



Government  
Energy, Mines and Resources  
Oil and Gas Resources  
Box 2703 K-11  
Whitehorse, Yukon, Y1A 2C6  
Telephone: (867) 667-5087  
Fax: (867) 393-6262

## COO Direction # 1140-002

Date: 2014/07/11

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### TITLE

YEC Whitehorse Diesel-Natural Gas Conversion Project – Non Destructive Examination Exemption

### AUTHORITY

Section 7 of the Gas Processing Plant Regulations ("GPPR")

### USE

Purpose: Whitehorse Diesel-Natural Gas Conversion Project  
Scope: LNG Facility Licence #1140  
Licensee: Yukon Energy Corporation ("YEC"), ID Code 522472

### REQUEST

YEC requests a variation from the requirements of section 15 of the GPPR, such that, for the purposes of conducting non-destructive examination ("NDE") referred to in s. 15(1) of the GPPR, it may be allowed to conduct NDE on the proportion of welds required by Canadian Standards Association ("CSA") Z276 rather than the entire weld volume of all piping welds. In effect, YEC's request would require an exemption from GPPR Sections 15(2) and 15(3) since a risk analysis has not been submitted to the Chief Operations Officer (the "COO"). Pursuant to s. 11(3)(a) of the GPPR, YEC's request is within its application for the Licence dated December 6, 2013.

## **DIRECTION**

In accordance with Sections 7(1)(a) and (c) of the GPPR, and subject to the conditions set out below, the COO hereby directs that, for activities approved under Licence #1140:

- A. YEC is exempt from the requirements of sections 15(2) and 15(3) of the GPPR; and
- B. YEC is granted a variation of section 15(1) of the GPPR such that the proportion of weld volume requiring NDE is to be determined by CSA Z276.

This direction is made subject to the following conditions:

- 1. that, prior to construction authorization, YEC provides to the COO a satisfactory quality assurance and quality control ("QA/QC") plan in compliance with CSA B51, which includes welding procedure specifications ("WPS"), welding procedure qualifications ("WPQ"), and procedure qualification records ("PQR"); and
- 2. that, prior to commissioning and start up, YEC provides to the COO a copy of the results of all inspection reports, piping data reports, material test records ("MTR"), and any other information related to the NDE of the piping as requested by the COO.

## **RATIONALE**

In accordance with Section 7(2)(b) of the GPPR, the COO has determined that application of CSA Z276 is preferable to Sections 15(1), 15(2), and 15(3) provisions for NDE in relation to the licensed facility.



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### BACKGROUND

The requirements of section 15 of the GPPR stipulate mandatory NDE on the entire weld volume of all piping welds regardless of service. Section 15(2) requires a documented risk assessment be approved by the COO prior to any relaxing of the requirement.

NDE is a procedure used to confirm weld integrity without affecting the serviceability of the pipe. Methods available include magnetic particle inspection, dye penetrant inspection, radiography testing and ultrasonic testing. Adopted standards, such as those published by the American Society of Mechanical Engineers ("ASME"), define the acceptable permutations of different NDE methods and the quantities of welds which need to be examined, in order to be in compliance with the standard. This is a risk based determination which is largely dependent upon engineering factors such as the joint type, weld type, materials, and fluid service type.

YEC proposes to design and construct all LNG Facility piping in compliance with CSA Z276. Sections 9.6.3 and 9.6.4 of CSA Z276 specifically require compliance with ASME B31.3 provisions for piping NDE. Notably, the *Boiler and Pressure Vessels Act (Yukon)* adopts CSA B51 for pressurized piping, which also requires adherence to ASME 31.3. Outside of the GPPR scope but connected to the LNG Facility, the *Gas Burning Devices Act* adopts CSA B149.1, the Natural Gas and Propane Code, for non-pressurized gas piping.

In addition to LNG facility piping the GPPR also applies to piping in facilities processing sour (i.e. hydrogen sulfide) or sweet gas. Section 15 of the GPPR regarding NDE provides no distinction between these different applications. CSA Z276 and ASME B31.3 comprehensively and specifically address NDE for piping in LNG facilities. These broadly accepted and adopted standards are better suited for the lower risk LNG piping in YEC's





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facility than those provisions set out in the GPPR, which are intended to include high risk environments without established guidance documents.

In the case of YEC's proposed Whitehorse LNG Facility, piping welds will comply with NDE requirements of ASME B31.3 according to clause 9.6.4 of CSA Z276. The quantity of NDE determined through compliance with CSA Z276, and by extension ASME B31.3, provides assurance of weld integrity through already established practices. A documented risk assessment is not required to determine the proportion of NDE required on piping welds.



Kyle Rolling, P.Eng, Chief Operations Officer

JULY 11 2014

Date