



Erosion and Sedimentation Control Plan

L-38 Well Decommissioning

Kotaneelee Region, Yukon

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1 INTRODUCTION

This Erosion and Sediment Control (ESC) Plan provides guidance on erosion mitigations for the various planned activities involved with the abandonment of L-38 gas well at the Kotaneelee Field (the Project).

During Project activities, to minimize the risk of water and wind erosion and downstream sedimentation of adjacent watercourses and other environmentally sensitive areas, ESC measures should be put into place where practicable. ESC objectives are as follows:

- Minimize the disturbance of existing vegetation in areas adjacent to the already disturbed areas. Maintain vegetated buffer zones wherever possible and especially adjacent to environmentally sensitive areas (e.g., watercourses).
- Minimize soil loss from all sites due to surface water runoff or wind transport (including soil stockpiles) by using appropriate revegetation measures and soil management practices.
- Meet regulatory requirements for environmental protection outlined in the *Fisheries Act* (federal), *Yukon Environment Act*, *Yukon Waters Act*, Northwest Territories (NWT) *Waters Act*, and the *Mackenzie Valley Land Use Regulations*.

2 PROJECT DESCRIPTION

The project is to abandon an orphaned gas well (L-38) in the Kotaneelee region of Yukon. When the project is complete the well and wellsite will be compliant with territorial legislation.

Access to the site and movement of equipment is intended to take place by river barge from Fort Liard, NWT. The barge landing in NWT shall be repaired. It is the intention of the project to minimize the number of barge trips required to move equipment and personnel from Fort Liard to the site for each aspect of the project.

The project is expected to take place in 7 phases:

1. Preparing the barge landing.
2. Mobilizing service equipment to site.
3. Performing well workover work.
4. Removing workover equipment from the wellsite.
5. Mobilizing equipment for site decommissioning and reclamation.
6. Performing decommissioning and reclamation work.
7. Removing decommissioning equipment.

3 EROSION AND SEDIMENT CONTROL MEASURES

The *Erosion and Sediment Control Manual* (Government of Northwest Territories, 2013) and the *Preferred practices for works affecting Yukon waters* (Government of Yukon, 2019) act as the primary references for sediment and erosion control approaches for the Project.

3.1 BEST MANAGEMENT PRACTICES

The following general BMPs apply to all site areas:

- Observe environmental timing restrictions.
- Maximize work during favourable weather. During heavy rain events, monitor road conditions and limit vehicle traffic if necessary.
- Protect permafrost where applicable.
- Restrict vehicular traffic to pre-determined route(s) and do not allow short-cutting.
- Ensure that all imported rock materials (e.g., riprap, gravel) are clean and free of silt, clay, flaky particles, organic matter, and other deleterious substances.
- Ensure that vehicles and equipment operating near watercourses are free of debris, grease, oil, mud, or leaks before entering work site.
- Conduct all vehicle and equipment maintenance (e.g., cleaning, fuelling, and servicing) on level ground that does not drain to the watercourse.
- Monitor locations where risk of slope failure or creep exists (e.g., at Liard River landing).
- Minimize exposed soils. Cover and stabilize disturbed areas as soon as possible using appropriate products and methods (e.g. geotextiles, seeding, live plant staking, etc.)
- Stabilize stockpiles, if required, by covering piles with a tarp or liner.
- Use water truck(s) onsite to help keep down dust on fill areas, haul roads, stockpiles, and other areas with loose soil, especially during dry, windy conditions.
- Divert runoff around erosion-prone areas using durable ditches, roads and drainage structures.
- Identify vegetated natural depressions that can be used to direct runoff into for natural treatment and filtration.
- Reduce the quantity and velocity of runoff water through the use of low sloped channels and minimizing drainage areas.
- Maintain vegetation buffers, especially near water.
- Roughen surfaces.
- During Project activities, routinely monitor ESC measures.
- All disturbed areas will ultimately be revegetated under the direction of a future reclamation plan. Future reclamation measures may include seeding, plantings, live staking or likely a combination of measures.

3.2 SITE-SPECIFIC MEASURES

3.2.1 Kotaneelee Barge Landing

At the Kotaneelee Barge Landing, the following ESC measures should be followed during operational periods where practicable:

- To reduce water erosion potential during and after repair work, leave landing and all bare upslope areas in a roughened state; do not smooth out surfaces.
- Before installing rig mats, contour and prepare the ramp (i.e., remove large ruts), and provide a granular (gravel) cover. To maintain such erosion protection, rework and add new gravel to the ramp in subsequent seasons as required.
- Before operation of barge landing, install rig mats to allow for suitable access and reduce erosion potential. Remove rig mats at the end of the Project.
- Based on natural seasonal changes, repair eroded side slopes along landing approach by recontouring side slopes to minimize future sloughing. Proposed side slope of 2H:1V will be targeted.
- Once side slopes have been recontoured, cover with a biodegradable coconut erosion control blanket (North American Green C125BN or equivalent). Ensure the top and side edges are trenched in and enough staples are used.
- Due to proximity of the watercourse, inspect ESC measures on a regular basis during the Project. When damaged, repair or replace measures in a timely manner.

3.2.2 Road Maintenance

During road maintenance, use the following ESC measures:

- When conducting road maintenance, stay within road right-of-way and avoid disturbing adjacent roadside ditches and vegetation.
- When re-blading roads, ensure drainage to road-side ditches is maintained.

3.2.3 Camp and Parking Area

In the camp area, use the following ESC measures during removal and replacement activities and during camp operations where practicable:

- Maintain vegetated areas around camp and do not disturb with vehicles or equipment. If buffers are maintained and undisturbed, no further perimeter protection will be necessary.
- If surrounding vegetated areas are disturbed, install protection (e.g., silt fence, straw wattles) downslope of disturbed areas to reduce sedimentation into adjacent areas.
- Maintain the current parking area that is hard packed with gravel.
- Ensure that all personnel use designated parking areas by using signage and providing orientation to minimize disturbance of surrounding vegetation.
- If additional ESC measures are installed, conduct regular inspections and address deficiencies in a timely manner.

In order to adequately respond to erosion or sedimentation control needs, all prevention and control materials will be on site, in additional quantities for unforeseen needs, and ready to be deployed before construction begins. Equipment necessary to deploy prevention and control materials will also be available on site until there is no longer a need for them.

4 INSPECTION AND MONITORING

Monitoring of surface structures and of the receiving environment for evidence of erosion and sediment accumulation should be conducted on a weekly basis and after heavy rain events. Erosion can be visually observed by searching for light surface material (litter or soil) movement, while sedimentation resulting from erosion can be found by searching for deposition of soil particles at the bottom of slopes and depressions. Rilling, gullying, and sloughing are also indicators of erosion problems.

Ditches should be examined during heavy runoff to ensure that roads and other permanent structures (i.e., road culverts) are not being compromised and sediment loads are not becoming excessive.

Inspections of ESC measures should be documented with photographs. ESC deficiencies should be documented (photographs) before and after repairs to demonstrate due diligence that the deficiency was addressed in a timely manner.

5 REFERENCES

Government of Canada. 1998. *Mackenzie Valley Land Use Regulations (SOR/98-429)*, last amended on 2017-06-20.

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