Yukon
Energy, Mines and Resources

MOUNT NANSEN SITE

OPERATIONS AND MAINTENANCE MANUAL

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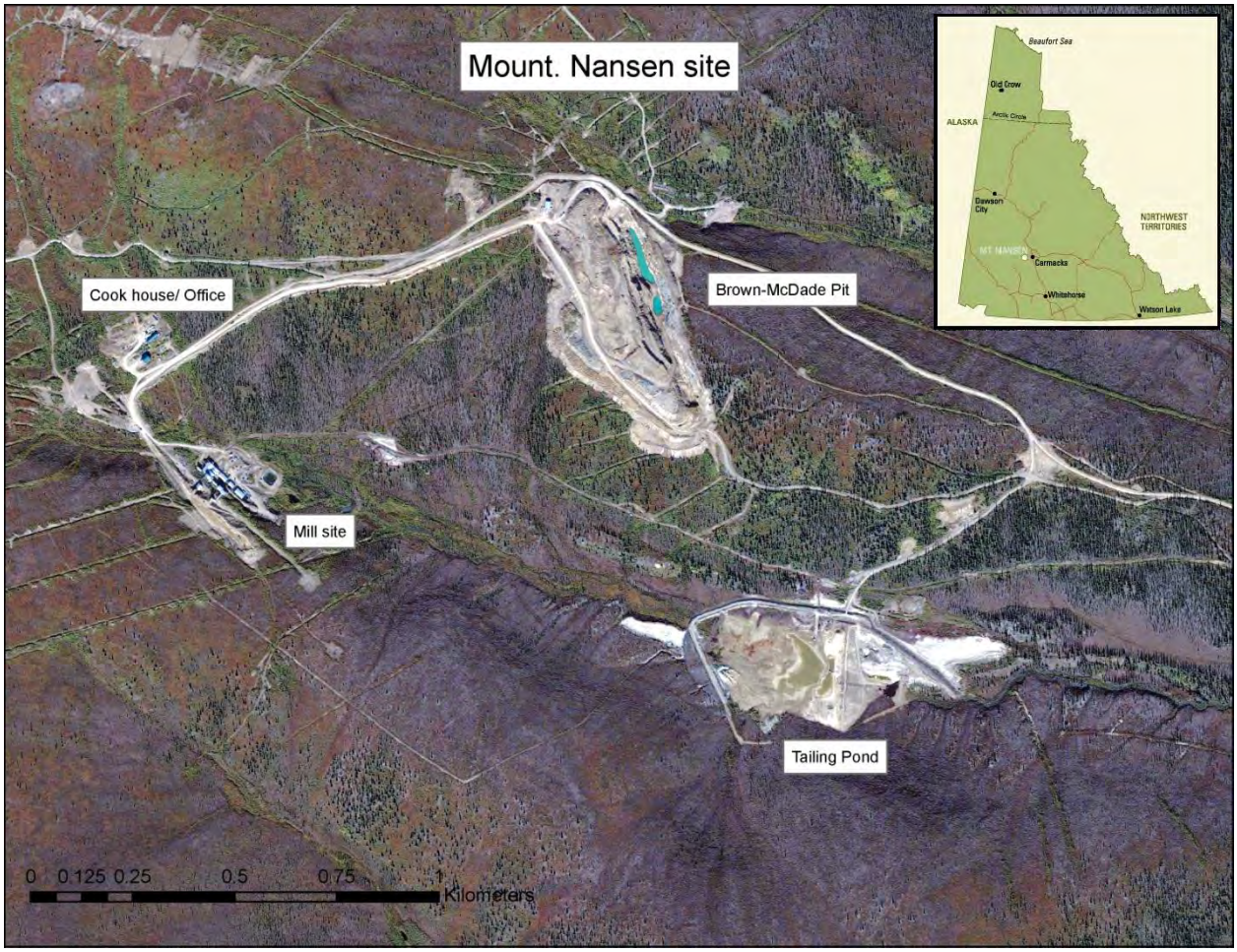
1 INTRODUCTION

1.1 Background and Site

The Mount Nansen Site is a former gold and silver mine located 60km west of Carmacks in the Traditional Territory of the Little Salmon Carmacks First Nation. The mine was closed down in 1999 and is currently under the care and control of Yukon Government.

The site can be described in five main areas.

a) The Brown/McDade pit,
b) The tailings and seepage ponds,
c) The mill complex/workshop,
d) The Kitchen and Bunkhouse, and the
e) Victoria Creek wellhouse.



1.2 PURPOSE & LIMITATIONS

Until a closure plan for the Mount Nansen site is implemented, the site will require ongoing maintenance. The purpose of this operating manual is to provide guidance for the care and maintenance of the site, and is intended to be used in conjunction with other site-specific plan documents; specifically:

- The Mount Nansen Site Health and Safety Plan, which details the policies and procedures in place for management of health and safety hazards and protection of the health and safety of all personnel on site;
- The Mount Nansen Site Emergency Response Plan, which provides emergency preparedness and response strategies for the site;
- The Mount Nansen Site Environmental Management Plan, which outlines the environmental regulations and best practices applicable to operations at the site to ensure environmental compliance and protection; and
- The Mount Nansen Spill Response and Contingency Plan.

The Site Operator is responsible for fulfilling obligations defined in the Site Operations contract. This manual highlights the main priorities of site operations and provides some background and detail in conducting Site Operations.

Main functions of Site Operation are:

1. To maintain structures, buildings, roadways, and equipment, including electrical generation and distribution systems;
2. To provide security and caretaking services at the Mount Nansen Site on a 24 hour per day, 365 day per year basis;
3. To manage and control emergency and unexpected events related to site operations and environmental care throughout the period of the contract;
4. To ensure adequate supplies are on site to conduct operations, maintenance, repairs, inspections and monitoring;
5. To provide and maintain site communications equipment and protocols.
6. To provide administrative services in the performance of the contract;
7. To support the transition between the Care and Maintenance phase and the Remediation phase.

The intent of this manual is to identify major tasks required to keep the site safe and functional and, to the extent reasonably possible, provide complete and comprehensive operations and maintenance information for the site.

2 TASKS

2.1 Site Security

The Mount Nansen site is closed to the public. Only personnel authorized by Assessment and Abandoned Mines (AAM) branch of the Yukon Government (YG) should be on-site. The Site Operator is charged with keeping the site and associated facilities secure. The site is to be monitored and all personnel tracked and recorded.

To comply with the above, the Site Operator must know:

1. Who is authorized by AAM to be on-site;
2. What work the person will be conducting and where;
3. The anticipated work schedule;
4. Arrival time and departure time; and
5. Bunkhouse room allocation (for after hour emergencies – e.g., fire).

To accomplish the above site security tasks:

1. AAM will notify the Site Operator of authorized site visits by AAM contractors or other parties representing AAM;
2. The Site Operator will require all visitors to review the site orientation, sign an access waiver, and sign the attendance log book upon entrance to and exit from the site;
3. The Site Operator will audit the site access log daily to verify compliance by visitors and to ensure no authorized personnel are unaccounted for on-site; and
4. The Site Operator will ask all unauthorized personnel, or personnel not following site rules to exit the property. Non-compliance with this request will be forwarded to RCMP. All unauthorized personnel will be reported to AAM.

2.2 Health and Safety

The Site Operator is responsible for the Health and Safety of all personnel accessing the site, including the Operator's, YG's employees and subcontractors. However, all subcontractors and consultants entering the site will be responsible for providing, to the Operator's and YG's satisfaction, appropriate health and safety documentation to indicate that all potential hazards and risks associated with the work to be performed have been considered and appropriate mitigation measures planned. The Mount Nansen Site Occupational Health and Safety Manual details the procedures in place for management of health and safety hazards and protection of the health and safety of all personnel on site. The Site Operator is also responsible for notifying all personnel accessing the site of YG site rules and notifying YG of any observed infractions.

Other Health and Safety requirements include:

1. Ensure all buildings utilized are maintained and operated in accordance with Yukon Occupational Health and Safety requirements.
2. Ensure AAM's Health and Safety Procedures for all Personnel on Mount Nansen Site Property is adhered to.
3. Check-ins between personnel on site at a minimum of once every two hours, and more frequently during performance of non-routine tasks. Check-ins are required every half hour when working near the Pit or around water.
4. Regular phone check-ins with AAM staff.
5. Regular inspection and servicing of fire protection components including fire extinguishers, alarms, and access. Section 2.3 of this manual provides floor plans for the Bunkhouse, Workshop and generator Sea-cans indicating fire extinguisher, smoke detector, fire alarm pull station, emergency lighting, fire alarm control panel, electrical panel, CO2 detector, and emergency exit locations.
6. Maintain on-site roadways and access areas in a safe and useable state by providing maintenance and repairs in summer and snow removal in winter.
7. Ensure that all steps and walkways are kept clear of snow and ice.
8. Ensure that anyone on site (outside of the kitchen/bunkhouse area) is wearing proper PPE including steel toe boots, hard hat and hi-vis vest.
9. Accidents, incidents and near misses to be reported to the site managers immediately. Site managers will report any incidents to the Site Operator management and YG personnel immediately. The Emergency Response Plan outlines notification protocol (Appendix C) and emergency response procedures to be followed for any accidents or incidents.

2.3 Cookhouse and Bunkhouse

The former Cookhouse / Kitchen building is currently closed and mothballed for potential future use during site decommissioning. This building is currently off limits.

The Bunkhouse will be used by DES, government staff, contractors, and consultants doing work at the site. The bunkhouse is user maintained meaning that personnel making use of the facilities are responsible for cleaning up after themselves. The Site Operator is ultimately responsible for ensuring the facilities are clean and well maintained.

1. The Site Operator is responsible for ensuring regular cleaning of the buildings including washing, cleaning and/or vacuuming floors, counters, washrooms, showers, bedrooms and general use areas. Bed linens are to be changed and cleaned once contractors have left the site or once/week if contractors are at site for a long period of time.
2. The Bunkhouse is to be kept clean, tidy, and fully stocked with soap and dishtowels. The refrigerators and freezers are to be kept clean and maintained.

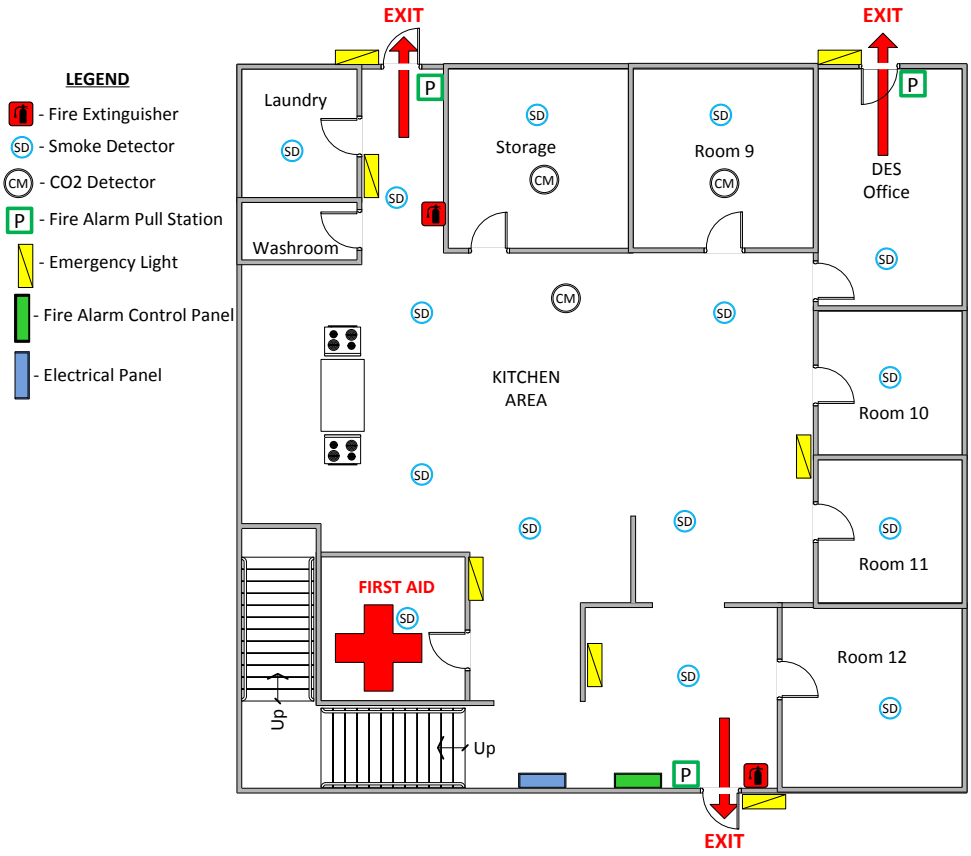
3. Washrooms are to be kept clean and fully stocked including toilet paper, soap, and hand towels.
4. Garbage cans and bags are provided by the Site Operator and are to be emptied on a regular basis. Domestic garbage disposal is the responsibility of the Site Operator.
5. Minor repairs to buildings will be conducted as required. This may be changing light bulbs, fixing leaky taps/pipes, doors and door knobs, leaky roofs, insulation, or other minor repairs.

The bunkhouse is equipped with a fire alarm system comprised of smoke detectors, CO2 detectors and pull stations to manually activate an alarm. The control panel for the fire alarm system is located next to the north entrance of the Bunkhouse. Fire alarm and CO2 detection system testing occurs on an annual basis and is organised by the site operations contractor.

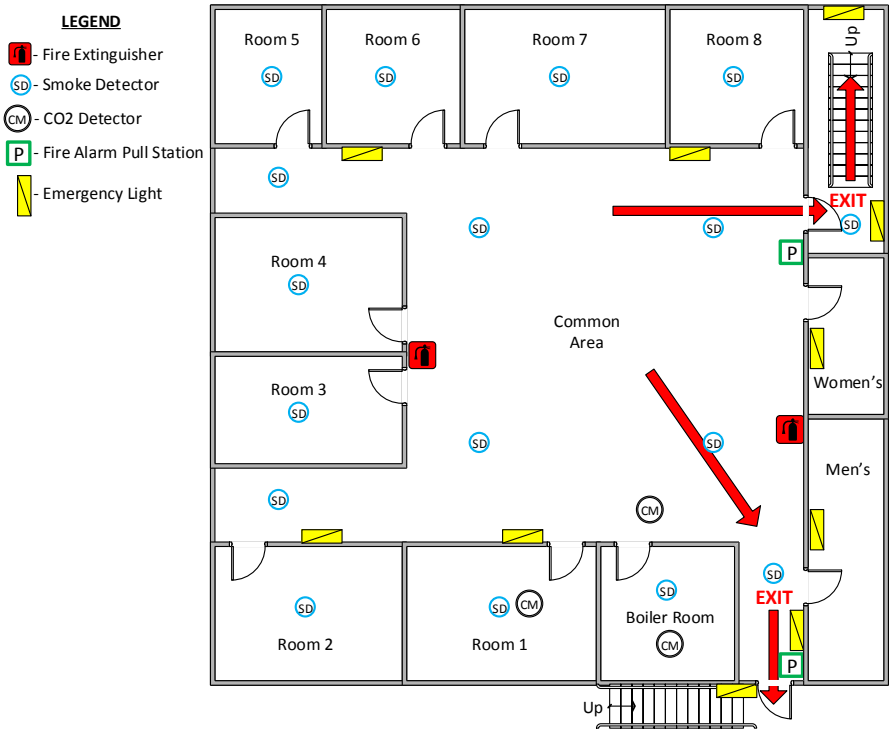
Diagrams and schematics of Bunkhouse electrical and fire alarm wiring are contained in Appendix A.

Following are diagrams of the first and second floors of the bunkhouse, complete with fire extinguisher, smoke detector, fire alarm pull station, emergency lighting, fire alarm control panel, electrical panel, CO2 detector, and emergency exit locations.

FLOOR PLAN AND EVACUATION ROUTE
BUNKHOUSE FIRST FLOOR
MOUNT NANSEN SITE - YT



FLOOR PLAN AND EVACUATION ROUTE
BUNKHOUSE SECOND FLOOR
MOUNT NANSEN SITE - YT



2.4 Boiler and Heating System

The bunkhouse is outfitted with a propane, hot water heating system comprised of boilers, piping and radiators. The system is a closed loop system filled with a glycol mixture. Each radiator throughout the bunkhouse has a valve that controls water flow through the radiator. Opening the valve will increase flow thereby increasing temperature of the radiator and room. Closing the valve will slow the flow and decrease the temperature. Routine maintenance on the system includes:

1. Daily checks of glycol levels and documenting this information in the daily report form; and
2. Annual servicing by a certified boiler inspector.

If there are problems or concerns with the operation of the heating system, a qualified technician must be contacted immediately to respond to the site and investigate.

Emergency shut off switches for the boilers are located on the wall, just inside the boiler room on the second floor of the bunkhouse.

2.5 Propane Storage

Propane for the hot water heating system in the bunkhouse is stored in three, 1000 gallon tanks located on the northeast side of the bunkhouse. The Site Operator is responsible for checking and documenting propane levels on a daily basis and re-ordering when the tanks reach approximately 35%, as indicated on the gauge.

Three additional 1,000 gallon tanks are located near the former kitchen, however, these tanks are not currently in-use.

The propane storage tanks are equipped with heat blankets below the tank for the purpose of keeping the propane warm during cold weather. Without the heating pads, propane flow may stop during extremely cold temperatures resulting in heating system failure in the bunkhouse. The heating pads are automatically controlled through a sensor that detects the outside temperature and turns the heating pads on when required.

2.6 Water and the Victoria Wellhouse

Potable water for the site comes from the Victoria Creek Wellhouse. This is an artesian well located off of the main entrance road. The well is housed within a small, insulated building. The water from the well is tested on a monthly basis for quality.

Two, 1500 gallon tanks are housed in a small insulated shelter adjacent to the former kitchen supply water to the bunkhouse (and formerly to the kitchen). Each tank is equipped with an isolation valve at the discharge pipe at the bottom of the tank. The water supply line enters the bunkhouse under the stairs in the First Aid room where there is another shut off valve. Water is then distributed to the boilers and to each cold water tap. From the boilers, hot water is piped to various taps as well as providing water to the hot water heating radiators located throughout the Bunkhouse. Shut offs for the hot and cold water supply are located at each set of taps on the main floor of the bunkhouse as well as in each bathroom on the second level. Main hot water shut off valves are also located at the discharge of each of the boilers.

The water supply line to the Bunkhouse has heat tracing to prevent it from freezing during the winter. The heat trace controller is located in the water storage building and can be turned on or off with the labelled switch on the wall. The heat trace controller, when on, will automatically turn the heat trace on or off as required to maintain the water line above freezing.

Water is trucked from the Victoria Creek wellhouse to the water storage tanks when the water level in the tanks reaches the 600 gallon marker on the volume scale on the side of the tanks (normally once every 2 weeks). The water is transported to the holding tanks from the Victoria wellhouse using the 700 gallon, portable water tank stored in the workshop as follows:

1. The water tank is lifted onto a truck using the shop crane and secured to the truck with fabric straps. The truck is driven to the Victoria Creek wellhouse.
2. The ends of the transfer hose (stored in wellhouse) are disconnected and 15 mL of chlorine is poured into the hose.
3. One end of the hose is attached to the well pump and the other end is attached to the filling port at the bottom of the water tank.
4. The pump is turned on and the tank allowed tofill with water.
5. Once the tank is full, the pump is shut off, the hose is removed from the fill port and pump, ends connected together to prevent contamination, and returned to storage in the wellhouse.
6. The truck is driven to the water holding tanks at the old cookhouse and the water transferred from the portable tank to the stationary holding tanks using the transfer hose stored in the holding tank building.
7. The truck and portable tank are returned to the shop, and the tank removed from the back of the truck for storage.

Records of water transport activities are maintained in daily reports.

Other work items relevant to the Victoria wellhouse and water transport are as follows:

1. The wellhouse is for the sole use of the Mount Nansen Site. The building is kept locked at all times, and each of the site operators carries a key for when access is required. A key is also kept in the Bunkhouse office and AAM representatives also hold keys for the lock.
2. The wellhouse is to be cleaned and maintained. Squirrels have been known to be a nuisance in the wellhouse. It is important that the insulation and heating system in the wellhouse continue to be functional to prevent freezing in the winter.
3. Potable water samples from the well and from the bunkhouse are tested monthly for coliform and *E. coli* by Yukon Health and Social Services in Whitehorse to ensure water complies with Health Canada Drinking Water Standards. Samples are collected as follows:
   a. In the wellhouse, disconnect the pump from the well and wait for the water to overflow the well. In the bunkhouse, remove the aerator from the kitchen sink and allow the water to run for 5 minutes.
   b. While wearing nitrile gloves, collect some water in a clean container and measure and record field parameters (pH, conductivity, temperature and turbidity).
   c. Remove the lid from a bacteriological sample bottle supplied by Yukon Health, fill the bottle to the 200 mL line, then cap and invert several times to fully dissolve the preservative.
   d. Samples must be kept cool (<10°C) and arrive at the laboratory in Whitehorse within 24 hours of collection.

Hard and digital copies of test results are maintained by the Site Operator and also kept at the site office. Details of results interpretation/response and contingency plans are detailed in the Mount Nansen Site Environmental Management Plan.

4. Water in the storage tank is treated with approximately 15 ml of chlorine per tank-load delivered.
5. Both the water tank house and the Victoria wellhouse have heaters which are turned on at the on-set of freezing temperatures.
6. The wellhouse and tank house are inspected daily during site rounds.

A fire extinguisher and eye wash station are located just inside the wellhouse access door on the left hand wall.

2.7 Workshop

The workshop is available for use by the Site Operator, as well as other personnel as required (AAM personnel or AAM contractors). It is a heated shop with large garage doors for equipment and is outfitted with a ceiling crane. All aspects of the shop are maintained by the Site Operator. The workshop is to be kept clean and tidy. Heat should be kept at approx. 10 degrees Celsius, unless personnel are working in the workshop, heat can then be increased to a comfortable level.

1. The oil furnace is to be serviced as necessary by a qualified technician.
2. The crane is to be inspected annually by a contractor licensed to certify cranes in the Yukon. In 2012, 2013 and 2014, this service was provided by Klondike Crane.
3. The building is to be kept clean and in order.

The diagram below shows the floor plan of the Workshop and bulk fuel storage complete with emergency exits, fire extinguisher, eye wash station, first aid kit and spill kit.

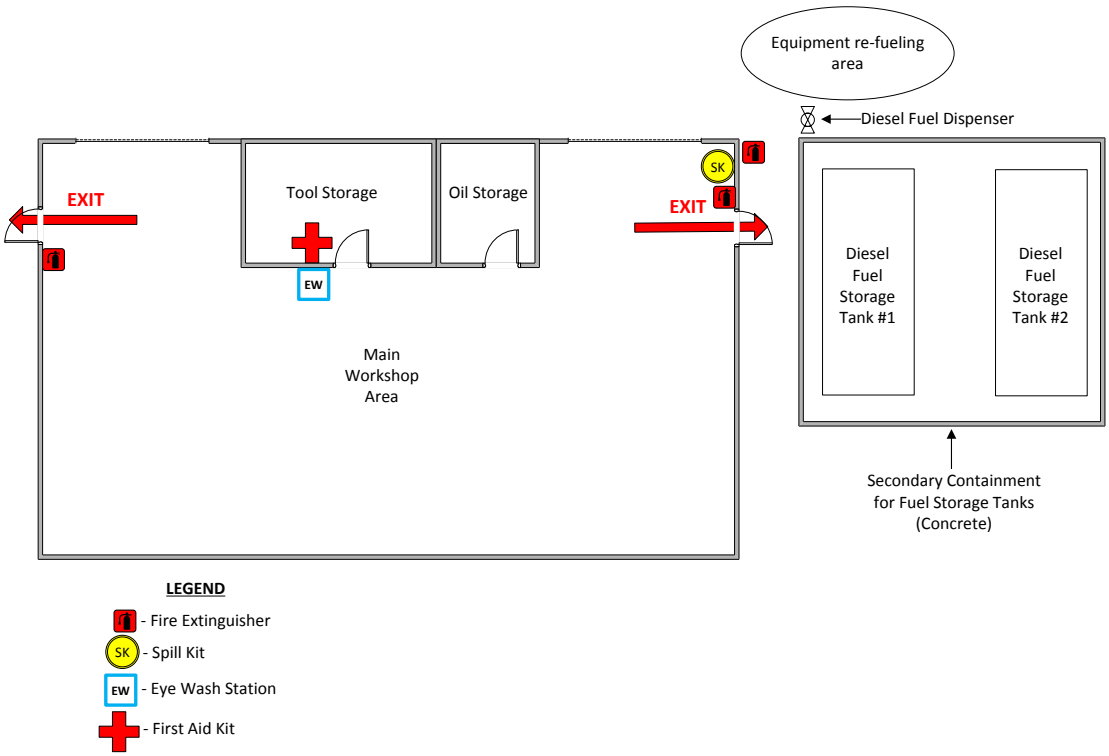
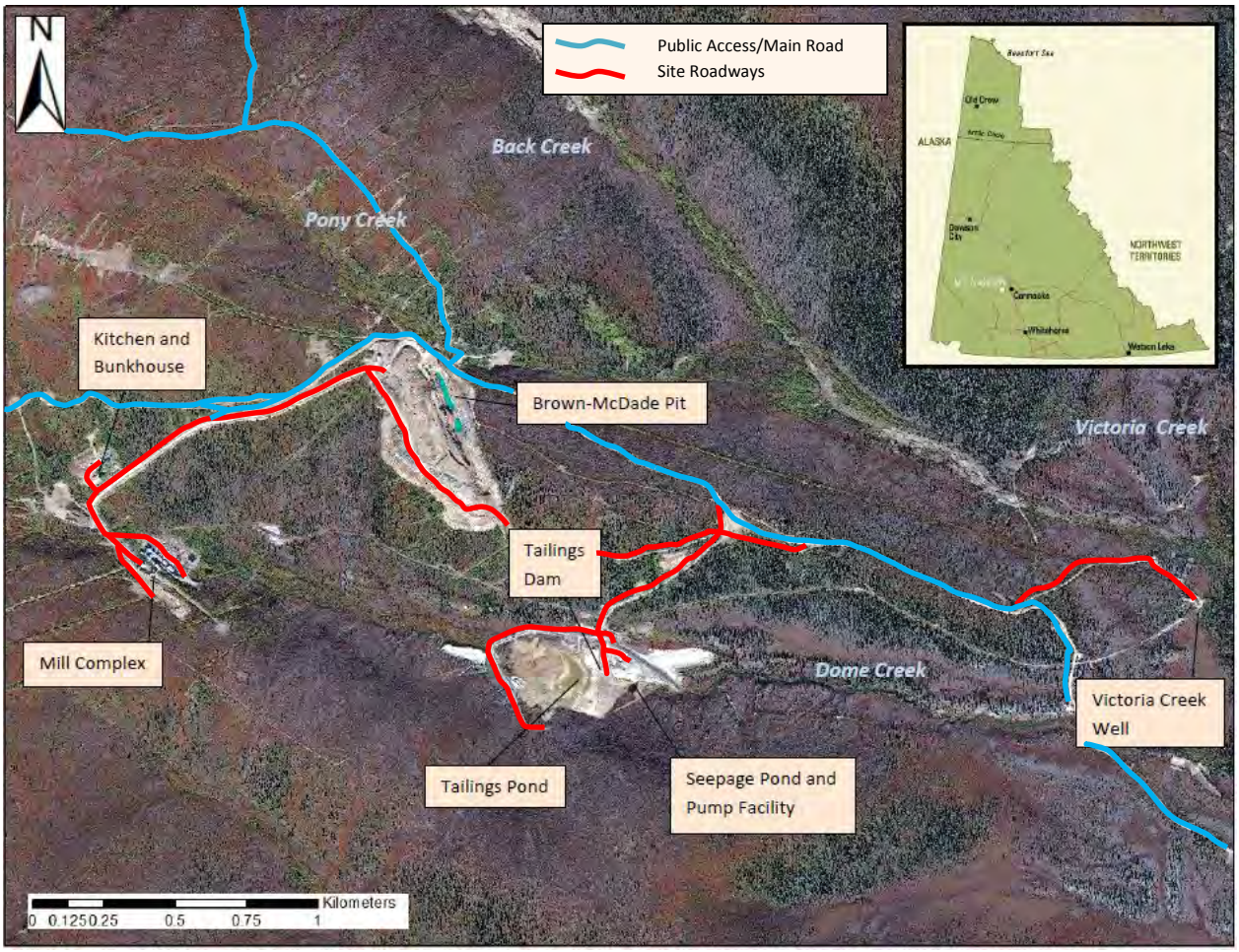


Figure 2.7

Workshop and Bulk Fuel Storage Floor Plan

2.8 Roads

The map below shows the roads used to travel to and around the site.



Nansen Road

The main access road to the Mount Nansen site is a public road. The Yukon Government Highways and Public Works (YG H&PW) is responsible for maintaining the road to the site.

Roads on site

1. All on site roads are maintained by the site operator. This may include grading in the summer and plowing snow in the winter to ensure all areas of the site are accessible if required.
2. All on-site roads (used for maintenance purposes) are checked daily during site rounds. Problems (e.g., snow drifting, washouts etc.) are repaired as soon as practical.
3. Equipment utilized for road maintenance includes a rubber-tired backhoe and a snow plow.

4. Culverts and bridges need to be kept clear and functional.
5. The area and roadway at the cookhouse must be maintained to ensure access to the emergency backup generator.

2.9 Fuel

The site's diesel storage system consists of two single-wall steel tanks, with a capacity of approximately 49,000L each, contained within a concrete sump with an approximate capacity of 61,500L. The tanks are interconnected with 2" black iron pipe. Supply and return lines to the three generators consist of ½" black iron pipe terminating in ½ " braided hose (for return lines). The tanks also feed a diesel-fired heater in the shop via a copper supply line. A gravity feed dispensing system is also utilized for filling equipment when necessary. The filling location for equipment and the location of the safety equipment is indicated on the Workshop floor plan in section 2.7 above.

The site's gasoline supply is contained in a 4,500L double-walled steel tank located near the bunkhouse. A fire extinguisher is located at the gasoline storage tank location. Gasoline is used for site vehicles as well as back up pumps and small portable generators.

The Site Operator is responsible for:

1. Tracking fuel usage and for ordering deliveries. Deliveries are normally made when a full truck load (~40,000L) of fuel / gas can be accommodated between the diesel and gas tanks. Timing of fuel and gas deliveries must be planned to avoid times of the year when weather or road conditions may prevent delivery, particularly the fall before freeze up and during spring freshet when road conditions can deteriorate and become impassable.
2. Daily reporting of fuel measurements. (see reports – tracking sheet supplied).
3. Maintaining spill kits. A large spill kit is maintained on site in the shop in the event of a petroleum or chemical spill. Immediate spill response procedures are summarized in the Mount Nansen Site Emergency Response Plan, with more detailed spill response and contingency information provided in the Mount Nansen Site Spill Response and Contingency Plan, maintained as part of the site spill kit and also available in the Bunkhouse office.
4. Safely storing used oils and other fluids from equipment maintenance. Disposal of used oils and other products (antifreeze) is the responsibility of the Site Operator. Normally used oil is transported to a licenced disposal facility in Whitehorse when the volume on site reaches 140 to 180 litres. No more than 200L of used oil can be kept on site at any time.
5. Daily inspections of the fuel systems (diesel, gas and propane) and distribution lines.
6. Maintaining MSDS sheets in accordance with WHMIS regulations. WHMIS sheets for gasoline and diesel can be found in the MSDS binder in the Bunkhouse.

2.10 Generators and Electrical Systems

Three diesel generators, located in sea-cans beside the Workshop, supply the site with all of its power. The generators include:

1) a Perkins 175kW,

2) a Cummins 175kW(purchased new in 2014), and

3) a Cat 6.6 175kW (purchased new in 2013).

The Cummins and the Cat 6.6 trade off as the primary power supply for all site power requirements. The Perkins is not routinely operated due to the high number of hours. If needed, the Perkins will run 250 hours before servicing is required. Each of the primary units will run approximately 500 hours before requiring servicing (details of maintenance requirements/procedures are contained in the individual generator operations manuals, stored at the Bunkhouse) at which point the next one in rotation is brought on line. A log book, located in the site office, is used to record operating times and maintenance activities for each generator, as well as the operating / service schedule.

The procedure to be used for switching between generators when they require servicing or have a mechanical problem is as follows (note that **generator switching is to be performed by trained site staff or qualified electricians only**):

1. Before any switching, all generators are to be in an off condition (not running). Generators can be shut down as follows:
    a. While wearing the correct PPE (arc flash gloves and shield and hearing protection) open the main disconnect located on the generator.
    b. Once the generator has cooled down, it can be shut off.
2. The generator to be put into service will be identified and all fluids (oil, glycol and fuel) checked.
3. Once it is determined that the generator is fit for service, the switch gear is to be arranged so the intended generator will be used for power. All switches are to be locked in position. The following pictures identify location of the switches and the correct switch position for operation of each generator:

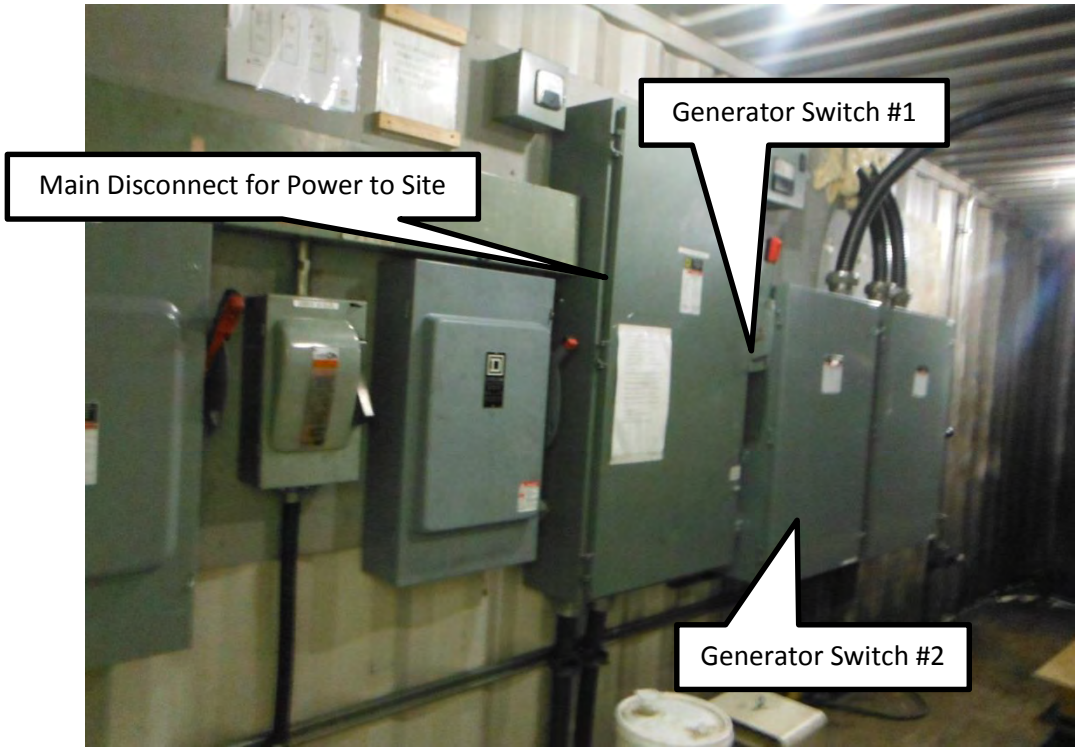


Figure 2.10.1 Generator Switch Gear in Perkins Generator sea-Can

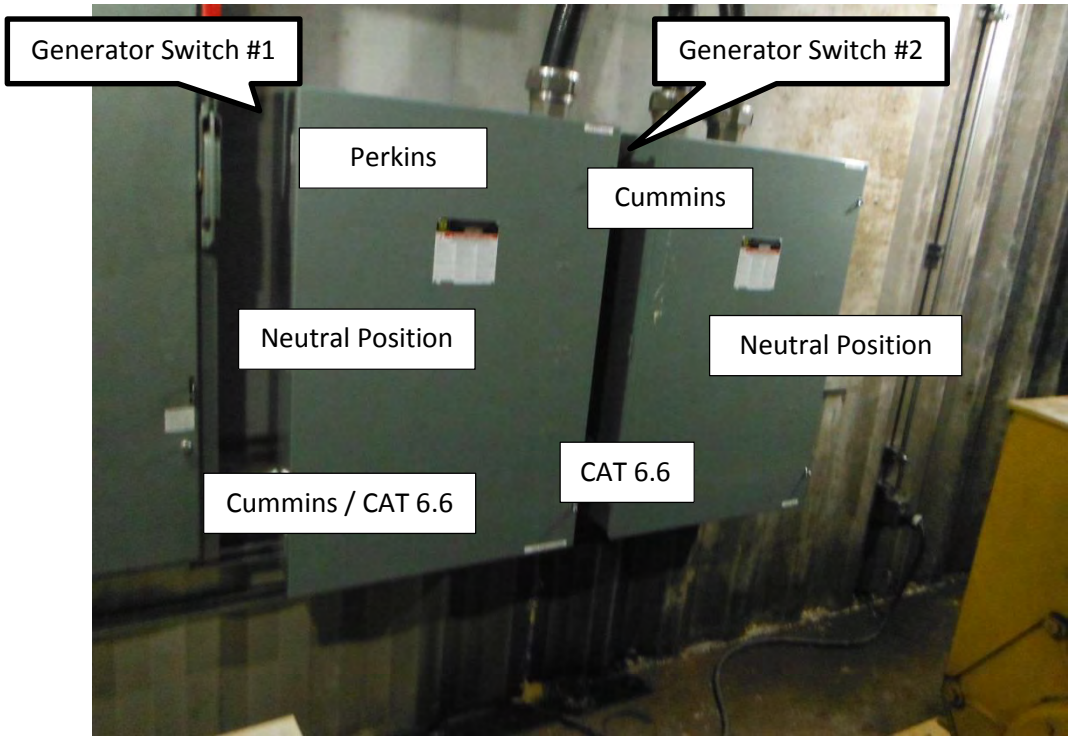


Figure 2.10.2 Generator Switch Position Identification

4. Generator switches #1 and #2 both have three position levers for selecting each generator. Each lever on the right side of the switch can be moved from the down

position, to the middle (neutral) position or to the up position. To select each generator, the following must be done:

   a. To select the CAT 6.6 generator, switch #1 must have the lever moved down to the position labelled “Cummins / CAT 6.6” and switch #2 must have the lever moved down to the position labelled “CAT 6.6”. Once the levers are locked in position proceed to starting the CAT 6.6.
   b. To select the Cummins generator, switch #1 must have the lever moved down to the position labelled “Cummins / CAT 6.6” and switch #2 must have the lever moved up to the position labelled “Cummins”. Once the levers are locked in position proceed to starting the Cummins.
   c. To select the Perkins generator, switch #1 must have the lever moved up to the position labelled “Perkins” and switch #2 must have the lever moved to the middle or “neutral” position. Once the levers are locked in position proceed to starting the Perkins.

5. After the switches are set, the generator to be put into service can be started and warmed up.
6. Once the generator is warmed up and set at the correct RPM for 480 V at 60 Hz, the breaker on the generator can be closed.
7. The generator should be monitored until full operating temperature has been reached to ensure there are no problems. Once it has been determined that the generator is operating correctly, normal daily checks on the generators can resume.

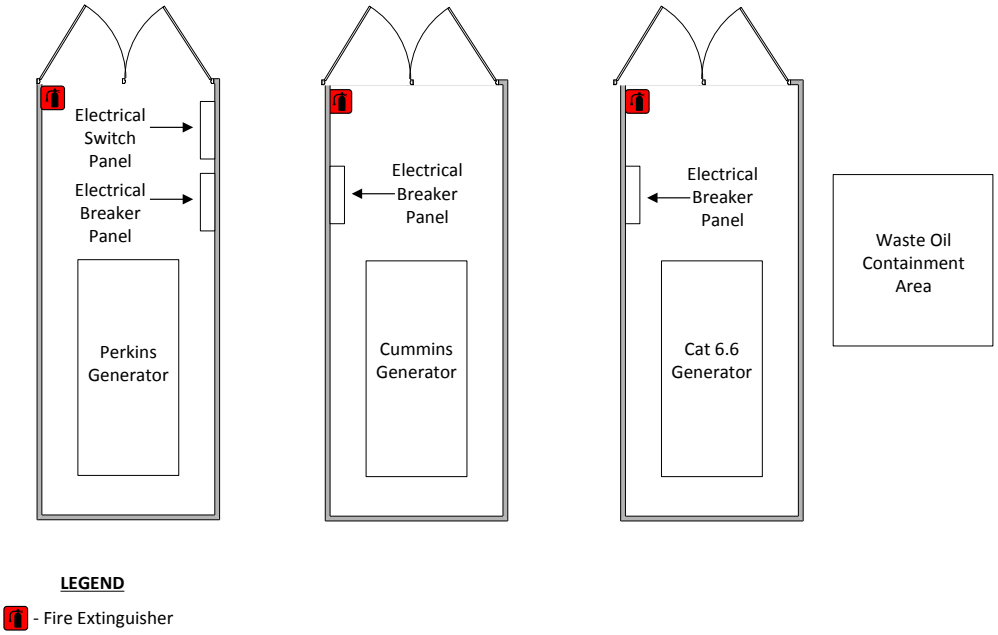
Other work items relevant to the generators and electrical systems are as follows:

1. Generators are checked daily to ensure they are running properly. This includes checking oil levels, temperature levels, fuel, and output (volts), and daily monitoring of the crankcase breather hose on the Cat 6.6.
2. SOS samples are collected for each generator at every other oil change. Analysis results are maintained in the bunkhouse and provided to AAM.
3. All aspects of running and maintaining these generators is the responsibility of the Site Operator. Maintenance includes changing oil, filters, absorbent pads, and replacing minor maintenance parts as required.
4. For any serious or in depth mechanical repairs required, a qualified contract mechanic must be brought to site.

The diagram below illustrates the floor plan of each sea-can and the equipment housed in each.

Appendix A contains electrical drawings and schematics related to the site electrical system.

FLOOR PLAN
GENERATOR SEA CANS and WASTE OIL CONTAINMENT AREA
MOUNT NANSEN SITE - YT



LEGEND

- Fire Extinguisher

Routine maintenance parts for the generators include:

Item	Cummins	Perkins	Cat 6.6
Fuel Filter	Fleetguard FF5612	Baldwin BF7990 Cat 299-8229	Cat 299-8229
Fuel / Water separator	Fleetguard FS19732	Baldwin BF1289-SP Cat 308-7298	Cat 308-7298
Oil Filter	Fleetguard LF3970	Baldwin B7378 Cat 269-8325	Cat 269-8325
Primary Air Filter	Fleetguard AF25962	Baldwin RS4561 Cat 289-2348	Cat 289-2348
Secondary Air Filter		Baldwin RS5392 Cat 289-2349	Cat 289-2349

If required for emergency situations, a portable backup generator shall be provided by the site operator, and is available for use to provide power to the Bunkhouse or the Seepage Pond if necessary.

A power failure alarm is located on the second floor of the Bunkhouse. The intent of this alarm is to wake site operators in the event of an after-hour power failure. In the event of a power outage, this unit will emit an approximate 100db alarm, and will continue until manually silenced, power is restored or the alarm batteries drain. Emergency response and contingency procedures to be implemented in the event of a power outage are detailed in the Mount Nansen Site Emergency Response Plan.

2.11 Vehicles & Equipment

The Site Operator is responsible to supply and maintain all equipment required to conduct necessary work on site within the Site Operation work scope.

Vehicles, when not in use, are typically parked at the Bunkhouse where receptacles are available for plugging vehicles in during cold weather. Policy on site is for “back-in” parking to be used for all areas where possible – such as in front of the bunkhouse (signage posted). A small depression has been excavated for parking rear vehicle wheels in at the Bunkhouse to

prevent the potential for a vehicle to roll away. A small berm is also in place behind the depression to prevent vehicles from backing up too far and making contact with the building. If parking in areas on site where parallel type parking is used, policy is to avoid parking behind another vehicle or piece of equipment. In this situation, vehicles should be parked alongside or directly in front of the other vehicle or equipment.

Heavy equipment, when not in use, can be parked in several areas around site depending on work being carried out and the time of year. Generally, heavy equipment is parked by the workshop / Mill. In the winter, the excavator is generally left down by the Diversion channel as the main activity for the excavator during the winter is ice removal from the Diversion channel.

Servicing of all site vehicles and equipment takes place in the shop, except for the stationary generators, and the excavator, which is too large to fit in the shop. The excavator is serviced in front of the shop door.

Vehicles and equipment are fueled up in front of the diesel or gasoline holding tanks, depending if the vehicle / equipment is powered by diesel fuel or gasoline. The diesel fuel filling area is located directly in front of the bulk holding tanks as identified on Figure 2.7 above. The gasoline tank is located adjacent to the Bunkhouse and vehicles are filled directly beside the holding tank, within reach of the gasoline dispensing nozzle and hose.

As per the Site operations contract, the site operator is responsible for supplying and maintaining all necessary equipment to carry out the required duties of the contract. One requirement specifically noted in the contract is to supply a truck capable of hauling a YG supplied water tank to transport potable water from the Victoria Creek wellhouse to the Bunkhouse water storage tanks.

Only site operations employees are authorized to operate site equipment, unless prior authorization has been granted by the Site Manager on duty.

2.12 Tailings Facility

The tailings pond and tailings dam are located in the Dome Creek drainage down gradient from the Mill site. Water seeps out of the tailings dam and is collected in the seepage pond located at the base of the dam. Water is pumped from the seepage pond either over the dam and discharged into Dome creek, or back into the tailings pond, depending on testing results. Water from the tailings and seepage ponds are tested regularly to confirm if they are within acceptable limits for discharge. If testing determines that the water is not within discharge specifications, then discharge is discontinued immediately. In this event, water from the seepage pond is pumped back into the tailings pond until such time that the water reaches acceptable discharge specifications. If any visible changes occur (turbidity, algae bloom) to the

water in either the seepage pond or the tailings pond, AAM representatives should be notified immediately.

The pumphouse in the seepage pond contains one electrical pump which is run off of electricity from the generators (a second similar pump is available to be installed if the operating unit fails). The piping runs from the pump, through a flow meter and is discharged over the seepage dam into Dome Creek. The piping is prone to clogging either from precipitates in the water, or freezing in the winter. It is important to keep the pump running in the winter to prevent freeze up. For safety purposes, a fire extinguisher is available just inside the access door to the seepage pumphouse.

Work items relevant to the Tailings Facility include:

1. Regular inspection of the diversion structure is required and necessary measures must be taken to ensure it remains free and clear of obstructions.
2. Maintenance of the diversion channel. The diversion channel has proven in recent years to be problematic during winter months (i.e., glaciation) and prone to siltation during ice-free months. Inspection of the channel occurs at a minimum once daily and more frequently as conditions dictate (e.g., extreme weather, on-going glaciation etc.). Excavation of silt and ice occurs as required based on time of year, conditions of the channel, rate of change and the judgement of the Site Manager. Excavation is typically conducted using a tracked excavator and a rubber-tired backhoe. Particular attention is paid to addressing glaciation below the bridge, and glaciation that presents a risk of either backing up flow into the emergency spillway or overflowing the diversion channel into the tailings pond.
3. Monitoring, recording in daily report, and maintaining seepage pond and tailings pond levels. In 2012, YG installed staff gauges in both ponds. Maximum pond elevations will be marked on the staff gauge in spring 2014 or sooner. The seepage pond level is checked daily (or more frequently depending on conditions) and adjustments to flow are made using the valve on the pump discharge pipeline in order to maintain a staff gauge reading of 0.14 m during ice-free months, and 0.3 m during the winter. Flow rate (L/min.) and totalizer volume (m^3) are documented daily on the Daily Report. The tailings pond elevation is checked daily during ice-free months and monthly, during Piezometer / Thermistor data collection. During the winter month, the water level shall be captured when an ice cover is present and if safe to do so. Staff gauges are surveyed annually by site staff to verify elevations.
4. Draining the seepage pond annually to allow for a geotechnical inspection of the facility.
5. Monitoring water / ice elevations. In the event that water elevations within the tailings or seepage ponds approach the maximum elevations, or if unexpected events (e.g., large rainfall or runoff event, substantial increase in seepage rate, etc.) result in concern that the maximum elevations may be reached, the site operator will:
    a. Notify AAM as soon as practical,

b. Make preparations to increase the pumping rate from the seepage pond with on-site portable pumps,
c. Make preparations to pump down the tailings water to the diversion ditch with on-site portable pumps. Pumping tailings pond water will not be activated without prior written approval from AAM.
d. In the event that inflow exceeds capacity of available on-site pumps, the site operator will make preparations to source larger or additional pumps.
e. Available backup pumps on-site include a Flygt Ready 8 2" submersible pump (supplied by site operator) (capacity ~5lps @2m lift), a Honda 2" gas pump (supplied by site operator) (capacity ~8lps @2m lift) and a Yamaha 3" gas pump (AAM) (capacity ~13lps @2m lift).
f. Provisions are available within the seepage shack to directly connect either the Ready 8 pump or the Yamaha pump in the event of failure of the primary electric pump.
g. Provisions are not in-place to pump from the seepage pond to the tailings pond. In the event this scenario was required, additional materials would be required and field construction of a pipeline would be required.

6. In the event of power failure / disconnect, the seepage pond pump must be manually restarted once power is restored. The system is designed to continue siphoning water from the seepage pumphouse well in the event of a loss of power. To re-start the pump if the water continues to siphon through the pipeline:
    a. Go to the seepage pond pumphouse.
    b. Check all equipment to ensure it is in good condition for re-starting.
    c. Ensure the pump switch is set to the "hand" or "manual" position (counter-clockwise).
    d. Press the black start button on the pump starter panel. The pump should be heard once it is started.
    e. Ensure the pump is pumping water through the pipeline by observing that flow has increased and is being recorded through the flow meter.
7. To re-start the seepage pond pump if the pipeline is dry or has no water flow:
    a. Go to the seepage pond pumphouse.
    b. Check all equipment to ensure it is in good condition for re-starting.
    c. Check to ensure the pump power switch is in the "hand" or "manual" position.
    d. Using a bucket (left in the pumphouse), retrieve water from the well and fill up the pump intake hose by opening the intake pipe valve. This will prime the pump.
    e. Once water has filled the intake hose, close the intake pipe valve.
    f. Press the black pump "start" button on the pump starter panel and listen for water flow and observe the flow meter to ensure flow through the pipeline. It may take several minutes for the flow to stabilize and all the air to be purged from the intake line.

8. Conducting minor repairs to dams and diversion structures as necessary to ensure proper functionality. Any repairs to the dams need to be approved by AAM prior to commencement of work.
9. Ensuring seepage pumps and pipes are maintained and functional. This includes cleaning or replacing the pipes as required.
10. Maintaining seepage pumphouse.
11. Cleaning and maintaining the flowmeter.
12. Re-sloping of the diversion channel embankments as required due to erosion.

2.13 Open Pit

Site operators visually inspect the Brown McDade open pit on a daily basis, but routine access down the ramp into the pit is not undertaken. In the event that access to the pit is necessary, the pit walls adjacent to the access ramp and road and weather conditions should be assessed prior to entry. Access should be avoided during high water levels or following high rain events.

For safety, anytime work is required in or around the edge of the pit, the persons carrying out the work will communicate their location, the nature of their work in or around the pit and their expected duration of work in or around the pit. Radio check-ins will be performed every 30 minutes when working near or in the pit area. Unless an additional person is used as a communicator and positioned outside of the pit, persons working in the pit will need to exit the pit in order to have radio contact, as the radios work with line of sight.

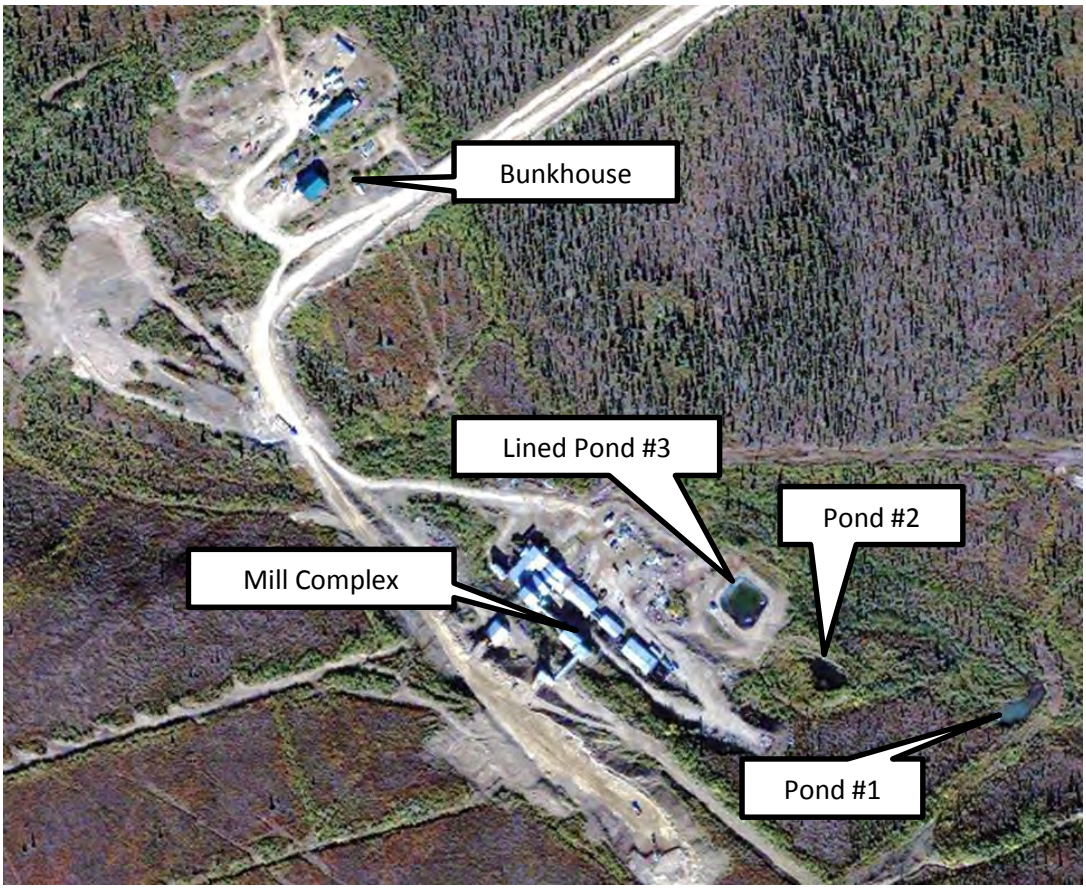
2.14 Waste Disposal

1. The Site Operator is responsible for on-site storage and off-site disposal of waste materials generated by the Site Operator. Typical waste materials include: Domestic Trash – Domestic trash is stored in a bear-proof waste bin until the material is either burned on-site or disposed in the Carmacks landfill. Reasonable efforts are made to separate and recycle materials prior to disposal at the Carmacks landfill.
2. Waste Oil – Waste oil from the generators and site equipment is stored in 20L pails inside a metal containment berm adjacent to the generators. As waste oil accumulates to no more than 200L on-site, the pails are transported to Whitehorse for licensed disposal.

2.15 Mill Area Ponds

Several ponds are located in the vicinity and down-gradient of the Mill site. Specific historical maintenance and monitoring activities at these locations is currently unknown. The site operator and AAM personnel will continue to inspect these sites, assess their condition and develop an appropriate monitoring program if necessary.

The following image shows the location of the three ponds down-gradient from the Mill site. Only the first and largest pond is lined with an impermeable membrane.



Typical pond monitoring that may be relevant could include:

1. During ice-free months, perform monthly inspection of pond levels, embankments and spillway structures. Repair as necessary.
2. As required pump excess water either to the environment or down-gradient ponds (dependent on water quality).

Two wildlife ladders are installed and maintained in the lined pond down-gradient from the Mill to assist wildlife should they happen to fall or walk into the pond.

2.16 Piezometers and Thermistors

The Site Operations contract includes monthly data collection from 7 piezometer locations and 19 thermistor locations (note some are a combined location). The procedure for data collection at these sites is as follows:

Equipment Required **(Provided by AAM)**:

- RST – C108 Pneumatic Readout Unit
- Digital Voltmeter / Thermistor Selector
- Record Sheet

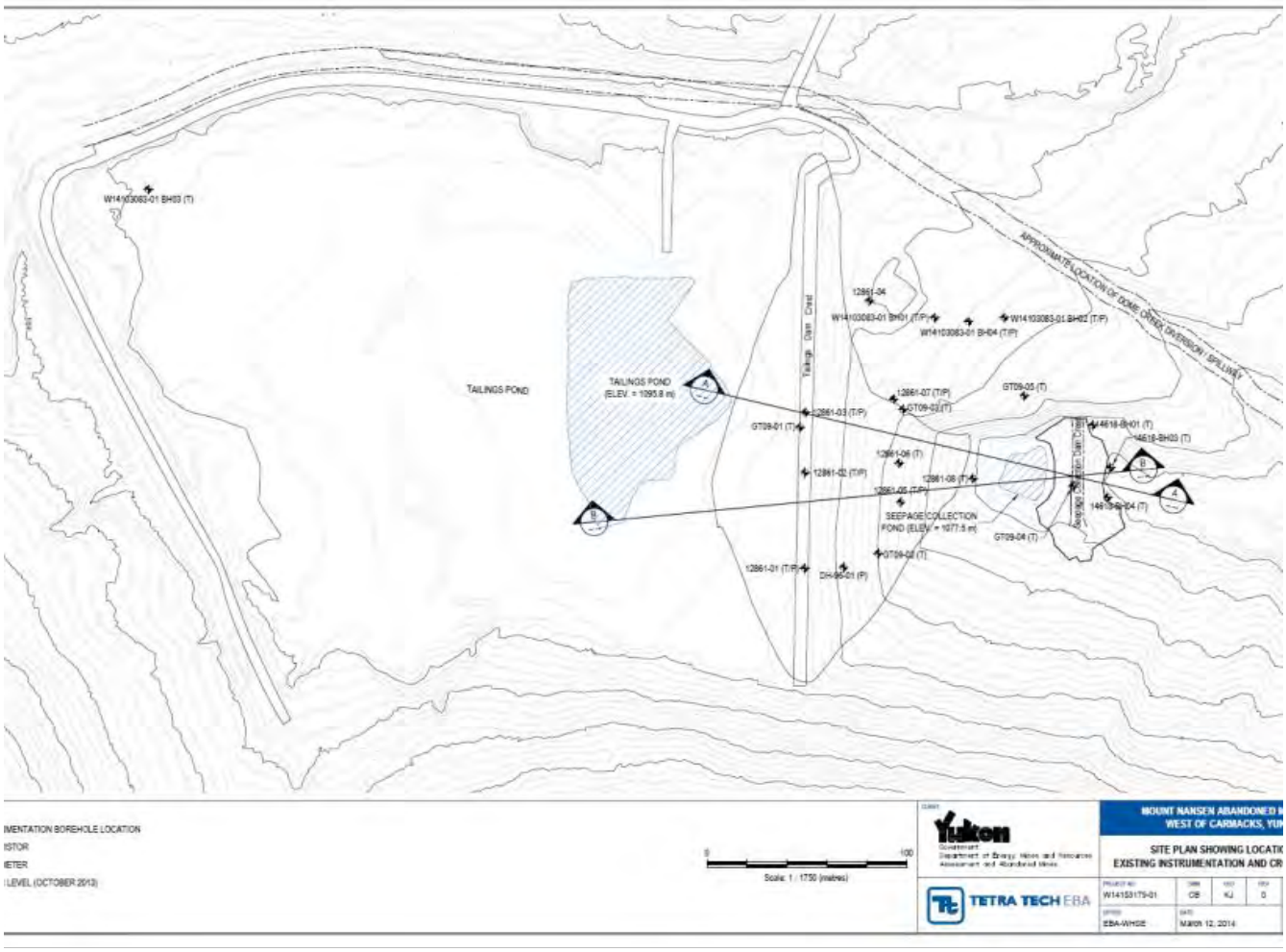
- Nitrogen Tank (located in the workshop for re-filling piezometer readout instrument as required)

Procedure: Piezometers

1. RST – C108 Pneumatic Readout Unit.
    a. Ensure tank has Nitrogen, open tank valve, note psi on tank pressure gauge.
    b. If tank registers around 500 psi fill prior to going to field.
    c. Use tank of Nitrogen in shop, has connector line to fill RST tank. Attach line to the TANK INPUT on the RST unit and open the TANK VALVE, open the shop Nitrogen tank a little and shut right off, don`t fill RST unit over 2000 psi.
2. Piezometers are located around the Seepage and Tailing Dam, see map below for exact locations.
3. All cables are labelled with a metal tag, record # off tag when reading.
4. Piezometer Reading: Also see inside lid of carrying case for instructions.
    a. Open TANK VALVE.
    b. Turn display on (press any key).
    c. Press down arrow key ▼ to ZERO READOUT, then press back arrow key TWICE.
    d. Attached piezometer cable to the RST unit, ensure is fully inserted.
    e. Flip BYPASS switch up, record psi reading when stabilizes, put switch down and record psi reading when stabilizes.
    f. Carry on from step “c” for next piezometer.
    g. When completed – turn off TANK VALVE.
    h. Record field data on Piezometer report form provided by AAM.
5. Also record staff gauge readings in tailings and seepage ponds, as water levels are directly related to piezometer/thermistor readings.

Procedure: Thermistors,

1. Thermistors are located around the Seepage and Tailing Dam, see map below for exact locations
2. All lines are labelled with a metal tag, record # off tag when reading.
3. Attach thermistor cable to the Thermistor Selector
4. Attach Thermistor Selector to the Voltmeter, turn on and set to ohms, turn switch on Thermistor Selector.
5. With the toggle switch in the up position on the Thermistor Selector start at #1 and record each reading through #10. If the record sheet indicates thermistors beyond #10, flip the toggle switch down and resume readings at #1 (which will represent string 11).
6. Record field data on the Thermistor report form provided by AAM.



3 MONITORING AND REPORTING

3.1 Monitoring

Monitoring and reporting are important care and maintenance responsibilities. Monitoring is an on-going activity. Reports are to be filled out as per the Site Operation contract. Monitoring and reporting requirements include:

Daily:

A visual inspection of the entire site is carried out twice daily, at the beginning and end of each shift. Anything unusual should be documented and reported as necessary.

Generators are also checked daily to ensure they are operating correctly, as per section 2.10 above.

A visual inspection of the tailings pond & dam, and seepage pond & dam to ensure things look normal. Any abnormal condition or any observed changes will be reported to AAM immediately.

All diesel fuel / gas / propane levels are also checked and recorded daily and provided at the end of each week with the weekly report.

Weekly

When full, the water tank can last a couple of weeks under normal operating conditions. It may need to be checked more often depending on usage.

The wellhouse should be visually inspected during fill-ups and any issues rectified and reported accordingly.

Inspection of the seepage from the tailings dam and the north bank of the seepage pond should be performed on a weekly basis.

Photos of the Diversion channel are submitted to AAM weekly during the winter months and through to the end of freshet.

Spring

The diversion ditch must be monitored for ice build-up and rectified accordingly. Photos should be taken on a weekly basis and submitted to AAM by the Site Manager.

Pumps and pipes should be prepared for spring freshet and the increase flow rate that comes with that.

Fall

The site and equipment will need to be prepared for winter accordingly. Check that heaters are working in the wellhouse, sea-cans and on the propane tanks. Make sure road ways are clear of debris for ease of snow removal. Check lights in sea-cans, workshop and wellhouse. Ensure that the heat trace lines for water supply from the water storage building are turned on and functioning correctly.

3.2 Reporting

Reports to be filled out and submitted to AAM include:

Daily:

1. Daily Report

Weekly

1. Weekly Report

2. Sign in Sheets
3. Daily Site Inspection
4. Daily Environmental Inspection
5. Fuel Usage Log
6. Daily Level Report

Monthly

1. Monthly Management Report
2. Monthly Environmental Monitoring Report (includes potable water quality and piezometer/thermistor monitoring data)
3. Monthly Statistics
4. Wildlife Observation Log

Quarterly

1. Updates to EMP, ERP, Operations Manual and H&S Plan.

Annual

1. Crane inspection
2. Boiler and furnace inspection
3. Bunkhouse fire alarm and emergency lighting inspection

4 KEY CONTACTS

MEDICAL EVACUATION
Whitehorse Dispatch (Helicopter): 1-867-667-3333 Carmacks Nursing Station: 867.863.4444 (Press 1 for emergency)
Mount Nansen Bunkhouse Coordinates (for medevac) 62 degrees, 2 minutes, 51.63 seconds North 137 degrees, 8 minutes, 48.85 seconds West

Mount Nansen Emergency Contacts	Contact Information
Mount Nansen Site Manager	Site Operator Radio Call
RCMP - Carmacks	867.863.5555 emergency line 867.863.2677 non-emergency line
RCMP - Whitehorse	867.667.5555 emergency line 867.667.5551 General inquiries
Yukon Wildfire Reporting Hotline	888.798.3473
Yukon Dept. of Highways - Carmacks	867.863.5321
Yukon Dept. of Highways - Whitehorse	867.667.5196
Yukon Spill Report Centre	867.667.7244
YWCB Reporting	867.667.5450
Poison Control	867.393.8700
Yukon Emergency Measures Organization	867.667.5220
Trans North Helicopter - Carmacks	867.863.5551 (non-medical) 867.335.2221
Trans North Helicopter - Whitehorse	867.668.2177 (non-medical)

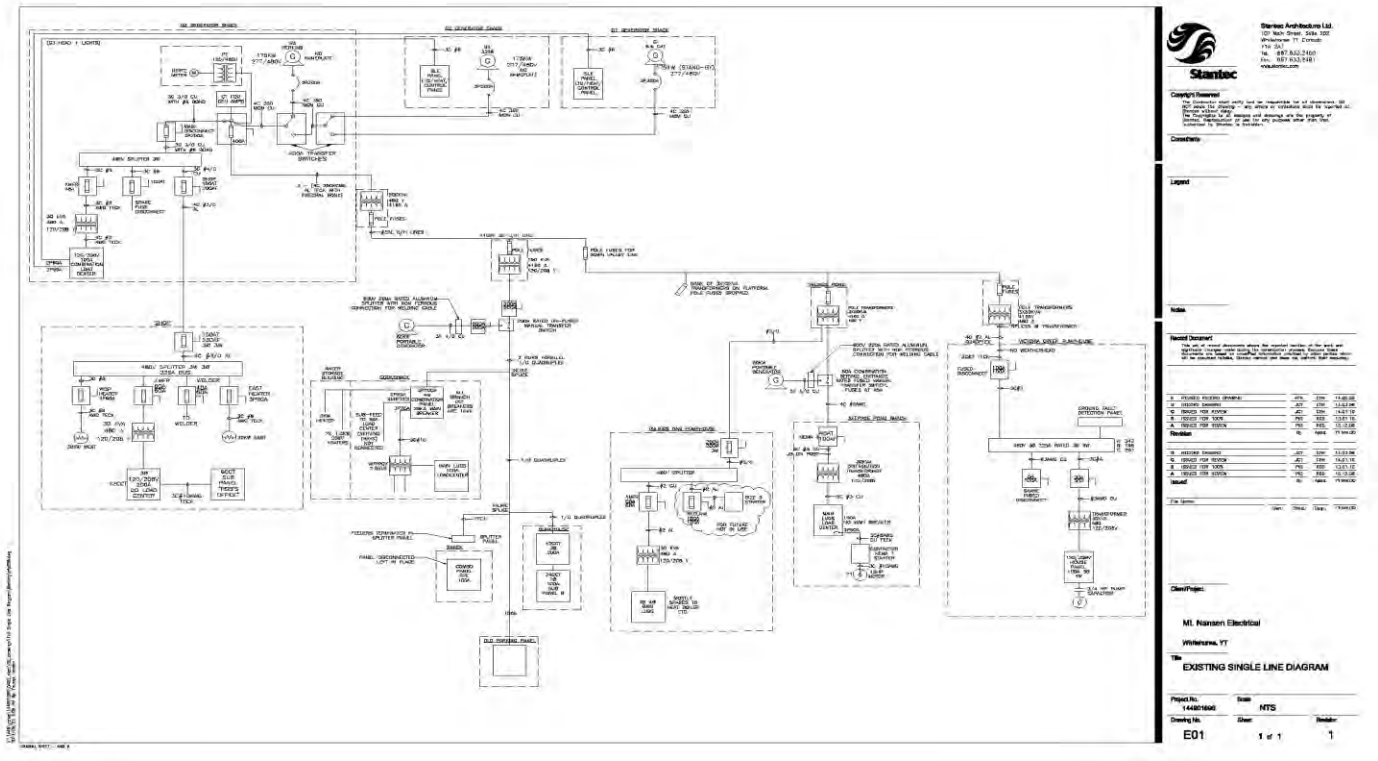
Site Operator Emergency Contacts	Position	Office #	Mobile #	Off-Site Residence #

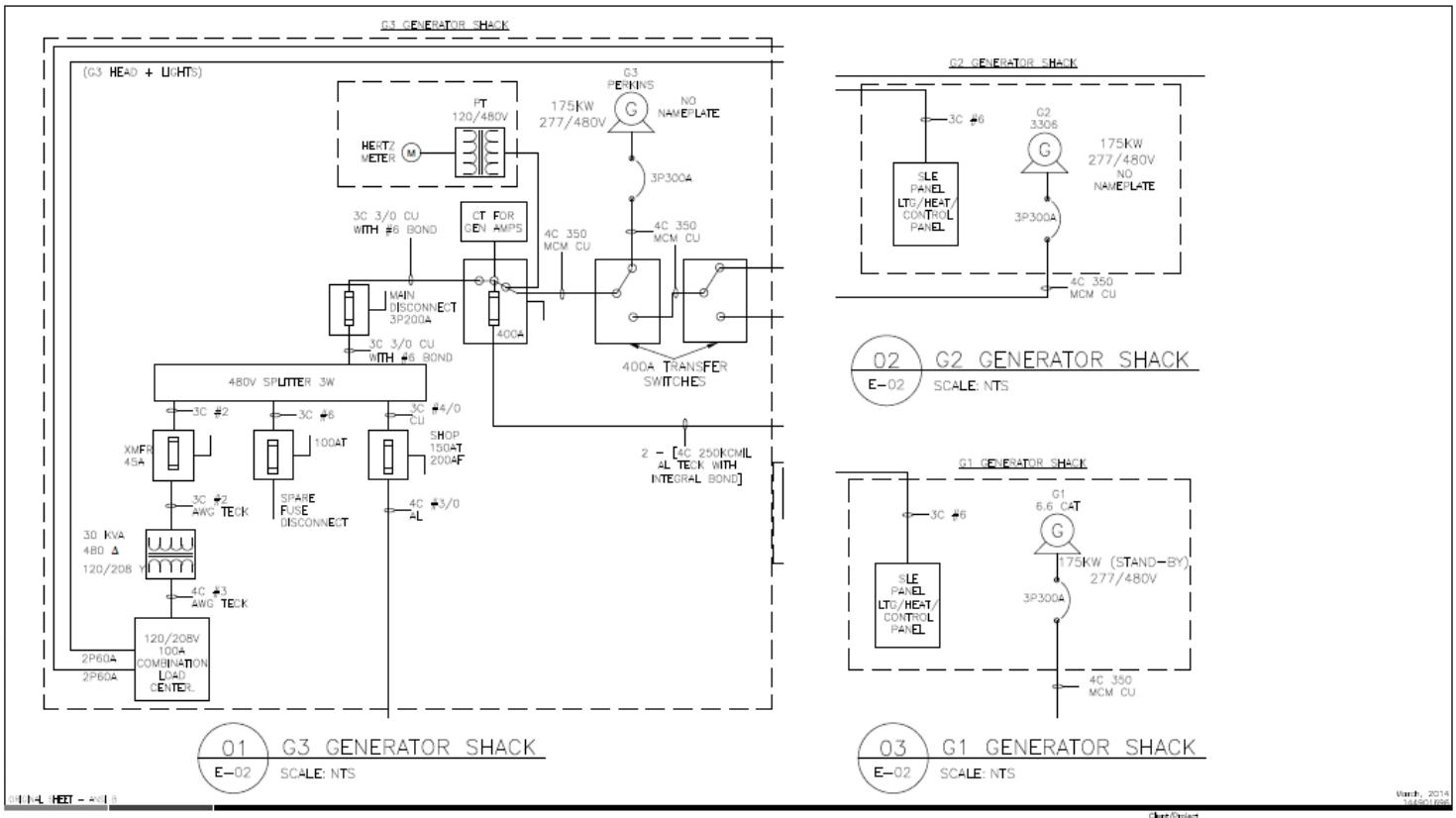
YG –AAM Emergency Contacts	Position	Office #	Mobile #	Off-Site Residence #
Project Officer	Type II Project Officer	867.456.6157	867.332.1480	
Sr. Project Mgr.	Sr. Project Manager	867.456.6764	867.336.0461	
Manager	Manager	867.667.3208	867.332.4431	
General Office #		867.393.7098		

Other Contacts	Contact Information
Superior Propane	877.873.7467 (Main) 867.334.1627 (Whitehorse Service) 867.334.4147 (Local Delivery)
North of 60	877.633.8800 (Main) 867. 633.8853 (Dispatch)
General Waste Management	867.668.4004
NULine Power Line Contractors	867.393.2066 (Whitehorse Office) 867.335.7771 (John Seehaver)

Appendix A:

Mount Nansen Site Electrical Schematics and Diagrams


Stantec
Stantec Architecture Ltd.
Client/Project
MI. Hansen Electrical
Whitehorse, YT
EXISTING SINGLE LINE DIAGRAM
Project No.
144801606
Scale
NTS
Drawing No.
E01
Sheet
1 of 1
Revision
1



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Fax. 867.633.2481
www.stantec.com

Legend

Notes

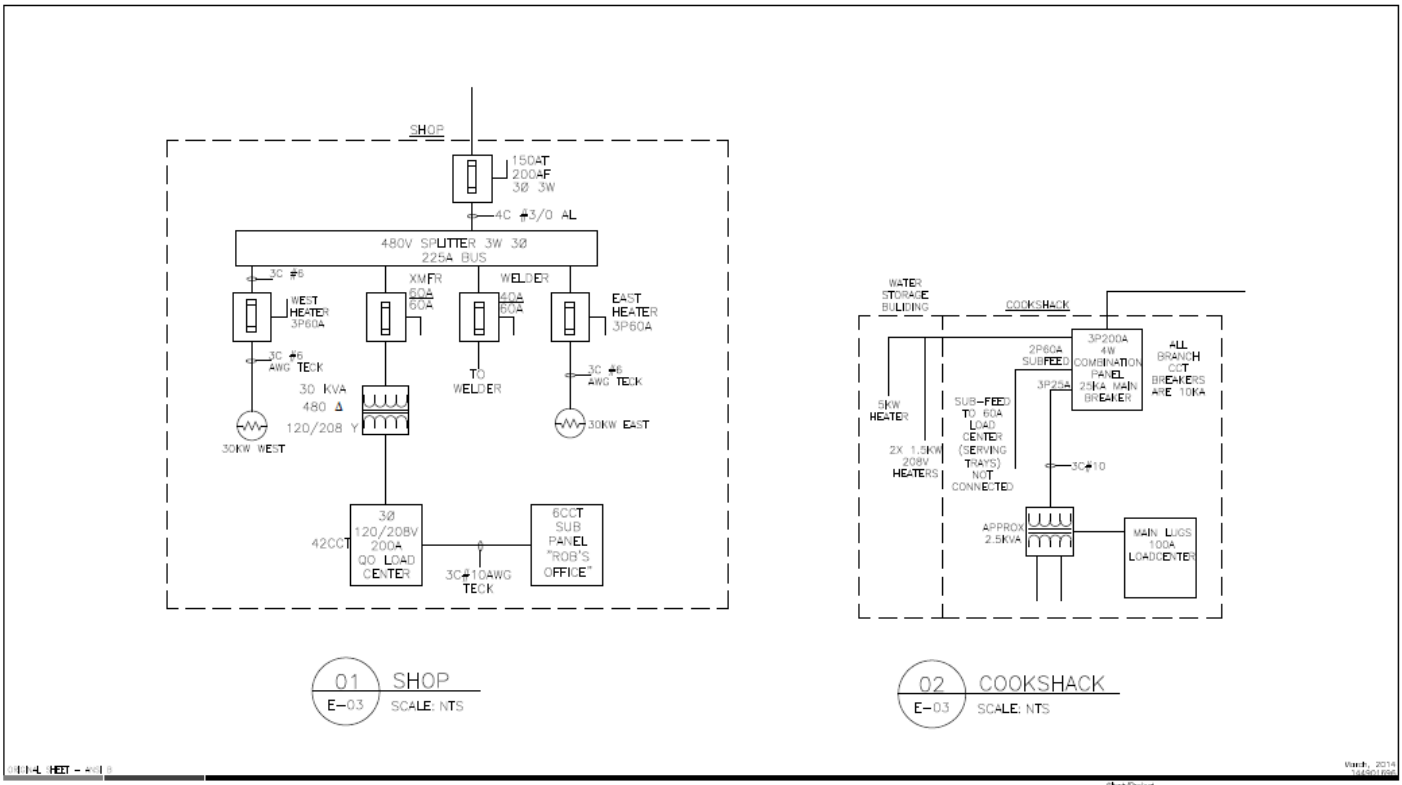
Record Drawing

These drawings have been prepared based on information provided by others. Stantec has not verified the accuracy and/or completeness of this information and shall not be responsible for any errors or omissions which may be incorporated herein as a result.

Client/Project
Mt. Nansen Electrical
Whitehorse, YT

Figure No.
E02

Title
GENERATOR SHACK



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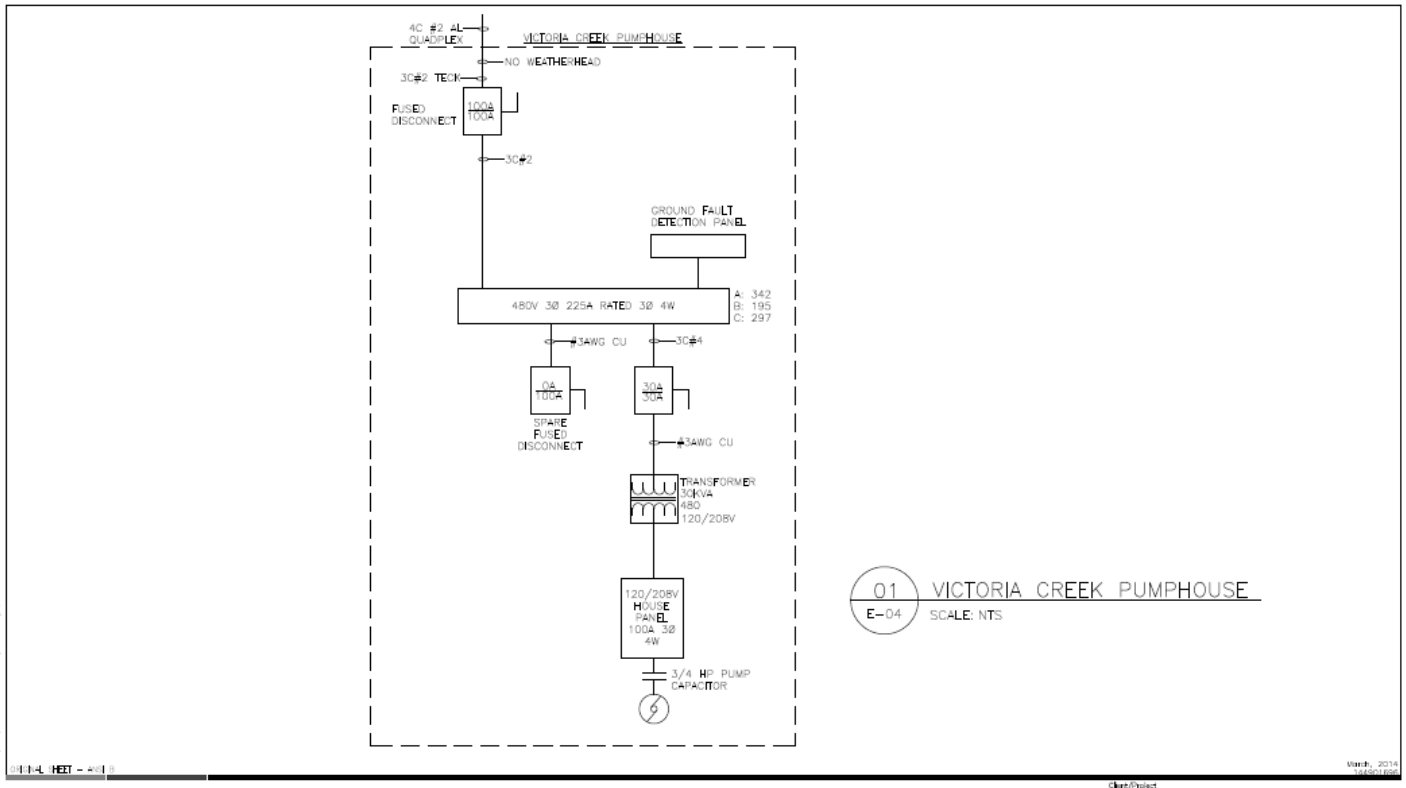
Client/Project
Mt. Nansen Electrical
Whitehorse, YT

Figure No.
E03

Title
SHOP AND COOKSHACK



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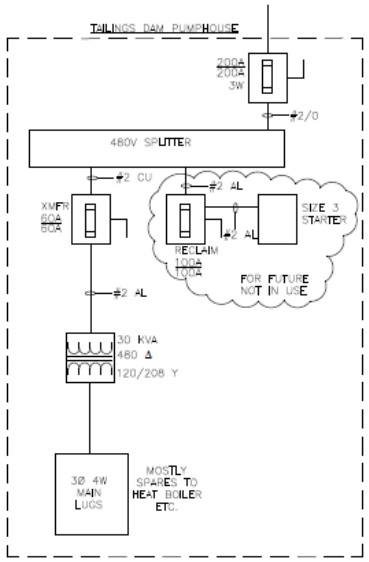
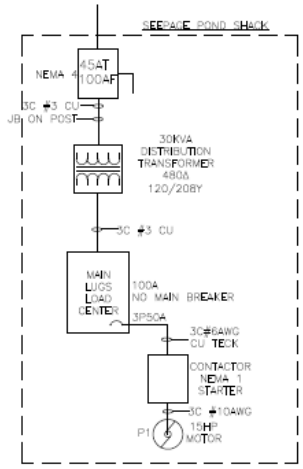
Client/Project
Mr. Nansen Electrical
Whitehorse, YT

Figure No.
E04

Title
VICTORIA CREEK PUMPHOUSE



01 E–05 TAILINGS DAM PUMPHOUSE
SCALE: NTS



02 E–05 SEEPAGE POND SHACK
SCALE: NTS

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Client/Project
Mt. Nansen Electrical
Whitehorse, YT

Figure No.
E05

Title
TAILINGS DAM PUMPHOUSE
AND SEEPAGE POND SHACK