FLUID TRANSFER TO SYSTEMS ON EQUIPMENT, RESERVOIRS, & STORAGE TANKS

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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 carry out work safely and effectively as it applies to fluid transfer to systems on equipment, reservoirs and storage tanks.

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

- Explosion or flammable hazards while working with fuel.
    - Eliminate all ignition sources such as cigarettes, welding, cutting, cell phones, and other non-intrinsically safe devices.
    - No smoking within a minimum of 15 meters of equipment and fuel storage areas. Observe and follow area-specific rules if greater than 15 meters.
    - Use bonding cable/grounding strap or ensure the fuel hose has a device built-in to prevent static charge.

- Splashing fuel on the body.
    - Always wear proper PPE while fueling which includes FR coveralls in addition to standard PPE.
    - Inspect hoses for leaks.
    - Never leave the nozzle with the 90° spout unattended while transferring fuel. Continually monitor while transferring fluids.
    - Ensure internal balls are properly seated in Wiggins fittings before disconnecting. After unlocking the nozzle, control it when coming off the fitting. If the ball in the receiver fitting has not seated, the fuel will flow around the fitting. The nozzle can be pushed back on to stop the flow.

- Fuel leaking or spilling causing environmental contamination.
    - Use drip trays at all connections.
    - Do not leave the nozzle unattended when connected.
    - Turn off the pump when it is not needed.
    - Store the hose & nozzle properly
    - Confirm spill kits are in the area and readily available.

- In the event of a fuel spill, shut off the nozzle and pump. Contain the spill using a spill kit and/or absorbing pads that are found in the service truck or at the fuel island. The spill must be reported to a supervisor immediately.

- Injury when moving fuel hose.
  - Walk forward when moving or carrying a hose. Walking backward puts a great deal of stress on the knees and stepping on uneven ground may strain the knee while under load or cause an ankle injury.
  - Pull the hose off the reel onto the ground. Do not try pulling it off the reel while walking.

- Tripping or slipping on uneven and slippery ground.
  - Ensure there is adequate light for the area.
  - Avoid stepping in ruts or on lumps.
  - Use traction aids in slippery conditions.
  - Do not pull hoses from reels while walking, unwind the hose first then carry it to the work area.

- Slipping and falling while mounting and dismounting equipment or when working on equipment.
  - Follow 4x3 contact rules. Always face the machine when dismounting and mounting.
  - Do not wear traction aids when walking on equipment.
  - Keep hands free of tools & equipment.

- Uncontrolled movement of equipment while being serviced.
  - Follow 962C-SOP-037 Securing Disabled or Parked Equipment in an Operating Environment.
  - Park equipment on flat, level ground. Ground all implements if equipped.
  - Follow 950C-C-028 Hazardous Energy Isolation Code for lockout/tag out.
  - Wheel chocks must be placed on all rubber-tired equipment. This includes service trucks.
  - Operator must be out of the cab and on the ground before approaching equipment and while servicing the equipment.
  - Isolate all forms of hazardous energy before transferring fluids. Including, but not limited to, lockout/tagout, wheel chocks and grounding implements.

- Damaging equipment.
  - Servicing of equipment must be done in accordance with manufacturer's recommendations for the type of equipment and brand (Komatsu, Caterpillar, etc.).

- Hot hydraulic oil blowing out from pressurized tank.
  - Relieve the pressure before removing the cap by turning the cap slowly, feeling for pressure or listening for air escaping.

- Overhead hazards.
    - Confirm the equipment's rails, canopy's and boxes are cleaned of mud buildup before service is performed. Do not service if there is a risk of materials falling.

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.**

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 HSE

Refers to the Health, Safety & Environment department

6.0 PROCEDURE

6.1 General Procedure

1) Complete a hazard assessment (i.e. FLRA) for task. Follow up with supervision if unsure of task or if there are hazards outside of the worker's control.
2) Inspect all tools and equipment prior to use. Remove from service and tagout any damaged or defective tools or equipment. Notify supervision.
3) Follow equipment safe approach standard and approach equipment.
4) Isolate hazardous energy. Lock out equipment to be lubed as per the requirements for that particular piece of equipment. Ensure implements are grounded and wheel chocks are in place.
5) Unspool the amount of hose required and trail the hose to the equipment.
6) Install drip trays or absorbent pads at fluid transfer points if there is a risk of environmental contamination.
7) Relieve pressure in tank by slowly removing the cap.
8) Complete fluid transfer. Do not leave hose unattended. Do not overfill. Always check site glasses to confirm correct amount has been added.
9) After filling:
    a. Spool the hose back well out of the path of the equipment.
    b. Hang the nozzle and make certain it will not fall to the ground.
    c. Place a drip tray under the nozzle.

10) Remove lock and return equipment to service.

6.2 Transferring lubes, fluids, and coolants using a quick-connect system

1) Connect the quick connect nozzle to the receiver on the equipment, or service truck.
2) Quick connect nozzle:
    a. Place spill trays at all hose connections and potential spill points.
    b. Verify that the quick connect nozzle is positively mated to the receiver prior to opening the nozzle.
    c. When lubing is complete, close the nozzle and remove from the receiver and replace the receiver's cover. Note: When disconnecting the quick connect nozzle, disconnect the nozzle slowly, to ensure the ball is properly seated in the receiver on the equipment. If the ball does not seat properly in the receiver, oil will discharge when the nozzle is removed.

6.3 Lubing other equipment such as dozers, graders, scrapers

1) Check the lube and hydraulic levels as well as the coolant.
2) Graders – check the transmission while engine is on, and then shut down for lubing.

6.4 Lubing without a quick-connect system

1) Remove the quick-connect nozzle(s) and replace with dripless nozzle(s).
2) Make sure any system that you will open (i.e.: hydraulic tank) has been de-pressurized.
3) Remove the fill cap and place the nozzle in the tank. Watch the tank level through the filler or the site glass and do not over-fill.
4) Shut off the nozzle, remove the hose and replace the cap.

6.5 Removing the cap from a pressurized hydraulic tank

1) The system must be shut down.
2) Use the pressure relief valve to relieve the pressure before removing the cap. The cap may be secured by an Allen screw.
3) When removing the cap, listen for air escaping and feel through your hand whether the cap is under pressure.
4) Slowly remove the cap.

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 2021 - {Part 15, Sections 212(1), 212(2), 213, 214, 215, Managing the Control of Hazardous Energy}

- Alberta Occupational Health and Safety Act, Regulation and Code 2021 - {Part 19 Powered Mobile Equipment, Section 279 Refueling}
- 960C-SOP-006 Ladder Use
- 960C-SOP-019 Slip Trip and Fall Hazard Prevention
- 950C-SOP-020 Flammables and Combustibles Storage and Handling Code
- 960C-SOP-200 Fueling of Diesel or Gasoline Powered Equipment
- 960C-SOP-504 Hand Tools, Use of
- 962C-SOP-037 Securing Disabled or Parked Equipment in an Operating Environment
- 962C-SOP-042 Approaching Equipment
- 950C-C-028 Hazardous Energy Isolation Code
- Manufacturer's (i.e.: CAT) Service Manual

9.0 APPENDICES

No appendices.