Information Request Response to

Information Request No. 7 (Energy Centre)

Filed 30 October 2023 by

Inuvialuit Energy Security Project LTD.

(IESPL)

to Canada Energy Regulator

as part of the

Inuvialuit Energy Security Project (IESP)
Application for Authorization for the Installation and Operation of the IESP Energy Centre pursuant to Paragraph 10(1)(b) of the Northwest Territories' Oil and Gas Operations Act
(Filed 30 September 2022)

File OF-EP-OA-I184-1414 03

RESPONSES TO CER INFORMATION REQUEST NO. 7

GENERAL MATTERS

7.1 Construction Schedule

CER Request:

Provide an updated construction schedule, with as much detail as available at this time, for both the installation and operation phases of the Energy Centre.

IESPL Response:

IESPL has provided a Level 1 Schedule appended to this IR Response.

ENVIRONMENT MATTERS

7.2 Development Plan Amendments

CER Request:

Provide an updated EPP with revisions that reflect the changes to the IESP listed in reference IR 7.2 i), among others.

IESPL Response:

IESPL updated their EPP in response to CER IR No.6 as EPP Rev 5.0.

EPP Rev 5.1, incorporating all the changes from IR No. 6 and IR No.7, will be submitted with this Response to IR No.7 in REGDOCS.

7.3 Chemical Selection, Management, and Discharge Streams

CER Request:

Provide an updated EPP that includes the information required by paragraphs (g) and (h) of section 9 of the OGDPR for the Energy Centre.

IESPL Response:

IESPL has updated the EPP as per CER request. The updated EPP will be submitted with the Response to IR No.7 in REGDOCS. Refer to the EPP Preface Section 6.0.

7.4 Critical Structures, Facilities, and Equipment

CER Request:

Provide an updated EPP that includes the information required by paragraph (e) of section 9 of the OGDPR for the Energy Centre.

IESPL Response:

IESPL has updated the EPP as per CER request. The updated EPP will be submitted with the Response to IR No.7 in REGDOCS. Refer to the EPP Preface Section 4.0.

7.5 Waste Management Plan – Anticipated discharges and waste streams

CER Request:

Provide an updated EPP that includes the information required by paragraphs (i) and (j) of section 9 of the OGDPR for the Energy Centre.

IESPL Response:

IESPL has updated the EPP as per CER request. The updated EPP will be submitted with the Response to IR No.7 in REGDOCS. Refer to the EPP Preface Section 8.0 and EPP Attachment 5.

SAFETY MATTERS

7.6 Process Hazard Analysis Risk Criteria

CER Request:

Provide the following:

a) an explanation of how IESPL determined the quantitative likelihood thresholds in reference i), including a justification for establishing a quantitative threshold for very high-priority risks in part on a fatality frequency of between 1 x 10-1 (i.e., 0.1) and greater than or equal to 1 x 100 (i.e., 1) occurrences per year; and

b) a description of how and in what situations IESPL will use the quantitative likelihood scale for risk-based decision-making.an updated EPP that includes the information required by paragraphs (g) and (h) of section 9 of the Northwest Territories' OGDPR for the Energy Centre.

IESPL Response:

IESPL has created a Process Hazard Analysis risk matrix to assess risks during process hazard analysis (PHA) studies in general. Our Hazard and Operability study (HAZOP) is in alignment to CSA Z767 (section 6.3.4 Hazard Identification) and further referenced in ISO 31010 as a risk assessment technique.

Consequences are identified in graduated levels, as is likelihood.

IESPL, during a PHA study, will identify a scenario (i.e., a cause) that will result in a consequence. The risk is assessed using the risk matrix to determine the unmitigated risk. As an example, a scenario may be an initiating cause (e.g., a device failure) – may lead to a consequence of an over pressure leading to pressure vessel failure. The team in the HAZOP study would assess the severity and likelihood of the case. IESP references standard failure rates from the Center for Chemical Process Safety (CCPS), and compiled numerous sources including the following published guidelines:

> *Guidelines for Initiating Events and Independent Protection Layers in Layer of Protection Analysis, American Institute of Chemical Engineers, 2015.*
>
> *Layer of Protection Analysis, Simplified Process Risk Assessment, CCPS concept book., American Institute of Chemical Engineers, 2001.*

At this stage of the PHA process, IESPL would have an unmitigated or inherent risk ranking (i.e., a consequence that without safeguards would happen at an expected frequency).

Further to this, IESPL will identify safeguards to mitigate the consequence or reduce the likelihood of the consequence. Safeguards are assessed and risk is reduced by factors following the CCPS values. This will provide a current risk level.

Where a current risk level is in the orange (high) or red (very high) zone, the risk is not identified as “As Low As Reasonably Practicable (ALARP)”. At this point the HAZOP team will either:

- Provide a recommendation that will reduce the likelihood of the risk to an acceptable level or a recommendation where changes may mitigate the consequence.
- Recommend further study to mitigate the risk (e.g., an engineered study)
- Recommend a further study to evaluate the risk in a more granular form (e.g., a Layer of Protection Analysis) or
- Recommend management to accept the risk.

IESPL management will not accept high or very high safety, environmental or regulatory risks.

The threshold identified higher than 1 x10-1 or higher 1 x 100 for a likelihood and a high severity consequence would be only used to identify an unmitigated risk level.

The HAZOP study in part will identify technology or devices that reduce risk (e.g., mechanical, electronic, logic, etc.). This list of devices will drive the critical component list in the preventative maintenance program.

The PHA risk matrix will be used within IESP to assess process safety risks and following a process safety management program in compliance with *CSA Z767:17 Process Safety Management* applicable to the petroleum industry.

7.7 Safety-Critical Equipment

CER Request:

Provide:

a) For the Energy Centre, file a list of safety-critical:

a.1) structures;
a.2) facilities;
a.3) equipment; and
a.4) systems.

For any of these categories where no safety-critical items are identified in a), indicate Nil.

b) File a summary of the system in place for the inspection, testing, and maintenance for the items identified in a).

c) File a description of the project-wide methodology used to identify safety-critical structures, facilities, equipment, and systems for the Energy Centre, including how IESPL determines which structures, facilities, equipment, and systems are critical to safety.

IESPL Response:

Safety Critical List

a.1) The only safety critical structures for the IESP will be the control building since this will serve as an emergency shelter in the event of personnel being trapped on site in the event of road closures (Inuvik-Tuktoyaktuk highway (ITH) or the IESP access road) during blizzards in proximity to the Energy Centre. Consideration is being given to having a separate structure like a garage for the Plant Ambulance or Quads or Snowmobiles for egress. Should that be installed it will be a safety critical structure.

a.2) No facilities separate from the structures above or the equipment or systems below are safety critical.

a.3) Pressure Safety Valves (PSV) are equipment items that are safety critical since they protect other equipment and pressure vessel items within the Energy Centre.

a.4) The plant control system is safety critical depending on the HAZOP and programming results that are to come later. The plant's flare system is considered safety critical to have a location for the pressure safety valves to relieve their over-pressure volumes to a contained and safe location.

Inspection, Testing and Maintenance

b.1) Structures – The Buildings will have a safety related inspection annually. Equipment such as the ambulance or snowmobiles will have daily, weekly, and monthly testing and inspections plus Original Equipment Manufacturer recommended preventative maintenance schedules.

b.2) Nil.

b.3) PSV's will follow regulatory requirements such as API 520/API 521 or possibly ABSA 525. GNWT Boiler and Pressure Vessel inspection frequency will be followed for the equipment in general and PSV's, if required, will follow the required frequency for inspection.

b.4) The plant control system will follow annual testing to ensure that the equipment functions properly when tested. Additionally, associated valving with the control system will be checked for proper closing functions. The fuel can burner system and pilots in the flare system will be tested and inspected annually to ensure proper function.

Project Wide Methodology

IESPL will follow its Process Hazards Assessment (PHA) documentation for determining those items which are safety critical. These have not been issued for use at this time but will be by the time HAZOP and other studies are scheduled to take place. HAZOP's due to the weather at the location of the M-18 site shall analyze the structures or site where personnel will be protected, and the egress equipment associated with emergency evacuation of the Energy Center when and/or if required.

APPENDIX:

IESP Level 1 Schedule

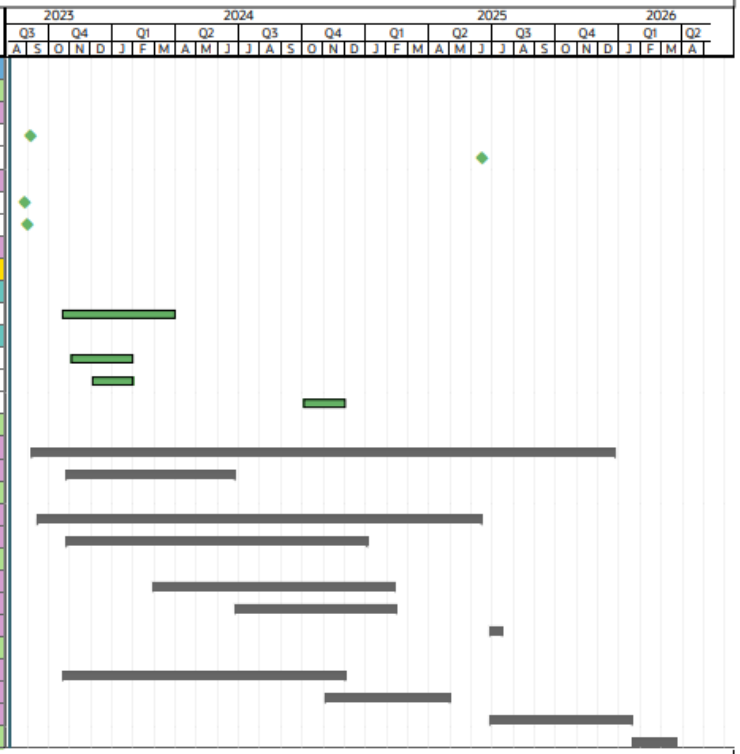
INUVIALUIT ENERGY SECURITY PROJECT

IESP EPF Level 1 Schedule

Preliminary

STARTEC Compression & Process

ID	Name	Start	Finish
IESP EPF Schedule (July 2023 Reschedule)		05-Sep-23	22-Mar-26
KEY ACTIVITIES		20-Oct-23	16-Jun-25
Project Milestones			16-Jun-25
ML-285	Project Start (Kick-Off EPF Phase)		05-Sep-23
ML-295	Project Completion		16-Jun-25
Interface Milestones			30-Aug-23
ML-305	IESP Present Estimate to BOD		28-Aug-23
ML-315	IESP - Board Decision (IESP FID)		30-Aug-23
Early Works - Gravel Pad Construction		20-Oct-23	01-Dec-24
Common Area		20-Oct-23	01-Dec-24
Access Road		20-Oct-23	31-Mar-24
CN-3060	Construct Access Road & Bridge	20-Oct-23	31-Mar-24
Site Preparation		01-Nov-23	01-Dec-24
CN-3090	Wellpad Gravel Pad Construction	01-Nov-23	31-Jan-24
CN-3080	Facility Gravel Pad Construction	01-Dec-23	31-Jan-24
CN-3100	Facility Gravel Pad Secondary Placement	01-Oct-24	01-Dec-24
ENGINEERING		05-Sep-23	26-Dec-25
Detailed Engineering (Facility)		05-Sep-23	26-Dec-25
Detailed Engineering (Fabricated Packages)		25-Oct-23	25-Jun-24
PROCUREMENT		12-Sep-23	16-Jun-25
Procurement (Facility)		12-Sep-23	16-Jun-25
Procurement (Fabricated Packages)		25-Oct-23	02-Jan-25
FABRICATION		26-Feb-24	15-Jul-25
Packaged Equipment & Module Fabrication		26-Feb-24	11-Feb-25
Piperack & Off-Module Spool/Steel Fabrication		24-Jun-24	13-Feb-25
Module/Equipment Staging		25-Jun-25	15-Jul-25
CONSTRUCTION		20-Oct-23	19-Jan-26
Early Works - Gravel Pad Construction		20-Oct-23	01-Dec-24
Early Works - Piling		01-Nov-24	30-Apr-25
Main Construction		25-Jun-25	19-Jan-26
COMMISSIONING & START-UP		19-Jan-26	22-Mar-26



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