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**Acronyms**

AB	Alberta	D/F	Dioxins/Furans
AMRP	Adaptive Management Response Plan	EA	Environmental Assessment
AQ	Air Quality	EC	Environment and Climate Change Canada
AQMP	Air Quality Management Plan	EPA	<i>Environmental Protection Act</i>
AQMS	Air Quality Management System	ENR	Environment and Natural Resources
BAAQMD	Bay Area Air Quality Management District	GNWT	Government of the Northwest Territories
BATEA	Best Available Technology Economically Achievable	H <sub>2</sub> S	Hydrogen Sulphide
BC	British Columbia	HCL	Hydrochloric Acid
BOP	Best Operating Practices	Hg	Mercury
BTU	British Thermal Unit	hr	Hour
°C	Degrees Celsius	ICEM	Intermittent Continuous Emissions Monitoring
CCME	Canadian Council of Ministers of the Environment	KCAC	Keeping Clean Areas Clean
CEM	Continuous Emissions Monitoring	kg	Kilogram
CO	Carbon Monoxide	kPa	Kilopascal
CPE	Chlorinated Polyethylene	kW	Kilowatt
CSPE	Chlorosulfonated Polyethylene	LLD	Legal Land Description

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CWS	Canada-wide Standards	LUP	Land Use Permit
LWB	Land and Water Board	Pb	Lead
m <sup>3</sup>	Cubic Metre	PCDD/F	Polychlorinated dibenzo(p)dioxin and furan
mg	Milligrams	ppb <sub>v</sub>	Parts Per Billion by Volume
MOU	Memorandum of Understanding	PM	Particulate Matter
MSPR	Multi-sector Pollutant Regulations	PM <sub>2.5</sub>	Fine Particulate Matter under 2.5 microns aerodynamic diameter
MW	Megawatt	PM <sub>10</sub>	Coarse Particulate Matter under 10 microns aerodynamic diameter
µg	Micrograms	POI	Point of Impingement
ng	Nanograms	PVC	Polyvinyl Chloride
NH <sub>3</sub>	Ammonia	QA	Quality Assurance
NL	Newfoundland and Labrador	QC	Quality Control
NO <sub>2</sub>	Nitrogen Dioxide	Rm <sup>3</sup>	Reference Cubic Metre
NPRI	National Pollutant Release Inventory	RRLIRM	<i>Regulation Respecting the Landfilling and Incineration of Residual Materials</i>
NS	Nova Scotia	SCPR	<i>Summary Conviction Procedures Regulations</i>
NWT	Northwest Territories	SO <sub>2</sub>	Sulphur Dioxide
O <sub>3</sub>	Ground Ozone Level	TEQ	Toxic Equivalency Factor

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ON	Ontario	TSP	Total Suspended Particulate
USEPA	United States Environmental Protection Agency	WEMP	Wildlife Effects Monitoring Program
VOC	Volatile Organic Compound	yr	Year

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<b>Definitions</b>	<p>In these regulations,</p> <p>“Act” means the <i>Environmental Protection Act</i>;</p> <p>“Action level” means a magnitude of environmental change which, if measured in an air monitoring program, triggers a management action. Action levels are below that of the corresponding ambient air pollution standard so that it will trigger management actions prior to exceedance of the standard;</p> <p>“Adaptive Management” means a framework and flexible decision-making process for ongoing knowledge acquisition, monitoring, and evaluation leading to continuous improvements in management planning and implementation of a project to achieve the following objectives:</p> <ul style="list-style-type: none"> <li>a) To outline a response framework for atmospheric pollution with clear triggers and associated actions,</li> <li>b) To prevent and or minimize impacts to human health &amp; the environment; and</li> <li>c) To stop or reverse trends of deteriorating air quality;</li> </ul> <p>“Air Contaminant” and “Air Emission” means any discharge, release, or other propagation into the air and includes, but is not limited to, dust, fumes, mist, smoke, particulate matter, vapours, gases, odours, odorous substances, acids, soot,</p>	<p>Action level was adopted from the Land and Water Board’s Guidelines for Adaptive Management – A Response Framework for Aquatic Effects Monitoring.</p> <p>“Adaptive Management” was adopted from the <i>Delta Reform Act</i> (California) and was also used in the Environment and Natural Resources (ENR)/Gahcho Kue Air Memorandum of Understanding (MOU).</p> <p>“Air Contaminant” was adopted from the Newfoundland and Labrador (NL) <i>Air Pollution Control Regulations</i>.</p>

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	<p>grime or any combination of them;            “Air Zone” means a place-based approach to manage local air quality (AQ);</p> <p>“Air Zone Management Plan” means a plan to prevent air quality deterioration that considers current and likely future directions in air quality; defined air zone goals, role of stakeholders, priority emission sources, mechanisms to achieve air quality improvements, and any additional monitoring and inventory required;</p> <p>“Ambient Air” means the portion of the atmosphere which is external to buildings, structures or underground spaces;</p> <p>“Ambient Air Quality Monitoring” means monitoring of pollutants in the ambient air which can include industrial site boundary monitoring, community-based monitoring and area-specific or Air Zone monitoring;</p> <p>“Asphalt Plant” means any plant or any part of a plant in which asphalt concrete is produced by heating and drying aggregate and mixing with asphalt cement;</p> <p>“Best Available Technology Economically Achievable (BATEA)” means the latest stage of development of processes, of facilities, or of methods of operation which indicate the practical suitability of a particular measure for</p>	<p>“Air Zone” was adopted from Canadian Council of Ministers of the Environment (CCME) Air Quality Management Framework.</p> <p>“Air Zone Management Plan” was adopted from CCME’s Air Quality Management Framework.</p> <p>“Ambient Air” was adopted from the <i>NL Air Pollution Control Regulations</i>.</p> <p>“Ambient Air Quality Monitoring” was defined by ENR to help provide clarity.</p> <p>“Asphalt plant” adopted from the Northwest Territories (NWT) <i>Asphalt Paving Industry Emission Regulations</i>.</p> <p>“BATEA” was adopted from the Organization for Economic Co-operation and Development and was also used in the ENR/Gahcho Kue Air MOU.</p>

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	<p>limiting discharges that is economically feasible. Specifically, in terms of air emissions management, technology that emits the least amount of emissions per unit of performance measure (e.g. in the case of energy generation, it would be emissions/BTU or emissions/MW, etc.) would be considered Best Available Technology;</p> <p>“Best Operating Practices” or “BOP” means the most effective and advanced stage in the development of an activity and its methods of operation, which indicate the practical suitability of particular techniques for providing, in principle, the basis for emission limit values designed to prevent or eliminate or, where that is not practicable, generally to reduce an emission and its impact on the environment as a whole. Best operating practices may include, fleet management, anti-idling campaigns, generator load balancing, waste heat recovery, waste diversion strategies, etc;</p> <p>“Biomedical Waste” means:</p> <ul style="list-style-type: none"> <li>i) Human Anatomical Waste - This consists of human tissues, organs, and body parts, but does not include teeth, hair, and nails.</li> <li>ii) Animal Waste -This consists of all animal tissues, organs, body parts, carcasses, bedding, fluid blood and blood products, items saturated or dripping with blood, body fluids contaminated with blood, and body fluids removed for diagnosis or removed</li> </ul>	<p>“Best Operating Practices” was adopted from the Irish <i>Environmental Protection Act</i> and was also used in the ENR/Gahcho Kue Air MOU.</p> <p>“Biomedical Waste” was taken from the Guidelines for the Management of Biomedical Waste in the Northwest Territories.</p>

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	<p>during surgery, treatment or autopsy, unless a trained person has certified that the waste does not contain the viruses and agents listed in Risk Group 4 (see Guidelines for the Management of Biomedical Waste in the Northwest Territories). This excludes teeth, hair, nails, hooves, and feathers.</p> <p>iii) Microbiology Laboratory Waste - This consists of Laboratory cultures, stocks or specimens of microorganisms, live or attenuated vaccines, human or animal cell cultures used in research, and laboratory material that has come into contact with any of these.</p> <p>iv) Human Blood and Body Fluid waste - This consists of human fluid blood and blood products, items saturated or dripping with blood, body fluids contaminated with blood, and body fluids removed for diagnosis during surgery, treatment or autopsy. This does not include urine or feces.</p> <p>v) Waste Sharps - Waste sharps are clinical and laboratory materials consisting of needles, syringes, blades, or laboratory glass capable of causing punctures or cuts.</p> <p>vi) Cytotoxic Waste -The term is commonly used to refer to pharmaceuticals used in treating cancer, e.g., antineoplastics or chemotherapy agents;</p>	



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	<p>“Chlorinated Plastics” means chlorinated hydrocarbon polymers, or organic polymers containing chlorine, including chlorinated polyethylene (CPE), polyvinyl chloride (PVC), chlorosulfonated polyethylene (CSPE), Neoprene, and others;</p> <p>“Criteria Air Contaminant” means Sulphur Dioxide (SO<sub>2</sub>), Nitrogen Dioxide (NO<sub>2</sub>), Particulate Matter (PM<sub>2.5</sub> &amp; PM<sub>10</sub>), Carbon Monoxide (CO), Ammonia (NH<sub>3</sub>) and Volatile Organic Compounds (VOCs);</p> <p>“Contaminant Limit” means the mass, expressed in terms of certain parameters, the concentration, rate or level of an emission that may not be exceeded during one or more specified periods or, in the cases provided for in certain provisions of this Regulation, that may be exceeded only on the conditions prescribed by those provisions;</p> <p>“Deposition Monitoring” means a measurement technique based upon mass and area;</p> <p>“Disturbed Area” means an area where vegetation, topsoil, or overburden is physically removed or upon which soil, rock, gravel or waste is physically placed;</p> <p>“Emission” means an air contaminant emitted into the environment;</p>	<p>“Chlorinated Plastics” definition was compiled from various internet sources.</p> <p>“Criteria Air Contaminant” was adopted from Environment and Climate Change Canada; note that according to the National Pollutant Release Inventory (NPRI), VOC’s are considered to be a list of 100 species, with 75 additional isomer groups and mixtures.</p> <p>“Contaminant Limit” was adopted from Quebec’s <i>Clean Air Regulation</i>. The proposed NWT Air Regulations would use the word contaminant, instead of emission, which is in the Quebec regulation. This is due to the EPA having a definition of contaminant.</p> <p>“Deposition Monitoring” was developed to provide clarity to these regulations.</p> <p>“Disturbed Area” was adopted from the US Code of Federal Regulations – Mineral Resources, 2001.</p> <p>“Emission” was adopted from the NL <i>Air Pollution Control Regulations</i>.</p>

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	<p>“Emission Source” means any combustion process equipment, installation, machinery, appliance, equipment or tanks from which air contaminants may be released or discharged;</p> <p>“Equipment” means any apparatus, device, mechanism or structure;</p> <p>“Facility” means any stationary property, industrial, commercial or personal, adopted as a whole, which has an emission source;</p> <p>“Fugitive Emissions” means emissions which are generated by industrial or other activities and which do not pass through a stack, chimney, vent or other functionally equivalent opening, but which may escape from openings (such as windows, doors, ill-fitting closures or poorly maintained equipment) or material handling equipment;</p> <p>“Heavy Duty Equipment” means an off-road, mobile equipment designed for executing construction, excavation and earthworks, demolition, drilling, lifting, including but not limited to bulldozers, excavators, drills, loaders, cranes, backhoes, roller compactors, etc;</p> <p>“Heavy Duty Vehicle” means an on-road, mobile vehicle with</p>	<p>“Emission Source” was adopted from the NL <i>Air Pollution Control Regulations</i>.</p> <p>“Equipment” was adopted from Ontario’s <i>Air Pollution – Local Air Quality Regulation</i>.</p> <p>“Facility” was adopted from the NL <i>Air Pollution Control Regulations</i>.</p> <p>“Fugitive Emissions” was adopted from the Virginia State <i>Regulations for the Control and Abatement of Air Pollution</i>.</p> <p>“Heavy Duty Vehicle” was adopted from the British Columbia (BC) <i>Motor</i></p>

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	<p>a gross vehicle weight of more than 10,000kg, including dump-trucks, tractor-trailers, snowploughs, graders, etc;</p> <p>“Incinerator” means any equipment used for the burning of solid waste where air intake and combustion temperature may be controlled;</p> <p>“Minerals” means all naturally occurring minerals, including, without limitation, gold, silver, uranium, platinum, pitchblende, radium, precious stones, copper, iron, tin, zinc, asbestos, salts, sulphur, petroleum, oil, asphalt, bituminous sands, oil sands, natural gas, coal, anhydrite, barite, bauxite, bentonite, diatomite, dolomite, epsomite, granite, gypsum, limestone, marble, mica, mirabilite, potash, quartz rock, rock phosphate, sandstone, serpentine, shale, slate, talc, thenardite, trona and volcanic ash;</p> <p>“Mitigate” means, with respect to an undertaking, to eliminate, reduce, or control the adverse environmental effects of an undertaking, and may include restitution for any damage to the environment caused by such effects through replacement, restoration, compensation or any other means;</p> <p>“Open Burning” or “open-air burning” means any fire or burning practice that is conducted outside a building and includes but is not limited to, small confined fires and large</p>	<p><i>Vehicle Regulations for Air Pollution Controls.</i></p> <p>“Incinerator” was adopted from Yukon’s <i>Air Emissions Regulations.</i></p> <p>“Minerals” was adopted from Alberta (AB) <i>Environmental Protection &amp; Enhancement Act.</i></p> <p>“Mitigate” was adopted from the Nova Scotia <i>Environmental Assessment Regulations.</i></p> <p>“Open Burning” was adopted from the CCME Guidance Document on Open Air Burning.</p>

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	<p>confined fires (e.g. bonfires), fires in burn barrels, in air curtain incinerators, outdoor recreational fireplaces, prescribed burning, and construction site and demolition site fires;</p> <p>“Operator” means a person in charge, management or control of a facility or piece of equipment;</p> <p>“Particulate Matter” means a material, except water in an un-combined form, that is or has been airborne and exists as a liquid or a solid at reference conditions;</p> <p>“Point of Impingement (POI)” means a part or combination of those things referred to in subparagraphs (i) to (iii) upon which an air contaminant may impinge;</p> <p style="padding-left: 40px;">(i) land and water, (ii) plant and animal life, including human life, and (iii) a building, structure, machine or other device or thing made by humans;</p> <p>“Point Source” means a single, stationary source of pollution;</p> <p>“Quality Assurance (QA)” means an integrated system of management activities involving planning, implementation, documentation, assessment, reporting, and quality</p>	<p>“Operator” was created to provide clarity in the Regulations.</p> <p>“Particulate Matter” was adopted from the NL <i>Air Pollution Control Regulations</i>.</p> <p>“Point of Impingement” was adopted from the NL <i>Air Pollution Control Regulations</i>.</p> <p>“Point Source” was adopted from the British Columbia Air Quality Information webpage (<a href="http://www.bcairquality.ca/101/pollutants-sources.html">http://www.bcairquality.ca/101/pollutants-sources.html</a>).</p> <p>“Quality Assurance” was adopted from an Alberta Air Directive.</p>



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	control device used to reduce emissions;	

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<b>Guiding Principles</b>	<ol style="list-style-type: none"> <li>1. Goal is Atmospheric Emission Prevention.</li> <li>2. Maintaining a level of air quality that protects and enhances environmental and public health, as outlined by CCME's Keeping Clean Areas Clean (KCAC) principle.</li> <li>3. Continuous Improvement of operations.</li> <li>4. Air quality is a transport vector to all other facets of the environment.</li> <li>5. Sustainable development of resources is essential to the long-term economic, cultural and social well-being of northern residents.</li> </ol>	<p>This approach is to essentially minimize impacts to the environment, or to have zero effects. It is consistent with ENR's approach to Water Quality.</p> <p>KCAC and Continuous Improvement are Air Quality Management System (AQMS) principles to which the Government of the Northwest Territories (GNWT) is committed (a signatory).</p>
<b>Air Emission Registrations &amp; Permits</b>	<ol style="list-style-type: none"> <li>1. Industry, business, operations or activities in the NWT which generate air emissions shall be required to register or apply for an Air Permit as per the following:               <ol style="list-style-type: none"> <li>a. Registrations are required by those activities listed in Schedule A.</li> <li>b. Activities listed in Schedule B may not release emissions to the atmospheric environment without an Air Permit.</li> </ol> </li> <li>2. The Minister has authority to cancel or suspend an Air Emission Permit if provisions of these Regulations or terms and conditions of the Air Permit are violated.</li> </ol>	<p>ENR intends to develop guidance material for both registration and permitting. This guidance material will include information on what is considered a complete application and how to contact ENR for more information.</p> <p>Permits are the preferred regulatory approach to manage and keep track of large emitters and emissions in the NWT.</p> <p>#1) Since the NWT has relatively limited operations/activities occurring, it is easiest to present an inclusive approach and simply list the activities that will require a permit instead of those that would be exempt.</p> <ul style="list-style-type: none"> <li>▪ Similar to Yukon Air Emission Regulations, Schedule 1.</li> </ul>

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	<p>3. Air Registrations will require the following:</p> <ul style="list-style-type: none"> <li>a. Facility information form, as per template x;</li> <li>b. Equipment inventory and associated fuel use, chemical use, or engine hours or mileage as per the templates associated with the respective activities listed in Schedule A</li> </ul> <p>4. Applications for an Air Permit will require the following:</p> <ul style="list-style-type: none"> <li>a. Facility information form, as per template x.</li> <li>b. Project Description.</li> <li>c. Air Quality Assessment submission as per Section x, of these regulations.</li> <li>d. Demonstration that equipment will conform with BATEA requirements.</li> <li>e. Present BOPs that will be employed in accordance with Section x.</li> <li>f. Waste incinerator information (if applicable) as required in Schedule E.</li> <li>g. A non-refundable application fee of \$200 at the time of application submission.</li> </ul>	<p>#4) Guidance documents will include information on the level of detail required for each component. <i>A pre-meeting between ENR and the Proponent is encouraged prior to preparing and submitting an application for an Air Permit, for the purposes of clarifying expectations, process, and deliverables.</i></p> <p>#4d) ENR envisions an equipment list with a column of rationale/justification of how each piece meets BATEA. This format can be an add-on/bundled with the equipment inventory component of the dispersion model requirements. Equipment inventory will also have to identify ownership of the equipment, so that if equipment is outsourced from an NWT-company, then ENR can trace it back to the Registry and ensure that emissions aren't being double-counted in our internal inventory calculations.</p> <p>#4g) This fee is equal to the fees required under the B.C. <i>Environmental Management Act</i>.</p>



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	<p>5. Timelines</p> <ul style="list-style-type: none"> <li>a. The failure of the Minister to exercise a power or perform a duty or function within a time limit under this regulation does not terminate their authority to do so nor does it invalidate any document prepared or submitted or any decision or action adopted in the exercise of such a power, duty or function.</li> <li>b. In the case of an application for the issuance, extension, or amendment of an Air Permit, where the Proponent is also applying for a Water Licence under the <i>Waters Act</i>, or the MVRMA for federal areas, the Minister shall make a decision within a period of 10 months and 15 days after the day on which the application for the Air Permit is made if an application is deemed complete.</li> <li>c. In all other cases, the Minister shall make a decision within a period of 42 days after the day on which the application is deemed complete.</li> <li>d. The Minister shall, within 10 days after receipt of an application for an Air Permit, <ul style="list-style-type: none"> <li>i. if the application does not comply with these Regulations, return the application to the applicant and advise the applicant in writing of the reasons for its rejection; or</li> <li>ii. In any other case, notify the applicant in</li> </ul> </li> </ul>	<p>#5) The idea is to match the Land and Water Board (LWB) process as much as possible and make it streamlined for both industry and ENR. The majority of the language used here was adopted directly from sections 46 – 50 of the <i>Waters Act</i>, which outlines timelines for reviewing an application, determining completeness and issuing a permit.</p> <p>#5b) The LWBs have nine months to review Water Licence applications, plus 45 days for the Minister to make a decision, whereas they have 10 days to conduct a conformance check, and 42 days to review Land Use Permits (LUP). There are also stipulations in the Mackenzie Valley Land Use Regulations that outlines what happens if a project is sent to EA. Therefore #5a,#5b, #5c, #5d &amp; #5e ensures our permitting timelines will match the LWBs.</p> <p>#5d) A completeness check confirms the presence of an Air Assessment including a Dispersion and Deposition Modeling assessment, demonstration of the use of BATEA, and BOP, and the other requirements of the Air Permit application. It does not preclude ENR from requesting further information once the content of those components is analyzed/assessed.</p>

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	<p>writing of the date on which the application was found by the Minister to be in compliance with these Regulations and that the Minister will issue a decision on the permit within 42 days after that date. (or 10 months and 15 days for water license). If the Minister requires an applicant to provide additional information or studies, then the period adopted by the applicant or licensee, in the Minister’s opinion, to provide the required information or studies is not included in the calculation of the time limit under clause b &amp; c.</p> <p>e. If the Mackenzie Valley Environmental Impact Review Board is to conduct an environmental assessment or environmental impact review in relation to the activity for which a permit application has been received, the period provided for in 5b for ENR to issue or to refuse to issue a permit does not begin until the environmental assessment has been approved.</p> <p>i. If the Minister of Lands or Minister of INAC for projects on federal land, after considering the report of an environmental assessment, environmental impact review or a review panel in respect of an application for a permit, has adopted a</p>	

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	<p>recommendation to reject the proposed activity, or has rejected a recommendation to approve the proposal, ENR shall refuse to issue the air permit and notify the applicant in writing of its refusal and of the reasons for the refusal.</p> <p>ii. Where an application for a permit is returned under paragraph i or refused pursuant to paragraph i, the air permit fee submitted with the application shall be refunded to the applicant.</p> <p>f. On receipt of a written request from a permittee, prior to the expiration of the permit, for an extension of the term of the permit, the Minister may extend the term of the permit for an additional period not exceeding two years. The written request must include the duration and the rationale for the proposed extension.</p> <p>6. Approved Air Permits will include terms and conditions including but not limited to the following categories:</p> <ul style="list-style-type: none"> <li>a. Facility design (e.g. stack heights).</li> <li>b. Equipment inventory, including BATEA requirements.</li> <li>c. Contaminant limits, source performance standards or objectives.</li> <li>d. Monitoring as per the Air Quality Monitoring Plan</li> </ul>	<p>#5f) This matches the 2 year extension clause in the Mackenzie Valley Land Use Regulations. An approval of a request for extension would be determined based on whether the Proponent is in good standing, if the project isn't changing, etc.</p> <p>#6) Many of these terms and conditions have come from Alberta's "Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring". This is simply an overview of the types of conditions that could go into the Air Permits.</p>

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	<p>(AQMP) , including adaptive management response planning and implementation.</p> <ul style="list-style-type: none"> <li>e. Reporting Requirements.</li> <li>f. Emission Fee structure in accordance with Section x of this regulation.</li> <li>g. Participation in Air Zone Working Groups, contributions to Air Zone Management plans and monitoring and setting Air Zone contaminant limits.</li> <li>h. Any other requirements as outlined in these regulations.</li> </ul> <p>7. Registration renewals will be required every three years. This will entail an update of required items in part 3 of this section.</p> <p>8. Permits shall be issued for a period not exceeding five years, with the possibility of a 2 year extension, in accordance with 5(f).</p> <p>9. Air Permits shall be made publicly available on an electronic registry.</p> <p>10. Officers may conduct inspections of operations where a permit has been granted to determine compliance.</p>	<p>#8) Similar to Land Use Permits for the LWB.</p> <p>#9) The current approach is to make the Air Permit process an internal ENR process (not open to public comment). The Air Quality Assessments, the Air Permit, with terms and conditions, and any resulting air quality monitoring plans/reports would be publicly posted. To note, on any major developments, the public should have input on air quality issues during the Environmental Assessment (EA) process.</p>

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	<p>11. Registration and Air Permit requirements will come into effect for new operations as of the effective date of these Regulations. Registration and Air Permit requirements will come into effect for existing operations as of the effective date of this Regulation plus three years.</p> <p>12. ENR may amend any of the conditions of a Permit on receipt of a written request from the Permittee setting out:</p> <ul style="list-style-type: none"> <li>a. the conditions that the Permittee wishes to have amended;</li> <li>b. the nature of the proposed amendment;</li> <li>c. Any resulting changes to the emission profile; and</li> <li>d. the reasons for the proposed amendment.</li> </ul> <p>13. Where a Permittee-proposed amendment is not within the scope of the use for which the Permit was issued, ENR shall treat the request as an application for a new Permit in accordance with Part 4.</p> <p>14. Where ENR receives a request from a Permittee relating to part 12 of this section, it shall notify the Permittee of its decision, and of the reasons therefor, within 42 days after receipt of the request.</p> <p>15. Notwithstanding Part 6, the Minister has the authority to modify components of the terms and conditions of an Air</p>	<p>#11) ENR believes three years is a reasonable amount of time for existing operations to comply with these Regulations, based on the requirements to obtain an Air Permit and the existing activities already underway with many of the operations in Schedule B.</p> <p>#12) ENR has this authority to issue amendments to a Permit, under Section 10.4 of the EPA. ENR would assess the resulting emissions profile to determine the change from the initial Air Permit assessment, to inform potential permit amendments.</p> <p>#12-#14) This was included to match the Proponent-requested permit terms and conditions amendment process as outlined by the Mackenzie Valley Land Use Regulations.</p>

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	<p>Permit after the Permit has been issued, if it is deemed there is potential environmental or public health concern.</p> <p>16. Requirements of an Air Permit do not release a Permittee from obligations under other statutes.</p>	

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<b>Air Quality Assessment</b>	<ol style="list-style-type: none"> <li>1. The Minister may require an industry, business, operation or activity to conduct an Air Quality Assessment prior to conducting emission-generating activities.               <ol style="list-style-type: none"> <li>a) Those industries/businesses/operations/activities listed in Schedule A must complete and submit information required in accordance with xx template(s).</li> <li>b) Those industries/businesses/operations/activities listed in Schedule B must complete and submit an Emissions Dispersion and Deposition Modeling Assessment, in accordance with the requirements presented in Schedule x of this regulation.                   <ol style="list-style-type: none"> <li>i) Past Emissions Dispersion and Deposition Modeling Assessments conducted by the company for said activities may be considered by the Minister.</li> </ol> </li> </ol> </li> <li>2. The provisions under Part (1) apply to new operations as of the effective date of these regulations, and to existing operations as of the effective date of these regulations plus 3 years, unless otherwise requested by the Chief Environmental Protection Officer.</li> <li>3. The information required in 1(a) of this section will form a component of a Proponent's Registration, as per the requirements of the Air Permit &amp; Registrations Section,</li> </ol>	<p>#1a) Typical air assessments contain equipment and emissions inventories as part of their modeling assessments, and certain equipment listed in Schedule A require Permits in other jurisdictions. Requesting equipment inventories in isolation is intended to inform an emissions inventory for the NWT, which will be important for ENR's future planning for air quality protection.</p> <p>ENR will develop the templates internally, with some reference to Yukon application templates. ENR anticipates the templates will include equipment make, model, nameplate capacity, manufacturer capacity, year, estimated hourly use or estimated fuel use per equipment or estimated mileage or estimated chemical consumption, depending on the equipment type.</p> <p>#1b) ENR will develop the Dispersion and Deposition Modeling Guidelines or Schedule, using ON, AB, and BC as templates, in addition to previous contract work conducted in 2007 for ENR. ENR anticipates that the modeling requirements may include stipulations on acceptable models for use, defining the boundaries of a study area, acceptable meteorological data, existing emissions sources (cumulative emissions), emission factors, ozone limiting factor, output file format, isopleth resolution, air quality criteria against which to measure the output, etc. Additional info includes a description of predicted releases from any and all emission sources, a description of each substance's physical, chemical or biological characteristics, fate, transport and potential environmental effects, whether emissions are continuous or intermittent and the frequency, etc. The equipment inventory in the Dispersion and Deposition modeling</p>

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	<p>Part 3. ENR will use the information provided in 1(a) of this section for information gathering purposes, and will record/maintain the data in a registry.</p> <p>4. The information required in 1(b) of this section will form a component of a Proponent’s application for an Air Permit, in accordance with the Air Permit Section, Part 4. ENR will assess the submission from 1(b) of this section against the applicable Contaminant Limits presented in Schedule F, in accordance with the following:</p> <p>a) For activities listed in Schedule B, Ambient Air Quality Limits in Schedule F apply at property boundaries and off-property points of impingement, and, activities listed in Schedule B must use the values presented in Schedule F as objectives, to be applied at 1km from the boundary of their disturbed area.</p> <p>5. The Minister may adopt, or use agreed upon national or international Contaminant Limits, or may set Contaminant Limits as part of an Air Permit, for any additional contaminants of concern that are not represented in Schedule F, based upon a review of a submitted air assessment</p>	<p>exercise will have to identify ownership of the equipment, so that if equipment is outsourced from an NWT-company, then ENR can trace it back to the Registry and ensure that emissions aren’t being double-counted in our internal inventory calculations.</p> <p>#4) ENR may adopt further evaluation criteria based on feedback from legal counsel, or from stakeholder engagement for example, in the form of a policy document. Consider AB’s “Industrial Release Limits Policy” and “Using Ambient Air Quality Objectives in Industrial Dispersion Modeling and Individual Industrial Site Monitoring”.</p> <p>For example, the second guideline referenced here outlines how Ambient Air Quality standards are used for permitting purposes such as:</p> <ul style="list-style-type: none"> <li>• Determining adequacy of facility design, considering all sources in the area;</li> <li>• Establishing stack heights and release conditions for each source;</li> <li>• Assessing facility air quality performance;</li> </ul> <p>#4a) If exceedances of AQ objectives were identified in this assessment phase, our end decision will focus heavily on the BATEA and BOP’s, but also that ENR would follow up with monitoring requirements to establish what levels are actually realized and then implement stringent adaptive management protocols. Ultimately, ENR believes that using objectives will not result in fines or permit removal, but it will lead to strict requirements for remedial action.</p>



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	<p>6. Emission sources to include in the Emission Dispersion and Deposition Modeling Assessment include the following:</p> <ul style="list-style-type: none"> <li>a) Stack or point source releases: releases from stack or point sources including stacks, vents, ducts, pipes or other confined process streams.</li> <li>b) Storage or handling releases: releases to air from storage or handling of materials.</li> <li>c) Fugitive releases: releases that cannot be captured and releases that are unintentional, including: fugitive equipment leaks from valves, pump seals, flanges, compressors, sampling connections, open-ended lines, etc.; evaporative losses from surface impoundments and spills; releases from building ventilation systems; any other fugitive air emissions from land treatment; tailings, waste rock, storage piles, etc.</li> <li>d) Spills: accidental releases to air.</li> <li>e) Road dust: total particulate matter, PM<sub>10</sub> and PM<sub>2.5</sub> releases from road dust on unpaved roads at the facility.</li> <li>f) Other air emission releases: any other sources of emission releases to air that are not captured in the categories above.</li> </ul>	<p>#6) Adopted from NPRI Guide.</p>

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<b>Air Quality Monitoring</b>	<p>1) The Minister may require an industry, business, operation or activity, as a condition of an Air Permit, to conduct continuous or intermittent ambient air quality monitoring, deposition monitoring, point source monitoring, and meteorological monitoring if he/she believes there may be an environmental concern from an operation or activity.</p> <p>2) An industry, business, operation or activity listed in Schedule B and subject to an Air Permit and required to conduct monitoring as per section (1), must develop and implement an Air Quality Monitoring Plan to achieve one or more of the following objectives:</p> <ul style="list-style-type: none"> <li>a) Verify the point source, ambient and deposition concentrations established/predicted in the modeling exercise.</li> <li>b) Confirm regulated Contaminant Limits and or source performance standards are being achieved.</li> <li>c) To verify effectiveness of adaptive management measures.</li> <li>d) To investigate complex or extensive emissions sources as identified by the Minister.</li> </ul> <p>3) Air Quality Monitoring Plans must be developed in accordance with conditions in the Air Permit and requirements of this Regulation and demonstrate the following:</p>	<p>#2) Most active mining operations have an AQMP, which currently contain some of the items listed in this section.</p> <p>#3) These items will help to ensure the first draft of the AQMP will contain the necessary justification for proposed monitoring locations.</p>

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	<ul style="list-style-type: none"> <li>a) How the number and location of emission monitors will effectively track emissions from major sources.               <ul style="list-style-type: none"> <li>i) Indicate proposed monitoring locations on a map of the regional area with current or proposed development.</li> <li>ii) How meteorological data and dispersion modelling results were used to determine appropriate monitoring locations.</li> </ul> </li> <li>b) How receptors and sensitive receptors (if present) will be appropriately monitored.</li> <li>c) How selected monitors will be effective for monitoring compliance to Contaminant Limits and or adaptive management trigger criteria.</li> <li>d) Details of any logistical considerations for monitor locations.</li> <li>e) Purpose or objectives of the monitoring program.</li> <li>f) Expected duration of the monitoring program to support how objectives will be met.</li> <li>g) Identified and suspected air emission sources.</li> <li>h) Number and location of monitoring sites, including metrological sites.</li> <li>i) Air quality parameters to be monitored and the monitoring frequency.</li> <li>j) Monitoring methods and instruments to be used.</li> <li>k) Analytical methods and procedures.</li> <li>l) QA/QC plan to demonstrate conformance with Part 5.</li> <li>m) Data reporting procedures.</li> </ul>	<p>#3m) Data reporting procedures should incorporate requirements in these regulation regarding exceedances, data availability to officers, etc.</p>

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	<p>4) The air quality monitoring equipment shall be operated by personnel trained in air quality monitoring and in accordance with the methodologies and procedures recommended by the instrument manufacturer.</p> <p>5) The Air Permittee shall adhere to the following QA/QC requirements:</p> <p>a) Instrument audits, checks, and calibrations shall be conducted on a schedule and in a manner recommended by the instrument manufacturer and in accordance with the National Air Pollution Surveillance Network QA/QC Protocols, whichever is more stringent.</p> <p>b) Data capture per instrument shall be greater than or equal to 85% on a monthly basis to ensure data validity.</p> <p>6) Data acquisition shall be conducted in a manner that allows for timely data dissemination and must be submitted to ENR within 48 hours of a request.</p> <p>7) When monitoring is required as a condition of an Air Permit:</p> <p>a) Data shall be reviewed by the Permittee based on a timeframe established in the terms and conditions.</p> <p>b) Any exceedances of the applicable Contaminant</p>	<p>#5b) Penalties for &lt;95% data capture in NL <i>Air Pollution Control Regulations</i>, S.9(10). Based on ENR’s experience, it has established that 85% data capture is more reasonable. ENR is also mirroring NL’s requirement that data capture must be maintained on a monthly basis, this way issues with data capture are identified quickly and fixed. NL charges an administrative penalty of \$5 for every reading below the valid data capture rate. ENR would simply issue a warning/fine if data capture was below the threshold (see penalties section).</p> <p>#7a – c) This is to ensure that ENR has the flexibility to establish how frequently the data will be reviewed, against what values (contaminant limits) and response requirements. The types of operations and proximity to human receptors will dictate the details of the above. Because ENR anticipates a variety of scenarios, ENR wants to leave it</p>

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	<p>Limits and/or objectives as per the Permit terms and conditions shall be reported to ENR within 24hrs of the data review. If an exceedance is observed, Permittees must:</p> <ul style="list-style-type: none"> <li>i) Investigate causal factors of the exceedance hours;</li> <li>ii) Investigate mitigative measures;</li> <li>iii) Implement mitigative measures immediately or provide a timeline with rationale of when implementation will occur; and,</li> <li>iv) Submit findings &amp; response plan to ENR within 30 days of the data review.</li> </ul> <p>c) Additional triggering criteria for management action levels may be included in the Permit terms and conditions.</p> <ul style="list-style-type: none"> <li>i) ENR may issue orders for remedial action based on monitoring results.</li> </ul> <p>d) Permittees shall adhere to the following information logging and data reporting procedures when exceptional events from natural sources of air pollution, such as smoke from wildfires, have the potential to impact the accuracy of air monitoring data:</p> <ul style="list-style-type: none"> <li>i) Log details surrounding the exceptional air quality event, such as perceived start and end times, route cause, associated meteorological data and any supporting evidence available (eg. EC forecasts, Pollution Modeling Forecasts, etc.)</li> </ul>	<p>broad at this point.</p> <p>#7b) This matches the requirements for reporting spill cleanup actions in Water Licence terms and conditions and matches the stack testing AMRP timeframe.</p>

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	<p>ii) Provide the exact date and time frames where impacted emission data points were removed from a data set and give detailed justification for doing so.</p> <p>iii) Use interpolation to fill in data points which were removed due to the exceptional air quality event and provide the methodology used.</p> <p>iv) Use the combined actual and interpolated data set to compare to ambient air quality objectives, contaminant limits or adaptive management thresholds.</p> <p>v) Provide the information required above in the air quality report for the reporting time period.</p> <p>e) Adaptive Management response action levels shall be developed and implemented, for contaminants as required in the terms and conditions of an Air Permit, based on the following triggering criteria, which shall be based on annual average concentrations of monitored contaminants:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Action Level</th> <th style="text-align: center;">Triggering Criteria</th> </tr> </thead> <tbody> <tr> <td>1<sup>st</sup> Action Level Permitttee must: A) Investigate causal factors of elevated</td> <td>1) Concentrations between 80% &amp; 90% of the applicable air quality standard</td> </tr> </tbody> </table>	Action Level	Triggering Criteria	1 <sup>st</sup> Action Level Permitttee must: A) Investigate causal factors of elevated	1) Concentrations between 80% & 90% of the applicable air quality standard	<p>#7e) CCME and other Canadian jurisdictions are moving towards adaptive management for air quality. This approach is designed to identify increasing trends over time and addressing the cause, prior to experiencing exceedances of Contaminant Limits. It has been an important component of recent LWB and EA processes in the NWT. Ekati, Snap Lake and Gahcho Kue all have adaptive management plans with trigger criteria and associated action items.</p> <p>These criteria have been adopted in the Jay and Gahcho Kue AQ management plans.</p>
Action Level	Triggering Criteria					
1 <sup>st</sup> Action Level Permitttee must: A) Investigate causal factors of elevated	1) Concentrations between 80% & 90% of the applicable air quality standard					

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	<p>emissions; and B) Investigate &amp; implement mitigative measures. C) Submit findings &amp; response plan to ENR.</p>	<p><b>-OR-</b> 2) 10% - 20% year to year change increase in concentrations <b>AND</b> above 50% of the applicable air quality standard.</p>	
	<p>2<sup>nd</sup> Action Level Permittee must: A) Investigate causal factors of elevated emissions; and B) Investigate &amp; implement mitigative measures. C) Submit findings &amp; response plan to ENR. ENR can require a Permittee to prepare, submit &amp; implement a Technology Report as per Part 3 of the BATEA &amp; BOP section.</p>	<p>1) Concentrations above 90% of the applicable air quality standard. <b>-OR-</b> 2) More than 20% change increase year to year in concentrations <b>AND</b> above 50% of the applicable air quality standard.</p>	
	<p>i) This assessment will be conducted annually, and form a component of the Annual reporting</p>		

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	<p>requirements in the Terms and Conditions of the Air Permit, and be submitted within six months of the Permit anniversary date.</p> <p>ii) If triggered, the execution of the 1<sup>st</sup> and 2<sup>nd</sup> action levels must occur within 30 days of the assessment and be implemented within 90 days of the assessment.</p> <p>8) Air Quality Monitoring Plans shall detail the requirements presented in Parts 2 to 7 of this section, and shall be submitted for ENR approval at a timeline that will achieve the following:</p> <p>a) Allow for a review/approval period of 90 days from the time of submission.</p> <p>b) The Air Quality Monitoring Plan must be approved and implemented within the first six months of site activities, as defined by the Air Permit.</p> <p>9) The Minister may authorize cessation of monitoring requirements, on a case by case basis.</p> <p>10) Air Permittees must maintain a record of all information, calculations, and monitoring data for a minimum of three years.</p>	<p>#9) There may be instances where monitoring can be discontinued, such as data has consistently and reliably demonstrated background levels or plateau levels of contaminants, or if source emissions have changed and no longer present a concern (e.g. sulphur reductions in fuel), etc.</p> <p>#10) The NPRI requires that reporters keep a copy of all information and calculations for three years.</p>



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	11) Maintenance logs, QA/QC data and related information for air emission control or monitoring equipment must be made available for inspection by ENR officers at any time.	

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<b>Reporting</b>	<ol style="list-style-type: none"> <li>1. Any industry, business, operation or activity listed in Schedule A and registered in accordance with Part 4 of the Air Emission Registration and Permits Section shall not have any annual reporting Requirements.</li> <li>2. Any industry, business, operation or activity listed in Schedule B and operating with an Air Permit shall submit for the Minister’s approval an Air Quality Report on an annual basis or on a time interval as indicated in the Terms and Conditions of the Air Permit, which includes the following content:               <ol style="list-style-type: none"> <li>a) Updated equipment inventory and fuel usage, highlighting changes from previous application/submission.</li> <li>b) Update Emission Inventory, if required under the Permit conditions.</li> <li>c) Results of air quality monitoring plan, point source emission testing/monitoring, and any Continuous Emissions Monitoring (CEM) or Intermittent CEM conducted.</li> <li>d) Results and comparisons of any monitored ambient air quality, point source monitoring, deposition monitoring, ICEM/CEM, and meteorological monitoring results to previous years, the predictions of the dispersion modeling conducted, and all contaminant limits as prescribed by the Air Permit and these Regulations;</li> </ol> </li> </ol>	<p>Most industrial operations in the NWT already do this type of environmental reporting.</p> <p>Similar to the LWB permits, ENR would indicate a date for submitting reports within the Terms and Conditions.</p> <p>#2e) Although these regulations do not prescribe any snow or lichen</p>

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	<ul style="list-style-type: none"> <li>e) Comparisons to results from other relevant monitoring programs conducted on site, such as vegetation, snow chemistry, sediment sampling, or other sampling programs.</li> <li>f) Analysis of emissions and cumulative ambient air quality trends and effectiveness of strategies employed to minimize emissions; and</li> <li>g) Any adaptive management analysis conducted in accordance with the requirements of these Regulations, and, any adaptive management actions carried out or planned, whether required by ENR or voluntarily conducted to address issues such as equipment failure, unanticipated releases, data loss, increasing air emission trends, exceedances of contaminant limits, dispersion modeling predictions or Adaptive Management Triggering Criteria.</li> <li>h) Types and quantities of waste burned in any waste incinerators, on a monthly basis.</li> <li>i) Any other information requested by the Minister within the scope of these Regulations.</li> </ul> <p>3. Reports shall be submitted within six months of the Permit anniversary date for the immediately preceding year.</p> <ul style="list-style-type: none"> <li>a) Extensions of the submission timeline may be considered with notification and justification from the Proponent.</li> </ul>	<p>sampling programs, ENR would still want the proponent to link them to the air quality monitoring data, if the proponent were conducting the other studies (i.e. if it were a requirement from the EA, etc).</p>

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	4. Reports shall be submitted in an electronic format, to ENR's public registry as per the instructions in the Air Permit.	

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<p><b>Air Zone Management</b></p>	<p>1) The Minister has the authority to establish Air Zones for the purpose of maintaining or improving air quality conditions in a particular area, and may include:</p> <ul style="list-style-type: none"> <li>a) Designate a geographic area for the purpose of Air Zone Management.</li> <li>b) Establish a process for the development of an Air Zone Management Plan, and Terms of Reference for a plan.</li> <li>c) Establish Air Zone Contaminant Limits.</li> <li>d) Establish an Air Zone Monitoring Program.</li> <li>e) Establish an Air Zone Working Group, including industrial, commercial, government, non-government, and other private or public stakeholders operating within or affected by the Air Zone.</li> </ul> <p>2) The Minister may require an industry, business, operation or activity that occurs in an established Air Zone to:</p> <ul style="list-style-type: none"> <li>a) Participate in an Air Zone Working Group.</li> <li>b) Contribute to an Air Zone Management Plan and Air Zone Monitoring Program.</li> <li>c) Adhere to specific Air Zone Contaminant Limits.</li> <li>d) Conduct adaptive management planning and response in order to achieve items presented in 2(c).</li> <li>e) The Minister may assess an industry/business/operation/activity in the context of an Air Zone for the purposes of an Air Permit.</li> </ul>	<p>Air zone (or airshed) management is a key component of the AQMS, and exists within other jurisdictions. Other jurisdictions are implementing air zones in a non-regulatory fashion to begin with, but BC, for example, states in their “Airshed Planning Framework” that it is a voluntary approach but can be required through regulation and other tools. Their Act gives them the authority:</p> <ul style="list-style-type: none"> <li>1) BC <i>Environmental Management Act</i>, Part 7, Division 2 – Area Based Management</li> <li>2) NL EPA, Part VI, S.23 – Air Quality Management Areas</li> </ul> <p>This is a way in which to deal with cumulative effects of air emissions.</p> <p>ENR intends to develop an Air Zone Management Framework in 2018-2020 – this is currently a placeholder for ENR’s authority to conduct area-based environmental management.</p>

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<p><b>Best Available Technology Economically Achievable &amp; Best Operating Practices</b></p>	<ol style="list-style-type: none"> <li>1. Any new industry, business, operation or activity, which falls under Schedule B, who installs or plans to install air emission-producing equipment included in Schedule C must:               <ol style="list-style-type: none"> <li>a) Source and life-cycle the equipment using Best Available Technology Economically Achievable (BATEA), and</li> <li>b) Operate and maintain the equipment in accordance with Best Operating Practices (BOP).</li> </ol> </li>   <li>2. An industry, business, operation or activity, already conducting an activity listed in Schedule B by the effective date of these regulations, who operates an air emission-producing equipment included in Schedule C, must comply with Part 1 within three years of the effective date of these Regulations.</li>   <li>3. If the Minister has reasonable grounds to believe that the requirements listed in section 1 (a) are not being implemented, or if contaminant limits have been exceeded, ENR may give written notice to the Permittee requiring the Permittee, in accordance with the notice and not later than a date specified in the notice, to prepare and submit a Technology Report for specified equipment, containing the following:               <ol style="list-style-type: none"> <li>a) A list of all the methods that are used by other industries, businesses, operations or activities, or that</li> </ol> </li> </ol>	<p>BATEA is a concept which other jurisdictions have begun implementing via a regulatory and voluntary approach. It is a progressive approach to air quality management/regulation which fits in line with the Keeping Clean Areas Clean, and is CCME based approach linked to the Air Quality Management System (AQMS), which ENR is a signatory to. It has also been something ENR has strongly encouraged industries to use during regulatory proceedings and has been included in the Gahcho Kue/GNWT Air Emissions MOU which was finalized in 2015. The intention of BATEA is to ensure that emissions are minimized from every source, at the outset of operations.</p> <p>Best Operating Practices (BOP) should outline how emission producing equipment will be operated and maintained in a way that minimizes or reduces impacts to air quality. This principle will be included, primarily to give us the authority during remedial action/adaptive management actions, to require Proponents to improve operating practices. Without this option, there are fewer options to work with to improve emissions. ENR wants to be able to work with Permit holders to identify options for corrective actions rather than resorting to penalties.</p> <p>#1a) BATEA would be demonstrated by the Proponent in the Air Permit Application.</p> <p>#1b) ENR will deem an application incomplete if insufficient BOP information is provided in an application. Expectations are that the application will contain, at a minimum, specifics on BOP's for a Permit holders/major emission sources for possible inclusion in any issued Permit.</p>

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	<p>are available for use, to reduce concentrations of the contaminant at any point, including methods such as the use of pollution control technology or changes to equipment, processes or materials;</p> <p>b) An analysis of the methods identified under Section 3a), and combinations of those methods, to determine which are technically feasible with respect to the sources of contaminant to which the report relates;</p> <p>c) A list of the methods and combinations of methods that are determined under section 3b) to be technically feasible;</p> <p>d) A summary of environmental trade-offs, including by-product emissions for each identified method or combinations of methods that could impact the air, land and or water;</p> <p>e) Equipment conformance requirements with another statute, and,</p> <p>f) A ranking of the methods and combinations of methods identified under section 3c), based on the maximum concentration of the contaminant that, according to an approved dispersion model, would result in the least amount of emissions of concern released from the source or point of impingement, with considerations of environmental trade-offs previously identified.</p>	<p>ENR may further investigate options for being explicit in some categories of operations where ENR expects BOP practices, at a minimum (e.g. fleet management, and power generation management, maintaining equipment efficiencies). Decisions on BOP practices would be reflected in any developed guidance or policy documents.</p> <p>#3) In Ontario, the Director can require a technology report if a Point of Impingement standard is being exceeded, OR, “if the Director has reasonable grounds to believe that the discharges may cause an adverse effect.”</p> <p>British Columbia’s “Provincial Framework for Airshed Planning” also puts a strong focus on using BATEA. Similar to Air Zone Management, BC currently uses a voluntary approach for BATEA, but it could be required through regulation and other tools. Their Act gives them the authority to do so.</p> <p>Currently, ENR is taking the progressive approach that owners/operators in Schedule B, operating equipment in Schedule C, should implement BATEA regardless of whether air quality standards will be exceeded to keep with the policy of Keeping Clean Areas Clean, and not polluting up to a limit.</p> <p>#3e) This is to clarify that if there are certain equipment requirements under another piece of legislation or authority, for example, the Office of the Regulator of Oil and Gas Operations, then that needs to be considered in the BATEA assessment and evaluation.</p> <p>#3, #4 &amp; #6) Were adopted from Ontario’s Air Pollution – <i>Local Air</i></p>

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	<p>4. A person who prepares a report required under Part 3 may also include the following:</p> <ul style="list-style-type: none"> <li>a) An analysis of the economic feasibility of the methods and combinations of methods that are determined under part 3b) to be technically feasible; and</li> <li>b) A list of the methods and combinations of methods that are determined under section 4a) to be economically feasible.</li> </ul> <p>5. Unless a plan is included in the Technology Report under Part 3, include a plan on how to implement the method or combination of methods that is ranked under Part 3 e), which is economically achievable, as the method or combination of methods that predicts the lowest maximum concentration of the contaminant to be released at the source or point of impingement.</p> <ul style="list-style-type: none"> <li>a) The technology report and implementation plan must be approved by the Minister.</li> <li>b) The plan must be implemented within a timeframe specified by the Minister.</li> </ul> <p>6. The BOP component of an Air Permit Application shall include at minimum, specifics on the BOP's for a proponent's major emissions sources. The absence of BOP details in a Permit application will be considered incomplete.</p>	<p><i>Quality Regulation 419/05 with slight modifications using recommendations from Alberta's Guidance For Assessing Best Available Technology Economically Achievable (BATEA) and Developing Technology-Based Standards.</i></p>



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<b>Contaminant Limits</b>	<ol style="list-style-type: none"> <li>1. The Minister has the authority to establish contaminant limits, including parameters, metrics, and location of applicability for the protection of the environment. This may include, but is not limited to:               <ol style="list-style-type: none"> <li>a. Point of Impingement Limits;</li> <li>b. Ambient Air Quality Limits;</li> <li>c. Deposition Limits,</li> <li>d. Air Zone Limits; and</li> <li>e. Industry-Specific Limits.</li> <li>f. Objectives for any of the above.</li> </ol> </li>   <li>2. For activities listed in Schedule B, Ambient Air Quality Limits in Schedule F apply at property boundaries and at off-site points of impingement.               <ol style="list-style-type: none"> <li>a. In all other circumstances, activities listed in Schedule B must use the values presented in Schedule F as objectives, to be applied at 1km from the boundary of their disturbed area.</li> </ol> </li>   <li>3. The Minister may use Ambient Air Quality Limits in Schedule F and or other contaminant limits and source performance standards to evaluate air quality assessments and reports, and may be used for the following:               <ol style="list-style-type: none"> <li>a. To determining adequacy of facility design, considering all emission sources in the development area;</li> </ol> </li> </ol>	<p>The EPA gives the Minister the authority to define contaminants, but this section of the Regulation introduces the variety of types of standards that may be applied in order to comprehensively manage air quality or to inform air assessment.</p> <p>#1) Includes the types of Contaminant Limits ENR anticipates eventually developing. The details would be refined through amendments to any enacted Regulations. This is also similar to Alberta’s Industrial Release Limits policy. Even though our guiding principle is to NOT pollute up to a limit, we’re still going to include limits as one part of the overall air protection approach. BATEA is currently the main Keeping Clean Area’s Clean component of these Regulations.</p> <p>#2) The ambient air quality limits have been established to predominantly protect human health. They are appropriate to apply to developments that may impact air quality for residents. More work is needed to determine exact details of what air quality limits are protective of strictly the natural environment.</p> <p>#2a) Refer to the Air Quality Assessment section for rationale. The buffer zone was selected based somewhat on studies demonstrating the presence of caribou.          ‘Nine ground-based caribou behavioural scanning observations were completed in 2014. Distances of observations ranged from less than two km to greater than 30 km from the Mine infrastructure, but more than 88% were greater than 30 km from the Mine.’          -Diavik 2014 Wildlife Effects Monitoring Program (WEMP)</p>

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	<ul style="list-style-type: none"> <li>b. To inform stack heights and release condition requirements for each emission source;</li> <li>c. To inform emission monitoring requirements;</li> <li>d. To inform adaptive management and triggering criteria requirements; and,</li> <li>e. To assess air quality performance, including BATEA and BOP assessments.</li> </ul> <p>4. The Minister may adopt, or use agreed upon national or international Contaminant Limits, or may set Contaminant Limits as part of an Air Permit, for contaminants not listed in Schedule F, based upon a review of a submitted air assessment.</p>	<p>‘One scan survey was conducted one km from Misery Road on a group of 18 caribou that included adults, juveniles, and calves.’ -Dominion 2014 WEMP</p> <p>Many operations in other jurisdictions use their fenceline as a border, which implies buffer area between the emission sources and the compliance point – some lease areas are too vast in the north to apply the fenceline principle, but there should be some allowance for buffer rather than simply the disturbed area.</p> <p>#3) Adopted from Alberta’s “Using Ambient Air Quality Objectives in Industrial Dispersion Modelling and Individual Industrial Site Monitoring.”</p>

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<b>Source Performance Standards</b>	<ol style="list-style-type: none"> <li>1. The Minister has the authority to establish source performance standards for any emission generating equipment for the purpose of protecting or enhancing air quality.</li> <li>2. Any person, industry, business, operation or activity using an <b>incinerator</b> shall do so in conformance with Schedule E.               <ol style="list-style-type: none"> <li>a. Operators of a new incinerator must conform with Schedule E.</li> <li>b. Operators currently using an incinerator must conform with Schedule E within three years of the effective date of these Regulations.</li> </ol> </li> <li>3. No person shall burn or allow to be burned in any fuel burning equipment any fuel or waste except the type of fuel or waste that the equipment as designed by the manufacturer to burn.</li> </ol>	<p>#3) See NL <i>Air Pollution Control Regulations</i> s.13 – Burning of waste products.</p>
<b>Open Burning, Unauthorized Releases and Nuisance Emissions</b>	<ol style="list-style-type: none"> <li>1. No person, business, activity, operation, shall open burn or allow the open burning of solid waste, or of any material other than clean wood, clean paper, or clean paperboard.               <ol style="list-style-type: none"> <li>a. Waste wood treated with preservatives such as creosote, pentachlorophenol or heavy metal solutions shall not be burned. Examples of treated</li> </ol> </li> </ol>	<p>#1) Follows the GNWT’s Position Paper of “Municipal Solid Wastes Suitable for Open Burning.”</p> <p>#1b) There have been cases in the past where ENR has charged a person under the EPA for intentionally setting fire to a landfill. This clause would provide more clarity to this type of infringement.</p>

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	<p>wood materials include railroad ties, telephone/hydro poles, pilings, cribbing and foundations.</p> <p>b. No person shall set fire to landfills, buildings or other waste sites for the purposes of volume reduction unless authorized to do so.</p> <p>c. Exemption clauses for instances of emergency specialized waste management (e.g. wildlife with anthrax infection), oil spills emergency clean-up, and other emergency situations may be granted by the Minister.</p> <p>d. Fire Extinguisher training must be conducted in accordance with the Burning and Demolition of Buildings and Fire Extinguisher Training position paper.</p> <p>e. Open burning of clean wood, clean paper or clean paperboard is prohibited in proximity to banned combustibles, and must be conducted in a controlled fashion within a contained area and with extinguishing ability/devices at the ready.</p> <p>2. Where a facility or activity has the potential for an emissions release or non-conformance with Terms and Conditions of an Air Permit due to an unanticipated failure to operate in the normal manner, due to an accident, emergency or urgent situation, a change in operating conditions or a shut-down of a pollution</p>	<p>#2 &amp; #3) Adopted from NL's <i>Air Pollution Control Regulations</i>, and covers emergency or nuisance situations, whether or not a facility has an Air Permit. A catch-all component.</p> <p>#2) Emergency could include Oil and Gas Drilling and Production Regulations (OGDPR) defined emergency flaring.</p>

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	<p>control device, the owner or operator of the facility or activity shall:</p> <ul style="list-style-type: none"> <li>a. Take immediate remedial action to reduce any emissions,</li> <li>b. Immediately report the release to ENR by contacting the 24-hr Spill Report Line at (867) 920-8130.</li> <li>c. A person reporting the release shall give as much of the following information as possible: <ul style="list-style-type: none"> <li>i. Date and time of release</li> <li>ii. location of release, and type of equipment from which it was released</li> <li>iii. cause of release</li> <li>iv. type of emission/contaminant(s) released</li> <li>v. quantity, flowrate, whether the release is continuing or has stopped</li> <li>vi. Action taken to stop, reduce, contain the release</li> <li>vii. name and phone number of contact person close to the location of the release</li> <li>viii. name, address and phone number of person reporting the release</li> <li>ix. name of owner or person in charge, management of control of contaminants at the time of the release</li> </ul> </li> <li>d. No person shall delay reporting a release because of lack of knowledge of any of the factors listed in</li> </ul>	<p>#2a &amp; #2e) Time frames were adopted from spills/unauthorized discharges under a Water Licence, which have similar requirements.</p> <p>#2b-d) From NWT <i>Spill Contingency Planning and Reporting Regulations</i></p>

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	<p style="margin-left: 40px;">(c)</p> <p style="margin-left: 40px;">e. Provide ENR in writing (email or Fax) with the particulars of the remedial action adopted under paragraph (a) and the reasons for that action within 30 days of the incident.</p> <p>3. Where the Minister considers an air emission from a facility or activity to be a nuisance, the Minister can issue a stop work order or shut down the facility or activity and or require the owner or operator of that facility to:</p> <p style="margin-left: 40px;">a. Investigate to determine the nature of the emission; and</p> <p style="margin-left: 40px;">b. Provide the Minister with a remediation plan within a timeframe as required by the Minister. The Minister may approve the plan required under paragraph 3 b) subject to any changes the Minister may require and an owner or operator shall comply with an approved plan immediately.</p>	

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<b>Motor Vehicle Emissions</b>	1. Motor Vehicle Emissions – no person shall remove, tamper with or otherwise alter an air emission control system in such a manner as to render it inoperable or lessen its efficiency.	The intent is in alignment with the NWT <i>Motor Vehicles Act</i> . This wording is from Yukon <i>Air Emission Regulations</i> . Mobile sources and anti-tampering are an important component under AQMS.
<b>Science/ Research</b>	1. The Minister has authority to conduct ambient air quality monitoring or source emission testing on or near industrial/commercial/municipal sites in all of the NWT under the following circumstances: <ul style="list-style-type: none"> <li>a. To determine/verify compliance to these Regulations.</li> <li>b. To verify compliance with conditions in an Air Permit.</li> <li>c. To conduct research for scientific purposes or to inform the development of air quality standards/limits and or air quality related regulations and policies.</li> </ul> 2. The Minister has the authority to access a site for the purposes of auditing, inspecting, etc, anything to do with components of these Regulations, and the terms and conditions of an Air Permit.	This section is to ensure the ability is in place for the government to conduct research and monitoring of its own accord related to air quality.
<b>Emission Fees</b>	1. Minister has authority to collect fees from industry, business, operations or activities resulting in emissions to the air. <ul style="list-style-type: none"> <li>a. Industries listed in Schedule B must pay fees</li> </ul>	Emission fees act as an incentive for industry to reduce their overall emissions – they are an emissions-deterrent.  ENR proposes allowing a 30 tonne/yr emission, and charging fees by the

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	<p style="text-align: center;">annually in accordance with Schedule D.</p> <p>2. Emissions shall be calculated based on the annual emission inventory, from stack or point source releases, including stacks, vents, ducts, pipes, or other confined process streams (i.e. not area or linear sources).</p> <p style="padding-left: 20px;">a. Parameters to be included in the calculation will include Criteria Air Contaminants, and any industry-specific parameters as detailed in the terms and conditions of an Air Permit.</p> <p>3. Fee payments schedule and manner shall be included in the terms and conditions of an Air Permit.</p>	<p>tonne above that amount. It is an approach most similar to that of Nova Scotia’s regime, except that NS uses 30 tonnes as a trigger – if a proponent triggers that threshold, then they pay fees for all emissions, at a set dollar/tonne rate. (This varies from NL’s and BC’s approach). This is the preferred approach for the NWT due to:</p> <ul style="list-style-type: none"> <li>• Combined emissions fee structure is practical from an administrative point of view.</li> <li>• Allowing a base level of emissions at no charge follows the same logic as the Registration process, meaning there are many activities in the NWT that have the same source of emissions as the mines/oil and gas/power corporation, just on a smaller scale. Therefore the bigger emission sources should be given some leniency, until the smaller emission sources are held to the same stringent standards and fees.</li> <li>• The dollar value per tonne may be adjusted, but ENR believes this to be a reasonable approach for the current northern regime.</li> </ul> <p>For example, if a mine emits approximately 5,500 tonnes of CAC’s per year, it would result in an annual fee of approximately \$50,000.</p> <p>The emissions for which ENR would charge would come from stack or point source releases, as these are more accurate/reliable calculations and conversion factors than emissions from linear or area sources (e.g. dust from roads or stockpiles). The NPRI uses the definition “Stack or point releases: releases from stack or point sources including stacks, vents, ducts, pipes or other confined process streams.”</p> <p>ENR will expect the same methods to be used to determine VOC’s for the</p>



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		purposes of these proposed Regulations, as the methods used to satisfy NPRI requirements.
<b>Monetary Fines to be added to the Summary Conviction Procedures Regulations</b>	<p>Propose adding “Division 3 – NWT Air Regulation” to Schedule A, Part 5 – <i>Environmental Protection Act</i> in the <i>Summary Conviction Procedures Regulations</i> including the following section:</p> <p>An inspector under the Act has the authority to issue monetary fines in accordance with the following:</p> <ol style="list-style-type: none"> <li>1. “Air Permit” section:               <ol style="list-style-type: none"> <li>a. \$1,000; Failure to register emission sources in accordance with sections 4a &amp; 4b.</li> <li>b. \$10,000; Operating without a permit.</li> </ol> </li> <li>2. “Air Quality Monitoring” section:               <ol style="list-style-type: none"> <li>a. \$3,500; Failure to conduct air monitoring as per terms and conditions in an Air Permit.</li> <li>b. \$3,500; Failure to adhere to monitoring QA/QC requirements.</li> <li>c. \$3,500; Failure to maintain monthly data capture greater than or equal to 85%.</li> <li>d. \$1,500; Failure to submit monitoring data in the allotted time limit.</li> <li>e. \$1,500; Failure to report an exceedance of a contaminant limit to ENR within the specified time limit.</li> </ol> </li> </ol>	<p>The NWT <i>Summary Conviction Procedures Regulations</i> (SCPR) need to be amended to include monetary fines associated with non-compliance to the proposed Air Regulations.</p> <p>The fine amounts have been referenced from other fines under the <i>SCPR</i> and monetary penalties under Quebec’s <i>Regulation Respecting the Landfilling and Incineration of Residual Materials</i> (RRLIRM).</p> <p>An inspector under the Act has the authority to issue monetary fines, but that will not necessarily be the first course of action from an enforcement perspective, or the resultant action at all. Compliance with the Regulations is the objective, so other mechanisms prior to issuing fines will be at the discretion of the officer.</p> <p>Many of the items under the monitoring, reporting, air zone management and contaminant limits sections would also be covered under a generic “failure to comply with terms and conditions of an Air Permit”</p> <p>#1a) Similar fine in SCPR for “Failure to register a site or facility where a person blends or incinerates used oil.”</p> <p>#1b) Largest fine in RRLIRM, should be the largest fine for not obtaining a permit.</p> <p>#1c) Want a catch-all fine for permit holders failing to abide by terms and conditions not captured elsewhere in the fine section.</p>

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	<p>f. \$3,500; Failure to conduct an Adaptive Management Response Assessment in the allotted time limit.</p> <p>g. \$10,000; Failure to undertake Adaptive Management Response measures in the time specified.</p> <p>h. \$10,000; Failure to have an air quality monitoring plan approved and implemented within the first six months of operations.</p> <p>3. "Reporting"</p> <p>a. \$1,500; Failure to submit an annual monitoring report by the specified date in the permits terms and conditions or failure to submit the data or information required by the Air Regulation and terms and conditions of the permit.</p> <p>4. "Air Zone Management"</p> <p>a. \$3,500; Failure to participate in an Air Zone Working Group.</p> <p>b. \$3,500; Failure to contribute to an Air Zone Management Plan or Monitoring Program.</p> <p>c. \$10,000; Failure to adhere to Air Zone Contaminant Limits.</p> <p>d. \$3,500; Failure to conduct adaptive management planning for Air Zones.</p> <p>e. \$3,500; Failure to allow the Minister access to the site.</p>	<p>#2a, b, c &amp; f) similar fine in RRLIRM for failing to keep environmental equipment in proper working order, not conducting monitoring or not submitting information.</p> <p>#2d and e &amp; 3a) Similar fine in RRLIRM for failing to submit a report or logs in the allotted time.</p> <p>#2g) Similar fine in RRLIRM for failing to take measures to reduce emissions.</p> <p>#4a, b, d &amp; e) Similar fine in RRLIRM for not conducting monitoring.</p> <p>#4c) Similar fine in RRLIRM for not meeting emission limits.</p>
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	<p>5. "BATEA &amp; BOP"</p> <ul style="list-style-type: none"> <li>a. \$1,500; Failure to submit a complete BATEA report in the specified time frame.</li> <li>b. \$3,500; Failure to obtain approval of the technology report and BATEA plan or implement within the specified time frame.</li> </ul> <p>6. "Contaminant Limits"</p> <ul style="list-style-type: none"> <li>a. \$10,000; Failure to adhere to Ambient Air Quality Limits.</li> </ul> <p>7. "Source Performance Standards"</p> <ul style="list-style-type: none"> <li>a. \$2,000; burning of fuel or waste in fuel burning equipment, not designed to handle the type of fuel or waste being burned.</li> </ul> <p>8. "Open Burning, Unauthorised Releases &amp; Nuisance Emissions"</p> <ul style="list-style-type: none"> <li>a. \$500; Open burning of materials other than clean wood, clean paper or clean cardboard.</li> <li>b. \$7,500; unauthorized burning of buildings, landfills or other waste sites.</li> <li>c. \$10,000; failure to take immediate remedial action to reduce emissions from emergency situation.</li> <li>d. \$500; failure to notify ENR within 24 hours of an unexpected emission release.</li> <li>e. \$1,500; failure to submit remedial action report to ENR within 30 days of the incident.</li> <li>f. \$1,500; failure to stop producing nuisance emissions and or to provide the Minister with a remediation plan or implement that plan within</li> </ul>	<p>#5a) Similar fine in the RRLIRM for not submitting a report in the allotted time.</p> <p>#6a) Similar fine in the RRLIRM for not meeting emission limits.</p> <p>#7a) Similar fine in the SCPR for "blending, incinerating or reprocessing used oil, waste derived fuel or waste fuel without permission of an inspector."</p> <p>#8a) Similar fine in the SCPR for "Openly burning waste fuel other than in accordance..."</p> <p>#8b) Similar fine in the RRLIRM for burning materials in a landfill.</p> <p>#8c) Similar fine in the RRLIRM for failing to take measures to reduce emissions. Think large-scale releases.</p> <p>#8d) Similar fine in the SCPR for "Failure to report a spill"; however, values are updated for inflation.</p> <p>#8e) Similar fine in the RRLIRM for not submitting a report in the allotted time.</p>
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	<p>the allotted time frame.</p> <p>9. “Motor Vehicle Emissions”</p> <p style="padding-left: 20px;">a. \$1,000; removal, tampering or altering of an air emission control system on a vehicle with a result of reducing its efficiency/performance.</p> <p>10. “Air Permit Emission Fees”</p> <p style="padding-left: 20px;">a. \$5,000; Failure to submit emission fee’s within the allotted time frame.</p> <p>11. “Schedule E – Incinerator Emission Standards”</p> <p style="padding-left: 20px;">a. \$7,500; incineration of sewage or black water without permit.</p> <p style="padding-left: 20px;">b. \$7,500; incineration of used tires, contaminated soils, hazardous waste, and or pesticides.</p> <p style="padding-left: 20px;">c. \$500; Failure to maintain incinerator secondary chamber equal to or greater than 1000°C for 95% of the duration of the run.</p> <p style="padding-left: 20px;">d. \$3,500; Failure to obtain required incinerator training prior to operation.</p> <p style="padding-left: 20px;">e. \$500; Failure to maintain and or to provide GNWT inspectors with incinerator operational log details.</p> <p style="padding-left: 20px;">f. \$2,000; Failure to register an incinerator prior to operation.</p> <p style="padding-left: 20px;">g. \$10,000; Failure to adhere to incineration contaminant limits.</p> <p style="padding-left: 20px;">h. \$10,000; Failure to conduct a required stack test within 6 months of operation, and or on the date specified in the permit every three years thereafter.</p>	<p>#9) In the vicinity of other motor vehicle fines under the SCPR.</p> <p>#10a) EPA section 10.6(1) and (2) gives ENR authority to suspend a permit if fees are unpaid for a period of 30 days.</p> <p>#11a &amp; b) Similar fine under the RRLIRM for incinerating restricted substances.</p> <p>#11c) Technical item which could impact Dioxins and Furans (D/F) released, fairly easy to track with temperature data review. Incentive to keep unit functioning correctly. 95% allows minor flexibility for small hiccups in the operation.</p> <p>#11e) Won’t be able to check temperature or other details without the logs.</p> <p>#11f) Similar fine under the SCPR for incinerating without permit.</p> <p>#11g) Similar fine in RRLIRM for not meeting emission limits.</p> <p>#11h) Should be similar fine for not meeting emission limits. Needs to give incentive to conduct the test which could be from \$50k - \$70k.</p>
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	<ul style="list-style-type: none"> <li>i. \$3,500; Failure to perform or have performed the stack testing of the incinerator(s) using the required conditions or methodology required.</li> <li>j. \$3,500; Failure to notify ENR with at least 2 months advance of a planned incineration stack test.</li> <li>k. \$3,500; Failure to submit the complete stack test results to ENR within 90 days of completing a stack test.</li> <li>l. \$10,000; Failure to develop, submit and implement an adaptive management response plan within the specified time limit.</li> <li>m. \$10,000; Failure to re-stack test incinerators within the specified time limit.</li> <li>n. \$3,500; Failure to install CEMs or to maintain ICEM or CEM database or to provide data to ENR within the allotted time as required.</li> <li>o. \$10,000; Failure to rectify issues identified by CEMs.</li> <li>p. \$3,500; Failure to meet CEM QA/QC requirements.</li> </ul> <p>12. If contaminant limits included in Air Permit terms and conditions or if source performance standards are exceeded, the Chief Environmental Protection Officer may, in lieu of or in conjunction with a fine, require the following:</p> <ul style="list-style-type: none"> <li>a. Development and implementation of a remedial action plan with specific time frames in which to comply with contaminant limits listed in the terms and conditions of the Air Permit or to source performance standards.</li> </ul>	<p>#11i) Similar fine in RRLIRM for not following required testing conditions.</p> <p>#11l, m &amp; o) Similar fine in RRLIRM for failing to take measures to reduce emissions.</p> <p>#11n) Similar fine in RRLIRM for not conducting monitoring.</p> <p>#11p) Similar fine in RRLIRM for failing to keep environmental equipment in proper working order or not submitting information.</p> <p>#12) ENR wants the opportunity to be able to require remediation or adaptive management in lieu of or in combination with a fine if a proponent exceeds an air quality limit. There could be some situations where a Contaminant Limit is exceeded by a small amount and adaptive management could solve the problem, or perhaps a one hour limit was exceeded one or two times.</p> <p>It is important to note, ENR has the authority to suspend an Air Permit if a Permittee does not comply with terms and conditions of their Permit or other aspects of these Regulations. Then, if they continue to emit, they</p>
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		<p>would be subject to the full penalties of the EPA for releasing an unauthorized discharge of a contaminant to the environment. EPA sub-section 7 (1) states “...where a person discharges or permits the discharge of a contaminant into the environment, an inspector may order that person to repair or remedy any injury or damage to the environment that results from the discharge”.</p> <p>In addition, EPA sub-section 4 (1) states “ where the Chief Environmental Protection Officer is of the opinion, based on reasonable grounds, that it is necessary or advisable for the protection of the environment to do so.... may by order directed to any person require that person</p> <ul style="list-style-type: none"><li>(a) to install safeguards to prevent the discharge of contaminants into the environment (i.e. pollution control technology)</li><li>b) to site, transport or store any contaminant in the manner set out in the order (probably more for fugitive emissions)....</li></ul> <p>Sub-section 4 (2) where an inspector believes on reasonable grounds that a discharge of a contaminant in contravention of this Act, the regulations, or a provision of a permit or licence is likely to occur, the inspector may issue an order requiring any person whose actions may increase the likelihood of a discharge or the owner or person in charge, management or control of the contaminant to take the preventive measures that the inspector considers necessary.”</p> <p>This gives ENR sufficient authority to require remedial action/adaptive management measures.</p>
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<p><b>SCHEDULES</b></p>	<p><b>Schedule A: Activities that Require Registration:</b></p> <ol style="list-style-type: none"> <li>1. Operation of diesel-powered electricity generating facilities or equipment with a maximum nameplate capacity less than 1.0 Megavolt ampere (at unity power factor equivalent to 1.0 megawatt) and equal to or greater than 10 kW.</li> <li>2. Operation of Crematories, human and animal.</li> <li>3. Operation of dry-cleaning facilities.</li> <li>4. Operation of wood product manufacturing facilities.</li> <li>5. Operation of heavy duty equipment equal to or in excess of 3 units or a combined Rated Net Power equal to or greater than 1,000kW, whichever is fewer units.</li> <li>6. Operation of portable engines (water pumps, engine heaters, fuel pumps, etc.) equal to or in excess of 3 units or a combined Rated Net Power equal to or greater than 1,000Kw, whichever is fewer units.</li> <li>7. Heavy duty vehicle fleet, equal to or excess of 3 units.</li> <li>8. Boilers and heaters with a nameplate capacity of less than 1,500kW and equal to or greater than 500kW.</li> <li>9. Asphalt plants.</li> <li>10. Incinerators in accordance with (Schedule E).</li> </ol>	<p>Requiring these types of operations to register is an information gathering exercise that will help inform future requirements in these Regulations. The majority of activities in Schedule A use similar equipment as those operations requiring an Air Permit, and therefore this is the first step in ensuring there is fairness and consistency in environmental expectations. Requiring registration in a Regulation will ensure emitters in the NWT provide the information ENR is requesting.</p> <p>#1) These are the smaller sized operations of those captured under Schedule B. ENR is proposing to limit this to diesel-powered electricity generation to avoid more residential applications.</p> <p>#2 – #6) Adopted from the Bay Area Air Quality Management District (BAAQMD) Air Permit Handbook but were modified to be slightly less stringent.</p> <p>#5 &amp; #6) As for horsepower, a small – medium loader is approximately 40-50 hp. A 2016 Ford F-150 is approx. 270 hp, a 2015 GMC Sierra is 360 hp. The metric system uses “Rated Net Power”, which uses kW units. A small – medium front end loader has a rated net power of 50 – 130 kW. Medium loaders has a rated net power of 200 kW – 300 kW, while large loaders have a rated net power of 370 – 1300 kW (for example, 1300 kW = 1740 hp). Drills are approximately 400 kW or 540 hp. Harvesters are 120 – 230 kW.</p> <p>#8) These thresholds have been selected to capture medium-large commercial/industrial boilers, but not to include residential boilers.</p> <p>#10) This is redundant, but included for clarity. The registration requirements are listed in the Schedule E.</p>
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	<p><b>Schedule B: Activities that Require an Air Permit:</b></p> <ol style="list-style-type: none"> <li>1. Mineral mining development and production (construction and operations).</li> <li>2. Production, transportation (including pipelines), refining and exploration of oil and natural gas, including combustion products of flaring or burning petroleum and the release of petroleum vapours.</li> <li>3. Operation of combined emission producing electricity generating equipment or a facility with a maximum nameplate capacity equal to or greater than 1.0 Megavolt ampere (at unity power factor equivalent to 1.0 megawatt) on a given development site.</li> <li>4. Processing, handling or use of coal.</li> <li>5. The manufacture or processing of:             <ol style="list-style-type: none"> <li>a) Chemical and allied products,</li> <li>b) Cement and lime products,</li> <li>c) Primary metal or metal products.</li> </ol> </li> <li>6. Operation of boilers or heaters with a maximum nameplate capacity equal to or greater than 1500kW.</li> <li>7. Any other activity the Minister deems to be a risk to local or regional air quality.</li> </ol>	<p>#1) ENR wants to capture any mining developments in the NWT, including care and maintenance scenarios, but not the remediation phase. (Remediation operations are not specifically covered as a standalone category, however the equipment operating would generally be captured under the Registry requirements).</p> <p>#2-#4) Were adopted from Yukon's <i>Air Emission Regulations</i>, Schedule 1.</p> <p>#3) ENR is trying to write this in a way that captures bigger municipal electricity generating facilities or remote developments with multiple generators that meet the capacity limit. However, ENR does not want to capture spaced out commercial buildings with backup generators which are owned by the same company.</p> <p>#5) Adopted from Alberta's <i>Environmental Protection and Enhancement Act</i>, Schedule of Activities.</p> <p>#6) In consideration of institutional pellet boilers or district heating facilities – this would be for all fuel sources. Yukon uses 5,000,000 Btu/hr. ENR is trying to keep all metric standards and therefore want to list in Kilowatts. 5 MBtu/hr converts to 1465kW and therefore ENR want to set it at an even 1500kW. This should not trigger regular commercial operations with boilers. For example, the Scotia Centre in Yellowknife has two boilers, each with a nameplate capacity of 1173kW. The way the regulation is being proposed, it sets a threshold for individual boilers, not total capacity, which is what ENR would prefer.</p> <p>Note that EC's <i>Multi-Sector Pollutant Regulations</i> (MSPR) include NOx standards for boilers and heaters, but only for natural gas fired units, and only from specific industries. Not size-based.</p> <p>Boilers covered range from commercial (&lt; 10 MMBTU/hr), small</p>
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		<p>industrial (10 – 100 MMBTU/hr), to large industrial (100 – 250 MMBTU/hr), and utility boilers, generally rated above 250 MMBTU/hr.  <a href="http://hank.baaqmd.gov/pmt/handbook/rev02/PH_00_05_02_01.pdf">http://hank.baaqmd.gov/pmt/handbook/rev02/PH_00_05_02_01.pdf</a></p> <p>#7) Is a catch-all clause to ensure other activities not previously identified can be required to obtain a permit. It is likely these types of operations would be identified during an EA or other licencing operation. For example, Giant Mine, with the arsenic concerns, would fall under this category.</p>
	<p><b>Schedule C: Emission Generating Equipment Inventory and BATEA Requirement</b></p> <ol style="list-style-type: none"> <li>1. Operation of boilers and heaters, steam generators, and process heaters or similar combustion equipment.</li> <li>2. Operation of storage tanks with a volume greater than 4 m<sup>3</sup> and storing a volatile organic liquid with a vapour pressure greater than 10 kPa at 21.1°C.</li> <li>3. Operation of stationary or portable engines, used in pumps, compressors, and material handling equipment, with the exception of:             <ol style="list-style-type: none"> <li>a) Engines less than or equal to 50HP (37.3kW)</li> <li>b) Engines used for instructional purposes at research, teaching or educational facilities</li> <li>c) Engines that are at a location for less than 72 hours.</li> </ol> </li> <li>4. Operation of industrial dehydrators, oil-water separators or soil vapour extraction technologies.</li> <li>5. Heavy duty vehicles.</li> <li>6. Heavy duty equipment.</li> <li>7. Light and medium duty vehicle fleet.</li> <li>8. Operation of stationary or portable power generation equipment.</li> </ol>	<p>#1) BAAQMD uses: this standard for non-natural gas/LPG fuel equipment.</p> <p>#2) Adopted from NL <i>Air Pollution Control Regulations</i> (sec 17).</p> <p>#3) Adopted from the BAAQMD Air Permit handbook.</p> <p>#4-#10) Covers other emission sources ENR deems important to track emissions from or to apply BATEA to.</p>

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	<p>9. Operation of hydrocarbon flares &amp; incinerators. 10. Operation of waste incinerators. 11. Other identified major emission generating equipment.</p>	
	<p><b>Schedule D: Air Permit Emission Fees</b></p> <p>1) Facilities that produce <math>\geq 30</math> tonnes of pollutants/year must pay a rate of \$10/tonne per year for every tonne of pollutant emitted over the 30 tonne threshold.</p> <p>2) Facilities that produce <math>&lt; 30</math> tonnes of pollutants/year do not have to pay a fee.</p> <p>*Pollutants means Criteria Air Contaminants, and Industry Specific Parameters as determined during the permit process.</p>	<p>Part 1 &amp; 2 resembles the NS <i>Fees Regulations</i> fee schedule model; however, ENR adjusted the fee to \$10 per tonne from \$7.35 per tonne. Refer to rationale under the Emission Fee section.</p> <p>Other options assessed include:</p> <ul style="list-style-type: none"> <li>- BC <i>Permit Fees Regulation</i> (under Environmental Management Act), pay per tonne of pollutant emitted (would cost more for industry using this approach); and</li> <li>- NL <i>Air Pollution Control Regulations</i>, Schedule C, pay small administration penalty fee per tonne pollutant emitted over a certain amount. (Very little revenue generated using this approach. Not worth the administrative burden).</li> </ul>
	<p><b>Schedule E: Incinerator Emission Standards</b> This section requires the following:</p> <p>1) Incinerators burning less than the thresholds indicated in part 10b) are required to abide by sections 2-10 of this Schedule.</p> <p>2) Incineration shall not be used for sewage or black water unless for emergency purposes and the incinerator is specifically designed to do so and still meets the limits outlined in Table 6.1</p> <p>3) Chlorinated Plastics, used tires, contaminated soils, materials containing toxic substances, paints or solvents,</p>	<p>#2) ENR has historically maintained that burning sewage is inappropriate because no incinerator is designed to combust this material while still achieving the Canada-Wide Standards (CWS). Until such time that this changes, the prohibition will hold.</p> <p>#3) Snap Lake's LUP and some other LUPs say they cannot burn plastics. Chlorinated plastics in particular are a catalyst for Dioxins and Furans and</p>

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	<p>and or pesticides shall not be burned in solid waste incinerators.</p> <p>4) Secondary waste streams generated from the operation of an incinerator, including but not limited to ash and scrubber water, must be managed and disposed of in accordance with applicable regulations and authorizations.</p> <p>5) Incinerator operation and maintenance shall be conducted in accordance with the manufacturers' recommendations and the guidance provided in the EC Technical Document on Batch Waste Incineration, 2010.</p> <p>a) Operators incinerating waste below the threshold stated in part 9 must select a dual chamber Incinerator or at a minimum, an incinerator with an afterburner that releases stack gases directly to the atmosphere at temperatures higher than 700°C.</p> <p>b) Incinerators above the threshold in Part 9 must use a dual chamber incinerator.</p> <p>i) During operation of the dual chamber incinerator, the secondary chamber must remain greater than 1000°C.</p> <p>6) Prior to using an incinerator, operators must receive appropriate training from the incinerator manufacturer (or training surrogate approved by the manufacturer), or, receive training from a supervisor who was trained by the incinerator manufacturer within the previous two years.</p>	<p>therefore ENR wants to ensure they are not burned. Canada is moving towards the virtual elimination of dioxins and furan emissions (CWS for Dioxins and Furans).</p> <p>#4) The proper operation and maintenance of an incinerator can significantly reduce incinerator emissions. Incinerator manufacturers and the EC technical document for batch waste incineration provide recommendations on how the units should be operated to reduce emissions. This requirement will help ensure all incinerators are doing this. The LWBs already point to this technical document in their Guidance document for creating an incineration management plan.</p> <p>#5a &amp; b) These are points from Quebec's <i>Regulation Respecting the Landfilling and Incineration of Residual Material</i> (section 126) and the EC Technical Document for Batch Waste Incineration.</p>
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<p>7) Incinerator operators must log any maintenance conducted on incinerators as well as operational details of each incinerator batch run, including:</p> <ul style="list-style-type: none"> <li>a) Batch weight of wet and dry waste determined using a scale;</li> <li>b) Temperature of Primary and Secondary Chambers must be digitally recorded in real-time. This information must be available in electronic format and submitted to ENR within one week if requested by the Regulator;</li> <li>c) Date and time of each waste batch incinerated; and</li> <li>d) Name(s) of incinerator operators.</li> </ul> <p>8) Operational and maintenance logs must be available for inspection by GNWT inspectors at any time.</p> <p>9) Operators must maintain a record of all information, calculations, and monitoring data for a minimum of three years.</p> <p>10) Any industry, business, operation or activity using an incinerator must, prior to operating an incinerator, register with ENR, by providing the following information:</p> <ul style="list-style-type: none"> <li>a) The name of the intended registration holder, their address, phone number, facsimile number, and e-mail address;</li> <li>b) The company name (if any) and the name, job title, address, phone number, facsimile number, e-mail address, and signature of the person who submitted the registration application on behalf of the intended</li> </ul>	<p>#7) Some incinerator operators are logging these details already. ENR will have a draft “incinerator checklist” that can be used by inspectors to ensure Registrants are logging this information.</p> <p>#7 b) Tracking the temperature of incinerators is one of the first and easiest ways of determining if the unit is operating as it should, and if it is likely to be emitting toxic emissions. For example, DeBeers Snap Lake was tracking temperature data for their two incinerators every six months as part of their stack emissions “remediation plan.” Currently the way it is worded, every incinerator must be equipped with a temperature recorder. Ketek Group personnel indicated it is not standard to have temperature recorder for forced air (smaller) incinerators, but it could be added for approximately \$4,000.</p> <p>#9) The NPRI requires that reporters must keep a copy of all information and calculations for three years.</p> <p>#10) This will ensure ENR has a record of all incinerators operating in the NWT. ENR wants to Register or authorize all incinerators, regardless of size, type of waste, or whether they’re already accounted for in the LWB process. The majority of the registration information required in Part 10 came from Alberta’s “Code of Practice for Small Incinerators” and from Manitoba’s “Incinerator Registration Form.”</p> <p>ENR will develop a Template for this Registration, as per Part 3 of the Air Registrations and Permits Section, which will include the listed information listed here.</p>
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	<p>registration holder;</p> <p>c) If a person other than the intended registration holder submitted the registration application, written permission is required from the intended registration holder, stating that the person who submitted the registration application was authorized to do so on behalf of the intended registration holder;</p> <p>d) The name, job title, address, phone number, facsimile number, and e-mail address of the person designated by the intended registration holder as the primary contact for the small incinerator;</p> <p>e) The municipal address (if one exists), or legal land description (LLD) on which the incinerator is or will be located;</p> <p>f) The average camp size (i.e. # of workers) in which the incinerator is or will be located;</p> <p>g) A technical assessment of the incinerator, which includes but is not limited to:</p> <ul style="list-style-type: none"> <li>i) The make, model, and serial number of the incinerator,</li> <li>ii) The type of incinerator,</li> <li>iii) The design and number of combustion chambers,</li> <li>iv) The operating temperature(s) of the combustion chambers,</li> <li>v) The fuel type and capacity (in BTU/hr) of any burners,</li> <li>vi) Any modifications to the incinerator,</li> <li>vii) Any equipment to be used in conjunction with the incinerator,</li> <li>viii) The rated waste capacity, as specified by the manufacturer, in kilograms per hour,</li> </ul>	
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- ix) The source, types and quantities of waste or contaminated soils expected to be processed in kilograms per batch, day, month and year,
- x) The proposed incinerator ash handling and disposal method,
- xi) Details of any emission control technology (i.e. scrubbers); and
- xii) Any monitoring to be conducted.

- 11) All incinerators burning the following types of waste must adhere to the emission standards in Table 6.1:
- a) biomedical waste
  - b) solid waste with a design capacity of more than 100 kg/batch, or are processing a combined weight of 400kg/day, or are processing 10 tonnes solid waste/month or more, or are processing 26 tonnes solid waste/yr.

Table 6.1

Contaminant	Units	limits
Total D/F (as PCDD/F TEQ)	Ng/Rm <sup>3</sup> @11% O <sub>2</sub>	0.08
Hg	µg/Rm <sup>3</sup> @ 11% O <sub>2</sub>	20
Pb	µg/Rm <sup>3</sup> @ 11% O <sub>2</sub>	60
Particles (PM)	Mg/Rm <sup>3</sup> @ 11% O <sub>2</sub>	57
HCl	Mg/Rm <sup>3</sup> @ 11% O <sub>2</sub>	75
CO	Mg/Rm <sup>3</sup> @	57

#11) ENR has captured the biomedical waste incinerators here since they are also required to meet the CWS limits for Dioxins/Furans.

Thresholds include BC: exempt if <400kg/hr individually or combined. Alberta considers 'small incinerators' <10 tonnes/month. Snap Lake was incinerating about 4 batches x 250lbs = 0.5 tonnes/day = 15 tonnes/month. BC considers a remote camp <100 person to be exempt from their requirements.

Table 6.1) The D/F limits act as indicator compounds to the process. Both D/F and mercury (Hg) are covered under the CWS. GNWT is signatory to the CWS. Most provinces have incorporated the D/F CWS into their own legislation already.

Particulate matter, Hydrochloric acid (HCl) and Carbon Monoxide standards have been adopted from Alberta's Code of Practice for Small Incinerators, while Lead (Pb) was adopted from Ontario's Air Pollution Control, Design and Operation Guidelines for Municipal Waste Thermal Treatment Facilities. These standards were chosen after speaking with incinerator manufacturers, consulting companies that conduct stack tests on incinerators and after reviewing stack test results from northern

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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;"></td> <td style="width: 50%; text-align: center;">11% O<sub>2</sub></td> </tr> </table> <p>12) Stack sampling must be conducted on these units to demonstrate compliance with limits in Table 6.1, and in accordance with the following:</p> <ul style="list-style-type: none"> <li>a) Frequency of stack test (within six months of start-up and every three years thereafter);</li> <li>b) All stack tests must be conducted by an accredited/certified third party in accordance with national standards (i.e. EC Method EPS 1/RM/2);</li> <li>c) With waste batches representative of maximum scenario of the typical waste stream; and</li> <li>d) ENR must be advised at least 2 months in advance of a stack test such that ENR is given the opportunity to be present during the testing process.</li> </ul> <p>13) Results of any completed waste incinerator stack tests must be submitted to ENR no more than 90 days after completing a stack test and must include the following:</p> <ul style="list-style-type: none"> <li>a) Complete stack test analysis report conducted by the accredited/certified third party;</li> <li>b) Any quality assurance, quality control measures associated with the testing; and</li> <li>c) Detailed documentation to demonstrate that representative composition and batch size of waste were used during the testing process.</li> </ul> <p>14) Failed tests result in adaptive management response:</p> <ul style="list-style-type: none"> <li>a) If stack test results show emission limits in Table 6.1 were exceeded, Operators must develop and submit</li> </ul>		11% O <sub>2</sub>	<p>operations.</p> <p>#12) Quebec requires annual stack testing when incinerating more than one tonne per hour or every three years for less than one tonne per hour (All operations would be less than one tonne per hour so ENR would be consistent with Quebec). Ontario requires annual stack testing. Both Gahcho Kue and Ekati have committed to stack testing every three years through their EA's.</p> <p>A. Lanfranco &amp; Associates Inc. indicated that a stack test for a waste incinerator in a remote environment usually costs between \$50 – 70 thousand. If two incinerators were to be tested, it would likely cost around \$85 – 90 thousand. Testing for additional metals, if you were already testing for one or two incinerators, would likely not cost any more.</p> <p>#13 &amp; 14) Adopted from the Ekati - Jay Project EA commitments. Also is similar to agreements made with DeBeers – Gahcho Kue mine during licencing. This also follows similar requires in Alberta, Ontario and Quebec. The CCME CWS for D/F states incinerators should be stack tested annually; however, it can be costly in remote environments and recently Ekati and Gahcho Kue have committed to stack testing every three years.</p>
	11% O <sub>2</sub>			

	<p>to ENR an Adaptive Management Response Plan (AMRP) no more than 120 days after the failed stack test. The AMRP must contain an assessment of the incinerator operations and management that would have contributed to the failed stack test, and methods to improve/rectify them. These methods must be implemented immediately upon submission of the AMRP.</p> <p>b) Incinerators which exceeded emission limits must be re-stack tested within six months of the initial failed stack test. The second stack test will verify the effectiveness of the adaptive management response measures and compliance with Table 6.1.</p> <p>c) Exemptions for the second stack test may occur based on a review conducted by ENR. Exemptions for conducting a second stack test could occur based on factors such as the degree of the original exceedance over the emission limits or the availability of any other indicators to demonstrate the issue(s) has been rectified.</p> <p>15) Intermittent incinerator stack in-line “continuous” emission monitoring (ICEM) or Continuous Emission Monitoring (CEM) of carbon monoxide and or particulate matter may be required for new incinerators which fall under sections 10 A &amp; B of this Schedule. The Minister may require ICEM of additional parameters prior to issuing an Air Permit if other pollutants are of particular concern. When ICEM or CEM is required the following must be adhered to:</p> <p>a) Data must be collected digitally in real-time and</p>	<p>#15) Ketek Group personnel indicated that installing CEM monitors after the units are already operating in the field is generally not a good idea (monitors may not work as designed and can be costly).</p> <p>In addition, installing CEMs on new units could cost around \$100,000 and require trained technical people to operate them. CEMs are not usually installed on smaller units such as the ones used in the North because of their cost and lack of technical ability to effectively operate them. In addition, CEMs are costly to maintain.</p>
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	<p>maintained in a readily available format to be provided to ENR so it can be compared to the emission limits in Table 6.1.</p> <p>b) CEM alarm systems must be installed and functioning with the purpose of providing immediate notification to the operator of an exceedance or failure of set limits. When CEM or ICEM data indicates emission limits have been exceeded, ENR must be contacted immediately (Within 24 hours) and must rectify the issue immediately.</p> <p>c) ICEM monitoring must be conducted on a frequency as dictated in the terms and conditions of an Air Permit.</p> <p>d) ICEM or CEM QA/QC requirements include the following:</p> <ul style="list-style-type: none"> <li>i) Initial certification by an accredited/certified third party once installed in the incinerator;</li> <li>ii) Development and implementation of a Quality Assurance Quality Control (QA/QC) Manual which includes daily, quarterly, semi-annual and annual performance evaluations;</li> <li>iii) Conduct an annual audit of ICEM or CEM equipment to verify the data produced is reliable and accurate;</li> <li>iv) ICEM and CEM equipment must be maintained and calibrated as per the manufacturer's recommendations;</li> <li>v) The ICEM and CEM QA/QC manual, recorded data and records of any calibration/maintenance conducted must be made available upon the request of ENR;</li> </ul>	<p>An alternative is handheld CO monitors with high temperature probes which can be used to grab a stack sample during mid-burn. These are approximately \$17,000, are easy to use and have minor maintenance costs (about \$200-\$1,000) every six months. Results can be uploaded to a computer and sent to the Regulator very quickly. CO is a good indicator for incinerator performance. ENR would refer to this handheld sampler as "intermittent" continuous emission monitoring.</p> <p>Ontario's Guide for Thermal Treatment Facilities outlines a variety of parameters that could be analyzed on a continual basis to validate incinerator performance, such as CO<sub>2</sub>, temp, O<sub>2</sub>, particulate matter, SO<sub>2</sub>, NO<sub>x</sub>, opacity, etc. It appears CO and PM are good indicators of incinerator performance and therefore would be good options to require for continuous monitoring. However, Ontario does leave it up to the regulator to determine what will be required when the Proponent's application is received. CEMs were promoted by IEMA at the Ekati – Jay Project public hearing. Due to the additional cost and technical requirements of operating CEM, these units would only be required on very large incineration installations.</p> <p>#15d) Section 3.3 of Ontario's guide was used to frame the QA/QC and data reporting sections here.</p> <p>There is no mention of CEMs in ECs Technical Document for Batch Waste Incineration.</p>
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<b>Schedule F: Ambient Air Quality Limits</b>			
Parameter	Standard ( $\mu\text{g}/\text{m}^3$ )*	Standard (ppb <sub>v</sub> )**	
Carbon Monoxide (CO) 1 hr average 8 hr average		13,000 5,000	<p>ENR is maintaining the standards for CO, PM<sub>2.5</sub>, TSP, O<sub>3</sub>, SO<sub>2</sub> and NO<sub>2</sub> in ppb, as currently outlined in the <i>Guideline for Ambient Air Quality Standards in the Northwest Territories</i>. ENR will continue to update these values to stay in line with the Canadian Ambient Air Quality Standards (CAAQS) as they evolve.</p> <p>H<sub>2</sub>S, Benzene, Ethylbenzene and Xylenes concentrations were adopted from Alberta's standards as the main emission sources for these contaminants in the NWT are predicted to come from oil &amp; gas operations. The NH<sub>3</sub> standard was derived from Ontario, as it is the most stringent standard identified and is health based.</p>
Fine Particulate Matter (PM <sub>2.5</sub> ) 24 hr average Annual arithmetic mean	28 10		
Total Suspended Particulate (TSP) 24 hr average Annual arithmetic mean	120 60		
Ground Level Ozone (O <sub>3</sub> ) 8 hr average		63	
Nitrogen Dioxide (NO <sub>2</sub> ) 1 hr average 24 hr average Annual arithmetic mean		213 106 32	
Sulphur Dioxide (SO <sub>2</sub> ) 1 hr average 24 hr average Annual arithmetic mean		172 57 11	

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<p>* micrograms per cubic metre ** parts per billion by volume All ambient air quality measurements will be referenced to standard conditions of 25oC and 101.3 kPa.</p>	Ammonia (NH <sub>3</sub> ) 24 hr average		143
	Hydrogen Sulphide (H <sub>2</sub> S) 1 hr average 24 hr average		10 3
	Benzene 24 hr average Annual arithmetic mean		9 0.9
	Toluene 1 hr average 24 hr average		499 106
	Ethylbenzene 1 hr average		460
	Xylenes 1 hr average 24 hr average		530 161