

**Summary of Public Comments received on site-restricted Heavy Fuel Oils and Gas Oils Draft Screening Assessment Reports for Stream 1 of the Petroleum Sector Stream Approach.**

Comments on the draft screening assessment of Petroleum Sector Stream Approach (PSSA) site-restricted gas oil and site-restricted heavy fuel oils to be addressed as part of the Chemicals Management Plan 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.

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

- Physical-chemical properties
- Persistence and Bioaccumulation
- Inherent Toxicity
- Data gaps and deficiencies
- Uses
- Releases
- Exposure
- Risk Assessment Conclusion

TOPIC	COMMENT	RESPONSE
Physical-Chemical Properties	A secondary source document (CONCAWE 1996) referenced for a description of a gas oil substance did not include details included in the assessment.	The secondary source document did not mention bitumen or upgraders, however, the composition of gas oils and heavy fuel oils (HFOs) are dependant on the source of the initial product and the refining and/or upgrading processes that these substances undergo. The assessment has been amended to more accurately reflect the secondary source document.
	The group of structures selected to represent gas oils does not include alkenes and some of the representative substances for site-restricted gas oil and site-restricted HFOs are polycyclic aromatic hydrocarbons (PAHs). These substances have been previously assessed under the Priority Substances Program.	The assessment of site-restricted gas oil has been revised to add the alkenes to the representative structures used to model the behaviour of the site-restricted gas oil substance, however, gas oils are not expected to contain significant amounts of alkenes.  Some PAHs were selected as representative structures for the site-restricted gas oil and site-restricted HFOs, however, significant release is not expected. For this reason, assessment details of

		PAHs or the presence of these substances on Schedule 1 of CEPA 1999 were not mentioned in the screening assessment. The presence of a substance that has been previously assessed and added to Schedule 1 does not necessitate the conclusion that this mixture is posing a risk, but does inform risk management activities of the substances on Schedule 1.
Persistence and Bioaccumulation	The uncertainties surrounding the utilization of representative structures for modelling the persistence and bioaccumulation of site-restricted HFOs is concerning.	Data on the composition of these mixtures was not available, and the mixtures are, by nature, variable. The use of representative structures allowed estimation of persistence and bioaccumulation potentials. The use of analogues and representative structures is a recognized approach when conducting risk assessments.
	There is concern that representative structures for modelling of bioaccumulation and persistence have long degradation times.	The long half-lives of some components in these mixtures was identified in the assessment reports, and was considered in characterizing persistence.
	While the results of the modelled representative structures for HFO's are interpreted as not meeting Persistence and Bioaccumulation Criteria, this does not mean that there is no bioaccumulation. In fact, a low bioconcentration potential is noted.	Persistence and bioaccumulation characteristics are considered as part of the weight-of-evidence in determining whether a substance poses a risk. However, there is an elevated level of concern when a chemical meets the criteria defined in the Persistence and Bioaccumulation Regulations.  The wording in the bioaccumulation section has been modified to more appropriately reflect this intention within the assessments.
	Alkylated-benzenes and biphenyls may be more appropriate constituents for modelling of persistence.	The representative structures for benzenes and biphenyls have been identified more accurately as alkylated benzenes and biphenyls in the environmental persistence discussion of the site-restricted gas oil.
Inherent Toxicity	Was the mode of action for carcinogenicity of gas oils and HFOs considered (e.g. non-threshold carcinogen)?	Evaluation of the available data and a weight-of-evidence assessment was conducted on the potential carcinogenicity of gas oils and HFOs. The strength and quality of the data preclude determination of a mode of action for carcinogenicity.
	Has there been consideration of assigning different categories to carcinogens?	No, the focus of the screening assessments is on characterizing hazard and potential exposure, as opposed to assigning hazard-based classifications.
Data gaps and deficiencies	The lack of detail in the screening assessment regarding the release limits/thresholds from sites is	Provincial release limits are generally for broad targets (oils and greases in water, total VOC to air), where determination of a

	<p>concerning, as well as management and handling of site-restricted gas oils and site-restricted HFOs based on current guidelines and regulations.</p>	<p>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 gas oil and site-restricted HFOs.</p> <p>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.</p>
	<p>The reliance on the “site-restricted” aspect of exposure when determining a conclusion for these substances is concerning. The scope of the site-restricted gas oils and site-restricted HFOs assessments are limited, as critical information is lacking for formation of a conclusion with regard to risk. The proposed conclusion for the risk of these substances should be re-evaluated.</p>	<p>Extensive data gathering was conducted for the evaluation of the site-restricted gas oil and site-restricted HFOs. 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 and physical-chemical properties 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 population exposure to these substances is not expected.</p> <p>The proposal of a Significant New Activity (SNAc) provision 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.</p> <p>As a result of information received during the public comment period, two substances have been removed from Stream 1 and will be undergoing further evaluation in later PSSA screening assessments.</p>

	<p>No monitoring data were identified in the screening assessment to verify the conclusion that exposure was not expected as these substances are site-restricted gas oils and site-restricted HFOs.</p>	<p>Based on physical-chemical properties, as well as 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.</p> <p>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 gas oil and site-restricted HFOs.</p>
	<p>Clarification is required on the definition of a “site” for the assessment of site-restricted gas oil and site-restricted HFOs.</p>	<p>For the purposes of the screening assessment of the site-restricted gas oil and site-restricted HFOs, an industrial site is defined as the boundaries of the property where a facility is located. In these cases, the facilities are either petroleum refineries or upgraders, where each has a legally defined boundary. The term “site” is not explicitly defined in the site-restricted gas oil or site-restricted HFOs assessments, the statement “site-restricted substances, which are substances not expected to be transported off refinery, upgrader, or natural gas processing facility sites” implies the definition of a site.</p> <p>This definition has been added to the final screening assessments of site-restricted gas oil and site-restricted HFOs.</p>
Uses	<p>The amounts of site-restricted gas oils and HFOs used and produced are not provided in the assessments. In addition, the number and location of facilities that use or produce site-restricted gas oils and site-restricted HFOs is not provided in the assessment.</p>	<p>Information on the manufacture, import, and use of the site-restricted gas oil and site-restricted HFOs, as well as the number and location of facilities producing these substances, were collected through voluntary industry submissions, in-depth literature review, searching of Material Safety Data Sheets (MSDS), as well as 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 gas oil and HFOs. Consistent with the terms of confidential business information, data considered relevant to the assessment is</p>

		<p>provided in the assessment report in the most transparent manner possible.</p> <p>The submitted data demonstrated that the substances considered in these assessments 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 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.</p> <p>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.</p> <p>The screening assessments have been amended for clarification.</p>
Releases	If the information on release of site-restricted gas oils and HFOs is not available, the assessments should reflect the paucity of data. In addition, it is suggested that Section 71(1)c should be used to fill such gaps in the data.	<p>Screening assessments for the site-restricted Gas Oil and site-restricted HFOs were based on available data. These assessments have been reviewed and clarified to more accurately reflect the information sources on which the decisions were based.</p> <p>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</p>
	The complete life-cycle of the site-restricted gas oils and HFOs should be included in the assessments, especially disposal of these substances.	From data gathered for the evaluation of the site-restricted gas oil and site-restricted heavy fuel oils, 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 RN). Screening assessments of those substances that leave

		<p>petroleum facility sites will be conducted under streams 2, 3 and 4 of the PSSA.</p> <p>Extensive data are required to conduct full life-cycle analyses, including assessment of 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.</p>
	The definition for “closed system” should be included in the site-restricted gas oil and site-restricted HFOs assessments.	<p>For the purposes of the screening assessment of the site-restricted gas oil and site-restricted HFOs, 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 recirculated or destroyed.</p> <p>This definition has been added to the final screening assessment reports.</p>
Exposure	The assessments of the site-restricted gas oil and site-restricted HFOs should consider vulnerable populations, and effects associated with vulnerable populations.	<p>Screening assessments consider available data on all subpopulations of the general population, including vulnerable subpopulations. Information obtained through a mandatory section 71 survey as well as voluntary submissions, in-depth literature review and searches of MSDS indicated that these substances were considered to be consumed on-site or blended into other substances identified under different CAS RNs. In addition, physical-chemical properties were considered for the evaluation of the site-restricted gas oil and site-restricted HFOs to assess the potential for evaporative loss of volatile components. The low volatility of these substances together with the reported data, substance descriptions and processing information resulted in the conclusion that the potential for exposure is low.</p>
	Concern expressed by two commenters regarding consideration of occupational exposure in the site-restricted gas oil and site-restricted HFOs screening assessment reports.	<p>Hazard information from occupational settings, especially epidemiological data, is considered in the screening assessment, where available and appropriate. Epidemiological data was not available for the assessment of site-restricted HFOs. Although limited data was available for the assessment of the gas oil, it was</p>

		<p>considered to be inadequate to inform decision making.</p> <p>Information developed through the Chemical Management Plan process, 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.</p>
Risk Assessment Conclusion	<p>Why are heavy fuel oils, which are composed of highly toxic chemicals (i.e. PAHs, hydrogen sulphide), not considered to pose a risk to humans in the assessment of the site-restricted gas oil and heavy fuel oils?</p>	<p>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 of the substance. There are hazardous constituents of HFOs 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 heavy fuel oils is not expected, and consequently risk to the general population is also 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 later PSSA screening assessments..</p>
	<p>The assessment should recommend a toxic conclusion under Section 64 of CEPA 1999 and that management of these substances is required.</p>	<p>Based on the screening assessments, it is proposed that the site-restricted gas oil and site-restricted HFOs do not meet the criteria set out in section 64 of CEPA 1999, as exposure of the general human population and the environment is not expected.</p>