



Leah Davies
Subsurface Abandonment Lead
Exploration
587-476-2081
Leah.b.davies@exxonmobil.com

May 3, 2021

Ms. Pauline de Jong
Chief Conservation Officer
Office of the Regulator of Oil and Gas Operations
Government of Northwest Territories
4th Floor Northwest Tower
5201 – 50 Avenue
Yellowknife, NT X1A 3S9

Dear Ms. de Jong,

Re: Request to Continue Monitoring of a Well for Cdn-Sup KMG Jean Marie B-48 (OA-2018-001)

In response to your letter dated March 2, 2021 to Imperial Oil Resources on behalf of ExxonMobil Canada as owner and operator of the subject well, please find attached additional information for your consideration in support of our request for a continuance of the monitoring of the gas migration issue at this site.

The letter that was received directs Imperial to repair the gas migration issue by March 31, 2022. This well was drilled and abandoned in 1969 and since that time the lease and access road have started to grow back into its natural forested environment. To perform remedial well operations on this well site, a 3 km access road will need to be cleared and built down the original cut line and a lease of at least 100 m x 100 m will need to be built. This well was drilled and abandoned with only surface casing being set. Since there is no production casing, a drilling rig will be required to perform the repair operations, and due to the remote location of this site, a camp will also be needed. It is estimated that the road and lease preparation, mobilization of equipment, and repair work of the well will take approximately 60 days to complete, and the surface reclamation thereafter will be many years.

We have been in consultation with Jean Marie River First Nation to review these requirements with them, and they have indicated that they have concerns with the environmental impacts associated with the remedial well operation and access disturbances. They are more supportive of a continued monitoring program.

Currently in some other provinces, research is being conducted among industry and the regulators to try and determine if there is an acceptable threshold release rate for wells that are to be abandoned or are already abandoned and found to have gas migration. This research is looking at all potential receptors that could be impacted and the risk of the impact. From this work, discussions are being had between industry and the regulators regarding the comparison of the GHG emissions from the gas migration versus the remedial well operations. Imperial has completed this comparison for the Jean Marie B-48 well, and found that if this site was releasing 1 m³/day of methane, it would need to emit methane for 80 years at this rate to equal the GHG emissions of the remedial well operations and disturbance. Over the time that we have been monitoring the Jean Marie B-48 well, we have seen a very low level of methane released from the wellbore, and decreasing: 26 litres in 2019 and 19 litres in 2020. During the 2020 site visit, the maximum methane reading at the soil/air interface around the wellbore was 88 ppm, which is 0.0088%. Further, there are no observed impacts to the surrounding vegetation, so while currently there is no quantified rate of methane coming out of the ground, the vegetation health is a good indicator that any rate has been minimal in previous years as well.

Imperial requests approval to continue monitoring this site for an additional five years. To quantify the amount of methane coming out of the ground, flux chambers (or other means of estimating rate) will be installed for ongoing monitoring of the area. This will allow for a baseline rate of methane to be determined, and then for yearly comparison to be made to see if the concentration in the soil is dissipating. This data could then be used to determine if a repair is needed. During the continued monitoring of the wellbore during 2020, the methane that was coming out of the casing stopped. This could suggest that there has been a change to the source formation or pathway to surface.


We believe that an opportunity to continue monitoring the Jean Marie B-48 site would be a logical interim measure instead of an intrusive remedial operation on the well at this time, as it may be possible to avoid significant environmental impacts if the gas migration at the site naturally attenuates. Also, industry experience is that remedial operations do not guarantee that very low rate gas migration will be completely eliminated, and further monitoring and data collection will help to understand and predict that. We respectfully request your approval to proceed with a monitoring program, which would include regular communication and updates to OROGO.

Attached with this letter are:

1. Jean Marie River First Nation Letter of Support
2. GHG Comparison

If you would like any additional information on Imperial's proposed next steps, please contact the undersigned at (587) 476-2081.

Sincerely,

DocuSigned by:


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Leah Davies

Subsurface Abandonment Lead

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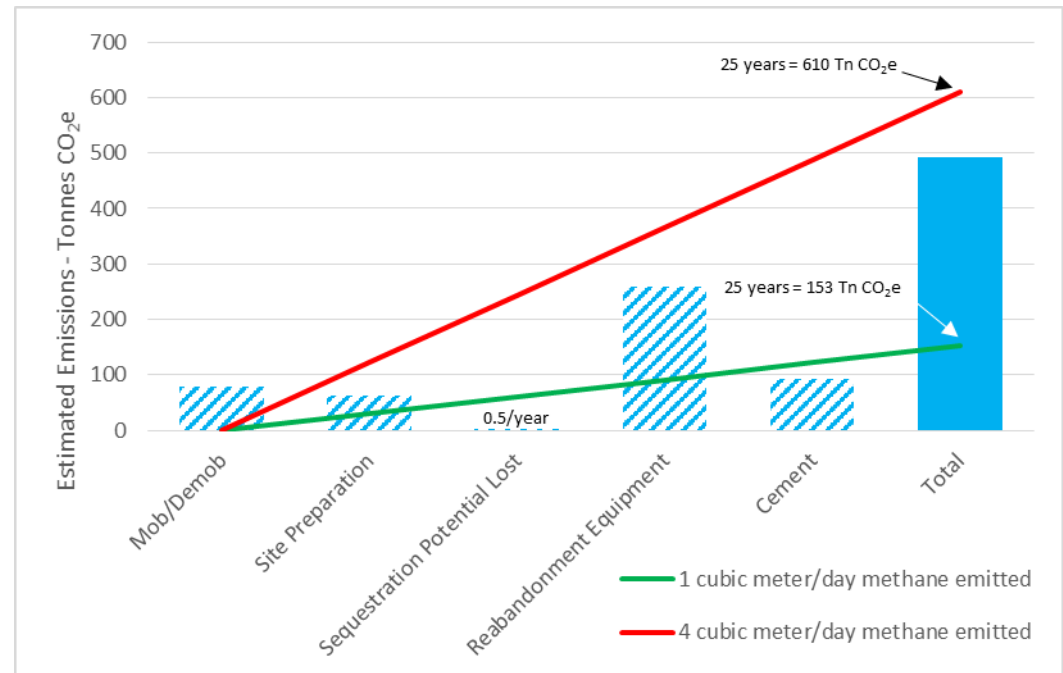
GHG Considerations for Jean Marie B-48 Well Re-Abandonment

- Projected GHG emissions from well re-abandonment activities can often exceed the multi-year cumulative GHG emissions from small surface casing vent flow or gas migration events
- If the gas migration from B-48 is roughly 1 m³/day then emissions would need to occur for more than 80 years to exceed the GHG emissions from re-abandonment

Considerations To-Date:

- Transportation of equipment and temporary lodging
- Access road preparation
- Well site preparation
- Forest activity loss
- Equipment operation
- Cement use

Comparing the estimated GHG emissions of activities to re-abandon the Jean Marie B-48 well versus the cumulative SVCF/GM methane emissions





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April 7, 2021

Ms. Pauline de Jong
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Letter of Support Regarding Jean Marie River B-48 Well

Dear Ms. de Jong,

Jean Marie River First Nation met with Imperial Oil Resources Limited on March 30, 2021 regarding OROGO's direction to IOL to re-abandon Jean Marie River B-48 Well (OA-2018-001-IOL). As a result of this discussion, JMRFN is supportive of IOL continuing to perform site visits to monitor the well instead of completing the re-abandonment due to concerns over environmental disturbance.

Sincerely,

Chief Stanley Sanguéz
Jean Marie River First Nation