

Summary of Public Comments received on site-restricted Low Boiling Point Naphthas Draft Screening Assessment Report for Stream 1 of the Petroleum Sector Stream Approach

Comments on the draft screening assessment report for site-restricted low boiling point naphthas (LBPNS) under the Petroleum Sector Stream Approach (PSSA) were provided by Crooked Creek Conservancy Society of Athabasca, International Institute of Concern for Public Health (IICPH), Canadian Petroleum Products Institute, Chemical Sensitivities Manitoba and Canadian Environmental Law Association (CELA and CSM).

A summary of comments and responses is included below, organized by topic:

- Persistence and Bioaccumulation
- Research Methods
- Risk Assessment
- Uncertainties and Lack of information and data
- Occupational Exposure
- Exposure Risks
- Risk Management
- Definitions

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Persistence and Bioaccumulation	The <i>Persistence and Bioaccumulation Regulations</i> of CEPA 1999 should be mentioned, and LBPNS should be referred to as mixtures.	The bioaccumulation section has been reworded to reflect criteria for bioaccumulation data in the context of the <i>Persistence and Bioaccumulation Regulations</i> . Reference to LBPNS as mixtures are made, however, conclusions on persistence and bioaccumulation are made on the components of the mixtures, rather than the mixture as a whole.
	Four of the LBPNS substances (64742-22-9, 68410-71-9, 68410-05-9 and 68410-96-8) should be listed as persistent under the <i>Persistence and Bioaccumulation Regulations</i> .	Based on the available information, components of these LBPNS are considered to be persistent in air, based on criteria defined in the <i>Persistence and Bioaccumulation Regulations</i> of CEPA 1999.
	The screening assessment should validate the reasoning and supporting evidence that LBPNS substances are persistent and bioaccumulative.	Categorization concluded that the substances were "Persistent and inherently Toxic (PiT) or Bioaccumulative and inherently Toxic (BiT)", and not "Persistent, Bioaccumulative and inherently Toxic (PBiT)". Further analysis for this screening assessment indicates that none of the components of these LBPNS substances are bioaccumulative.
	Partitioning factors indicate that the LBPNS substances covered in this assessment possess high potential for bioaccumulation.	Since partitioning factors only indicate the possibility of bioaccumulation, other factors such as metabolism or uptake were considered along with experimental and field data. Based on all available information and data, it was concluded that none of the

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		components of these LBP substances are bioaccumulative.
	Why was the Bioaccumulation (BAF) model not used if it is preferred over the Bioconcentration Factor (BCF) model?	Data from the Bioaccumulation Factor model has been included in the report along with data from the Bioconcentration Factor model.
	Some of the LBPNs that were thought to be bioaccumulative and persistent during categorization may be harmful to the environment.	Exposure of the general population and the environment to the site-restricted LBPNs is not expected, and therefore harm to the environment or human health is not expected. In addition, the data showed that none of the components of these LBPNs are bioaccumulative.
Research Methods	There should not be grouping of site-restricted LBPNs for screening assessment purposes, because individual substances in the group may have different properties.	The substance grouping process is consistent with national and international standards. Also, screening assessments do take into account that there may be different conclusions on individual substances. Whether these substances were assessed as a group or individually would have had no impact on the assessment outcomes.
	Several studies (Colombo et al. (2007), Niimi and Palazzo (1986), Takeuchi et al. (2009) and Wan et al. (2007) were inaccurately referenced in the screening assessment.	The screening assessment has been revised to correct references and include additional data, where warranted.
	The hypothesis that primary biodegradation half-lives for hydrocarbons in a gasoline mix are shorter than half-lives for individual components may not be valid.	In the absence of confirmatory analysis, the research indicates that mixtures of hydrocarbons degrade faster than their individual components.
	The different biodegradation models provide a variety of results, and are therefore inconsistent.	Different types of biodegradation processes (primary vs. ultimate) are considered by the different models as biodegradation is a complex process. Therefore, the results will vary slightly. The two models used in this assessment provide answers that are generally similar, which indicates that the results are reasonably accurate.
Risk Assessment	The complete life-cycle including disposal of site-restricted LBP substances should be included in the assessment.	From data gathered for the evaluation of the site-restricted LBPNs, there is no indication that significant amounts of these substances are disposed of from refineries and upgraders. The site-restricted substances are considered to be processing intermediates which form part of other substances which leave facilities under different identifiers (CAS RNs). Screening assessment of those substances that leave petroleum facility sites will be conducted under Streams 2, 3, and 4 of the PSSA.
		Extensive data are required to conduct full life-cycle analyses, including assessment of

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		the breakdown products and this information is taken into consideration in screening assessments when available and when informative to characterizing risk to the environment and human health.
	The substances of Unknown or Variable Composition, Complex Reaction Products or Biological Materials (UVCBs) covered as part of the LBPB grouping are not assessed in enough detail to effectively show the impact that benzene may have on the environment and human health in site-restricted facilities.	To determine if a substance meets the criteria set out under section 64 of CEPA 1999, an approach is taken which considers both the toxicity and the extent of exposure to the substance. There are hazardous components of LBPBs which have been previously assessed by the Government of Canada, and which are listed on Schedule 1 of CEPA 1999. As a result of extensive data gathering and analysis, it was determined that exposure of the general human population and the environment to the site-restricted LBPBs is not expected, and consequently risk to the general population is not expected. As outlined in the screening assessment, those substances which are considered to have exposure through transportation, use as fuels or consumer products are not site-restricted, and will be assessed in the future.
	In light of recent catastrophic oil spills which were site-restricted, consideration of these types of worst case scenarios or events should be considered in screening assessments of PSSA substances. The commenter is unsure if information such as worst case scenario is omitted from the screening assessment for reasons such as confidential business information, lack of stakeholder evidence or both.	The recent catastrophic spill situations were of crude oil and were not of a site-restricted substance. The screening assessment of crude oil is being conducted under Stream 2 (industry-restricted substances) of the Petroleum Sector Stream Approach. As well, catastrophic spills of petroleum substances are beyond the scope of these screening risk assessments.
	When information on release of site-restricted LBPBs is not available this should be stated in the assessments.	The screening assessment for the site restricted LBPBs was based on available data. This assessment has been reviewed and clarified to more accurately reflect the information sources on which the decisions were based. These substances are hazardous, however, environmental and general population exposure to these substances is not expected, and therefore harm to the environment or human health is not expected.
	The assessment should indicate that LBPB substances are harmful to human health and the environment, and identify ways to manage them.	Since these LBPB substances are site-restricted and do not leave facilities, exposures to the general population and the environment are not expected. Process flow diagrams have been added to the assessment report providing further evidence that these

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		substances do not leave facilities, unless they have been altered or blended with other substances to make a new mixture under a different CAS RN.
Uncertainties and Lack of information and data	More information on the detailed proportion of LBPNS substance groups should be added. Also, predictions on persistence and bioaccumulation are uncertain due to structure-related uncertainties in the representative structures.	Except for aliphatic:aromatic ratios, information on the proportions of substances in the LBPNS group is not available. A wide range of representative structures were considered in the assessment and issues related to uncertainty are acknowledged in the Uncertainties Section of the assessment report.
	The assessment should clearly state that there is a lack of empirical evidence to support the conclusion that these LBPNS substances are non-persistent or bioaccumulative in the environment.	There are sufficient empirical and modelled data to show that many LBPNS components are persistent in air, but not in water, soil or sediments and do not bioaccumulate. This is clearly stated throughout the assessment.
	Reproductive toxicity effects were observed for site-restricted LBPNS, yet the screening assessment indicates that there are no adverse effects of LBPNS for that endpoint.	Although developmental or reproductive effects may be observed when experimental animals are exposed to LBPNS, the substances covered in this assessment are site-restricted. Therefore exposures to the general population and the environment are not expected, and risk to human health is not expected.
	There is a lack of detail in screening assessments regarding release limits/thresholds from sites, and how site-restricted LBPNS are managed with respect to current requirements.	Provincial release limits are generally for broad targets (oils and greases in water, total VOC to air), where determination of a specific CAS RN is not possible. Therefore, provincial release limits from refineries or upgraders are not specific enough to inform the assessment of the site-restricted LBPNS. If a screening assessment determines that a substance meets the criteria of section 64 under CEPA 1999, existing risk management measures would be considered in the development of a risk management strategy.
	Concern is expressed regarding the consideration of these substances as “site-restricted”. There is not sufficient evidence on the fate and exposure of LBPNS substances and too much uncertainty in the screening assessment to reach the proposed conclusion.	Extensive data gathering was conducted for the evaluation of the site-restricted LBPNS. Data were obtained from industry through voluntary submissions and a mandatory survey under section 71 of CEPA 1999, in addition to in-depth literature review, and searching of Material Safety Data Sheets. In addition, the processing details of these substances were comprehensively considered when evaluating the potential for exposure to the environment and the general population. With respect to the exposure of these substances, it was determined that there is no significant release from the facilities, and that these substances are processing intermediates that are modified prior to leaving the facility under different identifiers (CAS RNs). Therefore, environmental and general

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		population exposure to these substances is not expected. The use of a Significant New Activity (SNAc) provision, which is being considered, recognizes the hazardous properties of these site-restricted substances, and would require that any proposed new manufacture, import or use outside a petroleum refinery or upgrader facility be subject to further assessment to determine if the new activity requires further risk management consideration.
	Use of a precautionary approach is suggested, due to lack of sufficient evidence regarding exposure which is not expected, resulting in harm which is not expected. In addition, uncertainties outlined in the human health dataset were noted to be deficiencies in the screening assessment.	The data available for characterization of risk to the environment and the general population in this assessment of site-restricted LBPNS were sufficient to derive a conclusion under section 64 of CEPA 1999. As LBPNS substances are UVCBs, they can vary significantly in the number, identity and proportion of components, depending on operating conditions, feedstocks and processing units. Use of various information sources including process flow diagrams, information obtained through mandatory section 71 surveys, MSDS sheets and physical-chemical properties provided evidence that these substances were considered to be processing intermediates or blending streams when determining that these substances were site-restricted. All available data on human health effects of LBPNS were considered based on similar processing and physical chemical properties. Substances were pooled across multiple CAS RNs to develop a comprehensive profile by including the available data for all LBPNS. This read-across approach serves to increase confidence in the dataset overall
Occupational Exposure	Occupational exposure to site-restricted LBPNS should be considered in the screening assessment report.	Hazard information from occupational settings, especially epidemiological data, is considered in the screening assessment, where available and appropriate. Epidemiological data were available for the assessment of site-restricted LBPNS, however, it was considered inadequate to inform decision making. Information gathered and outcomes of assessments conducted under the Chemicals Management Plan, of which the Petroleum Sector Stream Approach is a part, may be used to inform decisions concerning additional actions to minimize exposure to workers. While occupational exposure is not considered in the assessment, assessment outcomes are shared with appropriate occupational health and safety jurisdictions.

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Exposure Risks	The extent of unintentional releases of site-restricted LBPNS and measures to control them should be included in the assessment. Also, screening assessments should consider communities that are in the vicinity of facility sites.	Through use of process flow diagrams and information obtained through voluntary submissions, in-depth literature review, searches of MSDS and in response to the section 71 survey under CEPA 1999, the LBPNS substances evaluated in this screening assessment were determined to be processing intermediates which do not leave the facility site. Regulatory and non-regulatory measures are in place at petroleum sector facilities to reduce unintentional releases. Therefore, general population exposure, including communities in the vicinity of facility sites, is not expected.
	Assigning different categories to carcinogens would be more informative to risk management of the substances.	The focus of the screening assessment is on characterizing hazard and potential exposure, as opposed to assigning hazard-based classifications.
	The screening assessment should include monitoring data to support the conclusion that exposure to site-restricted LBPNS substances is not expected.	Based on process-flow diagrams and information collected under section 71 of CEPA 1999, these substances were determined to be processing intermediates, which are expected to remain on facility sites. Provincial release limits are generally for broad targets (oils and greases in water, total VOC to air), where determination of a specific CAS RN is not possible. Therefore, monitoring information or provincial release limits from refineries or upgraders are not specific enough to inform the assessment of the site-restricted LBPNS.
	Assessments do not provide information on amounts of site-restricted LBPNS that are produced and used; or the number and location of facilities that use or produce them. It is not clear why information on amounts produced, controlled, and/or accidentally released is left out of assessments.	Information on the manufacture, import, and use of site-restricted LBPNS, as well as the number and location of facilities producing these substances is gathered from voluntary industry submissions, literature review, Material Safety Data Sheets (MSDS), and a mandatory survey under section 71 of CEPA 1999. All available information, including the data submitted under the confidence agreement of the section 71 survey, was used to inform the screening assessment of site-restricted low boiling point naphthas. Consistent with the terms of confidential business information, data considered relevant to the assessment are provided in the assessment report in the most transparent manner possible. The submitted data demonstrated that the substances considered in this assessment are not transported off of the facilities as they are intermediate processing streams. Process flow diagrams were also used to determine if a substance was site-restricted. Since these

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		substances are not transported off the facility sites, the volumes produced and consumed within the facilities are not relevant to the screening assessments. The finished products of these processing intermediates are scheduled to be assessed under future PSSA assessments. Subject to the applicable laws, the Government of Canada continually works with stakeholders to ensure a balance between protection of proprietary information and presenting information in the most transparent manner possible. The screening assessment has been amended for clarification.
Risk Management	Site-restricted LBPNS should be added to the List of Toxic Substances (Schedule 1) and the <i>Prohibition of Certain Toxic Chemicals Regulations</i> under CEPA.	The site-restricted LBPNS substances are concluded not to meet the criteria set out under section 64 of CEPA 1999, after consideration of all available data. Therefore, adding these substances to the List of Toxic Substances (Schedule 1) and the <i>Prohibition of Certain Toxic Substances Regulations</i> under CEPA 1999 is not warranted.
Definitions	The terms “closed system” and “site” should be defined in the assessment.	The following definition of a “closed system” for the purposes of the PSSA was added to the final screening assessment report: “A closed system is defined as a system within a facility which does not have any releases to the environment, and losses are collected and either re-circulated or destroyed”. The following definition of a “site” for the purposes of the PSSA was added to the final screening assessment report: “A site is defined as the boundaries of the property where a facility is located. In these cases, facilities are either petroleum refineries or upgraders.”