the draft WG Report and meeting proceedings. A similar format will be followed for the September WG meeting.

A number of subgroups have been formed, or will be formed this year, to work on items requiring additional investigation. The subgroups will then report their findings to the WG for consideration. The current active and proposed subgroups are as follows:

- Mining Subgroup (existing)
- NPRI Review Subgroup (to be formed in July/August)
- Data Gaps Related to Criteria Air Contaminants Subgroup (to be formed in September).

1.3 THIS REPORT

This report addresses the following topics:

- Substance specific changes (primarily for purposes of Harmonization between NPRI and O. Reg. 127/01)
- Issues referred to sub-groups:
 - Review of the Mining Exemption
 - NPRI Future Directions
 - Data Gaps related to Criteria Air Contaminants
- Other Issues:
 - Deferred Issues
 - Modifications for Dioxins, Furans, and Hexachlorobenzene
 - Reporting of Biosolids to the NPRI
 - Facility Definition

2. SUBSTANCE-SPECIFIC CHANGES FOR HARMONIZATION

Over the past few years, significant work has been undertaken to harmonize federal and provincial reporting programs. There is unanimous WG consensus regarding the core of the mandate for the NPRI: the NPRI should provide a core national reporting system and that generally, provincial systems should harmonize with the NPRI to the extent possible (reporting should not be duplicated, and substances that both governments are monitoring should be reported to NPRI and then shared with provinces, while regionally important substances should just be reported to the province). The following sections deal with a number of specific harmonization reporting proposals that, if implemented, would introduce changes to the NPRI that would allow these substances to be removed from Ontario Reg. 127. It is intended that additions to NPRI and removals from O. Reg. 127 be simultaneous in order to avoid double-counting.

2.1 CALCIUM OXIDE

2.1.1 Background

Calcium oxide (CaO) (CAS No. 1305-78-8) is a widely-used chemical compound. It is released into the environment both through natural sources and through anthropogenic activities. It is typically produced from materials such as limestone that contain calcium carbonate (CaCO₃). Calcium oxide can be used in: mortar and plaster as a hydrated or slaked lime; glass and metal production; water and sewage treatment; paper making; agriculture; air pollution control; pottery; concrete; paints; the food industry; and as a refractory and dehydrating agent to purify citric acid, glucose, dyes and as a CO₂ absorber.

Calcium oxide is of special concern because of its health effects and corrosive properties when inhaled, ingested, or upon contact with skin. Calcium oxide dust can irritate the nose and throat, and the solid form will burn the skin, mucous membranes, and eyes. Chronic exposure may cause inflammation of the respiratory passages, ulcers of the mucous membranes, and possible perforation of the nasal septum.

Calcium oxide is not listed as a carcinogen by the US National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC), US Occupational Safety and Health Administration (OSHA), or the American Conference of Governmental Industrial Hygienists (ACGHI) refer to:

<http://www.catalogue.fisher.co.uk/scripts/search.dll?ViewMSDS&SheetNumber=04030>

Calcium oxide is expected to be toxic to aquatic life (refer to:
www.jtbaker.com/msds/englishhtml/c0462.htm)

Calcium oxide is not on the Health Canada draft “maximal” list of substances which are considered to have the greatest potential for exposure of the general population in Canada and “inherently toxic” to humans.²

The Ontario Point of Impingement standard is 20 ug/m³ and the Ontario Ambient Air Quality Criteria is 10 ug/m³ for 24 hours. The OSHA Permissible Exposure Limit (PEL) is 5 mg/m³. The ACGIH threshold limit value for this substance is 2 mg/m³ air (TWA). The short term inhalation limit is 10 mg/m³ air for 30 minutes.

Emissions of calcium oxide have been reported under O. Reg. 127/01 in Ontario since 2001 by industrial sector facilities which meet the reporting threshold of 3 tonnes MPO (manufactured, processed or otherwise used). Calcium oxide emissions data is not collected in other provinces in Canada.

2.1.2 The EC Proposal

EC is proposing to list calcium oxide on the NPRI for the 2006 reporting year, to achieve harmonization between O. Reg. 127/01 and the NPRI. The listing of calcium oxide will also encourage voluntary action to reduce releases, allow tracking of progress in reducing releases, and improve public understanding of the substance. The EC proposal is to add calcium oxide as a Part 1 Substance at the standard NPRI reporting threshold of 10 tonnes MPO.

The estimated number of facilities in Canada which may report calcium oxide is 92 (based on a projection of data on the percentage of facilities in Ontario which were required to report calcium oxide at a 3 tonne MPO threshold and the total number of comparable facilities in Canada). This number is a preliminary estimation only, and would be equal or lower with a 10 tonne MPO threshold.

2.1.3 WG Views

ENGOs noted that there are clear effects for worker health and safety and broader concerns on calcium oxide’s toxicity to aquatic life. ENGOs indicated that although the substance is not a high priority from an environmental perspective, it is important to support the objective of harmonization. Industry members were of the opinion that calcium oxide is primarily an occupational health concern, and that there is a need for a

² Within seven years of the introduction of the *Canadian Environmental Protection Act 1999* (CEPA) on September 14, 1999, the Ministers of Health and of the Environment are to complete categorization of the approximately 23,000 substances on the Domestic Substances List (DSL). Through the development of transparent, scientifically defensible and discriminating “tools” for priority setting and subsequent screening assessment, the Minister of Health is identifying those substances on the DSL for subsequent screening assessment by both Departments that pose the greatest potential for exposure of the general population in Canada.

Based on application of the “tools” to date, a maximum of 1896 substances (i.e., the draft “maximal” list) has been identified that will be further considered in additional stages of prioritization for screening assessment (i.e., categorization). These substances have been identified on the basis of greatest potential for exposure of the general population in Canada and “inherently toxic” to humans, taking into account potential for persistence or bioaccumulation.

better understanding of the environmental or health issues beyond the occupational realm.

There is consensus among all WG members that if calcium oxide is added to the NPRI, the standard 10 tonne threshold for Part 1 Substances should be used, rather than the 3 tonne threshold from O. Reg. 127/01. It was also agreed that the addition of the substance should be linked to its removal from O. Reg. 127/01, to avoid double reporting.

The WG requested further information be provided by EC and the MOE on the following items:

- Ambient air quality levels for calcium oxide and the extent to which existing air quality criteria are being exceeded.
- Study results on ambient air quality levels conducted by Alberta Environment and Alberta Research Council.
- Status of monitoring of calcium oxide in other provinces and the perspective of the provinces on the proposal to add the substance to NPRI.
- Fate and kinetics of calcium oxide transformation in the atmosphere (i.e., CaO is converted to Ca(OH)₂ upon contact with water in the atmosphere and thus, is there an environmental problem with CaO releases?).
- Clarification on the consequences of not adding this substance to the NPRI.
- Environment Canada's Domestic Substances List (DSL) categorization of calcium oxide.
- Justification for a 3 tonne MPO reporting threshold, if the MOE proposes this threshold for the NPRI and, if so, a profile of releases for Ontario reporting facilities (i.e., are quantities per facility greater than or less than 10 tonnes) and proportion of releases that would be captured under different thresholds.

2.2 FURFURYL ALCOHOL

2.2.1 Background

Furfuryl alcohol (C₅H₆O₂) (CAS No. 98-00-0) is a colourless to yellow liquid that is used in consumer products (e.g., aerosol paint concentrates, synthetic resin and rubber adhesives) and building materials and furnishings. Furfuryl alcohol emissions have been reported in Ontario primarily from the following industries: abrasive product manufacturing; automobile, light-duty motor vehicle manufacturing; iron foundries; steel foundries; resin and synthetic rubber manufacturing; and other miscellaneous chemical product manufacturing.

Furfuryl alcohol is of concern because of its health effects. Acute effects include irritation of eyes and skin, leading to permanent eye damage, irritation of nose and throat causing wheezing, shortness of breath and coughing. Higher exposure affects the nervous system causing headaches, dizziness, nausea, and fainting. Long-term exposure can lead to chronic health problems such as skin rashes, dryness and redness, irritation to the lungs, bronchitis, shortness of breath.

Furfuryl alcohol is not on the Health Canada draft “maximal” list of substances which are considered to have the greatest potential for exposure of the general population in Canada and “inherently toxic” to humans.

The Ontario Point of Impingement standard is 3,000 ug/m³ and the Ontario Ambient Air Quality Criteria is 1,000 ug/m³ for 24 hours. The OSHA Permissible Exposure Limit (PEL) is 50 ppm. The ACGIH threshold limit value for this substance is 10 ppm (TWA). The short term exposure limit for skin is 15 ppm. The National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit is 10 ppm TWA (10 hour shift) for skin and 15 ppm short term exposure limit (15 minutes) for skin.

Emission of furfuryl alcohol has been reported under O. Reg. 127/01 in Ontario since 2001 by industrial sector facilities which meet the reporting threshold of 3 tonnes MPO.

2.2.2 The EC Proposal

For the purposes of harmonization between O. Reg. 127/01 and the NPRI, EC is proposing to list furfuryl alcohol on the NPRI for the 2006 reporting year. The listing of furfuryl alcohol will also encourage voluntary action to reduce releases; allow tracking of progress in reducing releases; and improve public understanding of the substance. The EC proposal is to add furfuryl alcohol as a Part 1 Substance to the NPRI.

The estimated number of facilities in Canada which may report furfuryl alcohol is 10 (based on a projection of data on the percentage of facilities in Ontario which were required to report calcium oxide at a 3 tonne MPO threshold and the total number of comparable facilities in Canada). This number is a preliminary estimation only, and would be equal or lower with a 10 tonne MPO threshold.

2.2.3 WG Views

For the purposes of harmonization between the NPRI and O. Reg. 127/01, there is general agreement from the WG to add furfuryl alcohol to Part 5 speciation VOC list of the NPRI. Addition to Part 5 depends on confirmation that it meets the definition of a VOC. Otherwise, the substance would need to be considered for Part 1 of the NPRI.

It was also agreed that the addition of the substance should be linked to its removal from O. Reg. 127/01, to avoid double reporting.

The WG requests that a full dossier on furfuryl alcohol be made available by EC and MOE before a final recommendation is made. Information was requested on whether the substance is a carcinogen, whether the substance is on the US TRI list, and if the substance meets the definition for a VOC.

2.3 TETRAHYDROFURAN

2.3.1 Background

Tetrahydrofuran (C₄H₈O) (CAS No. 109-99-9) is a colourless liquid with an ether-like odour. It is used as a solvent for natural and synthetic resins, in top coating, cellophane, protective coatings, adhesives, magnetic tapes, printing inks, chemical intermediates and monomers, and strong oxidizing and reducing agents. Tetrahydrofuran emissions have been reported in Ontario primarily from the following industries: fabric coating; plastic film and sheet manufacturing; petroleum refineries; plastic pipe and pipe fitting manufacturing; paint and coating manufacturing; motor vehicle seating and interior trim manufacturing; footwear manufacturing; other basic organic chemical manufacturing; soap and cleaning compound manufacturing; pharmaceutical and medicine manufacturing; and miscellaneous chemical product manufacturing.

As with any substance, the probability that exposure might lead to adverse health outcomes is dependent on the dose, i.e., the amount of the substance to which an individual is exposed, as well as the duration that the exposure persists. Aside from the actual dose received, a variety of other factors also contribute to variable sensitivity in response among the human population, including gender, disease status, genetic predisposition, metabolism as well as lifestyle factors such as smoking and exposure to other substances.

Acute health effects that have been observed in the human population following exposure to tetrahydrofuran are restricted to occupational settings. Other possible acute health effects are predicted based on effects observed in animal studies. Since the general population is exposed to much lower levels in the ambient environment, these observations are of limited value in determining either acute or chronic health effects associated with the lower levels that may be found in the environment.

Tetrahydrofuran or the vapour irritates the eyes, the skin and the respiratory tract following accidental exposure to high levels. The substance may cause effects on the central nervous system at high level, resulting in narcosis [NIOSH 1997]³. Tetrahydrofuran is a central nervous system depressant in humans; based on effects seen in animals, it may also cause irritation of the mucous membranes and upper respiratory tract and liver and kidney damage [USDL 2005]⁴.

The signs and symptoms of acute overexposure to tetrahydrofuran include severe headache and a marked decrease in white blood cell count. Based on effects seen in animals, exposure to tetrahydrofuran may cause redness and inflammation of the eyes and eyelids; coughing and sneezing; and difficult breathing [USDL 2005]. Repeated or prolonged contact with skin may cause dermatitis [NIOSH 1997].

³ National Institute of Occupational Safety and Health (NIOSH) [1997]. International Chemical Safety Card - Tetrahydrofuran. (<http://www.cdc.gov/niosh/ipcsneng/neng0578.html>)

⁴ US Department of Labor (Occupational Safety and Health Administration) [2005]. Health Guidelines - Tetrahydrofuran. (<http://www.osha.gov/SLTC/healthguidelines/tetrahydrofuran/recognition.html#healthhazard>)

No effects of chronic exposure to tetrahydrofuran have been reported in humans. However, based on effects seen in animals, this substance may cause liver damage [USDL 2005].

Tetrahydrofuran is not on the Health Canada draft “maximal” list of substances which are considered to have the greatest potential for exposure of the general population in Canada and “inherently toxic” to humans.

The Ontario Point of Impingement standard is 93,000 ug/m³ and the Ontario Ambient Air Quality Criteria is 93,000 ug/m³ for 24 hours. The OSHA Permissible Exposure Limit (PEL) is 200 ppm for 8 hours. The ACGIH threshold limit value for this substance is 50 ppm for an 8 hours. The short term exposure limit for skin is 100 ppm. The National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit is 200 ppm for 10 hours and 250 ppm short term exposure limit for 15 minutes.

Emission of tetrahydrofuran has been reported in significant quantities under O. Reg. 127/01 in Ontario since 2001 by industrial sector facilities which meet the reporting threshold of 3 tonnes MPO.

2.3.2 The EC Proposal

For the purposes of harmonization between O. Reg. 127/01 and the NPRI, EC is recommending the addition of tetrahydrofuran to Part 1 of the NPRI for the 2006 reporting year. The listing of tetrahydrofuran will also encourage voluntary action to reduce releases; allow tracking of progress in reducing releases; and improve public understanding of the substance. The addition of this substance to the NPRI would be linked with its removal from O. Reg. 127/01, to avoid double reporting.

The estimated number of facilities in Canada which may report tetrahydrofuran is 19 (based on a projection of data on the percentage of facilities in Ontario which were required to report calcium oxide at a 3 tonne MPO threshold and the total number of comparable facilities in Canada). This number is a preliminary estimation only, and would be equal or lower with a 10 tonne MPO threshold.

2.3.3 WG Views

There is general consensus from the WG to add tetrahydrofuran to Part 5 of the NPRI, assuming that the substance meets the definition of a VOC. In order to avoid double reporting, the WG emphasized the need to coordinate the timing for the addition of tetrahydrofuran to the NPRI and its removal from O. Reg. 127/01.

The WG requested further information be provided by EC and the MOE on the following items:

- IRCH Environmental Hazard Value Score and Total Hazard Value Score
- Environmental fate and degradation of tetrahydrofuran

- Reasoning for the existing Point of Impingement standard and the year the standard was established
- Confirmation on whether tetrahydrofuran is a VOC and whether it will be a Part 1 or Part 5 substance on the NPRI
- Perspectives of other provinces on the proposed addition of tetrahydrofuran to NPRI.

2.4 TOTAL REDUCED SULPHUR

2.4.1 Background

Total reduced sulphur (TRS) refers to a group of compounds containing the sulphur atom in its reduced state. TRS consists of hydrogen sulphide (H_2S), carbon disulphide (CS_2), carbonyl sulphide (COS), dimethyl sulphide ($\text{C}_2\text{H}_6\text{S}$), mercaptans (CH_4S), dimethyl disulphide ($\text{C}_2\text{H}_6\text{S}_2$), diethyl disulphide ($\text{C}_4\text{H}_{10}\text{S}_2$), thioesters, and alkyl sulphides. TRS is characterized by its odour, often associated with rotten eggs or cooked cabbage, and is detectable at very low concentrations. TRS is released to the Canadian environment through natural sources as well as anthropogenic sources. TRS natural sources in terrestrial environments include decaying organic matter, sulphur springs, and volcanoes. In oceans, dimethyl disulphide is released from phytoplankton decomposition. The human body also produces TRS in small quantities. Anthropogenic sources of TRS include kraft pulp mills, natural gas wells, petroleum refineries, steel mills, coking operations, manufacturing of certain abrasives, and sewage treatment plants.

Once released into the atmosphere, oxidation products of TRS compounds, such as sulphuric acid, contribute to the acidity of the environment.

Environmental health impacts have only been studied in detail for H_2S . H_2S is generally considered to be the most toxic of the reduced sulphur compounds to animals. It also typically represents the largest compound percentage in TRS. In Ontario, H_2S represents 62% of the TRS released. The major route of exposure for H_2S is inhalation. Occupational exposure in Canada has resulted in headaches, nausea/vomiting, breathing difficulties, disequilibrium, conjunctivitis, sore throat/cough, loss of motor speed, extreme weakness, chest pain, fluid accumulation in the heart, slow heart beat, convulsions, and coughing up blood.

TRS substances have not been found to be carcinogens.

TRS compounds are not on the Health Canada draft “maximal” list of substances which are considered to have the greatest potential for exposure of the general population in Canada and “inherently toxic” to humans.

H_2S is currently being assessed under CEPA 1999 through the complete categorization of substances on the Domestic Substance List (DSL).

While TRS substances do not appear to have a significant human health impact at levels experienced in the Canadian environment and have not been proven carcinogenic, deleterious effects have been reported from odour detection and perception.

TRS is monitored and subject to ambient air criteria in most provinces in Canada. These standards range from 4.5 to 31 ppb for 1 hour concentrations and from 2.2 to 6 ppb for 24 hour concentrations. The odour threshold for TRS substances ranges from approximately 1 ppb to 20 ppb, with adverse health effects experienced at higher levels (approximately 5 ppm).

TRS is a reportable substance under O. Reg. 127/01 at a 3 tonne MPO threshold. H₂S, CS₂ and COS are currently reported to the NPRI as Part 1 substances at a 10 tonne MPO threshold.

2.4.2 The EC Proposal

For the purposes of harmonization between O. Reg. 127/01 and the NPRI, EC is recommending the addition of TRS to Part 1 of the NPRI for the 2006 reporting year at a 10 tonne MPO threshold. The listing of TRS will also help to identify priorities for action; allow tracking of progress in reducing releases; improve public understanding of the substance; and support targeted regulatory initiatives. The addition of this substance to the NPRI would be linked with the removal of TRS from O. Reg. 127/01, to avoid the burden of overlapping reporting by industries in Ontario.

As noted above, H₂S, CS₂ and COS are currently reported to the NPRI as Part 1 substances at a 10 tonne MPO threshold, and these substances are some of the compounds of TRS. Issues of multiple counting will be addressed by EC. EC is seeking comment from industry and other stakeholders on how to avoid multiple counting.

The pulp and paper sector and oil and gas extraction sector are likely to be the most affected by the addition of TRS to the NPRI. In 2003, 205 facilities reported H₂S (a component of TRS) to the NPRI. Typically, other TRS substances are released with H₂S, and therefore, it is expected that the same facilities would be required to report TRS.

2.4.3 WG Views

There is a general WG consensus that TRS be added to the NPRI. However, there is concern that the list of substances of what is included in TRS be clearly delineated and that laboratory analyses methods be consistent across the country for quality assurance/quality control. In particular, industry representatives noted that Alberta and British Columbia facilities define TRS differently than in Ontario. In Ontario, the four main TRS compounds included in TRS are: hydrogen sulphide, dimethyl sulphide (C₂H₆S), mercaptans (CH₄S), and dimethyl disulphide (C₂H₆S₂). In Alberta, carbon disulphide (CS₂) and carbonyl sulphide (COS) are emitted in significant quantities by the oil and gas sector. These differences need to be resolved before TRS is added to the NPRI.

There is a general consensus from the WG that reporting of the individual sulphur compounds is preferable to reporting a total amount for the combined TRS compounds, provided there is an ability to quantify each compound accurately.

2.5 POLYCYCLIC AROMATIC HYDROCARBONS

2.5.1 Background

The term polycyclic aromatic hydrocarbons (PAHs) refers to the compounds made up of carbon and hydrogen atoms grouped into rings containing five or six carbon atoms. PAHs constitute a class of chemical products that include about 100 individual compounds (Ref: http://www.hc-sc.gc.ca/hecs-sesc/exsd/pdf/polycyclic_aromatic_hydrocarbons.pdf). PAHs are generated from both anthropogenic and natural sources. Anthropogenic sources include: aluminium smelters that use the Söderberg process, residential wood heating, agricultural burning, wood waste incineration, creosote-treated products, oil spills, metallurgical plants, coking plants, and atmospheric fallout. The majority of anthropogenic sources are point sources that regularly release PAHs, either on a continuous or intermittent basis (e.g., foundries, coking plants, metallurgical plants), or nonpoint sources that release PAHs at a very specific time and place (e.g., urban sources, such as vehicle emissions or wood combustion), resulting in chronic exposure for living organisms.

In Canada, natural emissions of PAHs originate primarily from forest fires, which release approximately 2,000 tonnes per year.

Acenaphtene (CAS No. 83-32-9), acenaphtylene (CAS No. 208-96-8), and fluorene (CAS No. 86-73-7) are three PAHs that are reported to O. Reg. 127/01 at a MPO threshold of 5 kg each. These three PAHs are not listed on the NPRI. In 2003, 34 Ontario facilities reported 4,000 kg of these three PAHs to O. Reg. 127/01. The three PAHs reported under O. Reg. 127/01 are significant in comparison to the quantities reported under the NPRI. Ecotoxicological studies of these three substances on aquatic organisms have shown adverse effects on growth and reproduction, and in some cases, cause lethality.

The United States Toxic Release Inventory (US TRI) PAHs category consists of 21 substances reported as a total quantity, with the exception of benzo (g,h,i) perylene. The US TRI PAHs were listed based on concerns for carcinogenicity. Eight (8) of the US TRI PAHs are not on the NPRI. These are: 3-Methylcholanthrene (CAS No. 56-49-5), 5-Methylchrysene (CAS No. 3697-24-3), 1-Nitropyrene (CAS No. 5522-43-0), 7,12-Dimethylbenz(a)anthracene (CAS No. 57-97-6), Dibenz(a,h)acridine (CAS No. 226-36-8), Dibenz(a,e)fluoranthene (CAS No. 5385-75-1), Dibenz(a,h)pyrene (CAS No. 189-64-0), and Dibenz(a,e)pyrene (CAS No. 192-65-4).

PAHs as a class are declared toxic under the Canadian Environmental Protection Act (CEPA).

2.5.2 The EC Proposal

For the purposes of harmonization between O. Reg. 127/01 and the NPRI, EC is recommending the addition of three (3) PAHs (acenaphtene, acenaphtylene, and fluorene) to Part 2 of the NPRI for the 2006 reporting year. The addition of these

substances to the NPRI would be linked with their removal from O. Reg. 127/01, to avoid double reporting. The listing of these substances will also help to identify priority measures and priorities for action; and support targeted regulatory initiatives. The addition of fluorene will also facilitate the negotiation of environmental performance agreements between the Quebec Environment Department and Alcan and Alcoa. Based on the industry sectors that report to MOE Reg. 127/01, the addition of these PAHs will affect the following sectors: electric power generation, transmission and distribution; petroleum and coal products manufacturing; pulp, paper, and paperboard mills; basic chemical manufacturing; industrial minerals; sawmills and wood preservation; petroleum products wholesalers; iron and steel mills; cement and concrete product manufacturing.

EC also recommends the addition of eight (8) additional PAHs (complete substance names listed above) to Part 2 of the NPRI for the 2006 reporting year. These PAHs are listed on the US TRI. Comparability with the US TRI is desirable by EC and MOE. The listing of these substances will also help to identify priority measures and priorities for action; and support targeted regulatory initiatives.

Facilities would be required to report individual PAHs under Part 2 of the NPRI, if they meet a 50 kg threshold for the sum of all PAHs listed under Part 2.

2.5.3 WG Views

There is general consensus from the WG to add the eleven (11) PAHs to Part 2 of the NPRI. The WG requested that EC consult with the smelting industry to obtain feedback on the proposal.

2.6 SIX GLYCOL ETHERS AND SEVEN MINERAL SPIRITS

2.6.1 Background

Glycol ethers and mineral spirits are volatile organic compounds (VOCs). They are released from a wide range of industrial sectors.

VOCs are toxic under the Canadian Environmental Protection Act (CEPA). In 2003, 60 VOC species were added to the NPRI as Part 5 substances. Some of these VOC species are also listed in Part 1 of the NPRI. Health effects from VOCs depend on the specific composition of the VOCs present, the concentration, and the length of exposure. High concentrations of some compounds which may occur when working with materials or processes that emit VOCs could have serious health effects. At lower concentrations, health effects include eye, nose, and throat irritation; headaches, loss of coordination, nausea; and damage to liver, kidney, and central nervous system.

The major environmental significance of VOCs is their contribution to photochemical smog.

Twenty five (25) mineral spirits are listed in O. Reg. 127/01. Of these, 13 mineral spirits had no or minimal reporting and five (5) were added to the NPRI in 2003. Seven (7)

mineral spirits remain to be considered. These are as follows: heavy alkylate naphtha (CAS No. 64741-65-7), hydrotreated heavy naphtha (CAS No. 64742-48-9), hydrotreated light distillate (CAS No. 64742-48-4), solvent naphtha light aliphatic (CAS No. 64742-89-8), solvent naphtha medium aliphatic (CAS No. 64742-88-7), VM & P naphtha (CAS No. 8032-32-4), and white mineral oil (CAS No. 8042-47-5).

Eighteen (18) glycol ethers are listed in O. Reg. 127/01. Ten (10) of these had no or minimal reporting and two (2) of the glycol ethers were listed in the NPRI in 1994 and 1999. Six (6) glycol ethers remain to be considered. These are as follows: diethylene glycol butyl ether (CAS No. 112-34-5); diethylene glycol ethyl ether acetate (CAS No. 112-15-2); ethylene glycol butyl ether acetate (CAS No. 112-07-2); ethylene glycol hexyl ether (CAS No. 112-25-4); propylene glycol butyl ether (CAS No. 5131-66-8); and propylene glycol methyl ether acetate (CAS No. 108-65-6).

The mineral spirit “VM & P Naphtha” (CAS No. 8032-32-4) is on the draft Health Canada “maximal list” of substances that are considered to have the greatest potential for exposure of the general population in Canada and “inherently toxic” to humans. Health Canada identifies this substance as “Ligroine” (same CAS No.) on the maximal list.

2.6.2 The EC Proposal

For the purposes of harmonization between O. Reg. 127/01 and the NPRI, EC is recommending the addition of the seven (7) mineral spirits and six (6) glycol ethers (substance names listed above) that are currently in O. Reg. 127/01 to Part 5 VOC listing of the NPRI for the 2006 reporting year. This would require that facilities who meet the 10 tonne MPO total VOCs reporting threshold (Part 4 of the NPRI) also report on the proposed additional mineral spirits and glycol ethers at a 1 tonne MPO reporting threshold.

The listing of these substances will also: encourage voluntary action to reduce releases; allow tracking of progress in reducing releases; and improve public understanding of the substance. The addition of the mineral spirits and glycol ethers would improve regional air quality modelling and assist in implementing domestic/international programs such as the “Canada-Side Standard for Particulate Matter and Ozone”, “Canada Wide Acid Rain Strategy”, “Ozone Annex of the 1991 Canada-US Air Quality Agreement”, “Convention on the Long Range Transport of Air Pollutants”, and “Development of Ambient Air Quality Objectives”.

The addition of these substances to the NPRI would be linked with their removal from O. Reg. 127/01, to avoid the overlapping reporting from industries in Ontario.

It is anticipated that the addition of the seven (7) mineral spirits and six (6) glycol ethers will only affect existing facilities which report on VOC speciation to the NPRI. In 2003, 2,252 facilities from a wide range of sectors reported VOC speciation to the NPRI.

EC is also proposing that further analysis be undertaken on delisting substances from Part 5 of the NPRI which have minimal or no reporting.

2.6.3 WG Views

Industry noted that there are double or multiple counting issues for some facilities – mineral spirits are mixtures, and some of the compounds in the mixtures are reported as VOCs in Part 5 of the NPRI, as well as in the totals for mineral spirits.⁵

Industry also noted another example of double counting, whereby mineral spirits, including benzene, could be reported in Part 5 of the NPRI, and benzene could also be required to be reported in Part 1 because the facility meets the employee threshold and/or a 10 tonne MPO threshold. It was noted that if ground-level ozone is the key issue for the VOCs, then NPRI should consider removing it from Part 1.⁶

Nevertheless, there was a general consensus from the WG to add the six glycol ethers and seven mineral spirits, with provisions to avoid multiple counting. The WG recommended that EC be clear in their reporting guidance to facilities on how to avoid multiple counting and also be clear on how to avoid it in the interpretation of the data.

For example, companies that report compounds should not report individual VOCs. In addition, the WG noted that EC needs to provide an explanation in NPRI Reports of the reason for speciation and how to avoid double or multiple counting.

The WG requested further information be provided by EC and the MOE on the following items:

- Clarification on how the data on the six (6) glycol ethers and seven (7) mineral spirits in Ontario were reported to O. Reg. 127/01, to avoid double-counting.
- Confirmation that EC will advise reporting facilities on how to avoid double-counting if substances are included as both individual substances and within mixtures.
- Re-examination of the list of VOCs on Part 5 and Part 1, to determine whether some VOCs should be de-listed due to double-counting and/or no reporting.
- Clarification on mineral spirits reporting procedures – to avoid double counting.
- Clarification on reasoning behind the benchmark of 80% capture rate of all VOCs.
- Clarification on the health impacts of the proposed glycol ethers and mineral spirits.
- Reactivity of the 13 compounds recommended for addition to NPRI.

⁵ EC noted that the facility should choose the most applicable method of reporting to the NPRI for their situation, to avoid double counting. For example, a facility could report a total quantity for mineral spirits, with a specific CAS Number, or the facility could report the individual chemicals.

⁶ EC noted that this concern has been noted and is to be discussed internally.

3. ISSUES REFERRED TO SUBGROUPS

3.1 INTRODUCTION

Due to the complexities involved for some issues, some work has been referred to sub-groups. The status or progress of the sub-group work is presented below.

3.2 MINING EXEMPTION

3.2.1 Background

The criteria for reporting to NPRI currently exempts facilities from reporting substances listed in Parts 1A through 3 if the only source or use of that substance is from mining, but not the further processing or other use of mined materials.

This exemption is being re-examined as part of a review of all NPRI exemptions. Among the drivers are the need to identify Criteria Air Contaminant (CAC) emissions from mining sources, to harmonize the NPRI and O. Reg. 127/01, to improve comparability with the US TRI and to simplify and integrate greenhouse gas emissions, Statistics Canada and NPRI reporting requirements.

3.2.2 Sub-Group Status

A Mining Sub-group workshop was held on May 17 and 18, 2005 to identify the options for revising NPRI mining requirements and obtain industry and ENGO perspectives. A “Final Report of the Mining Exemption Workshop – May 17-18, 2005” was produced of the workshop proceedings and a brief summary of results is presented below.

Twenty-two participants representing a range of stakeholders attended the workshop. The objectives of this workshop were threefold:

- To review the current status of NPRI’s reporting requirements and exemptions
- To discuss the potential implications of modifying the mining exemption and/or related mining requirements; and
- To examine and make recommendations on Environment Canada’s proposal to modify the NPRI mining exemption.

Two main issues were identified at this meeting:

- Whether to maintain the mining exemption for activities up to and including primary crushing?
- What should be the reporting requirements for substances contained in waste rock and mine tailings?

The subgroup agreed to remove the exemption for activities up to and including primary crushing and identified three options for the reporting requirements for substances in waste rock and tailings:

Option 1 – Maintain the “status quo” for tailings and waste rock

Option 2 – Require reporting of NPRI substances in tailings and waste rock as on-site disposal

Option 3 – Require reporting of NPRI substances in tailings as onsite disposal but maintain the “status quo” for waste rock.

The “status quo” involves reporting releases to the environment from tailings or waste rock areas to the NPRI. Substances contained in materials added to tailings or waste rock are not currently reported to the NPRI.

Option 1 was supported by industry representatives, for the following reasons:

- Tailings and waste rock are a form of storage and are not reportable as releases.
- The level of risk is not a function of mass.
- Reporting on tailings and waste rock would be counterproductive as it would dwarf all other releases at a facility, and would negate the effort/detail put into producing meaningful data of actual releases into the environment.

Option 2 was supported by ENGO participants, for the following reasons:

- Tailings ponds and waste rock piles exist indefinitely with no plans for further use or movement, therefore they are a disposal.
- There are concerns related to legacy risks and future leakages.
- Reporting of all substances in tailings and waste rock would support the NPRI objective of community “right to know” .
- Reporting of tailings and waste rock would allow greater comparability of data between NPRI and the US TRI.

Option 3 was presented by EC as a compromise between Options 1 and 2. No one in the sub-group supported Option 3, however, it was noted that it was a reasonable alternative because components in tailings are more finely ground than in waste rock, making substances of concern more environmentally available.

Areas of consensus reached during the mining workshop were as follows:

- All participants agreed on the removal of the exemption for activities up to and including primary crushing for the 2006 reporting year.
- The standard “employee threshold” should be replaced with a different “trigger mechanism” that is appropriate for the mining sector, such as an extraction threshold.
- Options to include reporting to NPRI by advanced exploration and closed mines should be considered.
- A consistent definition for “facility” across reporting programs is required.

- Options to simplify the NPRI reporting process need to be investigated (the sub-group suggested using the mining sector as a pilot case).

It is estimated that approximately 800 additional facilities will report to the NPRI, with the removal of the mining exemption for activities up to and including primary crushing. The sub-group identified a number of implementation issues, including a need for additional efforts to consult and inform the aggregate sector of potential changes.

The sub-group also recommended future research in a number of areas and prepared draft Terms of Reference for review by the WG.

3.2.3 WG Views

The WG agreed that the exemption for mining activities up to and including primary crushing should be removed for the 2006 reporting year. The WG also accepted the definitions for Option 1, 2, and 3 as proposed by the sub-group, and approved the Terms of Reference for the sub-group (see Appendix C).

The WG also agreed that in-person meetings should take place when necessary, and that EC needs to arrange a meeting of the mining sub-group before September in order to provide an update at the September WG meeting.

3.3 NPRI REVIEW

3.3.1 Background

In 2004, the NPRI WG agreed to form a sub-group to review the NPRI and explore how it can be refined. In particular, it was acknowledged that there was a need to streamline the NPRI process, to enhance data quality, to address priority emissions of concern, and to improve public access to information. The sub-group would also advise on further work and analysis that EC should undertake to support informed discussion and recommendations.

3.3.2 Sub-group Status

Draft Terms of Reference for the sub-group were presented by EC who proposed that the sub-group be activated over the summer 2005 and should report before the end of 2006.

3.3.3 WG Views

The WG approved the TORs with a number of amendments (see Appendix D). The WG agreed that the sub-group should consist of approximately six representatives: one ENGO representative; three industry representatives; and one to two provincial representatives. It was also recommended that a representative from Health Canada be included, to ensure that there is a complete dossier of information provided to the WG.

The WG defined the short-term action items as:

- Industry to select three representatives (by June 30, 2005)
- EC to convene a first meeting in July/August, 2005
- Sub-group to develop a Work Plan to present to the WG.

Preliminary items which the WG would like the sub-group to review are issues related to compliance and mechanisms to facilitate compliance. It was also noted that this was linked to a need to simplify the NPRI reporting process.

There was also general consensus from ENGOs and industry that three (3) face-to-face meetings per year of the main NPRI WG are needed, instead of the standard two meetings per year. The WG requested that the sub-group consider this request in its recommendations.

3.4 DATA GAPS RELATED TO CRITERIA AIR CONTAMINANTS

3.4.1 Background

Facilities have been required to report criteria air contaminants (CAC) emissions to the NPRI since 2002. The CACs include: sulphur oxides (SO_x); nitrogen oxides (NO_x); volatile organic compounds (VOC); carbon monoxide (CO); and particulate matter (TPM, PM₁₀, PM_{2.5}). Emissions for individual VOC species have been reported by facilities to the NPRI since 2003. The VOC species include 34 individual substances, 20 isomer group, and 6 other groups and mixtures.

Reporting requirements were determined through a technical sub-group and stakeholder consultations in 2000 and 2001. Facilities are currently required to provide the following information for CAC reports:

- Stack information for stack heights greater than 50 metres (height, diameter, flow rate, exit temperature of stack gases)
- Emissions by stack, for emissions greater than or equal to the minimum reporting threshold
- VOC species by stack, for emissions greater than or equal to 5 tonnes
- Operating schedule (monthly, weekly, hourly).

EC has noted some concerns with data quality, data gaps, and issues with compliance of CAC information reported by facilities to the NPRI. As a result, there are difficulties in using the data for national modelling initiatives, and in reconciling the data with a national inventory.

3.4.2 Sub-Group Status

EC suggested that a sub-group be formed at the September WG meeting. The overall mandate of the sub-group would be to assess the various CAC data issues and provide recommendations for addressing these issues.

3.4.3 WG Views

The WG agrees with the EC proposal to form a NPRI sub-group to consider the CAC data gaps, with appropriate input from the Environmental Protection WG.

In preparation for the September 2005 meeting, the WG requested that EC provide additional information by the end of August on the following:

- Additional background on the data input needs for air models and comparison with programs with the US
- Additional information on data gaps by industry sector and region; and
- Draft TORs for the sub-group, detailing specific topics and a potential workplan.

4. OTHER ISSUES

4.1 MODIFICATIONS FOR DIOXINS, FURANS AND HEXACHLOROBENZENE

4.1.1 Background

Current NPRI reporting conditions since 2000 for dioxins, furans (D/F) and hexachlorobenzene (HCB) are activity-based, and not based on the quantity that is manufactured, processed, or otherwise used (MPO), or the quantity released or transferred. Reporting units are in International Toxic Equivalence (ITEQ) for D/F, based on the cumulative quantity of the 17 congeners. Reporting units for HCB is in grams. A number of reporting changes were proposed in 2003, but not adopted.

The 2003 proposed changes for D/F were:

- Reporting criteria set in terms of quantity-based on threshold of 0.1 g MPO for the total of the existing D/F congeners
- Reporting in grams for each congener
- Reporting to include quantities of co-planar PCBs released.

The 2003 proposed change for HCB was:

- Reporting required for facilities which meet the quantity-based threshold of 5 kg MPO.

NPRI has begun to re-visit these proposals due to increasing EC commitments in meeting Canada's domestic and international reporting obligations; the need for data harmonization with Ontario; the recent proposed revisions for the reporting requirements of D/F by the US TRI; and recent reporting requirements for HCB under CEPA.

Ontario facilities reporting under O. Reg. 127/01 are required to provide information for two (2) specific D/F congeners in Table 2B of the regulation for Great Lakes reporting, if the 0.1 g MPO reporting threshold is met for 2,3,7,8-TCDD and 0.1 g for 2,3,7,8-TCDF.

The US EPA new proposal for D/F Reporting for the US TRI is to collect additional data besides the total grams. Three options have been identified:

- Option 1 – Reporting the data in terms of WHO-TEQ value for each congener
- Option 2 – Reporting the data for individual congener in terms of grams, and WHO- TEQ value
- Option 3 – Reporting the individual grams data for each congener, and the Agency determines WHO-TEQ data. (preferred by the US EPA).

The new reporting requirement for HCB under the CEPA “Prohibition of Certain Toxic Substances Regulations, 2005 (SOR/SOR/2005-41)” (promulgated March 9, 2005), is as follows:

- Reporting required by manufacturers or importers of HCB, alone, in a mixture or in a product that meets the threshold of 10 g annual quantity and 10 ppb annual average concentration.

4.1.2 WG Views

Some industry members noted that a change to reporting of individual congeners may require changes in analytical methods for some facilities, and that more information is required on the implications of this change before it is adopted.

It was also noted that there are many non-industrial sources (e.g., unconfined combustion of waste) responsible for the D/F emissions.

ENGOs noted that they were opposed to the 5 kg reporting threshold proposed for HCB in 2003, because very few facilities would be required to report. Clarification was requested regarding the impact of the new 10 g reporting threshold under CEPA on the proposal for a 5 kg reporting threshold.

The WG requested that EC undertake further work on the following for the September WG meeting and beyond:

- Clarify and justify substances that should be reported
- Clarify and justify proposed changes to reporting threshold
- Clarify the reasoning for the differences between the 10 g annual quantity reporting threshold (Regulation SOR/SOR/2005-41 under CEPA) and the proposed 5 kg (NPRI 2003 proposal) reporting threshold for HCB, and outline the implications.

4.2 REPORTING OF BIOSOLIDS TO THE NPRI

4.2.1 Background

The Canadian Water and Wastewater Association (CWWA) presented a position statement on the reporting of biosolids to the NPRI. CWWA is a non-profit national organization representing the common interests of Canada’s public sector municipal water and wastewater services, and their private sector suppliers and partners. The CWWA is recognized by the federal government and other national and provincial bodies as the representative for the Canadian water and wastewater sectors.

Biosolids consist of active and non-active microorganisms (biomass) and significant concentrations of beneficial plant nutrients, principally nitrogen, phosphorus and other elements, essential for plant growth. During the process of treating municipal wastewater, solid components contained in the wastewater are removed from the liquid. After processing, these solids are referred to as biosolids.

The opinion of EC is that biosolids (and the NPRI substances in the biosolids) are a by-product of wastewater treatment process (i.e., a waste) and not an intentionally-produced product. As a result, the wastewater treatment facilities must continue reporting the NPRI substances in biosolids.

However, it is the position of CWWA that biosolids are a product of the wastewater treatment process, rather than a by-product, and that this is evidenced by the investments made in solids separation, treatment and dewatering technology and operations to ensure their value as a product and their conformity with technical and regulatory standards.

CWWA stated that biosolids are beneficially used as products, which substitute for commercially available products. The association noted that while commercial fertilizers need to be applied every year, biosolids are only applied every three years, because they improve the soil structure, while providing valuable plant nutrients that would otherwise have to be mined, processed, distributed, and purchased. CWWA emphasized that biosolids are applied to land according to CCME guidelines.

In general, it is CWWA's position that land-applied biosolids from municipal wastewater treatment plants should not be required to report to the NPRI. The association recognizes that biosolids that are disposed of (e.g., landfilled) would continue reporting to the NPRI.

Under the existing NPRI definition, land application or land farming, incineration or landfill of biosolids are considered as the activities to be reported under "disposal". If biosolids are transferred off-site for recycling where they are treated or processed to be manufactured into compost or other products, they should be reported under the "recycling" activities within the descriptive category of "Other – other recovery, reuse and recycling activities not described above".

Facilities that compost biosolids and other materials can produce a number of different grades of compost. Compost that meets the CCME guidelines for category A compost (Guidelines for Compost Quality (CCME 106 E-March 1996), is considered a product for the purposes of the NPRI. Other categories of compost from biosolids should be reported as transfers for recycling.

4.2.2 WG Views

Industry generally supported the proposal to treat biosolids for land application as a "product" that would not be reported to NPRI, based on the following reasons:

- Key contaminants are already regulated
- Customers are willing to pay for biosolids, which indicates that they are a product
- Biosolids are intentionally produced, not by-products or wastes
- Land application is not "disposal" or "recycling", rather it is "re-use"
- In addition to the reporting burden, NPRI reporting requirement creates the perception of biosolids as a "pollutant", which is the wrong perception.

ENGOs generally believe that biosolids need to be reported, for the following reasons:

- Concern for heavy metals and other substances that may be present, even if they are below regulated limits
- Treatment levels of wastewater plants vary and there is no consistency in the pollutant context
- Concern that a variety of substances may enter the sewer system and that the treatment may or may not be able to remove these substances from biosolids
- Even if land application of biosolids is regulated, reporting is a separate issue
- The primary purpose of a wastewater system is to treat the waste, not produce biosolids, and thus biosolids should be considered a waste
- Allowing the change would set a precedent which could undermine the NPRI system.

No general consensus from the WG was reached on whether land-applied biosolids from municipal wastewater treatment plants should be exempt from reporting to the NPRI.

There was general consensus from the WG that a review of the general definition for “product” be undertaken as part of the NPRI review process.

4.3 FACILITY DEFINITION

4.3.1 Background

For the purposes of the NPRI, a “facility” is defined as “a contiguous facility, an offshore installation or a pipeline installation” (ref: *Guide for Reporting to the National Pollutant Release Inventory 2004*). The NPRI defines a “contiguous facility” to be all buildings, equipment, structures, and stationary items that are located on a single site or on contiguous or adjacent sites and that are owned or operated by the same person and that function as a single integrated site, and includes wastewater collection systems that discharge treated or untreated wastewater into surface waters.

The NPRI and MOE have a similar “facility” definition; however, the MOE definition also includes “portable facility” as an additional type of “facility”. A “portable facility” is a facility that can be entirely relocated for operation, including PCB destruction equipment, or an asphalt or concrete plant.

Statistics Canada also has a different definition for “facility” and governments and stakeholders are working on a definition in the context of GHG reporting which may or may not include the concept of “contiguous facility”.

4.3.2 EC Proposal

EC recommends the addition of “portable facilities” to the NPRI definition of facility, for the following reasons:

- Major pollutant releases from the “portable” operations for asphalt production are no less significant than those coming from the “permanent” type of operations

- Harmonization with O. Reg. 127/01 definition
- Broader data capture across Canada.

EC is also recommending that all “facility” definitions should be harmonized as much as possible.

4.3.3 WG Views

There was general consensus from the WG to add “portable PCB destruction equipment, asphalt plants, and concrete plants” to the definition of “facility” in the NPRI. This does not preclude future discussions regarding the potential addition of other types of portable facilities.

There was consensus that the reporting requirements for NPRI and GHG inventory should be as similar as possible, but that the concept of “contiguous facility” should be preserved, to avoid unnecessary disaggregation. In addition, it was noted that there was a need for better communication from the GHG working group concerning proposed changes.

The WG requested:

- a Report on the proposed “facility” definitions, the differences, and the impacts on industries. This Report was requested for the September NPRI WG meeting.

4.4 DEFERRED SUBSTANCES

There is growing frustration among some WG members that a number of substances that were previously proposed for addition or listing changes remain deferred due to lack of time and/or adequate information/analysis. These include, among others: PCBs, nickel, beryllium, radionuclides, and thallium. The ENGOs noted that there is significant information available to permit a proper discussion on these substances and that some of these substances were of greater priority than the ones addressed in the June 2005 workshop.

ENGOs also noted that a method for responding to emerging issues adequately was needed.

There is consensus from the WG that issues and substances should be categorized and prioritized in a more transparent manner.

EC committed to providing additional information on this issue and a suggested path forward at the September WG meeting.



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APPENDIX A

List of Current WG Members and Alternates

Member or Alternate	First Name	Last name	Organization
Associations Representing Reporting Facilities			
Member	Sian	Pascoe	Canadian Association of Petroleum Producers (CAPP)
Alternate	Sean	Reilly	
Alternate until May 2006	Sherry	Sian	
Member	Bruce	Caswell	Canadian Chemical Producers Association (CCPA)
Alternate	Dave	Shortt	
Member	Tim	Whitford	Canadian Electricity Association (CEA)
Alternate	Vickie	Christie	
Member	Mark	Blundell	Canadian Energy Pipeline Association (CEPA) TransCanada Pipelines Ltd.
Alternate	Sandra	Barnett	
Member	Nancy	Coulas	Canadian Manufacturers and Exporters (CME)
Member	Angela	Varley	Canadian Petroleum Products Institute (CPPI)
Alternate	Adolfo	Silva	
Member	John	Lundigran	Canadian Steel Producers Association (CSPA)
Alternate	Bruce	Boyd	
Member	Kelly	Miki	Canadian Vehicle Manufacturers Association (CVMA)
Alternate	Karen	Frizzell	
Member	Allan	Mumby	Canadian Water and Wastewater Association (CWWA)
Alternate	Adrian	Toth	
Member	Tracy	Hodges	Cement Association of Canada
Alternate	George	Venta	
Member	Walter	Senca	Mining Association of Canada (MAC)
Alternate	Justyna	Laurie-Lean	
Alternate	Gail	Buchanan	
Member	Jasmine	Urisk	Ontario Energy Association (OEA)/Canadian Energy Partnership for Environmental Innovation (CEPEI)
First Nations			
Alternate	Gene	Ouellette	Federation of Saskatchewan Indian Nations (AFN)
Member	Alan	Penn	Grand Council of the Crees
Non-Governmental Organizations			
Member	Anne	Mitchell	Canadian Institute for Environmental Law and Policy (CIELAP)
Member	Linda	Whalen	Centre for Long-Term Environmental Action Nfld (CLEAN)
Member	Dave	Stevens	Community Health Opposition to Known Emission Dangers (CHOKED)
Member	John	Jackson	Ontario Toxic Waste Research Coalition
Member	Anna	Tilman	STORM Coalition
Federal and Provincial Departments			
Member	François	Lavallée	Environment Canada - NPRI
Member	Nicole	Folliett	
Member	Gordon	Cockell	Health Canada
Alternate	Richard	Martin	
Member	Gary	McGee	Industry Canada
Alternate	Tim	Karlsson	
Member	Jackie	Scott	Natural Resources Canada
Member	Gérard	Houle	Ministère de l'environnement du Québec
Alternate	Vicky	Leblond	
Member	Peter	Wong	Ontario Ministry of the Environment



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APPENDIX B

Terms of Reference
NPRI Multi-Stakeholder Work Group on Substances

THE NPRI MULTI-STAKEHOLDER WORK GROUP ON SUBSTANCES

TERMS OF REFERENCE

A. Introduction

A permanent process for modifying the National Pollutant Release Inventory (NPRI) was developed through consultations with Canadian stakeholders and with the assistance of members of the 1998 multi-stakeholder *Ad Hoc* Work Group on Substances.⁷

The permanent process provides for the establishment of a NPRI Multi-stakeholder Work Group to address complex or multiple requests for future modifications to the NPRI.

The Work Group will operate as a part of the broader NPRI consultation process. Draft Work Group reports will be posted on the NPRI web site, and individuals can also request to receive the reports by regular or electronic mail. Thus, all interested Canadian stakeholders will have an opportunity to comment on the draft recommendations of the Work Group. Written comments can be submitted to the Work Group via the web site, or by email, fax or post. Work Group members will fully consider input received from other stakeholders before finalizing their recommendations.

Stakeholders may also, during the Work Group process, submit information that they feel should be considered in relation to the issues to be addressed by the Work Group.

B. Objectives of Multi-Stakeholder Work Group on Substances

Important Note: The issues identified below may be modified by Environment Canada at any time during the consultation period, either as a result of the consultation process or because of emerging priorities.

The objectives of the NPRI Multi-stakeholder Work Group (WG 2005-2006) are to develop recommendations to Environment Canada on the following issues:

- Review of the mining exemption (2005)
- Harmonization of NPRI with the Ministry of the Environment of Ontario Regulation 127, specifically the following substances/issues will be considered:
 - Calcium oxide (2005)
 - Total Reduced Sulphur (2005)
 - Ethyl acetate (2005)
 - Furfuryl alcohol (2005)
 - Tetrahydrofuran (2005)
 - 7 glycol ethers and 7 mineral spirits (2005)
 - 3 additional PAHs (2005)
 - Road dust (2006)
 - Acetone (2006).

⁷ http://www.ec.gc.ca/pdb/npri/documents/html/2000_Modify-Final_e.cfm

- Modifications for dioxins, furans and hexachlorobenzene (2006)
- NPRI review to help streamline the NPRI, enhance data quality, and address priority emissions of concern. A subgroup will be established to identify key issues and developing preliminary recommendations for consideration by the main Work Group in 2006.
- Harmonization of the "facility definition" between Ministry of the Environment of Ontario Regulation 127, Greenhouse Gas Emissions Reporting and NPRI:
 - General facility definition (2006)
 - Portable facilities (2005).
- Identification of gaps in the data collected for criteria air contaminants (2006)
- Reporting of biosolids to the NPRI. This will include a review of existing criteria for deciding on products versus wastes and recyclables and the guidance on how to report individual substances in a matrix (2005)
- Preliminary review and prioritization of remaining list of substances and issues (2005)

C. Elements of the Work Group Process

In accordance with the requirements of the permanent process for modifying the NPRI, the Work Group process will include the following elements:

1. The ***Work Group on substances*** with membership drawn from industry, federal and provincial government, aboriginal governments and organizations, and non-government organizations (health, environment, labour). Members sought are those who are familiar with the NPRI, have a scientific background, represent a broad constituency, and have experience in participating, on behalf of their constituency, in multi-stakeholder discussions. Work Group will participate in a series of facilitated meetings and conference calls, and undertake other tasks as necessary between meetings.
2. The ***Workplan***, which identifies the issues to be addressed, together with key milestones. This plan will be developed by the work group facilitator, in cooperation with Environment Canada, for review and consideration by the Work Group members.
3. ***Opportunities for other stakeholders*** to be made aware of the progress of the Work Group through regular information updates by mail or electronic media. The draft recommendations from the Work Group's June meetings will be circulated by these means, and comments from all stakeholders will be provided to the Work Group members. The NPRI office will also accept unsolicited briefs from stakeholders and forward them to the Work Group for consideration.
4. The ***background technical work*** will be the responsibility of Environment Canada and, if applicable, specific Technical Sub-Groups.

5. **Technical Sub-Groups** may be established to address specific issues. These technical sub-groups may include representation from industry/government/NGO organizations that are not Work Group members
6. The final recommendations of the Work Group for each objective will be submitted to Environment Canada through a **Work Group Report**. Should the Work Group fail to reach agreement on recommendations, differing positions will be captured in the report as unresolved issues. Work Group reports will be public documents.

D. Timeline

The Draft 2005 report of the Work Group will be submitted by July 15, 2005 and the Final Report by October 31, 2005. The 2006 report will be submitted by October 31, 2006.

E. Membership

Membership of the Work Group will be divided amongst the following groups:

- Industry
- Non-government organizations (health, environment, labour) and aboriginal governments and organizations
- Federal and provincial governments.

Each of these groups will be allocated seats on the Work Group. Nominations for membership will be sought from:

- Associations for industry representatives (max: 12 members)
- The Canadian Environmental Network for NGO representatives (max: 6 members)
- Health and labour organizations for NGO representatives (max. 2 members)
- Aboriginal governments and organizations for aboriginal representatives (max. 2 members)
- Provincial governments and federal government departments for government representatives (max. 7 members).

Nominations from other sources will also be considered, as long as the nominated individual fits the profile described in Section C.

The Chief of the NPRI, as well as staff from the NPRI office, will also attend Work Group meetings; and other Environment Canada staff may attend as “expert advisors”. A key role of these advisors will be to ensure that Work Group members are fully apprised of the conditions necessary to support the needs of Environment Canada in formulating their recommendations.

Interested stakeholders who are not members may attend Work Group meetings as observers. The number of observers will be limited by space availability, so requests for attendance must be made in advance, with priority given to stakeholders with broadly relevant views or interests that may not be fully represented by Work Group members.

F. Mandate of the Work Group on Substances

The Work Group is responsible for preparing recommendations to Environment Canada. In doing so, it will consider the opinions and concerns expressed by all stakeholders through briefs and letters.

More specifically the mandate of the Work Group is to:

- Discuss the issues related to the objectives of the consultation, including the proposals made by Environment Canada, with a view to:
 - Identifying the areas of agreement
 - Resolving disagreements, and
 - Identifying the differing views on any remaining areas of disagreement
 - Identify potential implementation issues that may arise from proposed modifications and propose ways to mitigate the impact.
- Advise on further technical work and analysis that Environment Canada should undertake to support informed discussion and recommendations.
- Advise and assist the consultation facilitator in ensuring that the consultation process and its outputs (the Work Group reports) meet the needs and expectations of the stakeholders and that the process is run in a cost-effective manner.
- Provide a communications link between the consultation process and their constituency.
- Make recommendations relating to each of the issues. This will be done through Work Group reports, which will contain the recommendations on matters where consensus has been achieved, explanations of any disagreements among stakeholders, and the description of any additional issues, which need to be resolved.

Members of the Work Group will be expected to make every effort to ensure that the views which they express reflect those of their constituency of interest and not only their personal views or those of their organization. It is also expected that they will communicate the fact of their participation and the positions they will be taking on various issues to interested members of their respective constituencies. In recognition of the time necessary for participants to get feedback from their constituencies, Environment Canada and the consultation facilitator will endeavour to provide discussion materials 3 weeks prior to the meetings.

It is recognized that, due to financial and/or organizational constraints, not all participants have the means to communicate regularly with all members of their constituency. Environment Canada will assist participants facing such constraints to develop appropriate means of communication to their constituency.

The mandate of the Work Group may be amended depending on the recommendations from the NPRI Review sub-group which will be formed in July/August 2005.

G. The Role of The Facilitator

The Work Group will be facilitated by an independent facilitator to be chosen by Environment Canada. He/she will be responsible for matters related to the organization and facilitation of the work of the Work Group including preparing the agendas, running the meetings, and preparing the draft and final reports of the Work Group for approval by the Work Group. The facilitator will have an assistant, who will be responsible for the preparation of minutes of the meetings.

The facilitator will also serve as a point of contact for any persons or organizations, participant or non-participant, who have concerns or questions about the consultation process.

H. Expenses

Funds will be made available by Environment Canada, as per Treasury Board guidelines to cover travel, accommodation and other reasonable out-of-pocket expenses for those participants from the voluntary sector who require financial assistance to participate in the work group.

I. Contact for Additional Information

Environment Canada (819) 953-1656
nprimodif@ec.gc.ca or npri@ec.gc.ca



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APPENDIX C

**Terms of Reference
NPRI Multi-Stakeholder Sub-Group on
Mining Exemption**

NPRI MULTI-STAKEHOLDER SUB-GROUP ON MINING EXEMPTION

TERMS OF REFERENCE

A. Introduction

In 2003, the NPRI Multi-stakeholder WG (the main WG) agreed to form a Sub-Group (SG) to examine modifications to the mining exemption in the NPRI. The WG also agreed that a first step would be to conduct a broad Workshop where interested stakeholders would consider the issues and provide recommendations, including recommendations on the substantive issues, as well as the need for an ongoing SG. If applicable, recommendations were also sought concerning membership and Terms of Reference for the SG.

The Workshop was held in Gatineau, QC on May 17-18, 2005. At the conclusion of the Workshop, stakeholders identified the need for an ongoing SG. These Terms of Reference were approved by the WG at its meeting on June 15-16, 2005.

B. Objectives of Multi-stakeholder Sub-Group on Modifications to the Mining Exemption

The objectives of the NPRI Multi-stakeholder Sub-Group on Modifications to the Mining Exemption are to develop recommendations to the NPRI WG on the following issues:

- Options for removal of the mining exemption
- Alternative threshold mechanisms to the employee threshold and their implications for the mining sector
- Changes to the facility definition and their implications for the mining sector
- Implications for the mining sector of simplification of the NPRI process
- Implementation issues, including:
 - Definitions for tailings and waste rock, the status of low-grade ore and overburden, and the potential unintended requirement to report all earth movement
 - Options for dealing with loss of information or double-counting due to the magnitudes involved, the movement of substances within processes, and post-closure releases
 - The development of tools and approaches to assist mining sub-sectors in creating awareness, ensuring accuracy, and dealing with the reporting burden
 - The identification of costs to industry and government, the need for additional resources, and appropriate priorities
 - The potential for implementing the requirement in stages.

C. Sub-Group Process

No face-to-face meetings are planned at this stage. SG members will be invited to provide feedback on research which will be conducted by Environment Canada and/or suggestions from the main WG. If necessary, conference calls will be organized to exchange views.

Face-to-face working meetings may be organized to deal with specific issues. This could include meetings to deal with mining as a test case for process simplification, or to deal with implementation issues.

D. Timeline

The removal of the exemption is planned for the 2006 reporting year, however, more specific timelines will need to be suggested by the SG, with advice from EC.

E. Membership

Membership of the SG will include:

- Industry (MAC, Cement Association of Canada, Aggregate Producers of Ontario, Association minière du Québec, Coal Association of Canada, Saskatchewan Mining Association, Canadian Lime Institute, Canadian Fertilizer Institute, Salt Institute)
- Environmental Non-Government Organizations (as designated by CEN), public health organizations (CPHA), labour (United Steelworkers of America) and aboriginal organizations
- Federal and provincial governments (EC, NRCan, HC, Ontario MOE).

The Chief of the NPRI, as well as staff from the NPRI office, will also participate.

F. Mandate of the Sub-Group on Modifications to the Mining Exemption

The SG is responsible for preparing recommendations to the main WG. In doing so, it will consider the opinions and concerns expressed by all stakeholders.

More specifically the mandate of the WG is to:

- Discuss the issues related to the objectives of the consultation, including the proposals made by Environment Canada, with a view to:
 - Identifying the areas of agreement
 - Resolving disagreements, and
 - Identifying the differing views on any remaining areas of disagreement.
- Advise on further technical work and analysis that Environment Canada should undertake to support informed discussion and recommendations.
- Advise and assist the main WG in ensuring that the consultation process and its outputs (the WG reports) meet the needs and expectations of the stakeholders and that the process is run in a cost-effective manner.
- Provide a communications link between the consultation process and their constituency.
- Make recommendations relating to each of the issues. This will be done through SG reports, which will contain the recommendations on matters where consensus has been

achieved, explanations of any disagreements among stakeholders, and the description of any additional issues, which need to be resolved.

Members of the SG will be expected to make every effort to ensure that the views which they express reflect those of their constituency of interest and not only their personal views or those of their organization. It is also expected that they will communicate the fact of their participation and the positions they will be taking on various issues to interested members of their respective constituencies.

G. Facilitator

Since no face-to-face meetings are planned at this stage, a facilitator is not expected to be needed. Should specific meetings be needed, Environment Canada will determine whether or not to engage a facilitator, in consultation with members.

H. Expenses

No expenses are anticipated.



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APPENDIX D

**Terms of Reference – NPRI Multi-Stakeholder
Sub-Group on Longer-Term Vision and
Work Plan for NPRI**

NPRI MULTI-STAKEHOLDER SUB-GROUP ON LONGER-TERM VISION AND WORK PLAN FOR NPRI

TERMS OF REFERENCE

A. Introduction

In 2004, the NPRI Multi-stakeholder Work Group (WG) agreed to form a sub-group (SG) to take stock of the NPRI and explore how it can be refined; in particular to make it more streamlined, to enhance data quality and to address priority emissions of concern. It is an opportune time for a comprehensive reflection on the program's mandate and future opportunities because of a number of circumstances. The NPRI program itself has expanded and matured substantially over the years and many of the most critical substances of concern have been addressed; consideration of future candidate substances will present different challenges. The government will also be undertaking its mandatory review of CEPA 1999, raising the question of which issues related to the NPRI need to be addressed, and how. Environment Canada is embarking on new strategic directions which may present new issues and opportunities for environmental information and reporting in general and the NPRI in particular.

WG members provided the following guidance for this subgroup in areas regarding desired NPRI attributes, and specific issues and tasks for this subgroup.

B. Desired NPRI Attributes from the Multi-stakeholder Sub-Group on a Longer-Term Vision and Work Plan for the NPRI

Following, organized under suitable thematic headings, are a number of qualities or attributes of the NPRI advocated by the NPRI Work Group, against which future adjustments should be considered:

- Reporting Requirements (including listing/delisting)
 - Relevant
 - Material
 - Cost-effective
 - Fair
 - Harmonized
 - Sufficient.

- Reported Data
 - Accurate, reliable, and authoritative
 - Consistent and comparable
 - Comprehensive
 - Verifiable
 - Linkable to other relevant environmental data/reports.

- Reporting Process
 - Transparent
 - Simple, efficient
 - Consistent

- Single-window; non-redundant
- Well-supported (guidance documents, help desks, etc.).
- Compliance
 - Principle of "reasonable effort" to comply; good faith
 - Emphasis on compliance promotion rather than enforcement
 - Authority to ensure compliance and quality control.
- Public Access, Dissemination, and Public Reporting
 - Accessible to all
 - Public reports placed in proper context to assist in fair, responsible interpretation of emissions data
 - Linkages to other data of relevance and interest.

C. Specific Issues and Tasks for the Review of the Longer- Term Vision and Work Plan for the NPRI

Following, in random order, are a number of specific issues, suggestions, and concerns the NPRI Work Group members suggest should be addressed as part of a proposed comprehensive and systematic review of the NPRI's future evolution:

1. Conduct a systematic review of the NPRI long-term vision, strategic approach, and priorities, taking into account the issues identified by the main WG.
2. Establish clear criteria and systematic processes to identify and agree upon priority candidate substances for consideration under the NPRI.
3. Establish more consistent and visible means to track and provide information to NPRI Work Group members and stakeholders on the scope, nature, and status of work on all candidate substances being reviewed.
4. Identify and pursue opportunities to provide input to the CEPA 1999 review from both a general reporting and an NPRI-specific perspective.
5. Take systematic stock of the NPRI to identify opportunities to reduce complexities and streamline reporting requirements while maintaining the integrity of the program.
6. Review reporting plans and activities of the provinces and territories, and identify and pursue opportunities to achieve harmonized, single-window reporting and other measures to simplify and streamline reporting wherever practical, including consideration of a suitable federal/provincial/territorial agreement or accord, perhaps under the auspices of the Canadian Council of Ministers of the Environment. Also consider linkages with other programs.
7. Undertake a systematic assessment of needs and opportunities for training, guidance documents, help desks, and other forms of support that will minimize reporting burden, enhance data quality and consistency, minimize reporting costs, and encourage high levels of compliance and hence comprehensiveness and consistency of coverage.
8. Explore ideas and options for sector-specific approaches (e.g., in cooperation with industry associations) to the setting of reporting requirements and/or the tailoring of guidance documents to target emissions and issues of concern and adjust to unique sectoral circumstances.

9. Identify and pursue opportunities to link NPRI data and reports with other relevant sources of environmental information to facilitate strategic analysis and interpretation of more general issues and trends.
10. Identify and pursue measures to incorporate suitable explanations, cautionary notes, and contextual information in publicly disseminated NPRI reports, to help ensure that results are responsibly interpreted and placed in a suitable context.
11. In the course of the above, consider the most appropriate positioning of the NPRI as one important - but not the sole - means of securing information on environmental emissions of concern. In other words, consider alternatives to the NPRI to obtain needed information, taking into account the relative strengths and weaknesses and the costs and benefits of all relevant information collection mechanisms and authorities.
12. Assess the WG Meeting and consultation process, in terms of preparedness, documentation, quality of information, number of meetings per year, WG representation, and SG representation.
13. Examine mechanisms to ensure greater compliance.
14. Examine reporting requirements for recycling operations and the definition of a product.

D. Sub-Group Process

To help prepare for such a review, a small suitable subgroup of the NPRI Work Group will be established to exchange and develop ideas for consideration by the Work Group, so that the Work Group can in turn make recommendations to the government.

There is not expected to be any face-to-face meetings.

E. Timeline

Specific timelines will need to be established by the Main WG, with advice from EC.

F. Membership

Membership of the SG will include three industry representatives, one ENGO representative, and one to two provincial representatives.

The Chief of the NPRI, as well as staff from the NPRI office, will also participate.

G. Mandate of the Sub-Group on NPRI Review

The SG is responsible for preparing recommendations to the main WG. In doing so, it will consider the opinions and concerns expressed by all stakeholders.

More specifically the mandate of the SG is:

- To explore (1) how the NPRI may be streamlined, (2) enhancement of data quality, and (3) considerations of priority emission
- Advise on further work and analysis that Environment Canada should undertake to support informed discussion and recommendations

- Advise and assist the main WG in ensuring that the consultation process and its outputs (the WG reports) meet the needs and expectations of the stakeholders and that the process is run in a cost-effective manner
- Provide a communications link between the consultation process and their constituency
- Make recommendations relating to each of the issues, including areas of consensus, explanations of any disagreements, and the description of any additional issues that need to be resolved
- Prepare a workplan and timelines to fulfill the mandate and address the issues.

Members of the SG will be expected to make every effort to ensure that the views which they express reflect those of their constituency of interest and not only their personal views or those of their organization. It is also expected that they will communicate the fact of their participation and the positions they will be taking on various issues to interested members of their respective constituencies.

H. Facilitator

A facilitator is not expected to be necessary for this subgroup.

I. Expenses

No expenses are anticipated.