

Appendix K

**Concordance table related to supplementary information
requirements for hydrocarbon-impacted soil storage and
landfarm treatment facilities**

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SIG Section	Requirement	Location(s)
I. General Information		
	<p>The following general information should be included in the Application.</p> <ol style="list-style-type: none"> 1. Date of Application. 2. Name and mailing address of the Applicant. 3. Contact information including phone number(s), fax number(s) and email address(es). 4. Name(s) of Facility operator(s) and alternate management personnel. 5. Number of years the Applicant is requesting for a water license. 	<ol style="list-style-type: none"> 1. Application cover page 2. Application, Block 1 and 2. 3. Application, Block 1. 4. Application, Block 2. 5. Application, Block 25.
II. Technical Information Required to Process the Application		
	<p>Current Engineered Drawings, Facility Design Plans, a Facility Operations and Maintenance Plan (including, but not limited, to a Spill Contingency Plan developed in accordance with the Board's "Guidelines for Contingency Planning" (1987)) and a Site Monitoring Plan will be required to process the Application. All Engineered Drawings shall be stamped by a qualified Professional Engineer registered to practice in Nunavut.</p>	<p>Nanisivik Mine 2004 Reclamation and Closure Plan, Appendix F. Nanisivik Mine Reclamation and Closure Monitoring Plan, Gartner Lee Limited, February 2004.</p> <p>Water Licence 1AR-NAN0914 – 2012 Annual Report, Appendix J. Spill Contingency Plan, May 2012.</p>
Site Assessment Consideration	<p>The Applicant shall provide details of the site topography, hydrology and permafrost regime, including the following:</p> <ol style="list-style-type: none"> 1. Current detailed topographical site survey diagrams, map(s) and/or aerial photos, of sufficient scale to clearly show all pertinent drainage features, and which clearly illustrate the location of the following: <ol style="list-style-type: none"> a. Soil, fuel and chemical storage locations; b. Soil landfarm active treatment locations; c. Site drainage patterns; d. Adjacent surface water bodies that could be affected by the proposed undertaking, particularly fish-bearing waters; e. Facility site access routes; f. Surface and subsurface environmental monitoring sites; and g. Traditional land use areas used for recreation, camping, fishing, etc. 2. The slope of land underlying the Facility. 	<p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Site Plan and Proposed Bio-Pile Locations, Drawing No. 1056201-1 <p>Water Licence 1AR-NAN0914 - 2012 Annual Report, Appendix H, Construction Summary Report, WESA Inc., November 2012</p> <ul style="list-style-type: none"> • Site Plan 2012, Figure 1. <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 6.2

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Site Assessment Consideration (continued)	<p>3. A hydrological/climatic assessment of the site that includes the following:</p> <ol style="list-style-type: none"> Precipitation and temperature profiles for the area; Details concerning the local drainage basin; Information regarding direction, path of water flow and potential seepage in area of the undertaking; A discussion concerning the likelihood of flood events that could disrupt operations or threaten water quality, and whether the local landforms may encourage or discourage such events (i.e. a Facility situated in an active flood plain). <p>4. A description of the soil underlying the site that includes:</p> <ol style="list-style-type: none"> The physical and chemical characteristics of the material underlying Facility; The depth of the permafrost active layer; and A discussion of any permafrost characteristics that may impact on the construction and operation of the Facility (i.e. frost heaving, presence of ice lenses, evidence of permafrost degradation). <p>5. Information regarding the conformity of the undertaking with any applicable Municipal zoning or land use planning ordinances.</p>	<p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> Section 6.1 Section 6.3.1 Section 6.4.3 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> Section 6.3.3 Section 6.3.4 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> Section 6.3.5
Soil Storage and Landfarm Treatment Design Considerations	<p>The Applicant shall provide details of design and construction of all components of the Soil Storage and Landfarm Treatment Facility prior to its construction, including the following:</p> <ol style="list-style-type: none"> Comprehensive design details, including the dimensions, materials of construction and installation/construction procedures of all Facility components are required as part of the Application. Drawings of the design, stamped by an engineer licensed to practice in Nunavut, are also required. The design details should depict and describe the following components: <ol style="list-style-type: none"> Retaining structures (dimensions, materials of construction, etc.); Geo-synthetic liners (properties, installation details, etc.); Sumps, pumps, storage ponds/tanks and any other devices used to manage excess runoff water and/or leachate; Existing and any proposed drainage modifications, such as berms (natural or constructed) and diversion ditches; and 	<p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> Section 6.4.1 Section 6.4.2 Site Plan and Proposed Bio-Pile Locations, Drawing No. 1056201-1 <p>Water Licence 1AR-NAN0914 - 2012 Annual Report, Appendix H. Construction Summary Report, WESA Inc., November 2012.</p> <ul style="list-style-type: none"> Section 2 Section 3 Section 4 Section 5

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Soil Storage and Landfarm Treatment Design Considerations (continued)	<p>e. Water quality and environmental monitoring stations and associated equipment (design, placement, etc).</p> <p>2. Information regarding the installation of barriers to prevent access to the site.</p> <p>3. A discussion considering the placement of the Facility in relation to water bodies.</p> <p>4. A discussion considering flood risks/maximum probable precipitation events in regards to the Facility placement and design.</p> <p>5. The consideration of alternative methods of soil storage or remediation, in the event that circumstances are not suitable, for example because of environmental constraints, available human resources, etc.</p>	<ul style="list-style-type: none"> • Section 7 • Figures 1 to 5 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 6.4.5 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 6.1 • Section 6.4.6 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 6.4.3 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 6.4.7
Operations and Maintenance Considerations	<p>The Applicant shall provide details of the Operations and Maintenance Plan to be implemented at the Facility regarding the acceptance of material at the Facility, the procedures to be utilized in the treatment, or storage, of the hydrocarbon-impacted soil, the criteria to be attained prior to soil being deemed remediated, and the ultimate deposition of any treated soils. This shall include the following:</p> <p>1. The procedures to determine if soils may be accepted at the Facility, including but not limited to:</p> <ul style="list-style-type: none"> a. Chemical, physical and biological characterization of the soils and the associated hydrocarbon and metal contaminant concentrations; b. Treatability studies, to determine the viability of landfarm treatment; and c. Sampling frequency and number of samples per volume of soil accepted. <p>2. The procedures to be utilized during active landfarming operations in the active treatment cells, including but not limited to:</p> <ul style="list-style-type: none"> a. Treatment cell development and material placement therein; b. Contaminated soil thickness in treatment cells; c. Method of mechanical aeration in treatment cells; 	<p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 5.4 • Section 5.6 <p>Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010.</p> <ul style="list-style-type: none"> • Section 5.5 • Section 6.1 • Section 6.5

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Operations and Maintenance Considerations (continued)	d. Oversize material management; e. Surface water management, leachate containment and/or treatment, and site grade planning; f. Process water management, and treatment prior to discharge; g. Site volume and operational monitoring programs; h. Dust control programs; and i. Staff operational training programs. 3. The Applicant must provide a soil quality remedial objective, as defined by the Canadian Council of Ministers of the Environment ("CCME") or by other applicable agency, to which the Applicant is intending to achieve. 4. A conceptual decommissioning and reclamation plan is required with the Application, which should contain the following information: a. Details regarding the ultimate deposition of any treated soils; and b. A disposal plan for soils contaminated with bioremediation-unsuitable compounds, or for soils that do not respond well to the proposed landfarming treatment.	Water Licence 1AR-NAN0914 - 2012 Annual Report, Appendix H. Construction Summary Report, WESA Inc., November 2012. <ul style="list-style-type: none">Section 3.2 Water Licence 1AR-NAN0914 - 2012 Annual Report, Appendix J. Spill Contingency Plan, May 2012 Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010. <ul style="list-style-type: none">Section 4.0								
		Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010. <ul style="list-style-type: none">Section 6.6Section 6.4.7.								
Surface and Groundwater Monitoring Programs	A comprehensive Surface and Groundwater Monitoring Plan to be implemented at the Facility is required with the Application. This Plan shall include the following: 1). Locations (including GPS coordinates) of all proposed Monitoring Stations; 2) Chemical, physical and biological parameters to be monitored; 3) Sampling frequency; 4) Baseline monitoring programs currently in progress, or contemplated during the term of the license under consideration; and 5) QA/QC Programs to be implemented as part of the Monitoring Program.	<table><tr><th>Monitoring Location</th><th>GPS Coordinates</th><th>Type of Monitoring</th><th>Monitoring Frequency</th></tr><tr><td>159-6</td><td>579450 E 81097200 N NAD83, UTM Zone 16</td><td>Surface</td><td>Monthly</td></tr></table> Abandonment and Reclamation Plan, Fuel Tank Farm, Former Nanisivik Mine Site, Stantec, January 2010. <ul style="list-style-type: none">Table 3 Application, Appendix H: Water quality monitoring schedule 2014-2018. Nanisivik Mine 2004 Reclamation and Closure Plan, Appendix F. Nanisivik Mine Reclamation and Closure Monitoring Plan, Gartner Lee Limited, February 2004. Quality Assurance / Quality Control Plan for Surface Water Monitoring Samples, former Nanisivik Mine Site, Nunavut. Stantec, October 20, 2009.	Monitoring Location	GPS Coordinates	Type of Monitoring	Monitoring Frequency	159-6	579450 E 81097200 N NAD83, UTM Zone 16	Surface	Monthly
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