


STANDARD OPERATING PROCEDURE

Marine Vessel Operations on Tailings Ponds		Document Number: 961C-SOP-001
Original Approval Date: Dec 17, 2014	Revision Number: 3	Page 1 of 7
Latest Revision Date: Mar 4, 2024	Next Revision Date: Mar 4, 2027	Document Approval Level: 4

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MARINE VESSEL OPERATIONS ON TAILINGS PONDS

						
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The following is a step by step procedure on how to complete a specific task or meet a facility specific requirement. Standard Operating Procedures (SOPs) are written for all identified critical tasks. By virtue of the hazard or complexity associated with critical tasks it is paramount that the SOP be followed as written. SOPs contain a listing of high-level hazards associated with the task, for detailed hazard analysis reference the applicable Task Hazard Assessments. SOPs do not replace the requirements contained in the company Standards, Codes, and Processes nor does it replace the need to comply with required legislation. Section 8.0 references documentation that the worker shall understand before work commences.

1.0 PURPOSE

- To establish a company standard to safely and effectively carry out work as it applies to the operations of company marine vessels operating on tailings ponds inclusive of safe start up, shutdown, anchoring, fueling and maintenance.

2.0 SCOPE AND APPLICATION

- This document applies to all company Heavy Construction Mining operations. Ensure all site-specific requirements are being met or exceeded before performing the task.

3.0 HAZARDS AND CONTROLS

- Contacting other objects in water or on shore resulting in equipment damage.
 - Only competent, trained and qualified personnel will operate marine vessels. Transport Canada guidelines for vessel operators must be followed based on the size and classification of the vessel. Vessel operators must hold a valid operator's certificate for the class of vessel in which they are operating.
 - Radio communication with other vessels in area. Check all radios and have chargers on hand.
 - Operate vessels according to pond conditions, be aware of changing weather conditions, high winds and changing temperatures.
 - Watch for floating debris, hidden underwater hazards, proceed slowly through bitumen and muskeg mats.
 - When ice is encountered on pond, use appropriate vessel (i.e. tugboat) to get on top of ice. Use the weight of the vessel to break the ice and use the prop to wash it away.
 - Approach landings or docks at slow speed. Use spotters. Ensure contact is made with protected areas of vessel and dock/landing.
 - The vessel operator or person in charge of the vessel must not leave the controls of the vessel. Vessel operators must have a deckhand or a second person to assist with the on deck operations and crew support.
 - Ensure vessel is secured to appropriate cleats or engineered anchor points, if this is not possible, vessel engines must be engaged forcing the vessel against the docking asset.
- Vessel capsizing in water.
 - All loads must be secured prior to movement.
 - Vessels must be operated safely by competent, trained and qualified personnel. Vessel operators must hold a valid operator's certificate for the class of vessel in which they are operating.

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- All captains must be familiar with the trim and stability booklet and operate within the parameters.
- Operate vessels according to pond conditions, be aware of changing weather conditions, high winds and changing temperatures.
- When work is to be performed on or from the vessel, it is mandatory for a minimum of two occupants. One person must always maintain care and custody of the vessel.
- Malfunctioning or damaged marine vessel.
 - Prior to using vessel, complete pre-use equipment inspection as per equipment manufacturer's requirements and Transport Canada guidelines.
 - Note any deficiencies in logbook and inform supervisor. Do not operate vessel until proper controls are put in place to correct deficiencies.
 - All vessels must be certified and inspected as per Transport Canada requirements as laid out in the Small Vessel Compliance Program.
- Workers falling into water resulting in a drowning hazard.
 - When conducting work on a barge or vessel where there is an exposure to a drowning hazard as a result of a fall, fall protection controls must be used. These include but are not limited to handrails, guardrails, work positioning systems, fall arrest systems or safety nets.
 - Workers must wear a personal floatation device where adequate fall protection is not available.
 - All operators to have proper qualifications to operate vessel or work as deckhand.
 - All marine vessels must have the appropriate amount of buoyant heaving lines and life rings available as deemed necessary by a risk assessment.
 - Workers must wear proper PPE at all times and work in pairs.
 - Ensure a second boat is close by for rescue operation, good clear communication with all people working on task, ask for clarification if not sure what your task is, stay out of line of fire, watch for getting caught in rope or cable bites
- Poor deck conditions resulting in slip, trip and fall hazards.
 - Keep decks clear of hazards, clear snow and ice and use salt as needed. Ensure boots are in good condition and that tripping hazards such as tools and objects are put away.
 - Where possible, use a gangway when disembarking/embarking vessels. Workers to use 3 point contact at all times
- Line of fire and entanglement hazards when working with winch cables and rope.
 - Use the proper tools for the job.
 - Stay clear of winch cables and be observant of rope. Do not become tangled in rope and ensure proper housekeeping by rolling up rope when not in use.
 - Always face the task.

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- Hand injuries from handling wire cable or when using cutting tools.
 - Inspect all cables prior to handling. Remove for service and replace any damaged winch cables. Wear proper cable handling gloves, such as double palmed or cut and puncture resistant gloves.
 - Follow 960C-SOP-507 Safe use of Knives when working with cutting tools.
- Adverse weather conditions causing lack of visibility, lightning or choppy water conditions.
 - Confirm weather forecast for the duration of the shift before vessel departure. Under no circumstances can any vessel be in operations during a lightning storm or when a lightning warning is issued for the area.
 - Operate at a slow speed and maintain control of the vessel during windy and choppy conditions.
 - Ensure all navigation and clearance lights are functioning.
 - Workers must wear proper PPE and dress for changing weather conditions.
 - The captain is responsible to make the decision to stop work based on weather conditions and the nature of the work.
- Uncontrolled movement of vessel or engine during maintenance and fueling activities.
 - Follow 950C-C-028 Hazardous Energy Isolation Code. Ensure engine is adequately isolated from starting prior to working on it.
- Vessels capsizing in water due to instability when using a lifting device.
 - All vessels that are equipped for lifting must have a proven stability plan and stability booklet accompanying the lifting equipment regardless of the total lifting capacity.
 - Only vessels with the appropriate rating and lifting capacity can be used for conducting lifts.
 - Follow 950C-C-008 Cranes, Hoists and Rigging Code.
 - All loads being lifted prior to leaving the dock or shore must be secured.
 - A lift plan and hazard assessment must be completed prior to any and all lifts. Critical lifts may require specialized permits or engineering approval prior to the lift. Refer to 950C-C-008 Cranes, Hoists and Rigging Code as well as client or area authority standards. All lifts greater than 75% load capacity require a lift calculation.
 - Lifting devices must be inspected and certified annually.
 - Only competent and trained personnel can use lifting devices.

4.0 CHECKLIST

- Attend all preparatory meetings (IE: daily PSI; job scope; review of JSA's and SOP's for the job).
- Complete FLRA cards before starting the work.
- Ensure all personnel involved in the task are aware of the hazards and the controls to be used, as identified in the SOP's; JSA's; and FLRA's.
- Conduct a pre-job inspection of all equipment to be worked on and tools to be used.
- Standard of Training required for working on this job: On-the job training.**

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5.0 DEFINITIONS

5.1 Company

Means North American Construction Group Ltd. (NACG) and all directly or indirectly owned subsidiary companies, including joint ventures.

5.2 Company Personnel

Includes the Company's employees, officers, directors, agents, associates, consultants/contractors, temporary employees and third party processors.

5.3 Gangway

A raised platform or walkway, equipped with adequate handrails to prevent falls into the water and provide a safe passage between on water assets.

5.4 HSE

Refers to the Health, Safety & Environment department.

5.5 Worker Overboard (WOB)

An exclamation given aboard a vessel to indicate that the member of the crew or a passenger has fallen off the vessel into the water and needs immediate rescue.

6.0 PROCEDURE

6.1 General Procedure for Startup of all Marine Vessels

- 1) Always conduct a thorough walk around the vessel on shore and on deck, observe area for any visible hazards. Inform supervisor of any hazards.
- 2) Conduct prestart up checks on all mechanical and safety equipment. Fill out equipment logbook with findings. Inform supervisor of any unsafe conditions or repairs that may be required. Keep equipment down until unsafe conditions are repaired or proper controls are put in place for safe operation of the equipment
- 3) Turn on master switch.
- 4) Turn on engine and let run until it has reached its optimal running temperature.
- 5) Turn on the navigation lights and any scene lights needed for visibility.
- 6) Check steering function.
- 7) Engage throttle forward and reverse to check function prior to untying from the dock or shore.
- 8) Prepare for release of equipment from ropes and shorelines.
- 9) Have deckhand remove ropes from shore securement once all checks are done and machine is safe to operate.
- 10) Tie up and secure rope from the deck so it is not a tripping or entanglement hazard.
- 11) Indicate to captain, verbally or by hand signal when all lines are removed from the dock/shore and secured on deck.

6.2 General Procedure for Piloting and Steering

- 1) Visually inspect path of travel to work area. Note any floating hazards, other vessels in path, weather conditions and anything else that may possess a potential hazard. Be aware of underwater hazards

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- 2) Sound horn to warn deckhands that vessel is leaving shore. No personnel to be standing on skiffs. All personnel on Gator, Thrustmaster and A Frame must be and remain at the ready in a stable position and avoid the open end of the vessel while it is moving.
- 3) Reverse/advance slowly from the docking area/shore.
- 4) Make adjustments for wind and current conditions.
- 5) Engage throttle forward to proceed towards work area.

6.3 General Procedure for Refueling

- 1) Move the boat to the designated fueling area.
- 2) Secure the vessel to the shore or docking area.
- 3) Shutdown all equipment and electrical functions. Ensure no ignition sources are present; secure all hatches and have all non-essential personnel exit the vessel and move to safe location.
- 4) Apply personal lock and effectively isolate hazardous energy.
- 5) Remove fueling caps and begin the transfer process, secure fueling caps once finished.
- 6) Ensure no spills or leaks have occurred.

6.4 General Procedure for Maintenance

- 1) Maintenance procedures for specific duties are outlined in the maintenance SOPs.
- 2) All maintenance should be conducted when the boat is secured to shore, when possible.
- 3) Ensure any confined space entry precautions are addressed prior to starting work.
- 4) Holds are considered confined spaces and must only be entered after following 950C-C-029 Hazardous Space Entry Code, legislation and client permitting.

6.5 General Procedure Equipment Shutdown

- 1) Move vessel to the designated docking / shore location.
- 2) Secure line to shore anchor on at least two sides of vessel.
- 3) Shutdown engines and all electrical power. Shutdown master switch.
- 4) Complete a post use inspection. Ensure all tools put away and no visible hazards are present.
- 5) Take all material, waste, garbage from vessel for proper disposal.

6.6 General Procedure for Hooking up and Unhooking A Frame to Thrustmaster or Gator

- 1) A Frame must be secured to shore or to anchor in pond. Clear access to stern of A Frame is required for Thrustmaster or Gator.
- 2) Approach A Frame square on with vessel when possible, maintain slow speed, have deckhand guide vessel towards stern of A Frame, stop vessel less than one foot away from A Frame.
- 3) Vessel deckhand or Captain will winch out cable from each winch and pass onto A Frame deckhand to attach on to hook up points. Once both cables are hooked up, slowly tighten winches so Vessel and A Frame are tight and square.
- 4) Deckhand to give captain the 'All Clear' once A Frame is hooked up.
- 5) Follow 6.2 General Procedure for Driving and Steering to get to work area.
- 6) Follow steps 6.6 (1) – (4) for unhooking of A Frame.
- 7) Secure A Frame where it will be docked. Hook up ropes to shore or pond anchor.

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- 8) Release tension on Vessel winches, unhook winch cables from A Frame hook up points, tighten cable back onto vessel winches.
- 9) Have vessel pull away slowly from back off A Frame and follow 6.2 General Procedure for Driving and Steering.

7.0 NOTES

If this task is to be done by a method different than described in this SOP, the work must **STOP** and the alternate method must be **DOCUMENTED** with an adequate hazard assessment tool such as a JSA. The document must be **APPROVED** by a supervisor before such procedures are implemented.

8.0 REFERENCES

- Alberta Occupational Health and Safety Act, Regulation and Code
- 950C-C-029 Hazardous Space Entry Code
- 950C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-507 Safe use of Knives
- Suncor Procedure TCS00170 Working on and Around Water and Ice

9.0 APPENDICES

- No appendices.