

Costing Scenario: Paramount Resources Ltd. – Fort Laird East and West Sites - MV2013A0012/MV2013L1-0002 and MV2013A0013/MV2013L1-0003

Paramount Resources Ltd. (Paramount) submitted two (2) security re-assessments for the Land Use Permits (Permits) MV2013A0012 and MV2013A0013, and Type B Water Licences (Licences) MV2013L1-0002 and MV2013L1-0003 to the MVLWB as requested on January 17, 2019 for the Fort Laird East and West sites. In the MVLWB's January 17, 2019 letter, Paramount was informed that the MVLWB could not proceed with the regulatory process based on the information provided as there was no evidence/supporting information provided in the previous submittal on a security amount for both sites. Paramount was then directed to submit a RECLAIM Model V.7.0 (Oil and Gas Version) estimate and encourage the company to work with GNWT prior to submission. ENR notes that Paramount has not contacted GNWT prior to their submittal of a RECLAIM estimate on February 28, 2019.

In Paramount's RECLAIM estimates submitted, there was no supporting information or evidence to support the costs or calculations in the model. ENR also notes that the original applications to the MVLWB had insufficient information on the planned activities and scope of reclamation that would inform an accurate RECLAIM estimate.

ENR has retained the services of ARKTIS Solutions Inc. (ARKTIS) to review Paramount's estimate and develop a GNWT estimate to cover the costs to close and reclaim the site to cover governmental liability. The GNWT has adopted the INAC (2002) Mine Site Reclamation Policy for the Northwest Territories (INAC [2002] Reclamation Policy) when evaluating closure and reclamation plan and estimating the corresponding security deposit (including for oil and gas developments). The GNWT also utilizes the 2013 MVLWB/INAC Closure Guidelines when preparing its submissions to the Boards in relation to industrial projects.

The MVLWB' authority to require proponents to post and maintain security is granted under the *Mackenzie Valley Resource Management Act* (MVRMA, federal legislation) and the *Waters Act* (territorial legislation); this authority encompasses both federal and non-federal areas across the Mackenzie Valley. Subsection 11(1) of the Waters Regulations, subsection 12(1) of the Mackenzie Valley Federal Areas Water Regulations, and subsection 32(1) of the Mackenzie Valley Land Use Regulations authorize the Boards to determine the total amount of security to be posted:

The Board may fix the amount of security required to be furnished by an applicant in an amount not exceeding the aggregate costs of (b) abandonment of the undertaking; (c) restoration of the site of the undertaking; and (d) any ongoing measures that may be necessary after the abandonment of the undertaking.

ENR and ARKTIS have reviewed the Water Licence applications and Land Use Permit applications and has assessed the scope of work by Paramount. Due to the lack of information provided by Paramount in the applications and estimates. ENR has presumed the following (additional assumption details are presented in the RECLAIM output sheets):

- Remediation work for these estimates pertains only to the proposed work associated with the 2018 water licence and land use permit applications.
- The remediation project would be run for one year, see the RECLAIM estimate for further assumptions regarding the execution time to complete specific reclamation activities.
- GNWT would have to abandon and remediate well sites K-29, O-80, M-25, F-25, F-25A, N-65, O-15, C-76, F-66, J-76, B-41, and C-02 in addition to the associated facilities (e.g., batteries, dehydration facilities). The estimate assumed for each wellsite: one well, one dehydration facility, and one battery.
- No allowance has been included for the possibility that vent flow and gas migration is encountered; however if this exists it would need to be included.
- No domestic waste (i.e. sewage) will be left on site.
- Post-closure site assessment monitoring has been included for four events completed once annually post-reclamation.
- Remediation Work crew consist has been estimated for each component to be reclaimed. The estimate includes a breakdown of the labour and equipment assumptions that drive the duration of reclamation and accommodation costs.
- Workers mobilize and demobilize each day by road and are housed at local communities.
- Assumed 10 hour shifts.
- Interim Care and Maintenance assumed to be a monthly one-day site visit for a year.
- While the standard indirect cost percentages are fixed, Engineering and Project management have been assigned 3% due to lack of engineered structures as part of the project.
- The 44 KM of pipeline associated with the site will not be required to be removed as part of MVLWB authorizations and will be assumed to be covered by other jurisdictions (e.g., NEB).
- All access roads and bridges between the sites (i.e., West and East sites) would not be reclaimed as part of the scope of work, unless this is the wish of local communities or IGOs.

The Proponent's estimate did not include various elements that are identified as being within the scope of the Land Use Permit. As such, this estimate has made various assumptions to account for the missing elements. The following represent the elements included in this estimate. Should additional information from the Proponent be available, the assumptions applied in this estimate should be refined and corrected, these include:

- Well characteristics such as well installation depth, number of completion zones, and if there are vent flow / gas migration controls.
- Quantity and size of the gas dehydration and battery facilities.
- Size and construction material type for the communication tower and camps.
- Costs associated with disposal (e.g., landfilling) of building / infrastructure materials removed from site.
- Additional details regarding closure of the sumps and if a cover/cap is a planned activity.
- Condition of the borrow sources and if these size require final scarification or other closure efforts.
- Detailed breakdown of the time required to execute the reclamation program.

The Proponent proposed to treat hydrocarbon contaminated soils at site. The method of treatment was not presented and uncertain if this is a viable closure approach. This estimate assumes the contaminated soil is removed for disposal in a licensed facility. Further details regarding soil treatment could be provided to revise the management approach used in the cost estimate.