Jean Marie River B-48
Follow-up Inspection

Jean Marie River, NT, August 19, 2015

NWT OFFICE OF THE REGULATOR OF OIL AND GAS OPERATIONS

Introduction

In late May 2014, OROGO learned that members of the Jean Marie River First Nation (JMRFN) wanted to know more about five historic wells on traditional hunting and trapping lands in their region. The five wells were drilled between 1952 and 1970 and were licensed for hydrocarbon exploration. The wells were deemed dry and abandoned following completion.

Inspections

OROGO conducted a field inspection in July 2014, with the assistance of community members. The inspection team found four of the five wells of interest to JMRFN. Three of the wells did not have any issues. The fourth well, Jean Marie River B-48, showed minor amounts of thermogenic gas coming up, through or around the well. Thermogenic gas is hydrocarbon gas found deep under the earth created by high pressure and temperature conditions.

On August 19, 2015, OROGO returned to Jean Marie River (JMR) to conduct a follow-up inspection of the B-48 well. The purpose of the inspection was to confirm the results of the 2014 inspection. Brian Heppelle and Mischa Malakoe with the Office of the Regulator of Oil and Gas Operations (OROGO) and Brent McGarry with the Alberta Energy Regulator (AER) travelled to the B-48 well site by helicopter. The team did a visual inspection of the site, tested for methane in the soil around the marker using a Portable Methane Detector (PMD) and then dug a hole around the marker to approximately 1.2 meters deep to do further testing. The team took three gas samples

from the hole for testing. The samples were sent to a testing facility in Alberta for analysis.

Prior to the sampling, the team met with representatives from the JMRFN to discuss inspection objectives and answer questions relating to possible causes of thermogenic gas migration. The team offered to bring members from the JMRFN on site later in the day, weather permitting, to observe how the testing is done. However, due to changing weather conditions, it was not safe for observers to be on site that day.

Inspection Findings

The inspection:

- Identified no visible changes to the site from the 2014 inspection and confirmed that the vegetation appears healthy.
- Confirmed that the gas coming from JMR B-48 is thermogenic methane.
- Identified that the gas is coming from approximately 517 meters below the surface (the well is 785 meters deep).

Laboratory analysis of the gas samples estimates a low gas flow rate. More field investigation, gas sampling and analysis would be required to accurately determine the gas flow rate and how the gas is getting to the surface.

Conclusions

Based on the results of the 2014 and 2015 inspections, the gas migration at the B-48 well is not a significant safety hazard.

With proper safety information available to community members and monitoring of the site, the well site is of low risk to the public and to the environment.

Next Steps

OROGO will communicate the results of the JMR B-48 well gas sampling with the JMRFN through this report and a presentation to the Chief, Gladys Norwegian. Additional information sessions may be arranged as needed.

The results of OROGO's inspections will be shared with the Department of Environment and Natural Resources, Government of the Northwest Territories (GNWT), which is responsible for this abandoned well. OROGO will ask the GNWT to maintain contact with Chief Norwegian on this file.