



Appendix P.1

draft Emergency Response Plan

Appendix A draft Spill Contingency Plan
Completed for the Updated 2021 Beaver Dam Mine EIS

ATLANTIC GOLD

Emergency Response Plan – Propane

AGC-PLN-HS-007



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1. INTRODUCTION

1.1 Purpose

This manual describes the procedures to be followed by Atlantic Mining NS Inc. (AMNS) personnel in the event of an emergency at the Touquoy Mine site related to propane or propane facilities. AMNS is a wholly owned subsidiary of St. Barbara Limited.

1.2 Objective of the emergency response plan

The objective of this Environmental Emergency (E2) Plan is to implement a structured program for the prevention of, preparation for, response to and recovery from an environmental emergency or danger to human life or health related to propane or propane facilities at the Touquoy Mine site located at 409 Billybell Way, Mooseland, Middle Musquodoboit, NS.

This plan is meant to be a supplemental plan to the Site Emergency Response Plan (Site ERP) and should be used in conjunction with the Site ERP.

1.3 Scope of the plan

Emergencies involving hazardous materials can occur with equipment in-service, in storage or during transportation. These emergencies may include:

- Fires;
- Spills;
- Gas leaks;
- Explosions;
- Power outages;
- Threats to people, property, and goods;
- Other types of site-specific incidents.

The site-specific E2 Plan included in this manual applies only to the propane storage facilities and systems identified at the Touquoy Mine site. The E2 Plan addresses emergencies related to fire or product release associated with the noted storage systems only, and focuses mainly on the environmental and the human health and safety aspects of the emergencies. For all other emergencies at the site refer to the Site ERP.

1.4 Regulatory Framework

The “Regulations Amending the Environmental Emergency Regulations” (E2 Regulations) under section 200 (1) of the Canadian Environmental Protection Act, 1999 outline the requirements for site specific environmental emergency response plans

The E2 Regulations may apply to any person who owns, or has the charge, management, or control of any of the 215 hazardous substances listed in Schedule 1 of the E2 regulations that exceeds the specified

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quantity. If the criteria are met, notification of the minister of the Environment containing the required information set out in the E2 Regulations is required.

The E2 Regulations are focused on fixed, land-based facilities and can apply to various industrial sectors and facilities across Canada.

The requirements for an E2 Plan at this facility are triggered by the storage of Propane (CAS# 74-98-6) in quantities greater than 4.5 tonnes (appx. 2380 USWG).

1.5 Company Profile

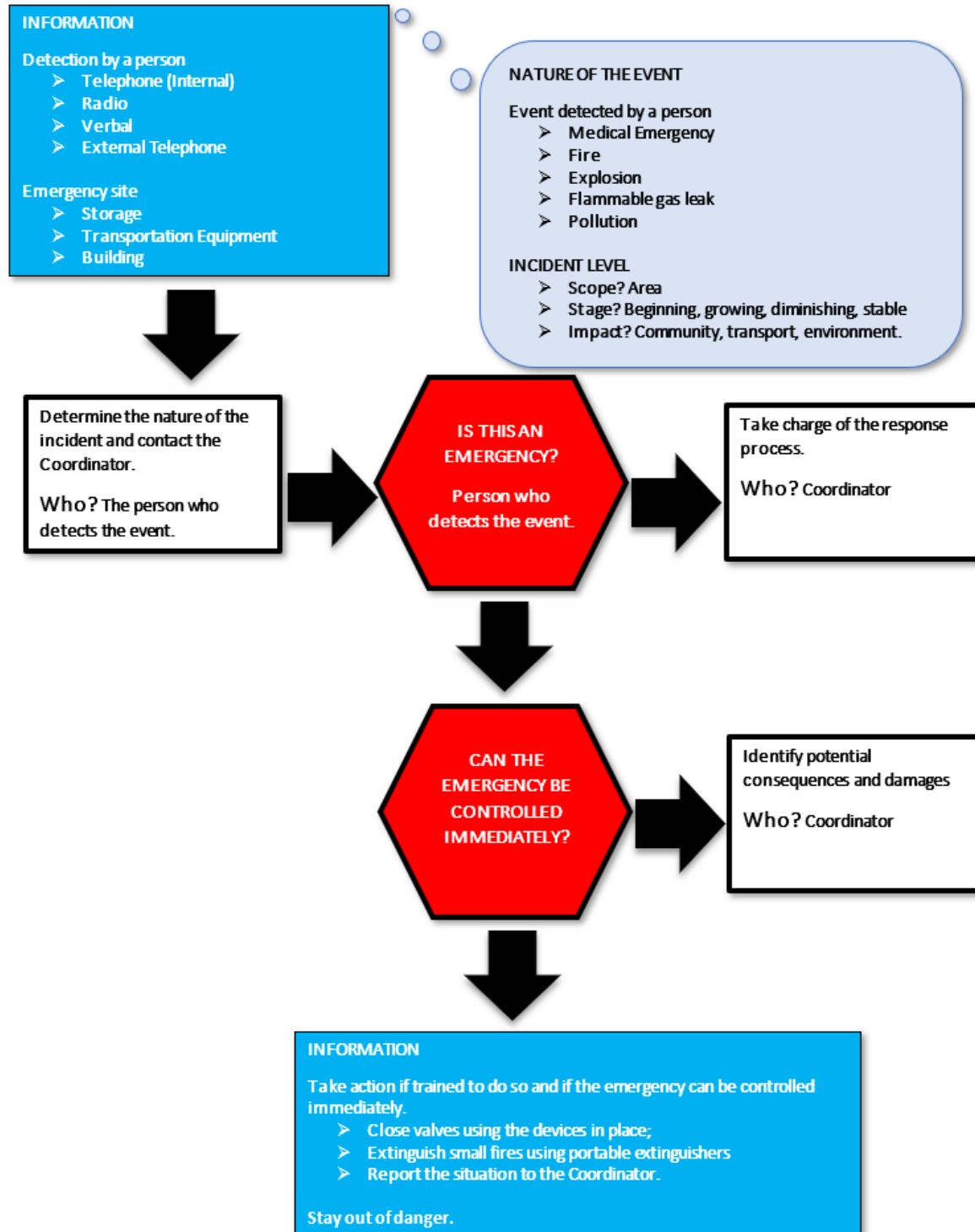
The Touquoy Gold Mine is located approximately 110 km northeast of Halifax in the Moose River Gold Mines District in Halifax County, Nova Scotia. The Touquoy Property covers an area of approximately 1,760 ha.

| | |
|------------------------------|---|
| Name and Company Description | Touquoy Mine site – Gold mine consisting of an open pit, a tailings management facility, milling facility, waste rock storage area and administrative offices |
| Address | 409 Billybell Way, Mooseland |
| City/Municipality | Middle Musquodoboit, Halifax Regional Municipality, Nova Scotia |
| Postal Code | B0N 1X0 |
| Telephone Number | 902.384.2772 |
| Coordinates | 44°59'24.68"N 62°56'08.53"W |

1.6 Emergency Response Management Model

- AMNS is the first-level responder in the event of an emergency situation at the Touquoy Mine site. However, the Halifax Regional Municipality is the first level of government to respond in an emergency situation and it is responsible for managing the emergency response if an incident occurs on its territory.
- AMNS implements procedures to limit the impacts of an emergency situation, and may call upon the municipality's support in containing the cause of an incident.
- AMNS responders help control an emergency situation by advising municipal responders in order to facilitate their work.

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1.7 Assessing the Situation and Issuing the Alert


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2. DEFINITIONS

| Term | |
|---|--|
| Accident | Any unplanned or undesired event that causes harm to health, the environment, or property. |
| Alternative Accident Scenarios | An alternative scenario represents other potential accidents that could occur in the event a hazardous substance is released. This scenario takes into account the proximity or interconnection of vessels containing the substance involved. It also takes into account passive and active mitigation measures. |
| BLEVE: (Boiling Expanding Vapour Explosion) | <p>A BLEVE is caused by the catastrophic failure of a pressurized vessel containing a liquid whose temperature highly exceeds its atmospheric boiling point.</p> <p>In short:</p> <ul style="list-style-type: none"> • Explosion (bursting) of a vessel containing an overheated liquid • The presence of a combustible product is an aggravating factor • Involves a rapid Vapourization of the liquid |
| CAS | Chemical Abstract Service – a division of the American Chemical Society in the United States, which assigns chemicals a unique identification number that is used internationally. |
| Danger | An intrinsic property of a substance, agent, energy source or a situation which could cause undesirable consequences. Major Industrial Accidents Reduction Council (MIARC) guide (2007) – Organization for Economic Cooperation and Development (OECD) Guiding Principles for Chemical Accident Prevention, Preparedness and Response. 2003. |
| Damages | Consequences that may cause physical injuries, or harm to health, or damage to property or the environment. |
| Emergency Response Plan (ERP) | A written document that sets out the procedures to be followed in case of an incident, the responsibilities of the response team, and the resources available. The document also contains a specific response plan for situations involving propane. |
| Emergency | An emergency is an unusual situation that requires extraordinary measures to be taken as quickly as possible to limit damages caused to persons, property, or the environment. |
| Evacuation Procedure | An indoor plan of all floors (to scale) and a specific action plan for the safe evacuation of occupants in case of an incident. |
| Flash Fire | Combustion of a flammable air/gas mixture that produces a short-term thermal radiation with negligible overpressure. Centre for Chemical Process Safety 2010 - (Guidelines for Vapour |

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| Term | |
|---------------------------------|--|
| | Cloud Explosion, Pressure Vessel Burst, BLEVE and Flash Fire Hazards) |
| Hazardous Substances | Toxic, flammable, explosive or reactive substances |
| Mitigation Measures | <p>Equipment and/or procedures intended to minimize the impact of an accident on the public and on sensitive areas</p> <p>ACTIVE: Systems intended to lessen the consequences of an accident on the public and on sensitive areas and that require human intervention or external mechanisms or energy sources.</p> <p>PASSIVE: Systems intended to lessen the consequences of an accident on the public and on sensitive areas, but that do not require human intervention, external mechanisms or energy sources.</p> |
| Overpressure | <p>Overpressure following an explosion</p> <p>20.89 kPa (3 psi): may cause significant damages to steel building structures, which may lead to a collapse.</p> <p>6.89 kPa (1 psi): may cause significant damages to load-bearing walls (brick or wood walls, with 90% of windows broken), which may lead to a collapse.</p> <p>2.09 kPa (0.3 psi): may cause window breakage, which may cause injuries due to flying glass fragments (10% of windows broken). This corresponds to the impact distance to which fragments may be projected.</p> |
| Recovery TIME | Time required to return to a normal situation after an emergency situation. The emergency response plan usually includes measures for minimizing recovery time. |
| Risk | Result of the probability of an accident and its consequences |
| Risk LEVEL | An incident's risk level is determined by the combination of its probability class and severity level. (MIARC Guide for Risk Management of Major Industrial Accidents 2007) |
| Sensitive Areas and Populations | Sensitive areas and populations are elements that are external to an establishment and that could be affected during an accident, e.g. residential areas, storage areas for chemical products, hospitals, teaching institutions, communication lines, specific natural sites, ecological zones, drinking water supply, groundwater, etc. |
| VCE, Vapour Cloud Explosion | Combustion of a flammable air/gas mixture at a more rapid rate than in a flash fire (often due to a flame's interaction in a congested or confined space), resulting in the development of an overpressure (i.e., blast wave). Most VCEs are deflagrations (low overpressure) Centre for Chemical Process Safety 2010 - (Guidelines for Vapour Cloud Explosion, Pressure Vessel Burst, BLEVE and Flash Fire Hazards), p. 4) |

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| Term | |
|---------------------|--|
| Worst-Case Scenario | This accident scenario represents the release of the greatest quantity of a hazardous substance, held in the largest container, whose impact distance is the greatest. Whether the substance is toxic or flammable, conditions are preset to develop worst- case scenarios. These standard conditions include weather conditions, the choice of the container, the duration of the release, and the product’s quantity. In the case of interconnected containers, the largest container, and not all containers, is used to establish the worst-case scenario. (Implementation Guidelines for the Environmental Emergency Regulations 2011, Annex 5 and the 2007 MIARC Guide). |

3. RESPONSIBILITIES

During an emergency, the following personnel have been assigned specific roles and responsibilities. For further information on roles and responsibilities detailed herein, please refer to the Site Emergency Response Plan (AGC-PLN-HS-001) Section 3.

| | |
|--------------------------------------|---|
| General Manager | <ul style="list-style-type: none"> • Ensure appropriate resource availability for Emergency Response Team (ERT) • Responsible for timely and effective communication of events as per reporting and notification structure • Liaise with regulatory agencies when required including Nova Scotia Environment (NSE), Labour and Advanced Education Nova Scotia Occupational Health & Safety Division (LAE NS OHS Division), Department of Natural Resources (DNR), etc. |
| Department Manager | <ul style="list-style-type: none"> • Provide timely and effective communication of ERP to department personnel • Participate in timely and effective communication during an event as per reporting and notification structure and procedures |
| Emergency Response Coordinator (ERC) | <ul style="list-style-type: none"> • Act as liaison between ERT, H&S Manager & Environment Manager • Provide scene control and direction in the event of an emergency • Establish response plans for emergency events • Act as ERT team lead and provide resource support in the form of training, information and guidance for ERT members • Ensure ERT is adequately prepared and trained to respond to emergency events • Establish inspection protocols for ERT controlled supplies and equipment ensuring sufficient supplies are on site in preparedness for a potential emergency event • Provide secondary assistance as medical first responder if necessary • Maintain direct oversight of site ERT programming |

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| | |
|-------------------------------|---|
| | <ul style="list-style-type: none"> • Properly don supplementary PPE when working in hazardous areas during an emergency |
| Emergency Response Team (ERT) | <ul style="list-style-type: none"> • Act as first responders in the event of an emergency • Provide area control in specific emergency circumstances • Work under the direction and oversight of the ERC • Participate in training and emergency response professional development as deemed necessary by the ERC • Respond in a timely manner and as directed to emergency calls while on site • Ensure ERT equipment inspections are completed and documented routinely • Properly don supplementary PPE when working in hazardous areas during an emergency |
| Health & Safety Department | <ul style="list-style-type: none"> • Act as liaison between ERC and site management; chiefly the site General Manager • Provide situational updates as necessary and as per notification and reporting procedures • Liaise with external regulators • Provide secondary assistance to ERC in regards to scene control and ERT direction as necessary • Maintain functional oversight of site ERT programming, training and development • Provide resource support to ERC and ERT as requested • Properly don supplementary PPE when working in hazardous areas during an emergency • Ensure that the ERP is updated • Prepare detailed report after every exercise and emergency |
| Superintendent / Supervisor | <ul style="list-style-type: none"> • Ensure availability of ERT members in the event of an emergency (in a timely manner) • Act as liaison between ERC, Environmental Manager and Department Manager if necessary • Provide area subject matter expertise as requested during an emergency event; provide direct support if requested |
| Security Department | <ul style="list-style-type: none"> • Establish area or boundary control as requested during an emergency event • Communicate with emergency services providers as requested (situationally dependent) • Properly don supplementary PPE when working in hazardous areas during an emergency |
| Environment Department | <ul style="list-style-type: none"> • Act as liaison between ERC and site management as required in any type of environmental event • Provide situational updates as necessary and as per notification and reporting procedures related to environmental events |

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| | |
|-------------------------------|---|
| | <ul style="list-style-type: none"> • Liaise with external environmental regulators • Provide secondary assistance to ERC in regards to scene control and ERT direction as necessary during environmental events • Assist as subject matter experts related to spills and remediation |
| Human Resources Department | <ul style="list-style-type: none"> • Provide personnel information to emergency services if necessary |
| Employees / Business Partners | <ul style="list-style-type: none"> • Review and acknowledge requirements and procedures outlined in Emergency Response Plan • Actively participate in AMNS safety programming to ensure due diligence is practiced in the prevention of emergency events • Properly don supplementary PPE when working in hazardous areas during an emergency • Evacuate as directed in a fast, safe manner and await further instructions including “All Clear” in the event of an emergency |

4. PREVENTATIVE MEASURES

4.1 Existing Control Measures

The equipment is installed correctly according to regulations. Equipment installation and maintenance is the responsibility of Irving Energy. Delivery drivers complete a visual inspection of the tanks upon delivery of product. A qualified technician conducts a visual inspection of the tanks every four to six (6) weeks, utilizing the Plant/Dispenser Inspection Check List (Appendix A). Irving also services the vaporizers twice annually.

Other existing control measures currently being applied for the propane storage and distribution system at the Touquoy Mine site include:

- The propane tank and pipes are painted, not corroded, and in good condition;
- The vegetation around the propane storage area is controlled;
- The propane tank and associated installations (i.e. pipes) are protected against vehicle damage;
- Placards installed around the installation identifying the product;
- Emergency shut off;
- Security measures for the propane tank are in place and include;
 - pressure gauge/regulator
 - an internal excess flow valve;
 - an emergency shut off button (located inside the plant – South East corner);
 - relief valve;
 - breakaway coupling.

In the event of an accident, such as a broken hose or excessive flow rate, these measures will limit the amount of propane released to the atmosphere to the quantity contained in the hose. In addition, the emergency button allows pumps and valves on propane pipes to be shut down. This mechanism is

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equipped with pressurized tubing that keeps the valves open. In the event of a fire, this polymer tubing melts, releasing the nitrogen pressure, and causing the immediate shutoff of all propane loading and unloading valves.

Another safety component is the installation of a secondary control device on the quick-closing internal valve. This device is composed of a fuse wire or plug whose melting point is not higher than 220°F (105°C) and which, when it melts, causes the internal valve to close in the event of a fire.

See Appendix B for the propane tank skid and equipment layout.

5. IDENTIFICATION OF POTENTIAL ACCIDENT SCENARIOS

5.1 Basic Information on Propane

For additional information on propane, see the Safety Data Sheet (SDS) included in Appendix C of this manual.

- The CAS registry number for propane is 74-98-6.
- Propane is colorless gas with a faint odor at high concentrations;
- Fuel grades contain mercaptans that give propane an unpleasant smell;
- Propane is **EXTREMELY FLAMMABLE GAS**. It is a **LIQUID PRESSURIZED GAS**;
- Propane is classified as a simple asphyxiant (can replace oxygen available for breathing);
- Propane is slightly soluble in water (62 ppm at 25°C);
- Frostbite may occur during fast evaporation of liquid propane from a cylinder;
- When subject to fire, tanks, cylinders and tankers can rupture violently and project fragments;
- Propane in its natural state is a gas with a boiling point of -42°C;
- One (1) litre of liquid propane equals to 270 litres of propane gas;
- Propane is denser than air and will spread over the ground and follow contours of the terrain until its temperature reaches the ambient temperature;
- Propane tends to form a dense cloud of gas in normal atmospheric conditions;
- When propane is spilled, it will accumulate at the lowest points before slowly dispersion to fill the rest of the space;
- Propane related risks are higher in enclosed space due to the possibility of being exposed to an ignition source.

5.2 Facility location and surroundings

- Area of the mine site: approximately 10 km²
- Distance from tanks to Moose River road: 0.4 km
- Distances between tanks and the milling complex and associated buildings: 50 metres (milling complex) to 500 metres (administration building)
- Distance between tanks and the reagent building: 35 m
- Distance between tanks and fuel tanks: 310 m
- Distance between tanks (E2) and other tanks (non-E2): 100 m

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- Maximum amount of propane anticipated at any time within a calendar year: 81.38 tonnes (includes E2 regulated tanks and others)
- Capacity of the largest propane vessel: 18,000 USWG
- Number of tanks: 6 (Two E2 regulated tanks)
- Quantity of available water: 14 hydrants (1000 gpm/each)

No sensitive areas (i.e. schools, hospitals, residential areas) are noted near the propane tanks storage area. Other industrial buildings such as the milling complex, administration office, truckshop/warehouse, laboratory and crushed ore storage are located within a 500 metres radius. A plan view of the propane tank installation in relation to other buildings, property limits, roads, and fences as well as the muster point location during a propane related emergency is detailed in Figure 5-1.

Refer to Figure 5-2 for a detailed site plan of the mill grounds showing fire hydrant locations, locations of fire protection and emergency response equipment locations and buildings. For additional information on emergency equipment locations, please refer to Site ERP - Appendix 3.

Figure 5.1 General Site Plan

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Client: ATLANTIC MINING NS CORPORATION

GENERAL SITE PLAN
 TOUQUOY GOLD PROJECT
 HALIFAX COUNTY, NOVA SCOTIA

| | |
|------------------|------------|
| Job No.: | 121619250 |
| Scale: | 1 : 12,500 |
| Date: | 2018 11 23 |
| Dwn. By: | JL |
| App'd By: | EA |

Fig. No.: 5-1

Figure 5.2 Emergency Response Equipment Locations

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| | | |
|--|--------------------|---------------|
| EMERGENCY RESPONSE EQUIPMENT LOCATIONS TOUQUOY GOLD PROJECT HALIFAX COUNTY, NOVA SCOTIA Client: ATLANTIC MINING NS CORPORATION | Job No.: 121619250 | Fig. No.: 5-2 |
| | Scale: 1 : 2500 | |
| | Date: 2020 08 17 | |
| | Dwn. By: JL | |
| App'd By: EA | | |

5.2.1 Storage and Distribution System

| Tank No. | Tank Location | Product | Liquid Type | CAS # | Capacity (tonne) |
|----------|--|---------|-------------|---------|-----------------------------|
| 1* | South east of milling complex | Propane | Flammable | 74-98-6 | 33.6 (18,000 USWG) |
| 2* | South east of milling complex | Propane | Flammable | 74-98-6 | 33.6 (18,000 USWG) |
| 3 | North west of the milling complex (truck shop) | Propane | Flammable | 74-98-6 | 3.4 (1800 USWG) |
| 4 | North west of the milling complex (truck shop) | Propane | Flammable | 74-98-6 | 3.4 (1800 USWG) |
| 5 | South west of the milling complex | Propane | Flammable | 74-98-6 | 3.74 (1000 USWG) |
| 6 | South west of the milling complex | Propane | Flammable | 74-98-6 | 3.74 (1000 USWG) |
| 7 | South west of the milling complex | Propane | Flammable | 74-98-6 | 3.74 (1000 USWG) 74-98-6 |

***Triggers E2 Regulations**
5.2.2 Surrounding Properties

The Project site encompasses most of the previous Moose River Gold Mines, a former gold mining community with a peak population of up to 5000 during its most productive period in the late 1800s (CRA, 2007). By the 2000's the population was less than 30 and the area is noted to have numerous vacant dwellings (Stantec, 2017). By October 2006, the permanent population of Moose River Gold Mine was eight and since the development of the new open pit, no permanent population remain in the immediate vicinity of the mine site.

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A small museum, which was the former schoolhouse and today operates in the summer months under the auspices of the Musquodoboit Valley Tourism Association remain near the main entry point to the mine site off Moose River road.

Moose River Road is a provincially designated road which divides the mine site area in two and travels from east to west. The majority of the mine site is surrounded by wooded areas, cut blocks and natural features such as lakes and watercourses.

5.2.3 Processes and Activities

The two Propane tanks that trigger the E2 Regulations at the Touquoy Gold Mine site are used to heat the milling complex, as well as supply gold processing equipment such as regeneration kiln burners (x3), an elution burner, and a barring furnace burner.

5.3 Worst Case Scenario

Since propane exceeds the threshold quantities under the E2 Regulations, an offsite consequence analysis is required. In order to calculate worst-case scenario distances for the Touquoy site, a web-based software called RMP*Comp™ was used.

RMP*Comp is an offsite consequence analysis program developed jointly by the National Oceanic and Atmospheric Administration (NOAA) and the U.S. Environmental Protection Agency (EPA).

The worst-case scenario assumes the explosion of all propane contained in the largest tank with a TNT factor of 10%. The largest tank at Touquoy has a capacity of 33,600 kg. Since the two largest tanks at Touquoy are installed side-by-side, it was assumed that both tanks would explode if one were to explode. As such, a second, more realistic worst-case scenario was calculated using 67.2 tonnes (i.e. 2 x 33.6 tonnes) of propane. Both scenario results are shown in Figure 5-3.

Scenario Summary:

- Scenario type: Worst-case
- Threat type: Flammable gas
- Physical state: Liquified under pressure
- Quantity released:
 - Scenario 1- 33,600 kg; and
 - Scenario 2- 67,200 kg
- Release type: Vapour cloud explosion

Assumptions About the Scenario (taken from RMP*COMP results):

- Wind speed: 1.5 metres/second
- ¹Stability class: F

¹ [Pasquill atmospheric stability classes](#) – commonly used method of categorizing the amount of atmospheric turbulence present. Atmospheric turbulence categorized into six stability classes named A, B, C, D, E and F with class A being the most unstable or most turbulent class, and class F the most stable or least turbulent class.

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- Air Temperature: 25 °C
- TNT factor: 10%

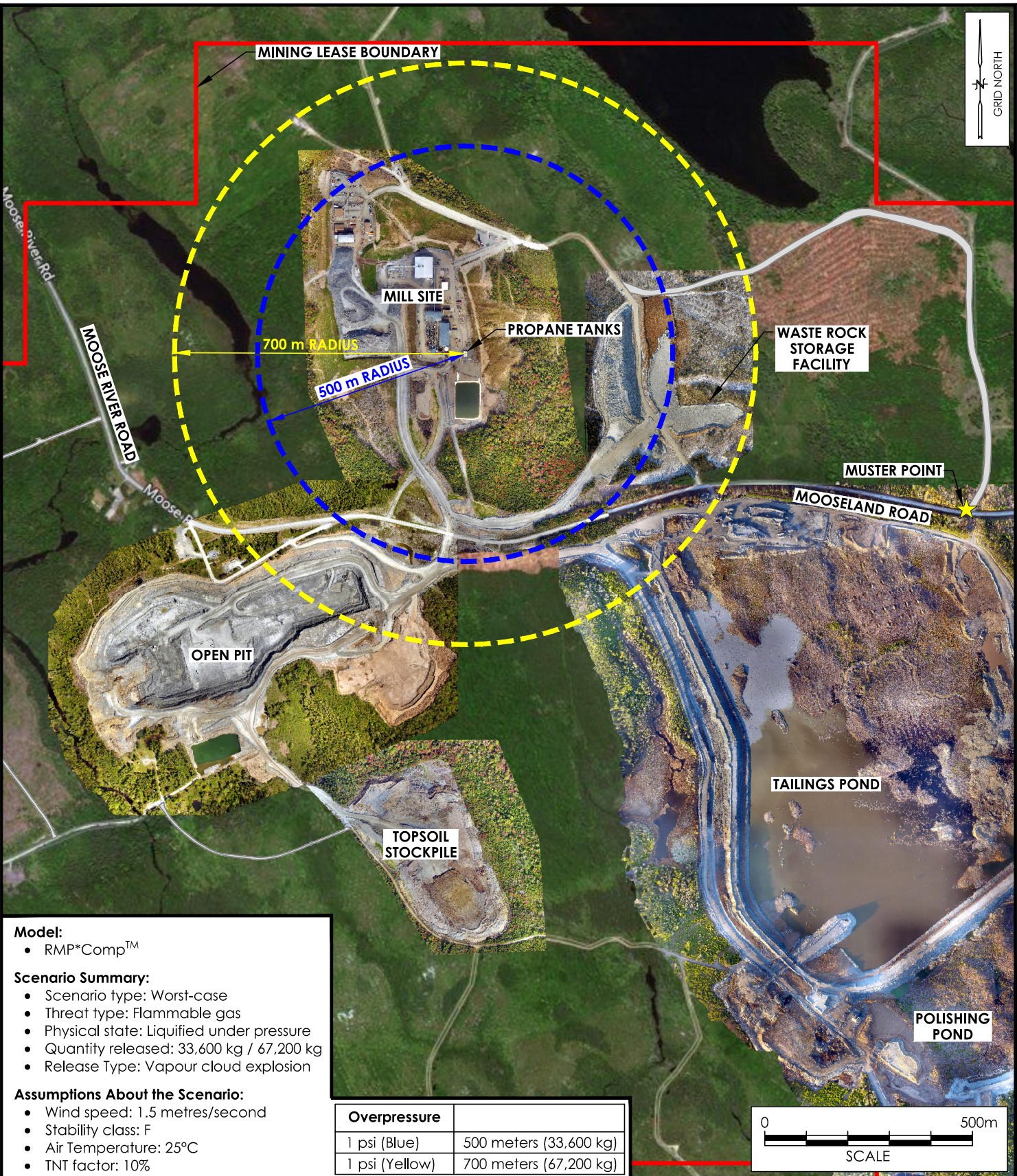
Results:

- Scenario #1 - For a tank capacity of 33,600 kg (i.e. 1 x 33.6 tonnes), the distance to 1 psi (69 kPa) overpressure is **0.5 kilometres**.
- Scenario #2 - For a tank capacity of 67,200 kg (i.e. 2 x 33.6 tonnes), the distance to 1 psi (69 kPa) overpressure is **0.7 kilometres**.

Excluding on-site mining personnel and infrastructure as well as a portion of Moose River Road, the public nor public infrastructure should be affected by the explosion(s) as currently modeled.

Figure 5.3 Worst Case Scenario – Propane Blast Radius

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Model:

- RMP*Comp™

Scenario Summary:

- Scenario type: Worst-case
- Threat type: Flammable gas
- Physical state: Liquified under pressure
- Quantity released: 33,600 kg / 67,200 kg
- Release Type: Vapour cloud explosion

Assumptions About the Scenario:

- Wind speed: 1.5 metres/second
- Stability class: F
- Air Temperature: 25°C
- TNT factor: 10%

| Overpressure | |
|----------------|------------------------|
| 1 psi (Blue) | 500 meters (33,600 kg) |
| 1 psi (Yellow) | 700 meters (67,200 kg) |

Reference:

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WORST CASE SCENARIO - PROPANE BLAST RADIUS
 TOUQUOY GOLD PROJECT
 HALIFAX COUNTY, NOVA SCOTIA

Job No.: 121619250

Scale: 1 : 12 500

Date: 2018 11 22

Dwn. By: JL

App'd By: EA

Fig. No.: 5-3



Client: ATLANTIC MINING NS CORPORATION

V:\1216\active\121619250\1_geotechnical\3_drawings_logs\600_TOUQUOY\SHEET FILES\13_PROP_ERP\C\19250_PROP_ERP_FIG_5-3_REV1.dwg

5.4 Alternative Accident Scenarios

Alternative scenarios take into consideration the proximity and the interconnection of the tanks that hold the substance. It takes into account passive and active mitigation measures.

5.4.1 Possible Accident Scenarios Include:

- Leak through hoses during transfer from truck to tank or tank to truck;
- Leak from a gasket;
- Leak at one of the pumps;
- Broken or torn away hose;
- Broken or torn away pipe;
 - The most probable consequence of the above scenarios is a flash fire or a flashback. The effect will be a thermal radiation at short distance. Overpressure in these cases is negligible. The gas cloud from these scenarios could cause an explosion (Vapour Cloud Explosion) if the gas release is in a congested or confined space. This is unlikely to occur at Touquoy due to the outdoor tank installations.
- Tank BLEVE (Boiling Expanding Vapour Explosion).
 - A BLEVE could occur when a tank containing pressurized liquid ruptures. When this accident occurs, it may cause a fire ball that produces extreme heat. This scenario is reduced by the implementation of safety mechanisms, proper maintenance and site safety measures, thus reducing the risk of an occurrence at Touquoy.
- VCE (Vapour Cloud Explosion).
 - A VCE occurs when a component fails and releases an explosive gas cloud which may ignite if the air-gas mixture falls within flammability range. The force of an explosion and its consequences depend on the immediate environment (i.e. confined or congested). Most VCE's are deflagrations (weak overpressure).

5.4.2 Selected alternative scenario:

After a review of the tank design, it was determined that an applicable alternative scenario would be due to broken or torn-away piping during tank filling. According to a tank drawing provided by Irving Energy, the filling piping is 75 millimeter (mm) diameter (Appendix B). Therefore, an uncontrolled release from the filling piping was also simulated using RMP*COMP. A release was assumed to occur from only one of the tanks for the alternative scenario. The primary hazard for the torn-away pipe is from a jet fire or flash fire. The extent of a jet fire or flash fire is characterized by the lower flammability extent of the Vapour cloud that occurs during the release. The selected scenario result is shown in Figure 5.4.

Scenario Summary:

- Scenario type: Alternative Case
- Threat type: Flammable gas
- Physical state: Liquified under pressure
- Quantity source: 33,600 kg

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- Release type: Vapour cloud fire

Assumptions About the Scenario (taken from RMP*COMP results):

- Wind speed: 3 metres/second
- Stability class: D
- Air Temperature: 25 °C

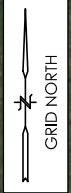
Results:

For a tank capacity of 33,600 kg and a hole diameter of 75 mm, the maximum distance to the flammable limit was predicted to be **0.2 kilometres**.

Excluding on-site mining personnel and infrastructure, neither the public nor public infrastructure should be affected by the hazard for the alternative case as currently modeled.

Figure 5.4 Alternative Accident Scenario

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Model:

- RMP*Comp™

Scenario Summary:

- Scenario type: Alternative-case
- Threat type: Flammable gas
- Physical state: Liquified under pressure
- Quantity released: 33,600 kg
- Release Type: Vapour cloud fire

Assumptions About the Scenario:

- Wind speed: 3 metres/second
- Stability class: D
- Air Temperature: 25°C

Lower Flammability Limit (LFL)

- 36 mg/L



Reference:
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| | | |
|---|--------------------|---|
| ALTERNATIVE ACCIDENT SCENARIO TOUQUOY GOLD PROJECT HALIFAX COUNTY, NOVA SCOTIA | Job No.: 121619250 | Fig. No.: 5-4 |
| | Scale: 1 : 10 000 | |
| | Date: 2018 11 23 | |
| | Dwn. By: JL | |
| Client: ATLANTIC MINING NS CORPORATION | App'd By: EA | Stantec |

V:\1216\active\121619250\1_geotechnical\3_drawings_logs\600_TOUQUOY\SHEET FILES\13_PROP_ERP\C19250_PROP_ERP_FIG_5-4_REV1.dwg

6. SPECIFIC RESPONSE PLANS

6.1 Response Equipment

Emergency supplies locations are described in detail in Appendix 3 and 4 of AMNS Emergency Response Plan. For the purpose of this plan, equipment supplied on-site by AMNS is listed herein.

- First aid kits
- Spill kits
- Fire extinguishers
- Fire hydrants & Hoses

Refer to Figure 5-2 of this report for emergency response equipment locations.

6.1.1 Equipment and manpower supplied by Irving Energy

As the owners of the on-site propane tanks, Irving has identified that they are responsible and accountable for all equipment and personnel provision in the event of a propane related emergency as per Irving's Emergency Response Assistance Plan (ERAP) #2-0010-039.

6.2 Emergency Procedures – Propane Related

For general site emergency response procedures and communications, refer to the Site ERP. For emergencies related to propane, the following procedures are outlined to specifically deal with propane related incidents. Furthermore, this plan covers all of Irving owned tanks located at the Touquoy mine site. As such, **during a propane related emergency, Irving has directed Atlantic Gold to close valves if safe to do so, call 911, and contact Irving (1-888-310-1924) which will evoke their E2 plan.**

6.2.1 Procedure for a building fire not involving propane

For information on how to handle a fire not involving propane, refer to the Site Emergency Response Plan: Appendix A2.5 – Fire Fighting.

6.2.2 Procedure for a fire during propane transfer tanker to tank/tank to tanker

If you discover a fire:

1. Stay calm and do not yell fire;
2. If possible, shut off the following valves, without putting yourself at risk:
 - a. Transfer motor (pump)/truck engine
 - b. Supply valve
 - c. Emergency valve
 - d. Secondary shut off
3. Evacuate everyone from the danger zone and notify anyone at the site of the situation;
4. Call Channel 7 to notify Security. Specify when the fire was found and whether it has spread to propane tanks;

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5. Move away and go to the appropriate safe muster point (located outside the 0.7 km worst case scenario radius – intersection of Billybell Way and Moose River Road);
6. Notify Irving Energy (gas and installation supplier);
7. Reporting – refer to Section 8 of this document for further reporting instruction.

For additional information on how to handle a fire during a propane transfer, refer to the Site Emergency Response Plan: Appendix A2.21 – LPG Release.

6.2.3 Procedure in the event of a propane leak or spill

Gas can start leaking at any time of the day or night. The employee who detects the leak must notify Security as soon as possible who will then notify the Emergency Response Team (ERT) Coordinator and others, as required.

As soon as a gas leak is detected:

1. Shut off the gas flow to the leak without putting yourself at risk;
2. Keep unauthorized people away;
3. Call Channel 7 and report the incident to Security;
4. For all major leaks: immediately evacuate the area.
5. Notify Irving Energy (gas and installation supplier);
6. Prevent gas from entering low lying areas, basements and low confined spaces since propane fumes are heavier than air and will spread at ground level until they collect in a low spot or in a confined space;
7. Ensure that the area around the leak is well ventilated to prevent fumes from concentrating to the point where they become explosive;
8. Eliminate all possible ignition sources, including those that are not normally considered a risk;
9. Refer to the SDS for propane for more details (Appendix C);
10. Coordinate the response in cooperation with the fire department;
11. Reporting – refer to Section 8 of this document for further reporting instruction.

For additional information on how to handle a propane leak or spill, refer to the Site Emergency Response Plan: Appendix A2.21 – LPG Release.

6.2.4 Procedure in the event of an ignited propane leak

1. Keep unauthorized people away;
2. Call Channel 7 to notify Security;
3. Move away and go to the appropriate muster point (located outside the 0.7 km worst case scenario radius – intersection of Billybell Way & Moose River Road);
4. Notify Irving Energy (gas and installation supplier);
5. Reporting – refer to Section 6 of this document for further reporting instruction.
FIRST, STOP THE LEAK AND THEN THE FIGHT THE FIRE.
6. Do not try to put out the fire unless the fuel feed is shut off. Otherwise, the fuel could explode and start burning again. If you must get close to the tank to shut off the gas, always approach from the side, never from the ends.
7. If flames are touching the tank, **EVACUATE THE AREA IMMEDIATELY.**

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8. **If the tanks are exposed to heat but not in direct contact with flames:**
 - a. If you do not have the proper equipment or if Touquoy personnel have not been properly trained, immediately evacuate the area.
 - b. If Halifax Fire Service arrives on-site, they can spray water uniformly over the tank to cool it and reduce the pressure inside. If not enough water is available to cool down the tank, watch it carefully to observe if the fire gets bigger and the pressure relief valve is hissing louder. **THIS IS THE SIGNAL TO EVACUATE THE AREA IMMEDIATELY.**

For additional information on how to handle an ignited propane leak, refer to the Site Emergency Response Plan: Appendix A2.5 – Fire Fighting.

6.2.5 Evacuation procedure

When the general alarm sounds or the order to evacuate is given (Propane Related):

1. Immediately stop all activities;
2. Eliminate all ignition or heat sources if possible, but without putting yourself at risk;
3. Evacuate the building through the closest emergency exit;
4. Follow any directions given;
5. Close doors behind you;
6. Go the indicated muster point (located outside the 0.7 km worst case scenario radius – intersection of Billybell Way & Moose River Road);
7. Wait for the authorization to return to the area and resume activities.

Never:

1. Take time to collect personal effects or clothing;
2. Go back inside for any reason.

For additional information on how to proceed with an evacuation alert, refer to the Site Emergency Response Plan: Appendix A2.1 – Evacuation.

6.2.6 Procedure in the event of an earthquake

1. In the event of an earthquake, protect yourself from falling objects.
2. If possible, stay at least six metres away from any window in case the glass shatters.
3. Do not leave the premises until you have been told to do so by the ERT Coordinator unless you are in danger.

Once the evacuation order has been given:

4. Stay calm;
5. Watch for debris, electrical wires, broken glass and other objects that present a threat;
6. Follow directions to the letter;
7. Go to the appropriate safe muster point;
8. Do not re-enter the building until the ERT Coordinator gives the all clear.
9. During the earthquake, pipes, fittings, and other components on the tanks may have been damaged and may require repairs. When safe to do so, shut off propane supply to the mill until

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the tanks and associated components have been inspected by a certified technician and given the all clear.

For additional information on how to proceed in the event of an earthquake, refer to Atlantic Gold Emergency Response Plan: Appendix A2.17 – Natural Event.

6.2.7 Procedure in the event of a power failure

Refer to Atlantic Gold Emergency Response Plan: Appendix A2.25 – Power Failure.

6.2.8 Procedure in the event of a ruptured hose

Assessment of the situation:

1. Evidence of a leak:
 - a. Visible propane cloud
 - b. Sound of leaking gas
 - c. Liquid propane puddle
2. Emergency communications:
 - a. Call 911, depending on the size of the leak
 - b. Notify employees in the affected area
 - c. Call ECCC and provincial authorities
 - d. Call Irving Energy (i.e. propane supplier)
3. Goals of the response:
 - a. Rescue
 - b. Control vapours/liquids
 - c. Evacuate
 - d. Ventilate the area
 - e. Eliminate ignition sources
 - f. Contain hazard
4. Contain hazards – liquid propane:
 - a. Conditions can change quickly, be aware of surroundings at all times.
 - b. Shut off supply
 - i. Dispenser nozzle, remote controller, main valve, PTO, etc.
 - c. Control liquid propane to prevent it from entering into sanitary or storm water systems, low points, etc.
 - d. If it can be done safely, spray water to dissipate liquid and contain Vapours.
5. Reduce risks – propane Vapour:
 - a. Shut off supply source.
 - b. Spray water mist to dissipate Vapours and move away from buildings, vehicles, and ignition sources.
 - c. Control and plug leak(s).
 - d. Eliminate gas from the area.

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6. Remove damaged equipment:
 - a. Make sure that flammable Vapours are no longer present.
 - b. Remove damaged equipment from the area.

7. Perform a post-incident analysis:
 - a. An analysis must be performed immediately after the incident, and all responding parties must take part in drafting the report.

For additional information on how to proceed in the event of a ruptured hose, refer to the Site Emergency Response Plan: Appendix A2.8 Hazardous Substance Release (Other than Cyanide); Appendix 2.20 – Hazardous Substance Release and Appendix A2.21 – LPG Release.

7. RECOVERY RESTORATION

After a product release emergency has occurred on the site, various measures may be required:

- Assess the damage and notify the emergency teams and the public in an open and transparent manner. Refer to Section 6 of this document for further notification and communication procedures;
- Establish a system that can provide access to the necessary material and human resources in an efficient and timely manner;
- If necessary, complete subsurface investigations and/or remediation of impacted soil, groundwater or surface water;
- If necessary, the removal and disposal of impacted soil, groundwater or surface water or spilled petroleum products must be carried out in accordance with existing environmental regulations and the industrial approval (IA);
- The storage tank system must be fully inspected, with any damaged components repaired or replaced before the storage tank system is put back into service. Dependent on the extent of the damage, particularly if the product release emergency was also associated with a fire emergency, it may be necessary to remove the product (i.e. propane) from the storage tank system and replace the entire system;
- A temporary storage tank system may be required for the site until the damaged system is inspected and repaired or replaced;
- Depending on the nature and circumstances of the product release emergency, it may be necessary to revise the storage tank system's operations, inspection and/or maintenance procedures or to revise the emergency plan. This will be established post-incident during a debriefing session including appropriate site personnel, contractors and incident responders;
- Seek outside help if required in order to facilitate the restoration process.

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7.1 Organization of Emergency Measures

7.1.1 Emergency Response Model

The emergency response model described herein is based on the Site Emergency Response Plan (Figure 7-1).

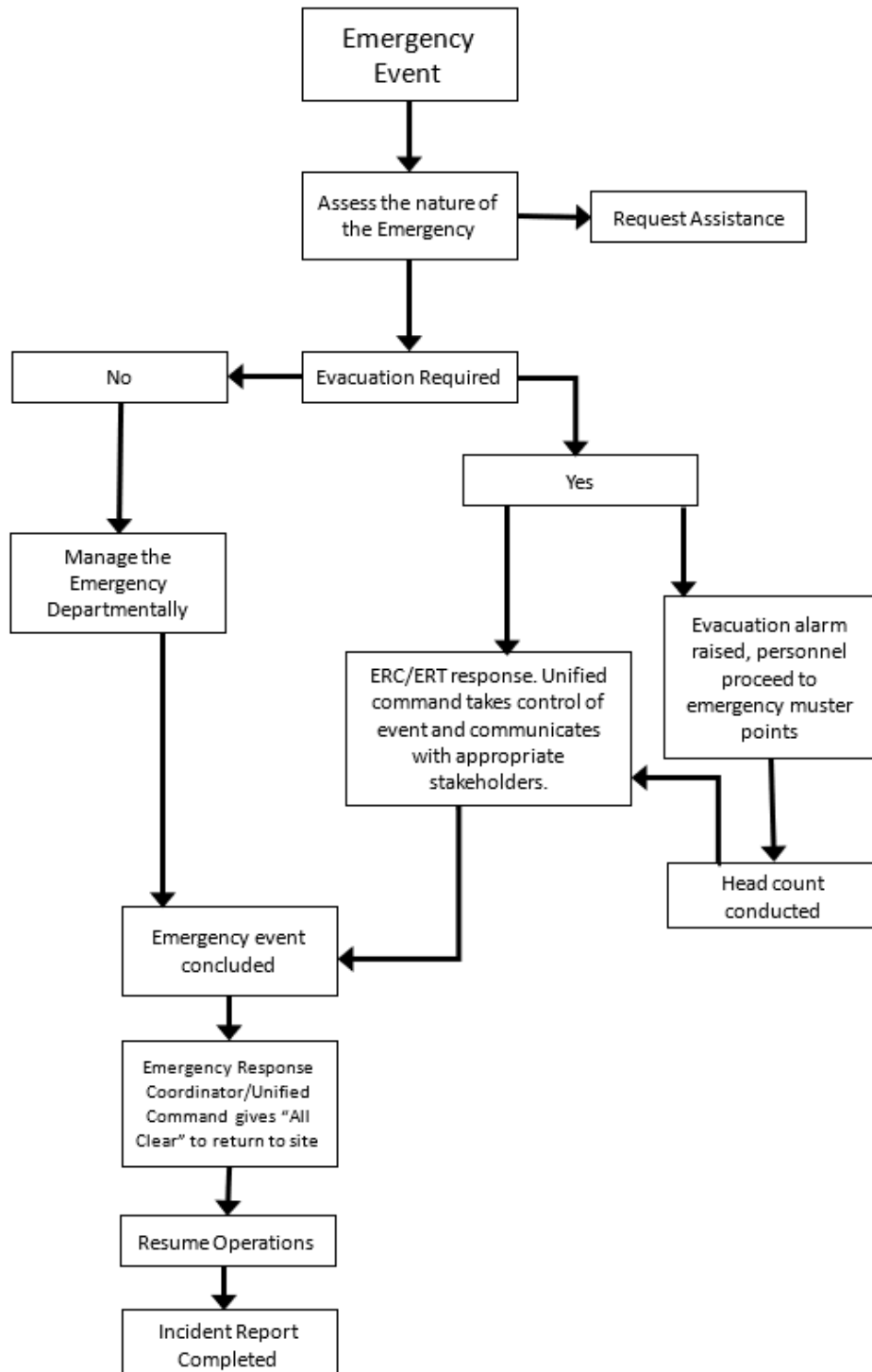


Figure 7-1 Emergency Response Management (AG ERP, 2018)

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8. NOTIFICATION AND COMMUNICATION

Notification and communication during an emergency is detailed in Atlantic Gold Emergency Response Plan (AGC-PLN-HS-001) Section 6.3.

8.1 Emergency event notification

Please refer to Atlantic Gold Emergency Response Plan Section 6.3.1 for further details on “Emergency Event Notification”.

8.2 Emergency communication

24 Hour Emergency Contact Numbers

| | |
|---|----------------|
| Fire/Police/Emergency Health Services (Ambulance) | 911 |
| Irving Energy (Propane) | 1-888-310-1924 |
| Nova Scotia Environment | 1-800-565-1633 |
| Occupational Health and Safety Nova Scotia | 1-800-952-2687 |
| Poison Control | 1-800-565-8161 |
| Environment and Climate Change Canada (24 hours) | 1-800-565-1633 |
| Transport Canada (CANUTEC) (24 hours) | 1-888-226-8832 |
| Nova Scotia Power | 1-800-428-6230 |
| Halifax Fire (non-emergency) | 902-490-5530 |

AMNS Contact Numbers

| Department | Function | Phone |
|-------------------------|---------------------------------|--------------|
| All | General Manager | 902-384-3603 |
| All | Communications Manager | 902-407-0817 |
| Health & Safety | H&S Manager | 902-384-3691 |
| Environment & Community | Manager Environment & Community | 902-384-3616 |
| | Environment Superintendent | 902-384-3611 |
| Security | Security Manager | 902-384-3629 |
| Mine | Mine Superintendent | 902-384-3672 |
| Mill | Mill Operations Superintendent | 902-384-3655 |

Local Stakeholders

| | |
|--|--------------|
| Middle Musquodoboit RCMP (non-emergency) | 902-384-3401 |
| Musquodoboit Rural High School | 902-384-2320 |
| Parker’s Esso | 902-384-2844 |

Please refer to the Site Emergency Response Plan Section 6.3.2 for further details on “Emergency Communication”.

8.3 Emergency Command Structure

Please refer to the Site Emergency Response Plan Section 6.3.3 for further details on “Emergency Command Structure”.

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9. PROPANE EMERGENCY RESPONSE PLAN TRAINING AND DRILLS

9.1 Scope

To increase preparedness in the event that the Propane Emergency Response Plan is activated, the ERT Coordinator will provide applicable employees with regular training, so they are familiar with the ERP. Drills will be conducted to confirm that the plan is effective. Drills are conducted to improve first response capability, preparedness and identify areas to improve the plan. Training and drills are used to prepare personnel, to test the ability of the person in charge of the plan to conduct the response effectively, and to demonstrate to governments, agencies, municipalities and the public that AMNS is well prepared to respond.

9.2 Training Requirements

The following is a non-inclusive list of the training that employees will receive, according to the positions they hold. The training program covers procedures, the hazards posed by materials stored at the site, where to find response equipment, how to use that equipment, and how to obtain external resources. This allows employees to maintain their work skills and learn emergency response skills. The training schedule will be determined by management. Details on the training received by each employee are recorded in their employee file. Required training requirements are summarized in Table 9-1.

Table 9-1 Training/Testing requirements

| Training | Employee (Title) | Frequency |
|-------------------------|---|---|
| Propane ERP - Awareness | <ul style="list-style-type: none"> ○ Mill leadership and Supervision, ○ Emergency Response Team Members ○ Identified Stakeholders (Table 11-2) | Yearly |
| Propane ERP Testing | <ul style="list-style-type: none"> ○ Mill leadership and Supervision, ○ Emergency Response Team Members | Yearly testing required. This can be testing of one component of the E2 ERP, with a full test of the entire E2 ERP conducted once every five years. (documentation of annual testing is required) |
| Evacuation Exercise | All | Yearly |

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10. RELATED DOCUMENTS AND RECORDS

- Atlantic Gold Corporation (2018) - Emergency Response Plan (AGC-PLN-HS-001).

11. REVIEW AND CONTINUOUS IMPROVEMENT

11.1 Version Update and Managing Change

This document contains information that must be kept accurate and up-to-date. As such, this document is issued as a controlled document. Each copy distributed is assigned to a specific location (when applicable, a specific individual). Uncontrolled digital copies are available on Touquoy's shared drive while controlled hard copies of this document are located at the following locations:

- Main Administration Building Health and Safety Office;
- Main Environment Office;
- Mill Operations Superintendent Office;
- Emergency Response Coordinator Office.

This E2 Plan will be updated annually and/or as part of a post-release review following response to a spill or exercise. Maintenance and review of this plan is the responsibility of the Health and Safety Manager. All revisions will be evaluated and distributed to all plan holders by the Health and Safety Department. Report version update summary will be detailed in the Document Revision Record (second page of this document).

11.2 Distribution of Material

In accordance with Section 6(2) of the E2 Regulations:

6(2) The person must keep a copy of the plan readily available for the individual who are to carry into effect the plan in the event of an environmental emergency and, if the place where one or more substances are located is a place of work, a copy must be available at that place.

A copy of this plan will be kept with the Health and Safety Manager. Additional copies will be provided to the E2 plan Stakeholders (Table 11-2). The electronic master copy will be saved and maintained by the Health & Safety Department, under the direction of the Health & Safety Manager.

Table 11-1 Distribution List

| Individual/Organization | Date Issued |
|-----------------------------------|--------------------|
| Health and Safety Manager (Owner) | 24-Aug-2020 |
| Environment Superintendent | 24-Aug-2020 |
| Emergency Response Team (ERT) | 24-Aug-2020 |
| General Manager | 24-Aug-2020 |
| Mill Operations Superintendent | 24-Aug-2020 |
| Security Manager | 24-Aug-2020 |
| Site Services Supervisor | 24-Aug-2020 |
| Mine Superintendent | 24-Aug-2020 |
| Mobile Maintenance Supervisor | 24-Aug-2020 |
| Irving Energy | 24-Aug-2020 |
| Halifax Fire Station 38 | 24-Aug-2020 |

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12. REFERENCES

- Atlantic Gold Corporation (2018). Emergency Response Plan. AGC-PLN-HS-001. Release date August 1, 2018.
- City of Salaberry-de-Valleyfield, Qc, Budget Propane, Conseil pour la Réduction des Accidents Industriels Majeurs (2012). Emergency Response Plan – ERP Model for Propane. Release date December 2012. ISBN: 978-2-922820-00-3.
- Conestoga-Rovers & Associates (2007). Environmental Assessment Registration Document for the Touquoy Gold Project – Moose River Gold Mine, Nova Scotia. Prepared for DDV Gold Limited. Release date March 2017. Ref. No. 820933(3).
- CSA Group (2015). Propane storage and handling code (B149.2-15). ISBN 978-1-77139-762.9.
- Google Earth (2018). Touquoy Mine Site Layout Distances. Consulted on September 12, 2018.
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- Stantec Consulting Ltd. (2017). Final – Phase I Environmental Site Assessment Historical Tailings Deposits at the Atlantic Gold Touquoy Gold Project. Moose River Gold Mines, NB. Prepared for Atlantic Gold Corporation. Release date October 6, 2017.

APPENDIX A: PROPANE CHECKLIST

Plant / Dispenser Inspection Check List

Business Name: _____

Date: _____

Address: _____

| Items Inspected | OK | NO | N/A | | OK | NO | N/A |
|---|----|----|-----|---|----|----|-----|
| Tank / Cylinders | | | | | | | |
| Proper base / hold down bolts | | | | Protection from vehicle impact damage | | | |
| Proper clearances to buildings / property lines | | | | Gauges / pressure, temperature, roto gauge | | | |
| Test date serial #: | | | | Vegetation / debris | | | |
| Relief under dome / cover / rain cap (over 2000 using relief stacks) | | | | Relief valve inspected | | | |
| Step if fill connection over 5' above grade | | | | Fusible links inspected | | | |
| Tank decal | | | | Fencing complete and secure | | | |
| Clearances to building openings and sources of ignition | | | | Tested ISC valves | | | |
| | | | | Signage | | | |
| | | | | Condition of paint / rusted, peeling | | | |
| Equipment | | | | | | | |
| Condition of equipment | | | | Test emergency shut down system / load rack | | | |
| Isolated for vibration | | | | Equipment Operation | | | |
| Visible leaks | | | | | | | |
| Piping / Tubing | | | | | | | |
| Plastic Underground has visible tracer | | | | Identified every 20 feet | | | |
| Wire tape and anodeless risers | | | | Properly supported and clamped | | | |
| Steel Underground piping / cathodic protection records | | | | Approved fittings / valves | | | |
| Expansion Protection between underground building / tank piping | | | | Hydrostatic relief valves | | | |
| Piping / tubing—Protected from impact damage | | | | Test ESV | | | |
| | | | | Exterior piping painted / coated on all sides and no rust | | | |
| Loading Rack | | | | | | | |
| Hose condition / certified | | | | Filling Building & Dock | | | |
| Hose support rack | | | | Non Combustible Materials | | | |
| Hose end caps / plugs | | | | Explosion relief panels | | | |
| Hydrostatic relief valves | | | | No latches on doors | | | |
| Breakaways properly anchored | | | | Cylinders properly stored | | | |
| ESV actuators at loading racking, filling building and remote | | | | Fire extinguisher | | | |
| | | | | Signage | | | |
| | | | | Nitrogen pressure | | | |
| Electrical | | | | | | | |
| No overhead transmission lines (over 2000 gallon) | | | | Sealed switch & lighting | | | |
| Visible seals on leak cable | | | | Lighting if used after dark | | | |
| Comments: | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

The information contained herein is proprietary to Atlantic Mining NS Inc. and is used solely for the purpose for which it is supplied. It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Atlantic Mining NS Inc.

APPENDIX B: PROPANE TANK SKID PIPING & EQUIPMENT LAYOUT

The information contained herein is proprietary to Atlantic Mining NS Inc. and is used solely for the purpose for which it is supplied. It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Atlantic Mining NS Inc.

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IRVING ENERGY

TOUQUOY MINE SITE PROPANE STORAGE

MOOSELAND, NOVA SCOTIA

ISSUED FOR PERMIT

DRAWING LIST

| DWG. No. | TITLE |
|-----------|---|
| 1. GA-001 | PROPANE STORAGE SITE PLAN |
| 2. GA-002 | PROPANE STORAGE GENERAL ARRANGEMENT |
| 3. C-001 | PROPANE STORAGE CONCRETE PLAN |
| 4. C-002 | PROPANE STORAGE CONCRETE SECTIONS & DETAILS |
| 5. M-001 | PROPANE STORAGE PIPING & EQUIPMENT PLAN |
| 6. M-002 | PROPANE STORAGE PIPING & EQUIPMENT SECTIONS & DETAILS |



HATCH SYDNEY, NOVA SCOTIA
PROJECT NO.
MARCH 2017

1

2

3

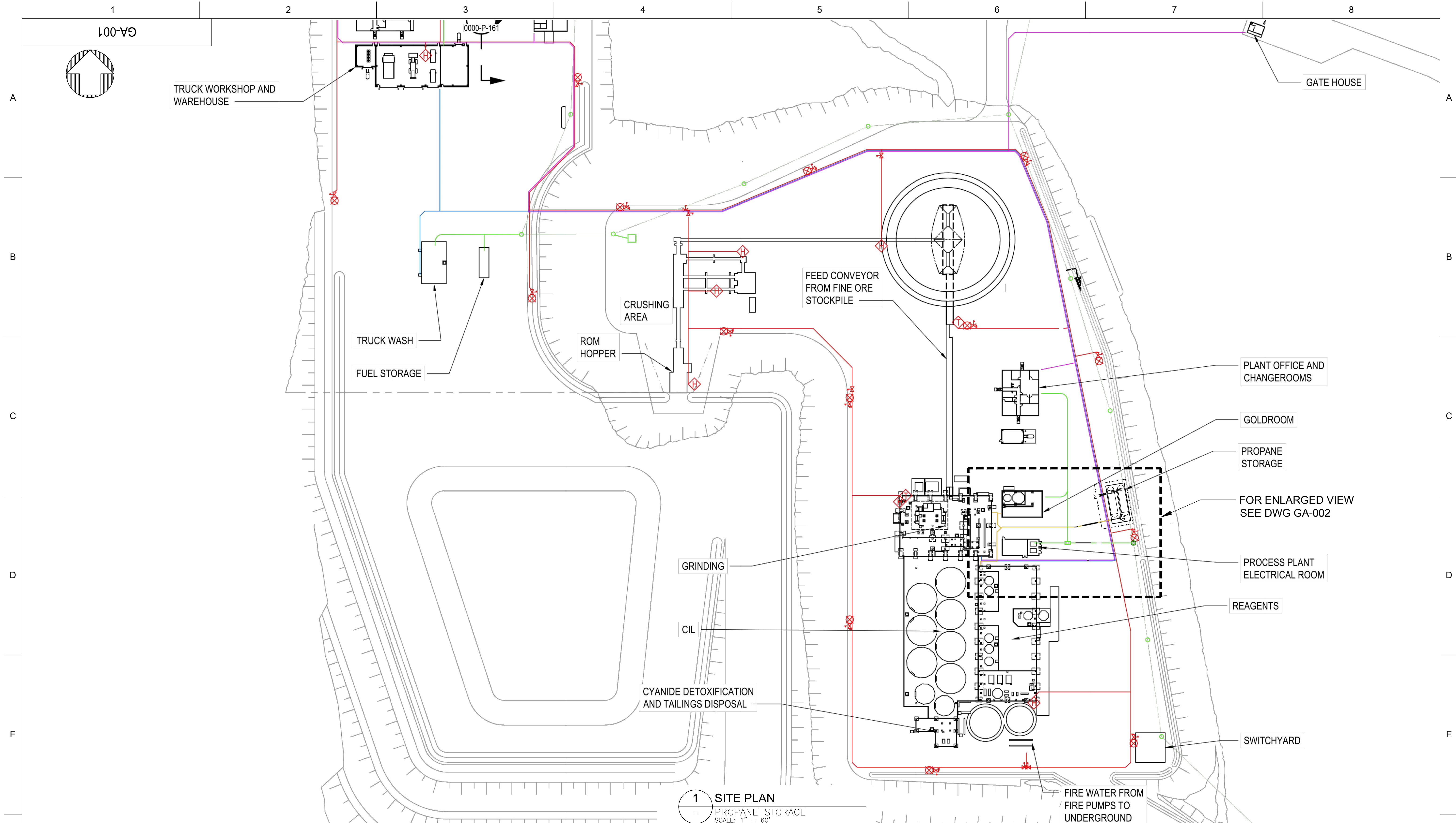
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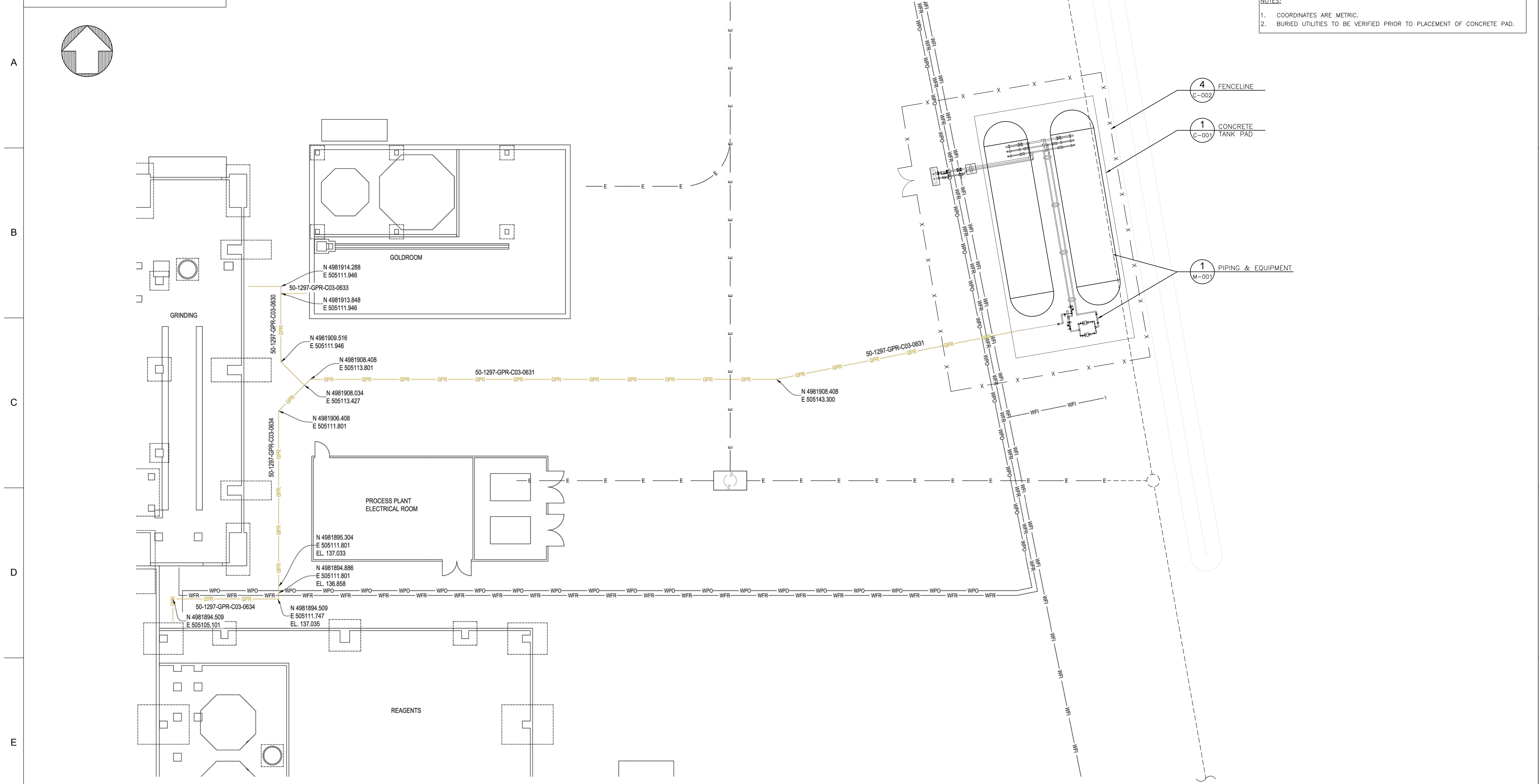


1 SITE PLAN
 - PROPANE STORAGE
 SCALE: 1" = 60'

| | | | | | | | | | | | |
|-------------|--|--------------------|--|-------------------|--|---|--|---|--|---|--|
| DRAWING No. | | DRAWING TITLE | | REG. PROFESSIONAL | | <small>THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF IRVING ENERGY (CLIENT) AND IS ISSUED PURSUANT TO THE RELEVANT AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH) UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING. (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.</small> | | | | | |
| 1 | | REFERENCE DRAWINGS | | 6790 | | DRAFTSPERSON J. BUTTS NR 17-03-13 DESIGNER J. BECK NR 17-03-10 CHECKER M. MacINTYRE 17-03-20 DESIGN COORD. RESP. ENG. LEAD DISC. ENG. ENG. MANAGER PROJ. MANAGER | | MOOSELAND, NS TOUQUOY MINE SITE | | PROPANE STORAGE SITE PLAN | |
| A | | ISSUED FOR PERMIT | | SS PC 17-03-22 | | DRAWING APPROVAL STATUS: ISSUED FOR PERMIT | | SCALE 1"=60' OR AS NOTED | | DWG. No. GA-001 | |
| No. | | DESCRIPTION | | BY CHK'D DATE | | ROLE NAME SIGNATURE DATE | | SHEET SIZE: A1 | | REV A | |

NOTES:

- COORDINATES ARE METRIC.
- BURIED UTILITIES TO BE VERIFIED PRIOR TO PLACEMENT OF CONCRETE PAD.



1 GENERAL ARRANGEMENT
 - PROPANE STORAGE
 SCALE: 1" = 10'

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF IRVING ENERGY (CLIENT) AND IS ISSUED PURSUANT TO THE RELEVANT AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH) UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING. (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.



| | | | |
|-----------------|--------------|----|----------|
| DRAFTSPERSON | J. BUTTS | NR | 17-03-13 |
| DESIGNER | J. BECK | NR | 17-03-10 |
| CHECKER | M. MacINTYRE | | 17-03-20 |
| DESIGN COORD. | | | |
| RESP. ENG. | | | |
| LEAD DISC. ENG. | | | |
| ENG. MANAGER | | | |
| PROJ. MANAGER | | | |

**MOOSELAND, NS
 TOUQUOY MINE SITE**

**PROPANE STORAGE
 GENERAL ARRANGEMENT**

| No. | DESCRIPTION | BY | CHK'D | DATE | ROLE | NAME | SIGNATURE | DATE |
|-----|-------------------|----|-------|----------|------|------|-----------|------|
| A | ISSUED FOR PERMIT | SS | PC | 17-03-22 | | | | |



| DRAWING No. | DRAWING TITLE | REG. PROFESSIONAL |
|-------------|--------------------|-------------------|
| 1 | REFERENCE DRAWINGS | |
| 2 | | |

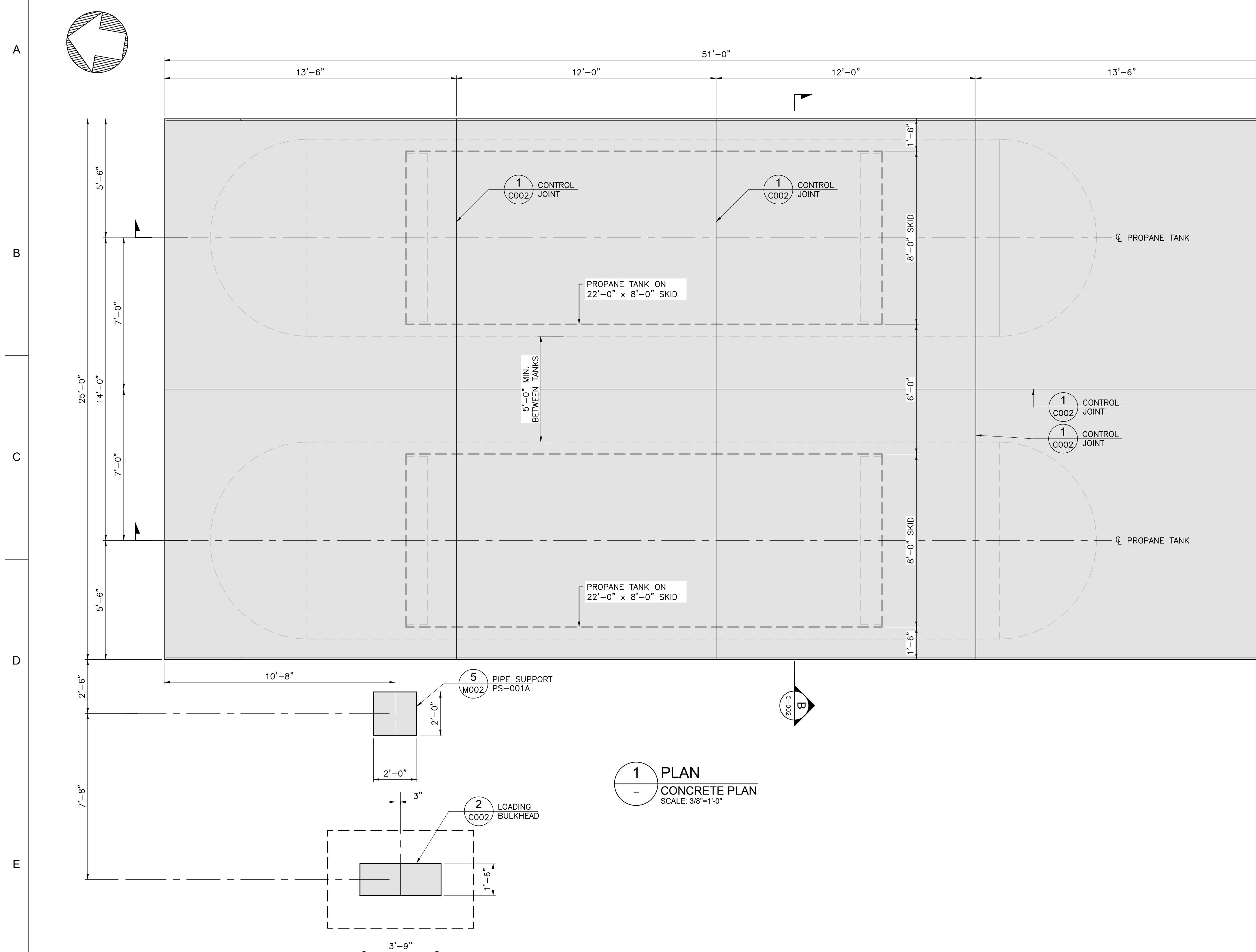
100-C

CONCRETE NOTES

- ALL CONCRETE WORK TO BE IN ACCORDANCE WITH CSA A23.1/A23.2 & CSA A23.3 LATEST EDITIONS.
- CONCRETE MIX: SLABS AND FOOTINGS
 - CEMENT TYPE: GU
 - EXPOSURE CLASS: C-1
 - MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS: 5000 psi
 - AIR CONTENT: 5-8%
 - MAXIMUM W/C RATIO: 0.4
 - NOMINAL SIZE OF COARSE AGGREGATE: 3/4" in
- CONCRETE COVER FOR REINFORCEMENT:
 - AS SHOWN
- REINFORCING STEEL TO CSA G30.18, GRADE 400R
- REINFORCING STEEL AND SLICES TO CSA A23.1/A23.2 & CSA A23.3 LATEST EDITIONS.
- REINFORCEMENT TO BE CONTINUOUS THROUGH CONTROL & CONSTRUCTION JOINTS.
- ALL SAWCUTS TO BE MADE WITHIN 48 HOURS OF CONCRETE BEING PLACED.
- LOCATION AND DETAILS OF CONSTRUCTION JOINTS TO BE APPROVED BY ENGINEER PRIOR TO CONSTRUCTION.
- SLAB-ON-GRADE TO RECEIVE SIL-ACT ATS-42 SEALER OR APPROVED EQUIVALENT.

EXCAVATION & BACKFILL NOTES

- FOOTINGS DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 3000 psf ON ENGINEERED FILL OR UNDISTURBED NATIVE SOIL. BEARING SURFACES TO BE APPROVED BY A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF NOVA SCOTIA PRIOR TO FOUNDATION CONSTRUCTION.
- GRANULAR SUB-BASE AND BACKFILL MATERIALS TO MEET NOVA SCOTIA TRANSPORTATION AND INFRASTRUCTURE RENEWAL SPECIFICATIONS.
- ALL BEARING SURFACES AND SLABS MUST BE PROTECTED AGAINST FREEZING DURING COLD WEATHER.
- AT UNDERSIDE OF SLABS SOFTENED OR OTHERWISE DISTURBED MATERIAL SHOULD BE COMPLETELY REMOVED AND REPLACED WITH CONCRETE AS SPECIFIED FOR THE FOUNDATION U.N.O.
- ALL EXCAVATION AND BACKFILL TO BE APPROVED BY ENGINEER PRIOR TO FOUNDATION CONSTRUCTION.



1 PLAN
CONCRETE PLAN
SCALE: 3/8"=1'-0"

THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF IRVING ENERGY (CLIENT) AND IS ISSUED PURSUANT TO THE RELEVANT AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH) UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING. (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.



**MOOSELAND, NS
TOUQUOY MINE SITE**
**PROPANE STORAGE
CONCRETE PLAN**

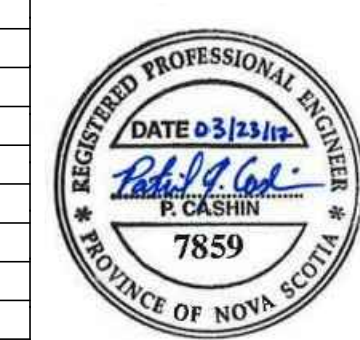
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|-----------------|--------------|----|----------|
| DRAFTSPERSON | J. BUTTS | NR | 17-03-14 |
| DESIGNER | K. MacLEAN | NR | 17-03-10 |
| CHECKER | M. MacINTYRE | | 17-03-20 |
| DESIGN COORD. | | | |
| RESP. ENG. | | | |
| LEAD DISC. ENG. | | | |
| ENG. MANAGER | | | |
| PROJ. MANAGER | | | |

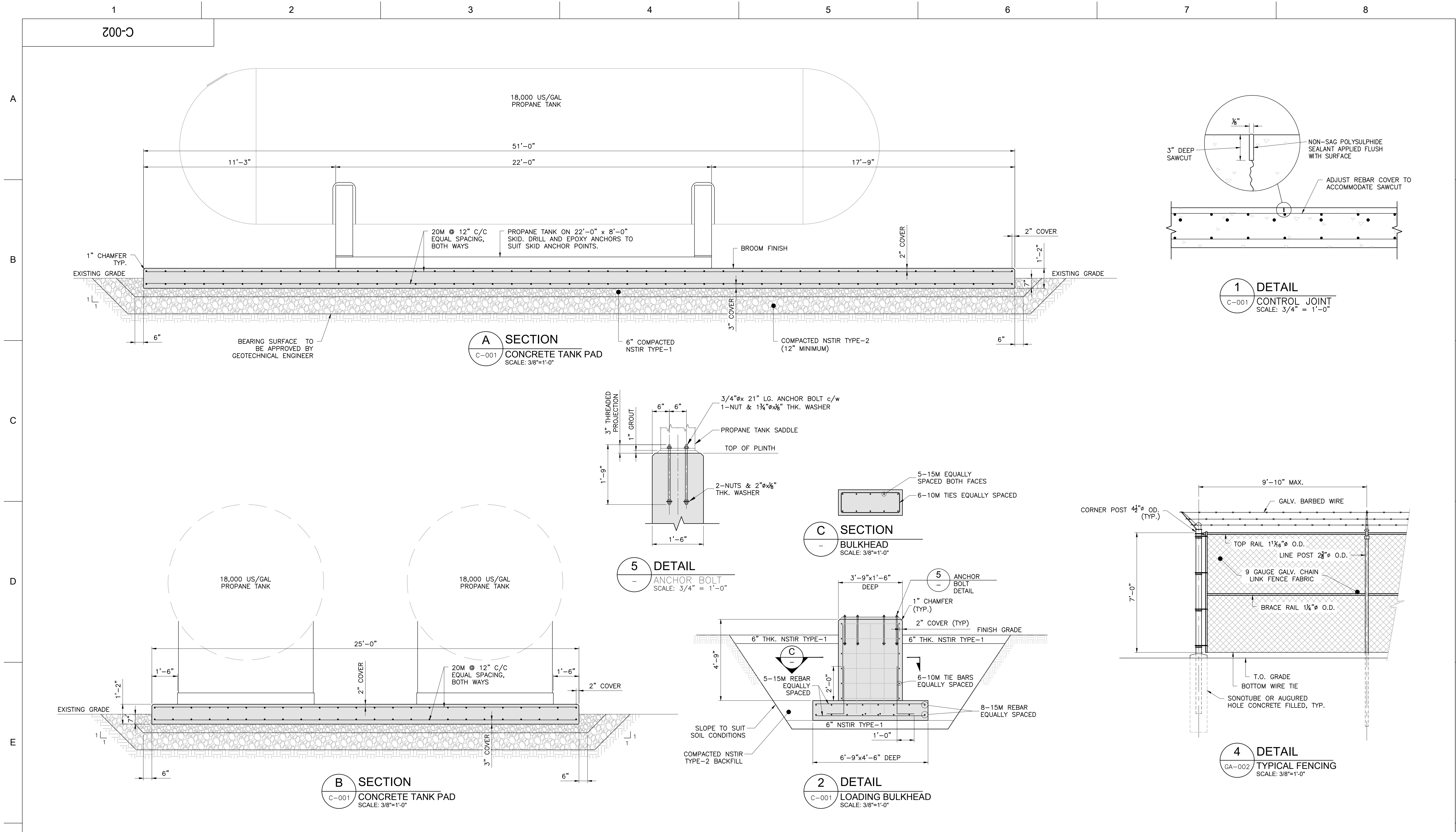
| No. | DESCRIPTION | BY | CHK'D | DATE |
|-----|-------------------|----|-------|----------|
| A | ISSUED FOR PERMIT | SS | PC | 17-03-22 |

DRAWING APPROVAL STATUS: ISSUED FOR PERMIT

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|----------------------------|--------------|----------|
| SCALE AS NOTED OR AS NOTED | DWG. No. | REV |
| | C-001 | A |

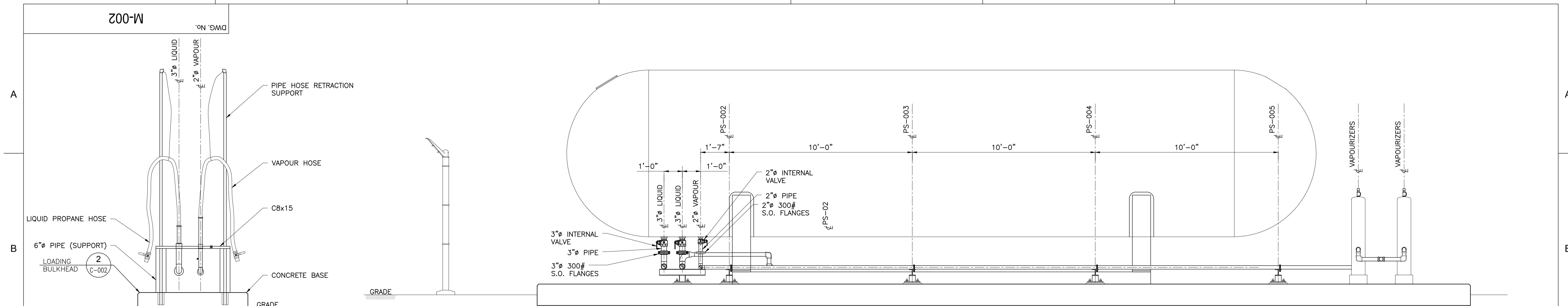
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|---|--|--------------------|--|--|--|--------------------------|--------------|-------------------|----------|--|--|--|--|--|--|
| <p>THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF IRVING ENERGY (CLIENT) AND IS ISSUED PURSUANT TO THE RELEVANT AGREEMENT BETWEEN CLIENT AND HATCH LTD. ("HATCH") UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING. (A) HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR MISUSE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH.</p> | | | | | | | | | | | | | | | |
| | | | | | | DRAFTSPERSON | J. BUTTS | NR | 17-03-13 | MOOSELAND, NS TOUQUOY MINE SITE PROPANE STORAGE CONCRETE SECTIONS & DETAILS | | | | | |
| | | | | | | DESIGNER | J. BECK | NR | 17-03-10 | | | | | | |
| | | | | | | CHECKER | M. MacINTYRE | | 17-03-20 | | | | | | |
| | | | | | | DESIGN COORD. | | | | | | | | | |
| | | | | | | RESP. ENG. | | | | | | | | | |
| | | | | | | LEAD DISC. ENG. | | | | | | | | | |
| | | | | | | ENG. MANAGER | | | | | | | | | |
| | | | | | | PROJ. MANAGER | | | | | | | | | |
| | | | | | | DRAWING APPROVAL STATUS: | | ISSUED FOR PERMIT | | | | | | | |
| DRAWING No. | | DRAWING TITLE | | | | SCALE | DWG. No. | | REV | | | | | | |
| 1 | | REFERENCE DRAWINGS | | | | 1"=10' OR AS NOTED | C-002 | | A | | | | | | |
| 2 | | REG. PROFESSIONAL | | | | | | | | | | | | | |
| 3 | | REG. PROFESSIONAL | | | | | | | | | | | | | |
| 4 | | REG. PROFESSIONAL | | | | | | | | | | | | | |
| 5 | | REG. PROFESSIONAL | | | | | | | | | | | | | |
| 6 | | REG. PROFESSIONAL | | | | | | | | | | | | | |
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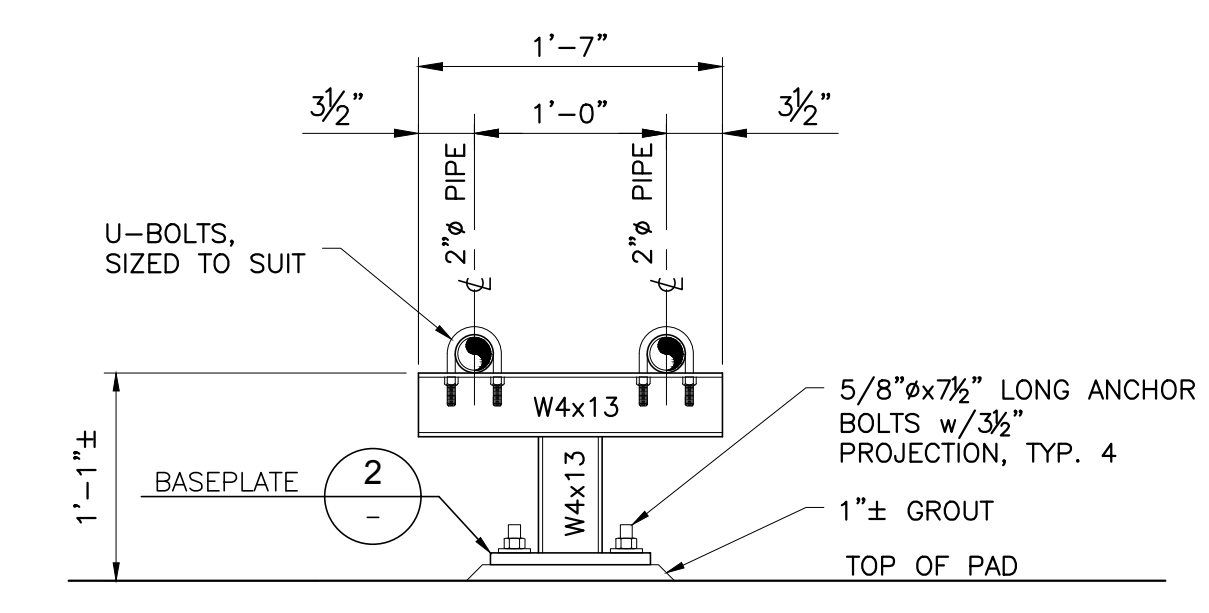
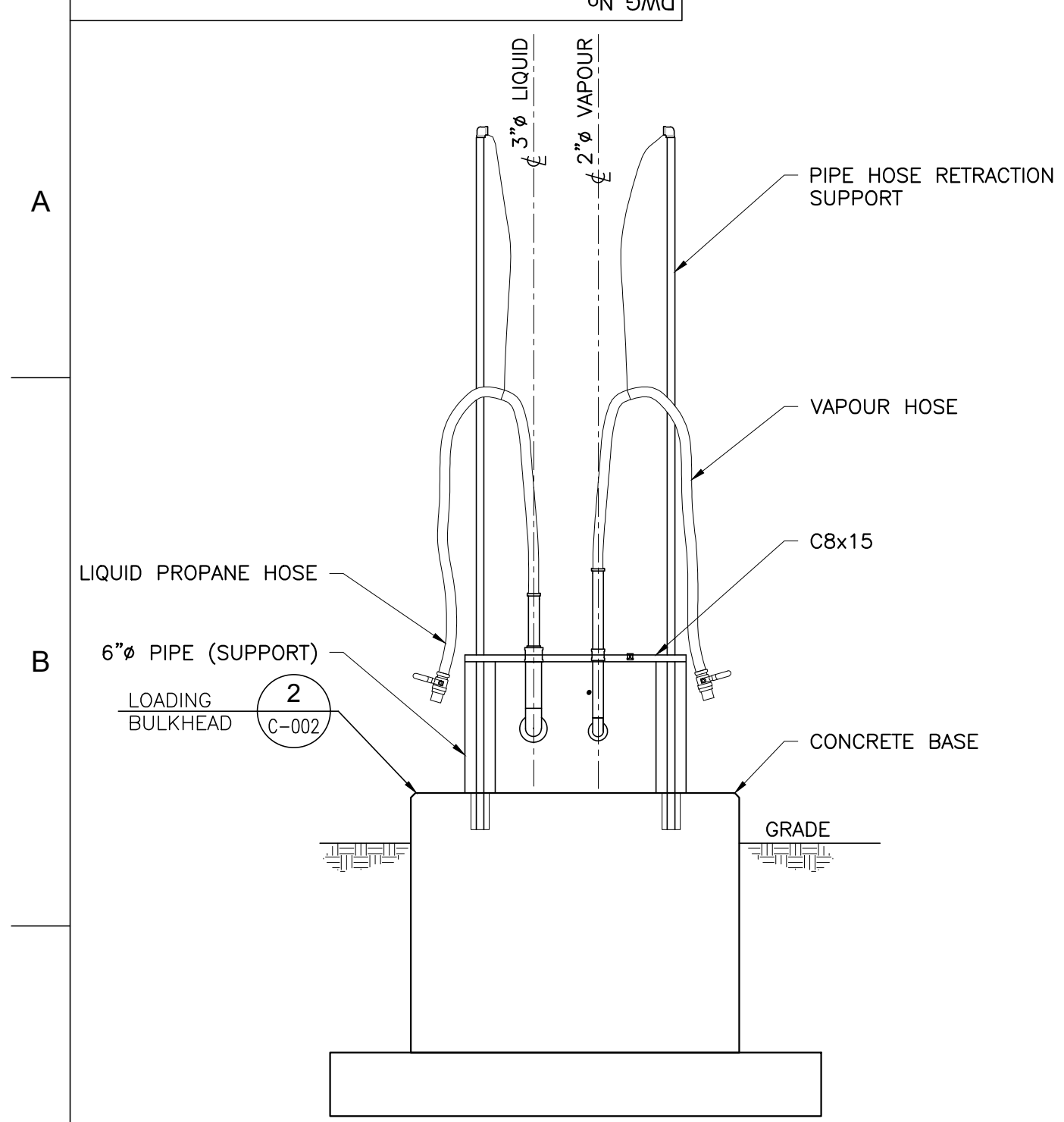




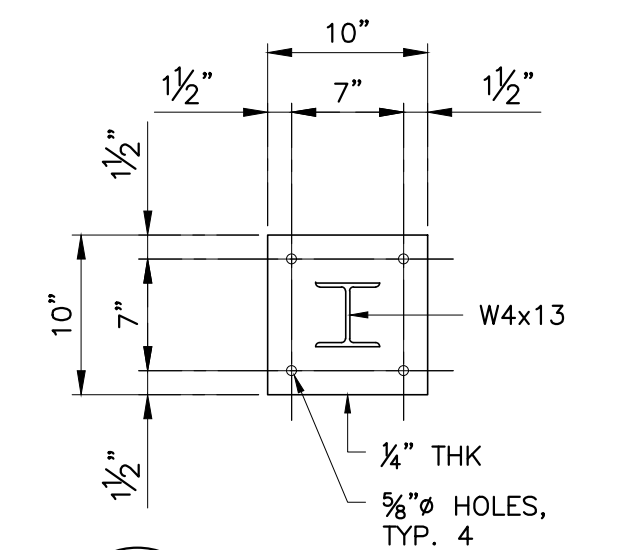
A SECTION
M-001 PIPING @ TANK
SCALE: 3/8"=1'-0"

NOTES:
1. INSTALLATION OF PIPE AND EQUIPMENT AS PER CSA B149.1-15 - NATURAL GAS AND PROPANE INSTALLATION CODE

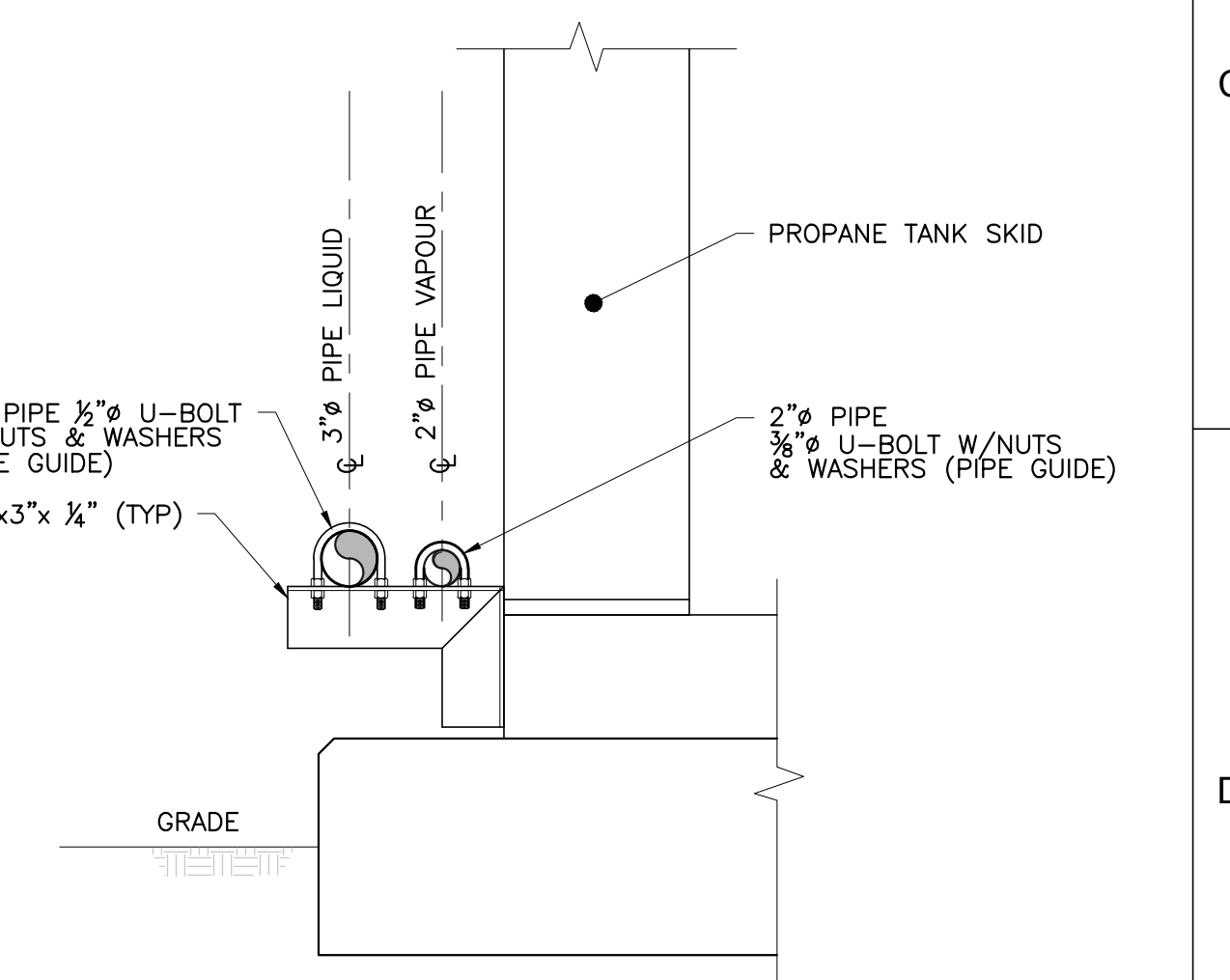
C SECTION
M-001 LOADING BULKHEAD
SCALE: 3/8"=1'-0"



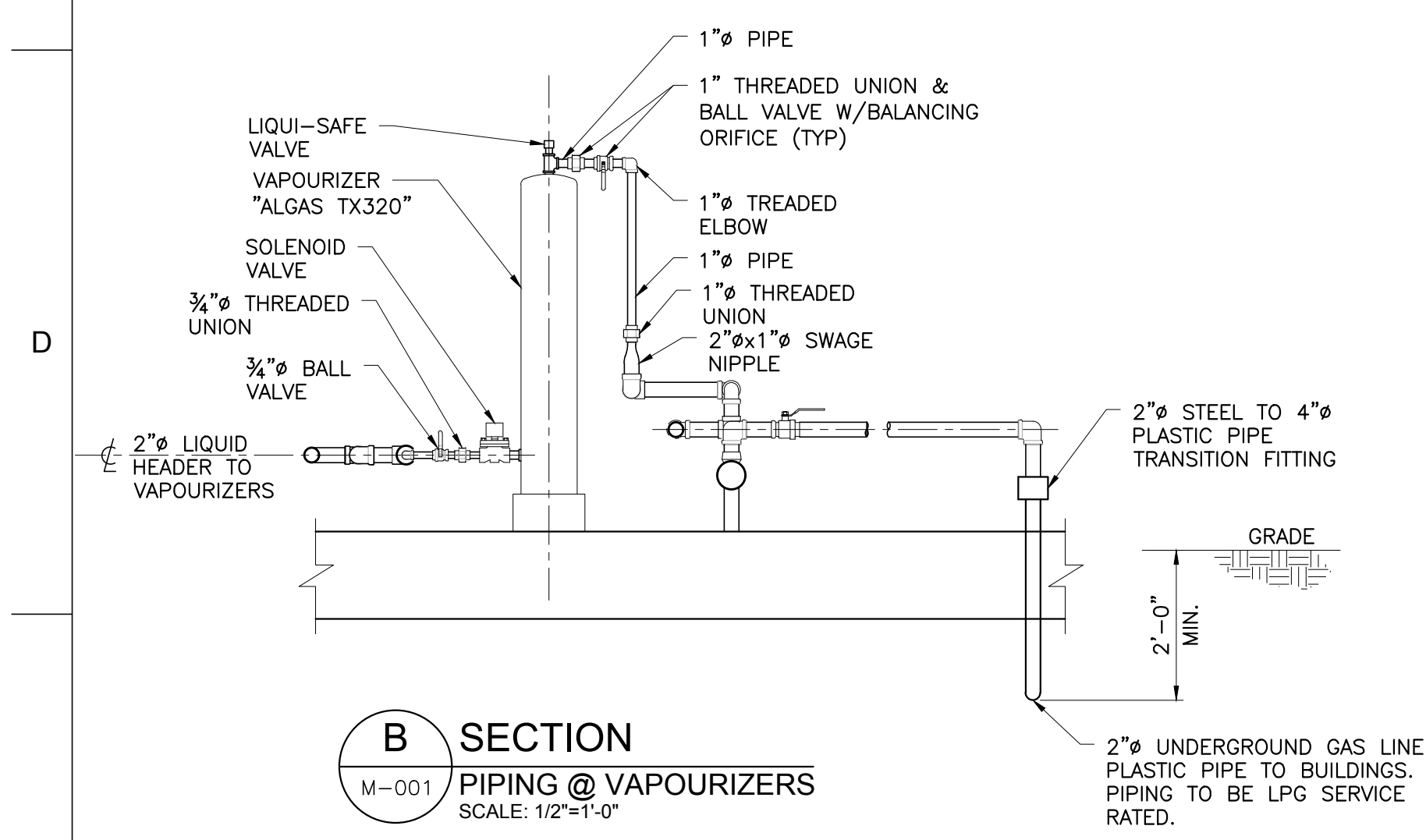
1 DETAIL
M-001 TYPICAL PIPE SUPPORT PS-02, PS-03, PS-04 & PS-05
SCALE: 1"=1'-0"



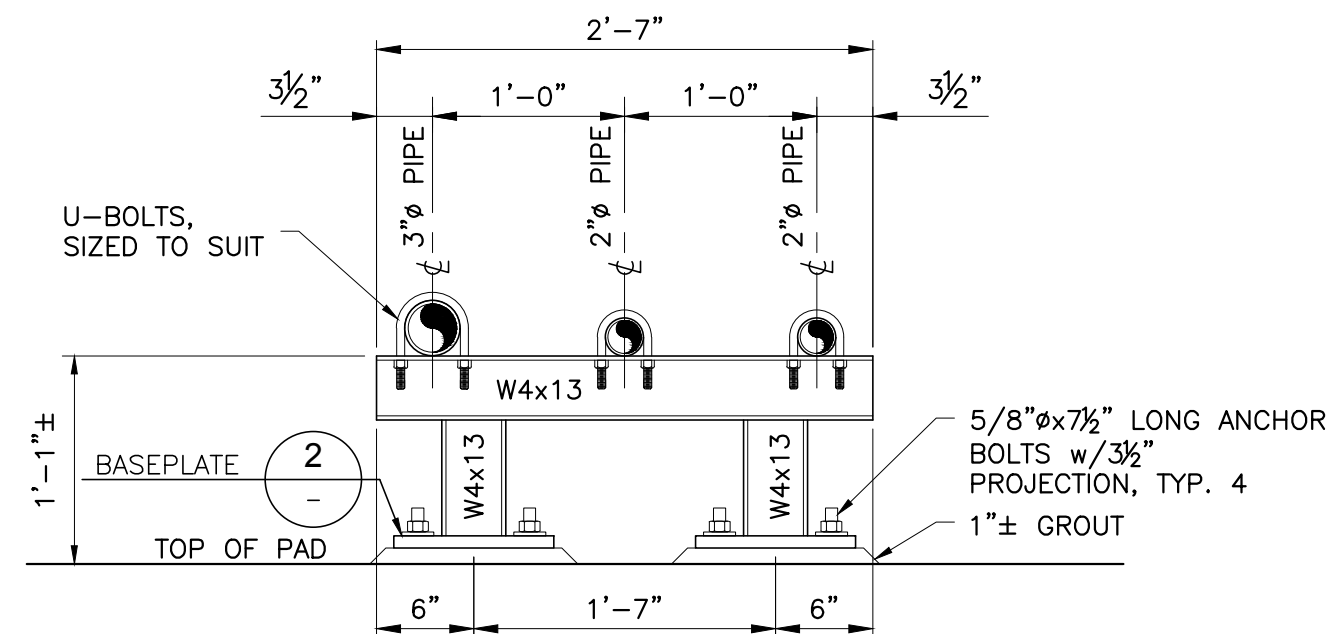
2 DETAIL
M-001 TYPICAL BASEPLATE
SCALE: 1"=1'-0"



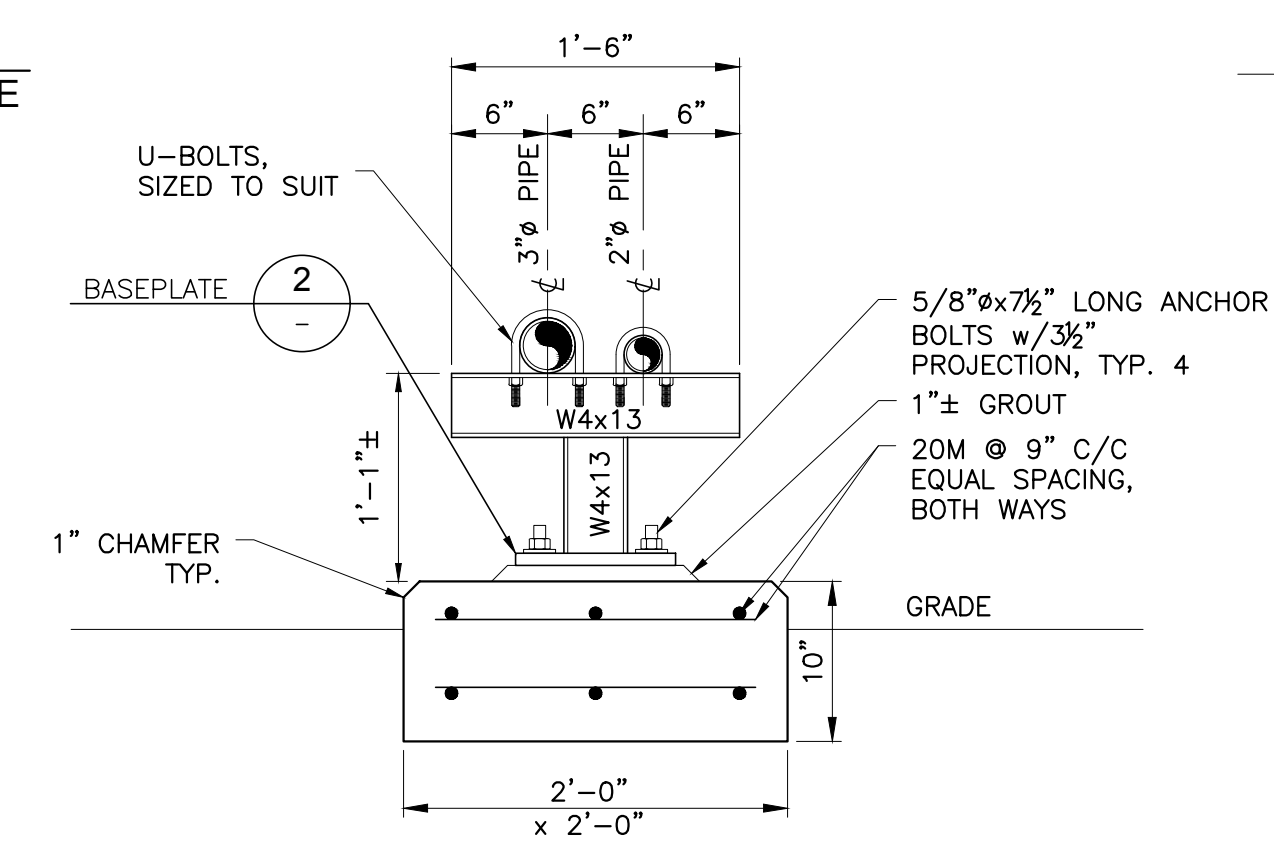
3 DETAIL
M-001 PIPE SUPPORT
SCALE: 1"=1'-0"



B SECTION
M-001 PIPING @ VAPOURIZERS
SCALE: 1/2"=1'-0"



4 DETAIL
M-001 TYPICAL PIPE SUPPORT PS-01
SCALE: 1"=1'-0"



5 DETAIL
M-001 TYPICAL PIPE SUPPORT PS-01A
SCALE: 1"=1'-0"

- STRUCTURAL STEEL NOTES**
- CONTRACTOR TO CONFIRM ALL DIMENSIONS PRIOR TO FABRICATION OF ANY PORTION OF THIS WORK.
 - ALL STRUCTURAL STEEL TO CSA G40.20/G40.21 LATEST EDITION; GRADE 350W.
 - STRUCTURAL STEEL WORK TO BE IN ACCORDANCE WITH CSA S16 & CSA S136.
 - ALL WELDING TO BE IN ACCORDANCE WITH CSA W59 LATEST EDITION & WELDERS QUALIFIED IN ACCORDANCE WITH CSA W47.1 LATEST EDITION.
 - BOLTS, NUTS & WASHERS TO ASTM A325 GALVANIZED.
 - ANCHOR BOLTS TO ASTM F1556 GRADE 36 GALVANIZED.

| | |
|-------------|--------------------|
| DRAWING No. | DRAWING TITLE |
| 1 | REFERENCE DRAWINGS |
| 2 | REG. PROFESSIONAL |



| | | | | |
|--|-------------------|----|-------|----------|
| THIS DRAWING WAS PREPARED FOR THE EXCLUSIVE USE OF IRVING ENERGY (CLIENT) AND IS ISSUED PURSUANT TO THE RELEVANT AGREEMENT BETWEEN CLIENT AND HATCH LTD. (HATCH). UNLESS OTHERWISE AGREED IN WRITING WITH CLIENT OR SPECIFIED ON THIS DRAWING, HATCH DOES NOT ACCEPT AND DISCLAIMS ANY AND ALL LIABILITY OR RESPONSIBILITY ARISING FROM ANY USE OF OR RELIANCE ON THIS DRAWING BY ANY THIRD PARTY OR ANY MODIFICATION OR ISSUE OF THIS DRAWING BY CLIENT, AND (B) THIS DRAWING IS CONFIDENTIAL AND ALL INTELLECTUAL PROPERTY RIGHTS EMBODIED OR REFERENCED IN THIS DRAWING REMAIN THE PROPERTY OF HATCH. | | | | |
| A | ISSUED FOR PERMIT | SS | PC | 17-03-22 |
| No. | DESCRIPTION | BY | CHK'D | DATE |

| | | | |
|-----------------|--------------|----|----------|
| HATCH | | | |
| DRAFTSPERSON | J. BUTTS | NR | 17-03-13 |
| DESIGNER | J. BECK | NR | 17-03-10 |
| CHECKER | M. MacINTYRE | | 17-03-20 |
| DESIGN COORD. | | | |
| RESP. ENG. | | | |
| LEAD DISC. ENG. | | | |
| ENG. MANAGER | | | |
| PROJ. MANAGER | | | |

| | |
|--|-----------------------|
| IRVING Irving Energy | |
| MOOSELAND, NS TOUQUOY MINE SITE | |
| PROPANE STORAGE PIPING & EQUIPMENT SECTIONS & DETAILS | |
| SCALE AS NOTED OR AS NOTED | DWG. No. M-002 |
| DRAWING APPROVAL STATUS: ISSUED FOR PERMIT | REV A |

APPENDIX C: SDS PROPANE

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SAFETY DATA SHEET

1. Product and Company Identification

| | |
|--------------------------------------|--|
| Product identifier | Propane |
| Other means of identification | n-propane dimethyl methane liquefied propane propyl hydride |
| Recommended use | Fuel |
| Recommended restrictions | None known. |
| Manufacturer | Irving Oil Refining G.P. Box 1260 Saint John, NB E2L 4H6 CA Phone: (506) 202-2000 Refinery: (506) 202-3000 Emergency Phone: 1-800-424-9300 (CHEMTREC) |

2. Hazards Identification

| | | |
|------------------------------|---|-----------------------------|
| Physical hazards | Flammable gases Gases under pressure | Category 1 Liquefied gas |
| Health hazards | Not classified. | |
| Environmental hazards | Not classified. | |
| OSHA defined hazards | Not classified. | |

Label elements



| | |
|--|---|
| Signal word | Danger |
| Hazard statement | Extremely flammable gas. Contains gas under pressure; may explode if heated. |
| Precautionary statement | |
| Prevention | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| Response | Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so. |
| Storage | Protect from sunlight. Store in a well-ventilated place. |
| Disposal | Dispose of contents/container in accordance with local/regional/national/international regulations. |
| Hazard(s) not otherwise classified (HNOC) | None known. |
| Supplemental information | 99% of the mixture consists of component(s) of unknown acute oral toxicity. |

3. Composition/Information on Ingredients

Mixture

| Chemical name | Common name and synonyms | CAS number | % |
|---------------|--------------------------|------------|---------|
| Propane | | 74-98-6 | 93 - 97 |
| Ethane | | 74-84-0 | 1 - 5 |
| Butane | | 106-97-8 | 0.1 - 1 |

Composition comments All concentrations are expressed as % volume.

4. First Aid Measures

| | |
|-------------------|--|
| Inhalation | Remove affected person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice. |
|-------------------|--|

| | |
|---|--|
| Skin contact | Briefly flush the affected area with lukewarm, gently flowing water until the chemical is removed. Do not attempt to re-warm the affected area. Do not rub the affected area or apply dry heat. Carefully cut around clothing that sticks to the skin and remove the remainder of the garment. Loosely cover the affected area with a sterile dressing. Do not permit affected person to drink alcohol or smoke. Quickly transport affected person to an emergency medical facility. |
| Eye contact | Flush eye with lukewarm, gently flowing fresh water for at least 15 minutes. Do not attempt to re-warm. Cover both eyes with sterile dressing. Do not permit affected person to drink alcohol or smoke. Quickly transport affected person to an emergency medical facility. |
| Ingestion | Not a normal route of exposure as this product is a gas at room temperature and pressure. |
| Most important symptoms/effects, acute and delayed | Direct contact with eyes may cause temporary irritation. |
| Indication of immediate medical attention and special treatment needed | Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. |
| General information | Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Show this safety data sheet to the doctor in attendance. Keep away from sources of ignition. No smoking. |

5. Fire Fighting Measures

| | |
|--|--|
| Suitable extinguishing media | Stop the flow of gas. Dry chemical. High expansion foam. |
| Unsuitable extinguishing media | None known. |
| Specific hazards arising from the chemical | Contents under pressure. Container may explode in heat of fire. Firefighters should wear a self-contained breathing apparatus. It is extremely dangerous to extinguish the fire without stopping the flow of gas. Gas and air will mix resulting in an explosion which may be more destructive than the original fire. Vapors are heavier than air and may travel along the ground to some distant source of ignition and flash back. May accumulate in confined spaces, resulting in an explosion and/or asphyxiation hazard. |
| Special protective equipment and precautions for firefighters | Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Firefighters should wear full protective clothing including self contained breathing apparatus. Cool containers with flooding quantities of water until well after fire is out. |
| Fire-fighting equipment/instructions | DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED. In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. In the event of fire, cool tanks with water spray. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out. |
| Specific methods | Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes. |
| General fire hazards | Extremely flammable gas. |
| Hazardous combustion products | May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Hydrogen sulfide. Oxides of sulfur. |
| Explosion data | |
| Sensitivity to mechanical impact | Not expected to be sensitive to mechanical impact. |
| Sensitivity to static discharge | Accumulates static charge by flow or agitation. Ignites in response to static charge of sufficient energy. |

6. Accidental Release Measures

| | |
|--|--|
| Personal precautions, protective equipment and emergency procedures | Keep unnecessary personnel away. Keep out of low areas. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS. |
|--|--|

Methods and materials for containment and cleaning up

Refer to attached safety data sheets and/or instructions for use. Extinguish all flames in the vicinity. This product is miscible in water. Stop leak if you can do so without risk. If possible, turn leaking containers so that gas escapes rather than liquid. Isolate area until gas has dispersed. Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewers, basements or confined areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground. Prevent entry into waterways, sewers, basements or confined areas.

7. Handling and Storage

Precautions for safe handling

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. All equipment used when handling the product must be grounded. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Non-sparking equipment. Explosion-proof ventilation. Intrinsically safe electrical equipment.

Conditions for safe storage, including any incompatibilities

This material can accumulate static charge which may cause spark and become an ignition source. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store away from incompatible materials (see Section 10 of the SDS). Containers should be vented and equipped with a flame arrester. Keep away from heat, open flames or other sources of ignition. Store in a cool well-ventilated area. Consider leak detection and alarm equipment for storage area.

8. Exposure Controls/Personal Protection

Occupational exposure limits**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

| Components | Type | Value |
|-----------------------|------|------------------------|
| Propane (CAS 74-98-6) | PEL | 1800 mg/m3 1000 ppm |

US. ACGIH Threshold Limit Values

| Components | Type | Value |
|-----------------------|------|----------|
| Butane (CAS 106-97-8) | STEL | 1000 ppm |

US. NIOSH: Pocket Guide to Chemical Hazards

| Components | Type | Value |
|-----------------------|------|------------------------|
| Butane (CAS 106-97-8) | TWA | 1900 mg/m3 800 ppm |
| Propane (CAS 74-98-6) | TWA | 1800 mg/m3 1000 ppm |

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Oxygen concentrations in work spaces must not be permitted to fall below 19%.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Face shield or chemical goggles.

Skin protection**Hand protection**

Insulated gloves for contact with liquid. Confirm with a reputable supplier first. Neoprene. Tychem™ Responder™.

Other

Use of fire resistant protective coveralls and long sleeves is recommended.

Respiratory protection

For confined spaces, wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions.

Respirator should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134), CAN/CSA-Z94.4 and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Wash hands before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and Chemical Properties

| | |
|---|---|
| Appearance | gaseous |
| Physical state | Gas. |
| Form | Liquefied gas. |
| Color | Colorless |
| Odor | Odorless Ethyl mercaptan, with a penetrating odor of garlic or rotten cabbage is added to give the product a distinctive odor. |
| Odor threshold | Not available. |
| pH | Not applicable |
| Melting point/freezing point | -306.4 °F (-188 °C) |
| Initial boiling point and boiling range | -43.6 °F (-42 °C) |
| Pour point | Not available. |
| Specific gravity | Not applicable |
| Partition coefficient (n-octanol/water) | Not available |
| Flash point | Flammable gas |
| Evaporation rate | Not applicable |
| Flammability (solid, gas) | Flammable gas. |
| Upper/lower flammability or explosive limits | |
| Flammability limit - lower (%) | > 2.1 % |
| Flammability limit - upper (%) | < 9.5 % |
| Explosive limit - lower (%) | Not available. |
| Explosive limit - upper (%) | Not available. |
| Vapor pressure | 855 kPa (8.4 atm) @ 21.1°C |
| Vapor density | 1.45 (air = 1) |
| Relative density | Not available. |
| Solubility(ies) | Not available |
| Auto-ignition temperature | 842 °F (450 °C) |
| Decomposition temperature | Not available. |
| Viscosity | Not available. |
| Other information | |
| Flash point class | Flammable IA |

10. Stability and Reactivity

| | |
|---|--|
| Reactivity | This product may react with strong oxidizing agents. |
| Possibility of hazardous reactions | Hazardous polymerization does not occur. |
| Chemical stability | Stable under recommended storage conditions. |
| Conditions to avoid | Heat, open flames, static discharge, sparks and other ignition sources. Reacts vigorously with alkaline material or metals. Vapours may form explosive mixture with air. |
| Incompatible materials | Acids. Oxidizers. Halogenated compounds. |
| Hazardous decomposition products | May include and are not limited to: Oxides of carbon. Oxides of nitrogen. Hydrogen sulphide. Oxides of sulfur. |

11. Toxicological Information

| | |
|---|--|
| Routes of exposure | Eye, Skin contact, Inhalation. |
| Information on likely routes of exposure | |
| Ingestion | Not a normal route of exposure. |
| Inhalation | This product is an asphyxiant gas which can cause unconsciousness/death if OXYGEN levels are sufficiently reduced. Signs and symptoms of preceding asphyxiation include and are not limited to rapid respiration, loss of mental alertness and co-ordination, dizziness, nausea and vomiting. Continued exposure may result in prostration, convulsions, coma and death. |

| | | |
|---|---|---------------------------|
| Skin contact | Contact with liquid may cause frostbite. | |
| Eye contact | Contact with liquid may cause frostbite. | |
| Symptoms related to the physical, chemical and toxicological characteristics | Direct contact with eyes may cause temporary irritation. | |
| Information on toxicological effects | | |
| Acute toxicity | | |
| Components | Species | Test Results |
| Butane (CAS 106-97-8) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Mouse | 680 mg/l, 2 Hours |
| | Rat | 276000 ppm, 4 Hours |
| | | 658 mg/l/4h |
| <i>Oral</i> | | |
| LD50 | Not available | |
| Ethane (CAS 74-84-0) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Rat | 658 mg/l/4h |
| <i>Oral</i> | | |
| LD50 | Not available | |
| Propane (CAS 74-98-6) | | |
| Acute | | |
| <i>Inhalation</i> | | |
| LC50 | Rat | > 1442.8 mg/l, 15 Minutes |
| <i>Oral</i> | | |
| LD50 | Not available | |
| Skin corrosion/irritation | Prolonged skin contact may cause temporary irritation. | |
| Exposure minutes | Not available. | |
| Erythema value | Not available. | |
| Oedema value | Not available. | |
| Serious eye damage/eye irritation | Direct contact with eyes may cause temporary irritation. | |
| Corneal opacity value | Not available. | |
| Iris lesion value | Not available. | |
| Conjunctival reddening value | Not available. | |
| Conjunctival oedema value | Not available. | |
| Recover days | Not available. | |
| Respiratory or skin sensitization | | |
| Respiratory sensitization | Not available. | |
| Skin sensitization | This product is not expected to cause skin sensitization. | |
| Germ cell mutagenicity | Non-hazardous by WHMIS/OSHA criteria. | |
| Mutagenicity | Non-hazardous by WHMIS/OSHA criteria. | |
| Carcinogenicity | Non-hazardous by WHMIS/OSHA criteria. | |
| Reproductive toxicity | Non-hazardous by WHMIS/OSHA criteria. | |
| Teratogenicity | Non-hazardous by WHMIS/OSHA criteria. | |
| Specific target organ toxicity - single exposure | Not classified. | |
| Specific target organ toxicity - repeated exposure | Not classified. | |
| Aspiration hazard | Not likely, due to the form of the product. | |
| Chronic effects | Prolonged inhalation may be harmful. | |
| Further information | Not available. | |

12. Ecological Information

| | |
|--------------------------------------|--|
| Ecotoxicity | Not available |
| Persistence and degradability | No data is available on the degradability of this product. |
| Bioaccumulative potential | Not available. |
| Mobility in soil | This product has not been tested. |
| Mobility in general | Not available. |
| Other adverse effects | This product has not been tested. |

13. Disposal Considerations

| | |
|--|---|
| Disposal instructions | Consult authorities before disposal. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations. Review federal, provincial, and local government requirements prior to disposal. |
| Local disposal regulations | Dispose in accordance with all applicable regulations. |
| Hazardous waste code | The waste code should be assigned in discussion between the user, the producer and the waste disposal company. |
| Waste from residues / unused products | Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). |
| Contaminated packaging | Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. |

14. Transport Information

U.S. Department of Transportation (DOT)

Basic shipping requirements:

| | |
|-----------------------------|----------|
| UN number | UN1978 |
| Proper shipping name | Propane |
| Hazard class | 2.1 |
| Special provisions | 19, T50 |
| Packaging exceptions | 306 |
| Packaging non bulk | 304 |
| Packaging bulk | 314, 315 |

Transportation of Dangerous Goods (TDG - Canada)

Basic shipping requirements:

| | |
|-----------------------------|---------|
| UN number | UN1978 |
| Proper shipping name | Propane |
| Hazard class | 2.1 |

DOT



TDG



15. Regulatory Information

Canadian federal regulations This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Canada DSL Challenge Substances: Listed substance

Butane (CAS 106-97-8) Listed.

Canada NPRI VOCs with Additional Reporting Requirements: Mass reporting threshold/Identification Number

Butane (CAS 106-97-8) 1 TONNES
Propane (CAS 74-98-6) 1 TONNES

Canada WHMIS Ingredient Disclosure: Threshold limits

Butane (CAS 106-97-8) 1 %

WHMIS status Controlled

WHMIS classification Class A - Compressed Gas, Class B - Division 1 - Flammable Gas

WHMIS labeling



US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Butane (CAS 106-97-8) Listed.
Ethane (CAS 74-84-0) Listed.
Propane (CAS 74-98-6) Listed.

US CAA Section 112(r) Accidental Release Prevention - Regulated Flammable Substance: Listed substance

Butane (CAS 106-97-8) Regulated flammable substance.
Ethane (CAS 74-84-0) Regulated flammable substance.
Propane (CAS 74-98-6) Regulated flammable substance.

US CAA Section 112(r) Accidental Release Prevention: Threshold quantity

Butane (CAS 106-97-8) 10000 LBS
Ethane (CAS 74-84-0) 10000 LBS
Propane (CAS 74-98-6) 10000 LBS

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8) Listed.
Ethane (CAS 74-84-0) Listed.
Propane (CAS 74-98-6) Listed.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

US CAA Section 612 SNAP Program: Listed substance

Butane (CAS 106-97-8) Listed.
Propane (CAS 74-98-6) Listed.

US CAA VOCs with Negligible Photochemical Activity: Listed substance

Ethane (CAS 74-84-0) Listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance No

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Hazardous substance

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations See below California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Hazardous Substances (Director's): Listed substance

Butane (CAS 106-97-8) Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US - Illinois Chemical Safety Act: Listed substance

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US - Louisiana Spill Reporting: Listed substance

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US - Minnesota Haz Subs: Listed substance

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US - New Jersey RTK - Substances: Listed substance

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US - Texas Effects Screening Levels: Listed substance

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US. Massachusetts RTK - Substance List

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US. Pennsylvania RTK - Hazardous Substances

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

US. Rhode Island RTK

Butane (CAS 106-97-8) Listed.

Ethane (CAS 74-84-0) Listed.

Propane (CAS 74-98-6) Listed.

Inventory status

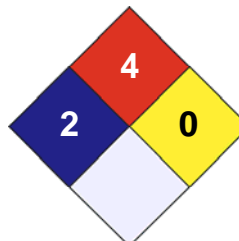
| Country(s) or region | Inventory name | On inventory (yes/no)* |
|-----------------------------|---|------------------------|
| Canada | Domestic Substances List (DSL) | Yes |
| Canada | Non-Domestic Substances List (NDSL) | No |
| United States & Puerto Rico | Toxic Substances Control Act (TSCA) Inventory | Yes |

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

16. Other Information

| LEGEND | |
|----------|---|
| Severe | 4 |
| Serious | 3 |
| Moderate | 2 |
| Slight | 1 |
| Minimal | 0 |

| | |
|---------------------|-----|
| HEALTH | / 2 |
| FLAMMABILITY | 4 |
| PHYSICAL HAZARD | 0 |
| PERSONAL PROTECTION | X |



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Further information For an updated SDS, please contact the supplier/manufacturer listed on the first page of the document.

Prepared by Dell Tech Laboratories, Ltd. Phone: (519) 858-5021

Other information This Safety Data Sheet was prepared to comply with the current OSHA Hazard Communication Standard (HCS) adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).



**DRAFT
SPILL CONTINGENCY PLAN
VERSION 1**

**Beaver Dam Mine Project 2021
Marinette, Nova Scotia
May 2021**

REVISION HISTORY

| Version | Date | Notes/Revisions |
|-----------|----------|---|
| Version 1 | May 2021 | Submitted with the Beaver Dam Mine Project 2021 Environmental Impact Statement Update application to the Canadian Environmental Assessment Agency and Nova Scotia Environment. Describes the protocols for the action for prevention, response to and recovery of an uncontrolled release of a hazardous material to the environment. |

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- Appendix C Key Contractor Response Contacts**
- Appendix D Spill Kit Supply List**
- Appendix E Hazardous Materials List & Safety Data Sheets**

1 INTRODUCTION

1.1 Project Overview

Atlantic Mining NS Inc. (AMNS) is proposing the construction, operation, decommissioning, and reclamation of an open pit gold mine in Marinette, Nova Scotia (Figure 1-1). The Beaver Dam Mine Project (the Project) will have an ore production rate of approximately 6,000 tons per day, over a five-year period. Ore from the Project would be crushed and transported approximately 31 km by road to the Moose River (Touquoy) mine for processing. Components of the Project include an open pit, material storage facilities (i.e., waste rock, topsoil and organic materials), mine haul roads, mine infrastructure for crushing, water management, hauling, truck maintenance, administration, and road upgrades.

1.2 Purpose

The Spill Contingency Plan (SCP) provides a plan of action for prevention, response to, and recovery of the uncontrolled release of hazardous material to the environment. This Plan is intended to supplement the site Emergency Response Plans (ERP) and should be read in conjunction with the ERP.

1.3 Scope

The SCP identifies potential spill scenarios that could occur during the operation of the Beaver Dam Mine Project and establishes the framework for response and recovery from such an event. This framework includes personnel responsibilities, training, spill response/containment/cleanup procedures, notification and reporting requirements. All AMNS employees and contractors are required to comply with both the ERP and SCP.

1.4 Health, Safety and Environment Policies

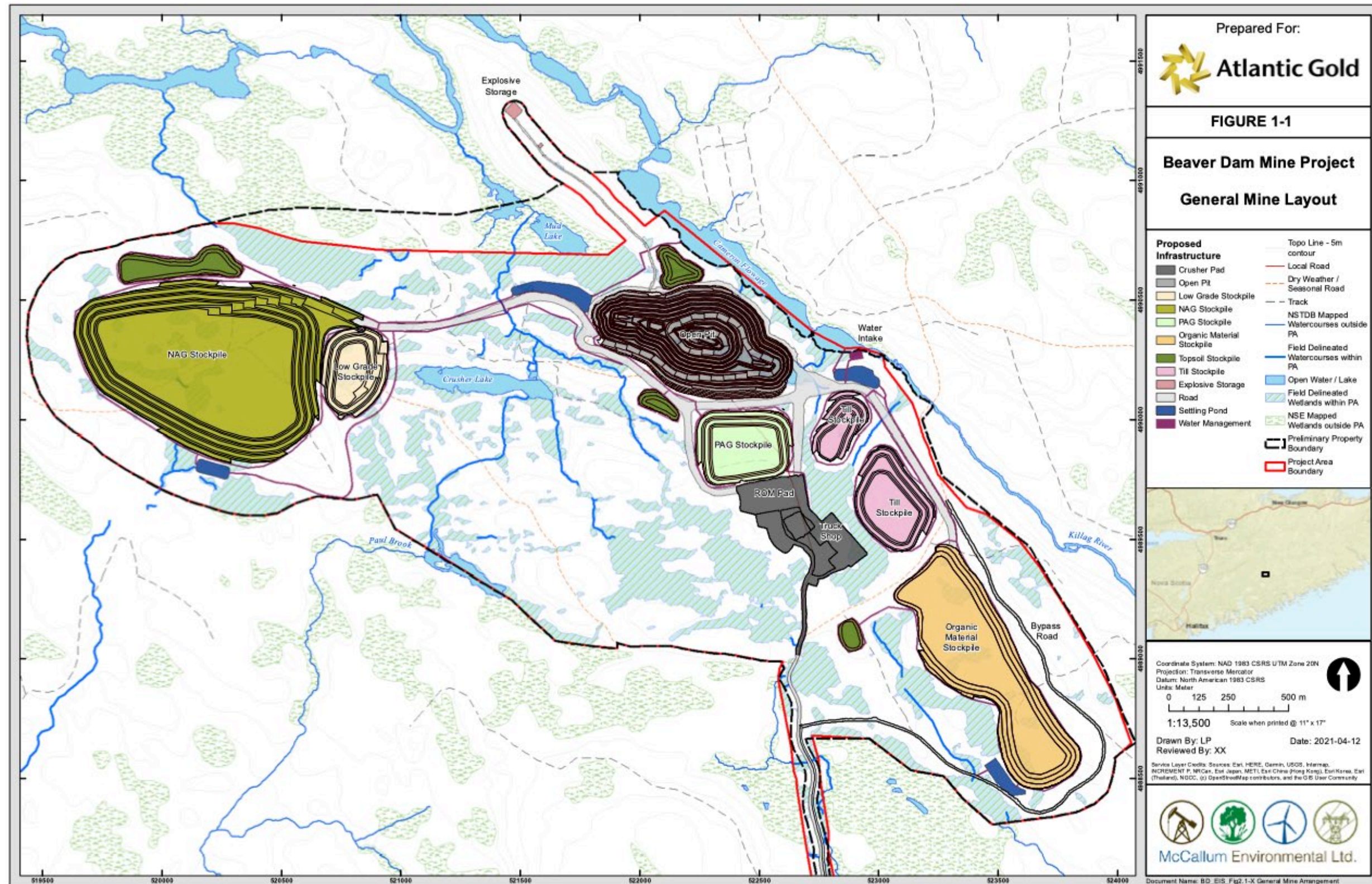
AMNS is committed to providing a healthy and safe work environment for its employees and integrating that commitment into our everyday activities. We believe all accidental loss of resources, including employee and physical assets, is preventable.

As a company, we acknowledge our responsibility to the environment and to local communities in which we work and do business. AMNS actively encourages its staff to recognize these responsibilities and behave in a positive manner toward the society in which we function.

1.5 Nature of Activities

The Beaver Dam Mine Project will include an open pit, material storage facilities (i.e., waste rock, topsoil and organic materials), mine haul roads, mine infrastructure for crushing, water management, truck maintenance, and administration buildings. During the operational phase of the project, there will be a figure attached to this plan that shows major project components and storage areas of bulk hazardous material located on the project site. Hazardous material will be used and stored on-site for water treatment, equipment operation, and blasting activities. A list of hazardous material can be found in Appendix E.

Figure 1-1: Beaver Dam Mine Layout



2 DEFINITIONS

Table 2-1: Definitions of terms used in the Spill Contingency Plan

| Term | Definition |
|--|---|
| Ammonium Nitrate (AN) | The most commonly used oxidizer in explosives and blasting agents. |
| Corrosive Agent | A substance that has the power to cause irreversible damage or destroy another substance by contact. |
| Emergency | A serious unplanned event that poses potential harm to health, safety, production, equipment or environment that requires immediate action. |
| Emergency Response Coordinator (ERC) | Person responsible for the management of incident activities at the site of the emergency. |
| Emergency Response Plan (ERP) | A course of action developed to mitigate the potential damage of serious sudden or unplanned events that have the potential to endanger health, safety or business continuity. |
| Emergency Response Team (ERT) | A group of employees trained in emergency response and rescue that provide the field response activities to an emergency. |
| Emulsion | An explosives material containing substantial amounts of oxidizers suspended in water droplets surrounded by an immiscible fuel. |
| Hazardous Material | An item or agent (biological, chemical, radiological, and/or physical), which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. |
| Haze(ing) | Hazing is a process where you disturb the animal's sense of security to such an extent that it decides to leave and move on. |
| Hydrocarbon | A compound of hydrogen and carbon, such as any of those that are the chief components of petroleum and natural gas. |
| NSE | Nova Scotia Department of Environment. Environmental regulatory body. |
| Process Water | Water which is used in connection with mining operational processes. |
| Rehabilitation | The action of restoring something that has been damaged to its former condition. |
| Senior Management Response Team (SMRT) | A group consisting of department managers and/or supervisors that provide internal resources (people, equipment, materials) to support the emergency response activities. An authority structure in which the role of the incident commander is shared. |
| Spill | A release of a hazardous product out of its containment and into the environment. |
| Spill Contingency Plan | A comprehensive plan of action for spill prevention, response to, and recovery of hazardous material released (spill) to the environment (land or fresh water). The plan also identifies the resources and their locations that are needed to implement spill response. |

3 ROLES AND RESPONSIBILITIES

The general responsibilities of both internal and external responders during an emergency are outlined in the site ERP and presented in the table below:

Table 3-1: Description of Roles and Responsibilities

| Role | Responsibilities |
|--------------------------------------|---|
| General Manager | <ul style="list-style-type: none"> • Ensure appropriate resource availability for ERT and SMRT • Responsible for timely and effective communication of events as per reporting and notification structure • Liaise with regulatory agencies when required |
| Department Manager | <ul style="list-style-type: none"> • Provide timely and effective communication of ERP to department personnel • Participate in timely and effective communication during an event as per reporting and notification structure and procedures |
| Emergency Response Coordinator (ERC) | <ul style="list-style-type: none"> • Act as liaison between ERT and H&S Manager • Provide scene control and direction in the event of an emergency |
| Emergency Response Team (ERT) | <ul style="list-style-type: none"> • Act as first responders in the event of an emergency • Provide area control in specific emergency circumstances • Work under the direction and oversight of the ERC |
| Health and Safety Department | <ul style="list-style-type: none"> • Act as liaison between ERC and site management; chiefly the site General Manager • Provide situational updates to the SMRT as necessary and as per notification and reporting procedures • Liaise with external OHS regulators |
| Environmental Department | <ul style="list-style-type: none"> • Act as liaison between ERC and site management as required in any type of environmental event • Provide situational updates to the SMRT as necessary and as per notification and reporting procedures related to environmental events • Liaise with external environmental regulators • Provide secondary assistance to ERC in regards to scene control and ERT direction as necessary during environmental events • Assist as subject matter experts related to spills and remediation |
| Human Resources Department | <ul style="list-style-type: none"> • Provide personnel information to emergency services if necessary |
| Superintendent / Supervisor | <ul style="list-style-type: none"> • Provide area subject matter expertise as requested during an emergency event; provide direct support if requested |
| Employees / Business Partners | <ul style="list-style-type: none"> • Review and acknowledge requirements and procedures outlined in SCP |
| Technical Consultants | <ul style="list-style-type: none"> • Provide technical input in the case of an emergency or potential emergency. |

4 REGULATORY FRAMEWORK

The SCP has been developed and implemented to ensure that AMNS respects all applicable laws, regulations, and requirements from federal and provincial regulatory bodies.

The Plan is developed in accordance with Nova Scotia Environment's (NSE) Contingency Planning Guidelines (NSE 2016) as a potential condition of the Industrial Approval for the Project,

The following federal and provincial statutes and regulations also apply to spill contingency planning, response and reporting.

4.1 Federal Regulations

Canadian regulatory agencies administering explosives:

- Transportation of Dangerous Goods (TDG)
- Natural Resource Canada (NRC)

4.2 Provincial Regulations

4.2.1 Nova Scotia *Environment Act*

The following regulations apply to spill contingency planning, response and reporting.

- *Dangerous Goods Management Regulations*
 - *Environment Act, Section 84 - Dangerous Goods Management Regulations (amended to N.S. Reg. 57/2016)*
- *Environmental Emergency Regulations*
 - *Environment Act, Sections 74, 136 and 171 and subsection 122A (3) - Environmental Emergency Regulations (N.S. Reg. 16/2013)*
- *Contaminated Sites Regulations*
 - *Environment Act, Clause 25(1)(g) and Section 91 - Contaminated Sites Regulations (amended to N.S. Reg. 36/2020)*
- *Petroleum Management Regulations*
 - *Environment Act, Sections 25 and 84 - Petroleum Management Regulations (N.S. Reg. 44/2002)*
- *Approval and Notification Procedures Regulations*
 - *Environment Act, Section 66 - Approval and Notification Procedures Regulations (amended to N.S. Reg. 8/2017)*

4.2.1.1 Contaminated Sites Regulations

Spills that occur may be subject to the Contaminated Sites Regulations and the following protocol:

"The Notification of Contamination Protocol provides requirements for notification when required under Section 8 and Section 9 of the Contaminated Sites Regulations. The protocol addresses two contamination situations: a) free product presence in soil or groundwater; and b) soil, sediment, surface water or groundwater contamination." (NSE 2013)

Remediation of the spill site may proceed as prescribed by the Contaminated Sites Regulations under the direction of a qualified site professional.

4.2.2 Nova Scotia Occupational Health and Safety Act

- *Workers' Compensation General Regulations, Section 184 – Workers Compensation Act (amended to N.S. Reg. 183/2018)*
- *Workplace Hazardous Materials Information System (WHMIS) Regulations*
 - Occupational Health and Safety Act, Section 82 - Workplace Hazardous Materials Information System (WHMIS) Regulations (amended to N.S. Reg. 143/2014)

5 APPROACH TO SPILL RESPONSE

A spill is defined as the uncontrolled release of a hazardous product out of its containment and into the environment. Such releases may result in potential hazards to humans, vegetation, water resources, fish and wildlife which vary in severity, depending on several factors including the nature of the spilled material, quantity spilled, location and season.

There are generally two types of spills that could occur:

1. Operational Spills

Spills of this nature result from the mine or mill operations. The area of concern in this context is the immediate vicinity of the Beaver Dam Mine Site. Spilled material could include reagents, diesel fuel, gasoline, waste oil, tailings slurry and/or process water to on-site land, waterbodies, watercourses, or wetlands.

2. Carrier Spills

These are spills which could result from an isolated incident. Spills of this nature normally involve an independent carrier or a site vehicle and would occur on the site access/haul roads or on the public roads. Most spills would likely be on land, however since roads do cross watercourses there is potential danger of these spills entering a water system.

AMNS requires all site personnel to be trained on the specific procedures required for spill response initiation and reporting. All site personnel must comply with the following procedure upon initiation of a spill involving a regulated substance:

- Immediately warn other personnel working near the spill area;
- Evacuate the area if the health and safety of personnel is threatened;
- In the absence of danger, and before the ERT arrives at the scene, take any safe and reasonable measure to stop, contain and identify the nature of the spill;
- Notify the Environmental Department, who will aid in spill response operations as required. Notification of the area Supervisor is also required; and
- Complete necessary reporting documentation

5.1 Response Process

Upon initiation of spill response, the following procedure shall be completed by site personnel:

Source Control – If safe to do so, reduce or stop the flow of product. This may include actions such as turning off a pump, closing a valve, sealing a puncture, raising a leaking or discharging hose to a level higher than the material inside the tank, or transferring the material to a secondary container.

Contain and Control the Free Product – If safe to do so, prevent or minimize the spread of spilled material. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms (socks), dykes, berms, or trenches.

Protection – Evaluate the risk of the impacted area to the surrounding environment. If safe to do so, protect sensitive ecosystems and natural resources at risk by isolating the area and/or diverting the spilled material away from sensitive receptors such as watercourses, water bodies and wetlands.

Report the Spill – Provide basic information such as location, date and time of the spill, type and an estimate of material discharged, cause, photographic records, location, personnel involved, actions already taken to stop and contain the spill, meteorological conditions and any perceived threat to human health or environment.

An accurate record of the time and type of action taken, and people contacted, must be maintained by the on-scene Supervisor or respondent.

Reports shall be completed as per AMNS' Environmental Incident Report Form (see Appendix A) and emailed to: environmental.incident@atlanticgold.ca

Spill Clean-up – Recover and contain as much free material as possible. Ensure proper clean-up and spill controls are in place.

5.2 Levels of Emergency Spill Response

To effectively manage emergency response, a tiered emergency classification scheme is implemented. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. The impact on normal business operations will also differ as will the requirements for investigation and reporting. The emergency spill response classifications are defined by the following three emergency levels:

Level 1 Emergency (Low Risk) – Minor accidental release of a hazardous substance with;

- No threat to public safety; and/or
- Negligible environment impact to receiving environment

Level 2 Emergency (Medium Risk) – Moderate accidental release of a hazardous substance with;

- Some threat to public safety and threat to project personnel safety; and/or
- Moderate environmental impacts to receiving environment

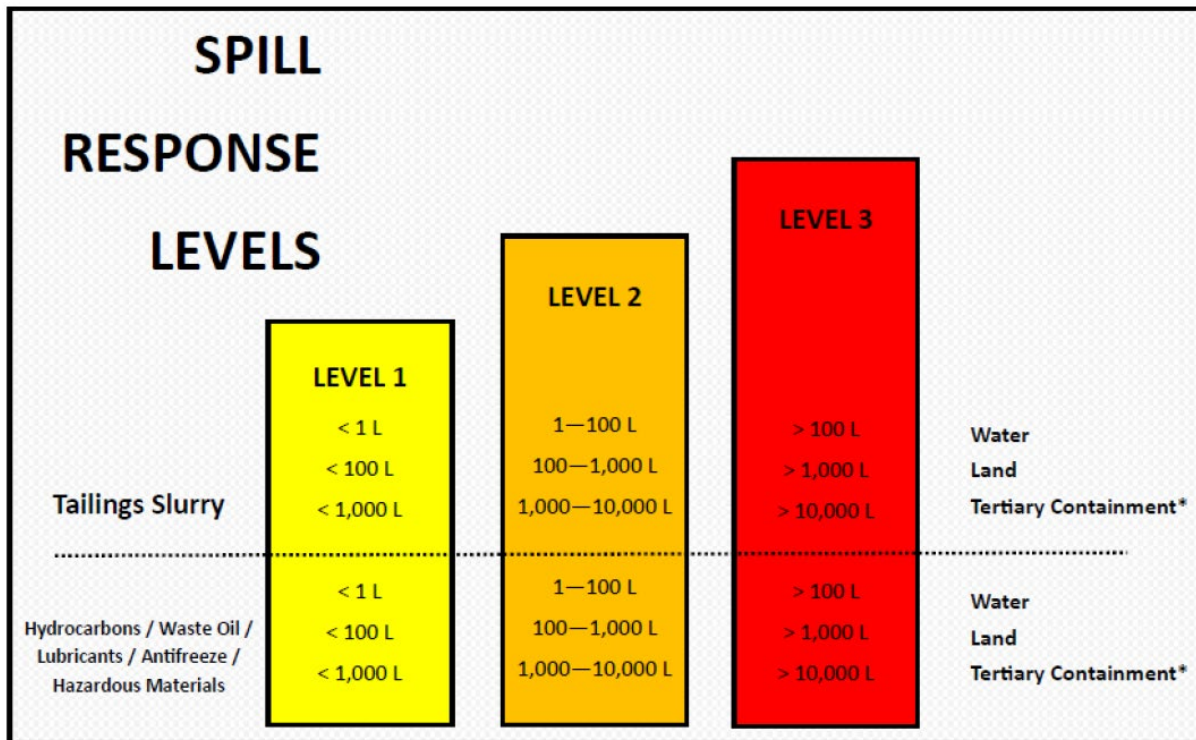
Level 3 Emergency (High/Extreme Risk) – Major accidental release of a hazardous substance with;

- A threat to public safety and jeopardizes project personnel safety; and/or
- Significant environmental impacts to receiving environment

Emergency response levels are determined by the potential impact to human and environmental health. The potential impact is based on substance released, quantity spilled, and receiving environment. This includes specific consideration given to spills

occurring within engineered secondary containment. In general, a level 1 (low risk) incident would be a spill of any hazardous product that the discoverer, or other personnel within close proximity of the incident can competently, safely, and efficiently manage in terms of assessment, prevention, containment and clean-up. In general, A level 2 or 3 emergency spill response classification is a release of a hazardous product where there is potential for that product to enter a watercourse, wetland, or waterbody, and/or cause significant danger to life, health or environment. Consultation with the Environmental Department and SMRT may be needed to correctly classify emergency level.

Figure 5-1: Spill Response Levels



*Engineered containment ditches or collection ponds

ANY accidental release of a deleterious substance into a fish habitat is reportable to regulatory authorities

5.3 Reporting

5.3.1 Internal Reporting Requirements

All spills (whether reportable externally or not) must be reported by the first responder to their immediate supervisor and then to the Environmental Department following assessment of the scene.

Responsible department supervisors are required to document the spill and provide notice to the Environmental Department within 4 hours of the spill occurrence. Documentation should be completed via the AMNS Spill Report Incident Heads Up Form (ENV FRM-001), provided in Appendix B. The Heads-Up form requires an initial assessment of the spill including spilled material,

quantity, location, description of receiving environment, immediate actions taken, and immediate cause. The spill can be reported via the **environmental.incident@atlanticgold.ca** email address or via phone, depending on the severity. Moderate to high level spills (such as spills of hazardous material over 100L on land or over 10L to water) are to be reported as soon as reasonably practical and safe.

The level of investigation is based on the risk level as determined by consideration of the worst-case realistic scenario (actual and potential consequence). If further investigation is required, the Environmental Incident Report (ENV-FRM-002) provided in Appendix A must be initiated within a reasonable timeframe (72 hours). This report requires inclusion of photos, a description of clean-up activities, subsequent actions, identifies root cause and determines any required corrective actions. This form may not be required for some low-level incidents (i.e., small “routine” spills to land under 30 L).

All external reporting requirements for regulatory agencies shall be completed by the AMNS Environmental Department

5.3.2 Regulatory Reporting Requirements

Under federal and provincial regulations, the Environmental Superintendent or designate will call the 24-hour Nova Scotia Spill Report line should a spill of a reportable quantity occur as per the reportable quantities in Appendix C. Several government agencies at the federal and municipal levels may ultimately be informed through the 24-Hour Spill Report line. The Environmental Superintendent or designate will ensure that the appropriate information is collected before reporting to the Spill Report line. Any reportable spill that occurs on or affects a third party (including leased crown property) must also be reported to the property owner.

Any spill of an amount greater than those listed in Appendix B is a “reportable spill”.

The following information should be provided to the 24-Hour Spill Report line:

- Name
- Distance to drinking water wells
- Phone number
- What happened
- Product spilled
- Responsible party
- Quantity spilled
- Actions to contain the spill
- Quality of product (thin, viscous etc.)
- Location of spill
- Distance to water

Most reportable spills are formally reported to NSE by the Environmental Department using regulatory approved templates. Depending on the nature of the spill, NSE and/or Environment Canada may require the spill clean-up efforts and reporting be completed by an independent contaminated site professional.

5.3.3 Public Relations

In the case of a large environmental release occurring, it should be expected that local, regional and national media may reach out to employees or stakeholders of the organization in an attempt to receive information or to attempt to confirm information that may have already been received. As employees of AMNS, it is vitally important to remember a few points when approached with these types of questions:

- If you receive a media request, please ask the member of the media to identify themselves and the media outlet they represent. At that point, you are asked to direct them to make their inquiry to AMNS' Communications Manager.
- Employees who receive outreach from media sources are also asked to report those interactions to the Communications Manager themselves to ensure all information requests are followed up on.

6 EMERGENCY SPILL RESPONSE PROCEDURES

6.1 Reporting

The following general emergency response procedures should be followed as soon as a spill occurs or is detected by site personnel. This procedure may differ on a case-by-case basis.

- Ensure your personal safety and the safety of personnel in the vicinity
- Contact your immediate Supervisor
- If required based on the nature of the event as specified by the site ERP, contact ERT. Remove personnel from spill site.
- Don additional protective clothing (respirator, Tyvek, etc.) if appropriate to deal with the spill as per SDS.
- Absorb any liquids with appropriate absorbents from a spill kit.
- Prevent liquids or spill material from entering watercourses, streams, etc. by diking or by digging ditches to contain the spill.
- Take other actions as directed by the Emergency Response Coordinator (ERC).
- Delineate the spill area.
- Remove contaminated clothing/PPE, place in plastic bag and seal for disposal at an approved location.

The general investigative actions for a spill should include the following:

- Estimate quantity spilled.
- Delineate the area of contamination through visual identification. Sampling and analytical testing of spilled material, soil and/or water may be required with support from the Environmental Department.
- Evaluate available clean-up technologies (excavation, skimmers, vacuum trucks, booms, absorbent pads, etc.).
- Assess impact of clean-up on environment.
- Continuously evaluate worker safety.
- Evaluate treatment and/or disposal options.
- Assess root cause and develop corrective actions to prevent future occurrences.

6.2 Spills on Land

For small spills, a spill kit should be deployed to control the migration of the spill and to facilitate the cleanup.

For larger spills, the main spill control techniques involve the use of two types of barriers: dykes and trenches. These barriers should only be constructed if it is deemed safe to do so. Barriers should be placed down gradient from the source of the spill. Barriers slow the progression of the spill and also serve as containment to allow recovery of the spill.

Depending on the volume spilled, the site of the spill, as well as available material, a dyke may be built with soil, booms, lumber, snow, etc. A plastic liner should be placed at the foot and over the dykes to protect the underlying soil or other material and to facilitate recovery of the spill. Construct dykes in such a way as to accumulate a thick layer of free material in a single arc (V shape or U shape).

Trenches are useful in the presence of permeable soil and when the spilled material is migrating below the ground surface. A plastic liner should be placed on the down-gradient edge of the trench to protect the underlying soil. Liners should not be placed at the bottom of the trench to allow water to continue flowing underneath the layer of floating contaminant if applicable.

The use of large quantities of absorbent materials to recover large volumes of spilled fluids should be avoided. Large volumes of free-material should be recovered and containerized, as much as possible, by using vacuums and pumps appropriate for the material. Mixtures of fuel and water may be processed through an oil-water separator in the event of a hydrocarbon spill. Absorbent sheets should be used to soak up residual fuel on water, on the ground, and on vegetation.

Hazardous material is collected using techniques mentioned above and stored within appropriate containers. The hazardous material is then transported off-site by an approved contractor for disposal at an appropriate facility.

6.3 Spills on Water

Responses to spills on water include the general procedures previously detailed. Various containment, diversion and recovery techniques are discussed in the following sections. The following elements must be considered when conducting response operations:

- Type of water body or water course (lake, stream, river);
- Water depth and surface area;
- Wind speed and direction;
- Type of shoreline;
- Seasonal considerations (open-water, frozen); and
- Behavior of spilled product when mixed with water (i.e. hydrocarbons will float on water surface).

Containment of hydrocarbons (fuel, gas, oil) on water requires the deployment of mobile floating booms to intercept, control, contain and concentrate the floating oil. For a large water course (such as Cameron Flowage), typically, one end of the boom is anchored to shore for recovery using a skimmer. Reducing the surface area of the slick will consequently increase the oil thickness and

increase recovery. Mechanical recovery equipment (i.e. skimmers and oil/water separators) will need to be mobilized to site if required.

If hydrocarbons are spilled in a water body such as a lake, it may not be possible to deploy booms using a boat. In this case, measures are taken to protect sensitive (wetlands) and accessible shoreline. The fuel slick is monitored to determine the direction of migration. Measures will be taken to block and concentrate the oil slick on the lake using booms where it will sequentially be recovered using a portable skimmer, a vacuum, or sorbent materials.

In small slowly-flowing streams, channels, inlets or ditches, inverted weirs (i.e. syphon dams) are used to stop and concentrate moving fuel spills for collection while allowing water to continue to flow unimpeded. In both cases fuel will then be recovered using a portable skimmer, vacuum, or sorbent material.

In the unlikely case of a spill in the Killag River, diversion booming is used to direct the oil slick ashore for recovery. Single or multiple booms (i.e. cascading) may be used for diversion. Typically, the booms are anchored across the river at an angle. The angle will depend on the current velocity. Choosing a section of a river that is both wider and shallower makes boom deployment easier. Diversion booming may also be used to direct oil slick away from a sensitive area to be protected.

Hazardous material is collected using techniques mentioned above and stored within appropriate containers. The hazardous material is then transported off-site by an approved contractor for disposal.

In the event of a process water spill near a watercourse, depending on the volume spilled, the site of the spill, as well as available material, a dyke or trench may be built to divert and/or capture the spilled material prior to the watercourse. The material can then be disposed of with the use of a hydrovac or by portable pumps.

6.4 Spills on Snow and Ice

In general, snow and ice will slow movement of spilled substances. The presence of snow may also hide the spill and make it more difficult to follow its progression. Snow is generally a good natural sorbent; most spills tend to be soaked up by snow through capillary action.

However, the use of snow as absorbent material is to be limited as reasonably practical. Snow and frozen ground also prevent spills from migrating down into soil or at least slow the process. Ice prevents seepage of spilled substance into the underlying water body.

Response to spills on snow and ice includes the general procedures previously detailed. Most response procedures for spills on land may be used for spills on snow and ice. The use of dykes (i.e. compacted snow berms lined with plastic sheeting) or trenches (dug in ice) slow the progression of the spill and serve as containment to allow recovery.

Free-material is recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice are scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice are placed in containers or within lined berms on land. The contaminated material will be shipped off-site for treatment/disposal.

Hazardous material is collected using techniques mentioned above and stored within appropriate containers. The hazardous material is then transported off-site by an approved contractor for disposal.

6.5 Wildlife Protection Procedures

When required, the following audible and visual techniques shall be used to prevent wildlife from interacting with spilled product or a contaminated area(s) following a spill;

- Visual scare tactics, i.e. emergency response vehicles or personnel;
- Broadcast sounds, i.e. horns, shouting, hazing equipment;
- Exclusion, i.e. netting or sheeting applied in smaller spill areas.

To minimize environmental impact, these devices are most effective when initiated immediately.

The size of the spill and location in relation to sensitive wildlife areas must be assessed at the time of the event as to correctly apply the appropriate level of deterrence. Only workers trained in the safe and proper use of certain hazing equipment will be permitted to haze wildlife. Personal protective equipment (PPE) will be worn by all personnel using deterrent equipment, as per manufacturer's instructions, with minimum PPE consisting of eye and ear protection.

Hazing should be administered in such a way as to prevent wildlife from entering an area where they may become endangered. It is also important to ensure that hazing efforts do not cause already contaminated animals to scatter away before they are able to receive treatment. Techniques should be applied as soon as possible to prevent wildlife from interacting with spilled product or contaminated areas and becoming oiled or contaminated.

In the event of a spill occurring, the affected areas will be inspected for contaminated or dead wildlife. The collection of said wildlife will be done under the direction of applicable wildlife agencies, Table 6-1. Canadian Wildlife Services is required to be consulted and approval shall be obtained prior to disposing of any dead wildlife.

Table 6-1: Emergency Contacts in Case of Spills Affecting Wildlife

| Name | Location | Phone Number | Purpose |
|---|---|--|---|
| Nova Scotia Department of Lands and Forestry – Wildlife Division | 136 Exhibition St Kentville NS B4N 4E5 | During work hours 902-679-6091 | Wildlife interactions, effects on plants and other species. |
| Environment and Climate Change Canada - Canadian Wildlife Service - Atlantic Region | 17 Waterfowl Lane, P.O. Box 6227 Sackville NB E4L 1G6 | Direct: 506-364-5044 Toll Free: 1-800-668-6767 | For information on incidental take of migratory birds, their nests and eggs. |
| Nova Scotia Environment (NSE) | 30 Damascus Road, Suite 115 Bedford Commons, Bedford NS B4A 0C1 | During work hours Phone: 902-424-7773 Fax: 902-424-0597 After hours 1-800-565-1633 | NSE emergency phone line. Can be consulted in case of emergency. After hours is through the Canadian Coast Guard. |
| International Bird Rescue | International | 707-207-0380 | Wildlife rehabilitation specialists, that manage various aspects of wildlife response. |

6.6 Disposal/Remediation of Contaminated Materials

Appropriate containers as approved by NSE can be used to contain and transport contaminated soil for treatment. In general, metal barrels should be used for any material containing hydrocarbons and plastic barrels for any corrosive agents. Disposal and/or remediation of material to be completed off-site at an approved facility.

6.7 Facilities and Contractors

See Appendix C for key contractor response contacts.

6.8 Equipment and Supplies

Equipment and supplies are necessary for conducting countermeasure activities in the event of a spill. A spill kit supply list is included in Appendix D. The location of all spill kits will be indicated once Project is in construction phase.

6.9 Rehabilitation Procedures

The goal of rehabilitation is to restore the site so that it can be safely used for the same purposes as it was prior to the occurrence. Rehabilitation may involve replacing contaminated soil with clean fill or routing watercourses away from the contaminated site until it can be cleaned up.

Rehabilitation procedures specific to spill type and location will be reviewed with NSE as required. Rehabilitation should commence immediately following spill clean-up as appropriate.

Monitoring should continue for a reasonable amount of time following rehabilitation to ensure that that clean-up and restoration activities were successful.

7 TRAINING REQUIREMENTS

Emergency spill response training subject to the requirements of this plan shall be completed in conjunction with AMNS' ERP, whereby the ERC, with support from the Manager, Environment and Community, will identify project training needs and the resources required to provide the necessary skills to personnel tasked with duties in emergency and spill response. Circumstantially, emergency spill response often occurs in parallel with other emergency responses (i.e. an overturned fuel tanker accident along the road not only causes imminent hazards to site personnel, but also to the surrounding environment). To facilitate efficient response to overall emergency response and preparedness, project personnel trained to respond to Health and Safety emergencies (ERT) shall also receive sufficient training to effectively respond to accidental releases of hazardous materials. Emergency and spill response training shall be developed and implemented throughout the lifecycle of the project to ensure the following requirements are fulfilled:

- Training meets or exceeds the requirements of Nova Scotia Health and Safety regulations
- Training enables responders to competently operate the equipment employed for emergencies and spill response purposes; and
- Training includes practices, drills and full-scale exercises for responding to the types of emergencies that are reasonably predictable for the operation

7.1 Training Objectives

The training objectives are to prepare site personnel in response procedures. The procedures that need to be reviewed include most topics described in this contingency plan:

- Notification Procedures
- Health and Safety Procedures
- Hazard Analysis
- Response Command System
- Reporting Requirements
- Equipment Inventories and Operation

7.2 Drills and Exercises

While drills and exercises can be used for training purposes, their primary function for this Plan is to provide the means of testing the adequacy of the plan's provisions and the level of readiness of response personnel. The ERC with support from the Environmental Department are responsible for coordinating the development of and assisting in conducting drills and exercises. The drills and exercises will include table top, functional drills and full-scale exercises. Refer to the ERP for further descriptions.

7.3 Training Preparation

Preparation for emergency and spill response exercises will vary depending on the type and scope involved; however, planning for these events shall include:

- Plan review and identification of possible problem areas;
- Establishing objectives;

- Identifying resources to be involved, including personnel;
- Develop exercise scenarios, a major sequence of events list, and expected action checklists; and
- Assigning and training controllers and evacuators.

AMNS will engage the appropriate regulators, contractors and consultants to conduct the training drills and exercises. All scenarios shall be realistic and based upon current operating conditions. The primary event (i.e. spill) shall be determined based on the objective of the exercise and completed in accordance with the prescribed regulatory requirements.

8 POTENTIAL SPILL ANALYSIS

To prepare for emergency spill response, potential spill analysis will be conducted on various worst-case spill scenarios. The exercise serves to identify potential risk areas, as well as to determine the fate of spilled products and their environmental effects. This analysis examines spill scenarios as they relate to the types of project activities.

Several types of materials have been identified as capable of causing environmental, health, and safety concerns should a spill occur while being transported, used, stored and/or handled. These include: fuel, explosives (emulsion), lubricants, and oils. These materials are typically utilized daily during project operations, often in sufficiently large quantities, warranting the evaluation of potential spill scenarios. All other hazardous materials, chemicals or wastes are handled/used/stored in smaller quantities and packaged/transported in small containers that limit the magnitude of the spills that can occur.

9 PETROLEUM MANAGEMENT

9.1 Introduction

Petroleum based fuel products in the form of diesel, gasoline and propane will be used throughout the life of the Project and stored in various locations within the Project area. The majority of the large mobile equipment (haul trucks, front-end loaders, dozers, graders, etc.) will consume diesel. Gasoline powered vehicles will largely be restricted to smaller vehicles (pickups, vans, etc.). Propane will be used for temporary and permanent facilities for space heating. Limited quantities of propane and gasoline will be used in maintenance facilities for smaller motorized equipment and machinery.

The containment area will be designed to contain a minimum of 110% of the volume of the largest tank and will be equipped with an oil/water separator to handle draining of stormwater runoff from within the containment. Any bulk storage tank proposed to be located outside an appropriately bermed area will be of the double-walled (“Enviro-tank”) variety with appropriate barricades. No underground fuel storage tanks will be used at the Project.

The delivery of diesel fuel, gasoline, and propane will be conducted by tanker trucks from suppliers who routinely transport and distribute petroleum products. Transfer of these products from the tanker truck to double-walled tanks with bollards will be constantly supervised by the delivery person to ensure constant observation and immediate response should a spill occur.

As well, during each of the construction, operations and closure phases, smaller fuel storage tanks may be in use at various locations throughout the property in support of specific activities and/or facilities. Such tankage may take the form of:

- Stationary fuel supply “day” tanks;
- Mobile vehicle fuel supply tanks (“Tidy” tanks);
- Mobile bulk fuel service truck;
- Mobile equipment fuel tanks; and,
- Propane in both portable and fixed tankage.

Petroleum based fuel products will be delivered to the Project by road using tanker trucks under contract to third party licence commercial suppliers with proper certification and training in fuel transport. Fuel suppliers will be required to provide proper documentation supporting their authority to transport fuel and present their procedures and measures to minimize the risk of and to respond to the accidental release of fuel. The third-party supplier will be responsible for the fuels during transport to the Beaver Dam Mine Site and transfer to above ground bulk storage tanks at the site, at which point the AMNS will take possession of and responsibility for the fuel.

Surface mobile equipment will fuel-up at a dispensing station at the main fuel storage tank farm. Diesel and gasoline will be available for use using a cardlock system for dispensing. The fuel dispensing station will be constructed within a lined and graded or bermed area to contain minor spills or leaks during refuelling. The liner (e.g., 40 mm High-density polyethylene (HDPE) liner or equivalent) will be protected by aggregate bedding. Vehicles and mobile equipment will drive onto this bedding for refuelling. Fixed equipment will be supplied by the fuel service truck.

Fuel storage areas will be equipped with standard instrumentation and controls to monitor and safely manage the inventory in the tanks. Fuel storage areas and fuel service vehicles will be equipped with spill kits for emergency response. Each spill kit contains the appropriate type, size, and quantity of equipment for the volume/type of product present in the storage.

9.2 Safety and Environmental Management Measures

Petroleum based fuel products will be required at the site during the Construction and Operation phases of the Project. The following measures will be implemented to address the safe and proper transportation, storage and handling of petroleum-based fuel products to protect the health and safety employees, to cause no accidental harm to property or the public, and to protect the environment from deleterious effects associated with the accidental release of these products.

9.2.1 Transportation

All petroleum products will be transported to the Beaver Dam Mine Site by licenced contractor in compliance with Transportation of Dangerous Goods (TDG) and WHMIS legislation and handled by personnel with TDG and WHMIS training. All necessary documentation, including manifests and WHMIS Materials Safety Data Sheets (MSDS) will be required to accompany each product. Fuels will be properly secured and labelled during transport.

Drivers will be required to complete a site orientation prior to or upon arrival to site. Planning of delivery timing will consider weather and road conditions and availability of appropriate transportation equipment and personnel.

The transport of petroleum-based fuel products will include the following requirements:

- Trucks and containers will be properly marked, labelled, and placarded;
- Containers will be appropriate for the material being shipped and properly secured;
- Manifests will be maintained in accordance with federal and provincial regulations;
- MSDS will accompany all shipments and will be made available to all employees working with or in the vicinity of such products;
- Smoking will be prohibited while transporting, transferring or otherwise handling fuel products;
- Fire extinguishers and fire prevention materials will be adequate and appropriate for the material being transported;
- Spill response materials will be adequate and appropriate for the materials being transported; and
- Drivers will be adequately trained and equipped for spill first response, containment, and communication.

Best Management Practices (BMPs) related to tank trucks and transportation include the following:

- It is expected that all bulk fuel tank trucks will be certified as required to the current CSA standard and all fuel transport conducted in accordance with TDG Regulations;
- All bulk fuel tank trucks will be inspected as per Transport Canada current requirements:
 - Inspection by a facility that is registered by Transport Canada;
 - Visual inspections and a leak test every year and an internal inspection and pressure testing every five years;
- All large TDG tanks greater than 454 L will meet current standards for flammable or combustible liquids;
- All tank trucks, trailers, and semi-trailers used to transport fuel tanks will meet commercial vehicle inspection requirements; and,
- No person will drive or operate on a highway a vehicle carrying a load unless the load is secured in a manner which ensures that:

- The load will not escape from the vehicle;
- The load will not shift or sway in a manner that may affect the operation of the vehicle.

9.2.2 Delivery

Bulk fuel storage tanks at the Project site will be filled from the fuel transport tanker truck by the contract supplier. AMNS will take possession of the fuel once it has been transferred to the bulk storage tank. As a result, fuel delivery will be the contractor's responsibility up to that point. All fuel deliveries will be supervised by an employee of AMNS.

Transfer from tanker trucks to tanks at the fuel storage facilities will be done using enclosed lines, hoses, and pumps. Diesel and gas will be delivered to larger storage tanks on site by commercial purpose designed tanker trucks equipped with the necessary instrumentation to ensure no spills.

Fuel will be transferred as per the established procedures of the fuelling contractor. Before fuel transfer, it is important to ensure that:

- All fuel transfer hoses have been connected properly and couplings are tight;
- Transfer hoses are not obviously damaged;
- Fuel transfer personnel are familiar with procedures;
- For fuelling stations, personnel are located at both the fuel truck and fuel transfer tank(s) and have the ability to shut off fuel flow manually;
- A means of communication has been established between the two people transferring fuel;
- A high liquid level shutoff device can be substituted for the person at the delivery tank, in which case operation of the shutoff should be verified each time it is used; and,
- Prevention of the overfilling storage tanks will be provided by one or both of the following:
 - Continuous supervision of the filling operations by personnel qualified to supervise such operations;
 - An overfill protection device that meets the current standard for Flammable Liquid Storage Tanks.

9.2.3 Storage

Fuel will be stored away from ignition sources and environmentally sensitive areas, with consideration of site drainage and surface flows and pathways to the nearest waterbody. These storage sites will be well ventilated, and the areas will be designated as non-smoking. Sites will be equipped with fire extinguishers and spill kits and anti-spill devices like drip pans, interceptor drains, high level sensors, and one-way valves. Signage will be posted at all fuel storage areas for the purpose of controlling and/or restricting access to the area.

BMPs related to bulk fuel storage include the following:

- Storage tanks for combustible and flammable liquids will be built and maintained in accordance with current standards (eg. Underwriters Laboratories of Canada (ULC) tank specifications, and bear a current ULC certification plate or label);
- Aboveground storage tanks will be installed on firm foundations designed to minimize uneven settling and corrosion, and to prevent the design stress of the tank from being exceeded;

- Aboveground storage tanks, which will be out of service for a period not exceeding 180 days, will be isolated by closing and securely locking the necessary valves, or by capping the piping from the tank;
- Tanks will have a minimum 1 m separation between them;
- Current certification plates or labels will be checked to ensure that all tanks meet a specified engineering standard;
- Tanks will be filled to an acceptable safe filling level corresponding to approximately 90% of capacity; and,
- Valves at the storage tank must be constructed of steel according to the Fire Code.

9.2.4 Dispensing

Fuel dispensing personnel will receive training and must demonstrate an understanding of the procedures and work instructions.

Key components to be included in the fuel handling procedures include:

- Fuel dispensing system will meet applicable regulations and codes;
- Fuelling to be conducted outdoors;
- Dispensing fuel with approved hose-reel and automatic closing nozzles;
- An automatic shut-off nozzle must be used when using an integral hold-open device;
- Tanks must not be filled beyond their safe filling level;
- Measures to ensure no overfilling of tanks;
- Operators will always stay with the nozzle during refuelling;
- Precipitation will not be allowed to accumulate within containment area;
- Monitoring and reporting of any release (reportable or not) should they occur; and,
- Oil/water separators installed where necessary.

9.2.5 Handling and Use

- WHMIS MSDS will accompany all petroleum-based fuel products and will be made available to all employees working with or in the vicinity of such products;
- All petroleum based fuel products will only be handled by personnel with TDG and WHMIS training and the appropriate certifications for handling explosives;
- Appropriate placards will be visible on all four sides of any fuel truck or mobile refuelling trailer that is greater than 2,000 L whether filled or empty and all fuel handling procedures will be posted;
- All vehicles used to transport fuel and all fuel system locations must have spill response kit, capable of containing and absorbing fuel spills;
- Legible operating instructions will be clearly posted at card or key activated dispensers and emergency instructions will be conspicuously posted;

- Refueling equipment from a tank vehicle will be permitted if the following conditions are met:
- The fuelling is conducted in connection with commercial or industrial operations;
- The fueling is conducted outdoors on commercial or industrial establishments;
- The fuelling is conducted using approved hose-reel and automatic closing nozzles; and
- Appropriate draining and equipment are supplied to deal with any incidental spillage.
- Fueling and servicing of equipment will not occur within a riparian management area of a stream or wetland, or within 30 m of a lakeshore, unless:
- The equipment is hand held; or
- The fuelling or servicing is required for carrying out fire fighting activities, required to move broken down equipment, or authorized by the Environmental Manager.

9.2.5.1 Safety Considerations

- Sites will be selected that are easily visible and that are located away from high traffic areas;
- Fuel storage areas will be physically protected from collisions with vehicles either by moving the tank vehicle or mobile skid or by placing a barrier between traffic areas and tanks. Fixed dispensers will be protected against collisions by either a concrete island not less than 100 mm high, or guard rails;
- MSDS will be made available at all locations where fuel products are stored and used;
- Signs indicating that ignition must be turned off, smoking is prohibited, and any other fuelling procedures will be visible to all drivers approaching the dispenser; and,
- Two portable fire extinguishers will be available within 9 m of the fuel area and proper bonding, grounding, and isolation components will be established for protection against static charges.

When working with diesel products, the following handling procedures will be followed:

- Do not get in eyes, on skin, or on clothing;
- Avoid breathing vapours, mist, and fumes;
- Do not swallow;
- Wear protective equipment and/or garments if exposure conditions warrant;
- Wash thoroughly after handling;
- Launder contaminated clothing before reuse;
- Use in areas with adequate ventilation;
- Keep away from heat, sparks, and flames;
- Store in a closed container in a well-ventilated area; and,
- Bond and ground during transfer.

When working with unleaded gasoline, the following handling procedures will be followed:

- Avoid skin contact;
- Avoid breathing vapours, mist, or fumes;
- Launder contaminated clothing before reuse;
- Store flammable liquids area away from heat, ignition sources, and open flames; and,
- Bond and ground during transfer.

9.2.6 Environmental Measures

The environmental protection measures relating to fuel management include reasonable practices and procedures aimed at minimizing the risk of a negative environmental effect (i.e., release to ground or water) and equipment and storage facilities designed with best available technology to minimize the risk of the release of fuel to the environment.

Environmental protection measures are incorporated into the transportation, storage and handling measures for petroleum fuel products as described above and summarized below:

- The Project facilities will be sited and designed to minimize the risk of accidents and/or malfunctions from occurring and to minimize the potential impact from a release of a deleterious substance from an accident and/or malfunction;
- Fuel will be stored away from ignition sources and environmentally sensitive areas, with consideration of site drainage and surface flows and pathways to the nearest waterbody;
- AMNS will maintain a supply of spill response and clean up equipment on site throughout the various construction sites;
- AMNS will employ a site based Environmental Manager in advance of the commencement of construction to ensure that suitable environmental precautions and standards are being employed;
- The mine access road will be constructed to accommodate safe passage of trucks hauling potentially hazardous commodities to and from the Beaver Dam Mine Site including petroleum products. The road will be closed to public access and speed limits will be established and enforced to prevent accidents. The road will be maintained by site-based personnel or a contractor to ensure that trucks are travelling on a safe road surface during both summer and winter conditions;
- A containment area will be designed to contain a minimum of 110% of the volume of the largest tank. If small fuel tanks (not including 205 L barrels) are required for refuelling they will either be double-walled “Enviro tanks” or will also have either a containment berm or a sealed concrete containment area. All areas where petroleum products are stored or handled will have fire extinguishers and spill kits in clearly visible areas;
- Site wide procedures will be developed and employed to regulate where and how field refuelling and servicing activities are to occur. These procedures will be a term of contract for all site construction contractors. Such procedures will dictate that re-fuelling and servicing cannot take place in close proximity to water bodies or into areas where spills can easily reach watercourses; for example,
 - Refuelling and servicing of mining equipment will take place either within the boundaries of the open pit or at designated sites where spills relating to accidents and malfunctions can be contained;
 - Equipment will not be serviced, refuelled, or washed within 100 m of the watercourse or in areas that may receive runoff that could potentially enter the watercourse;
 - All hydraulic, fuel, and lubrication systems of equipment working in the vicinity of a watercourse will be in good repair to prevent leakage and deposition of deleterious substances into the water.

- All petroleum products no longer required will be removed from the site once mining ceases.

10 REVIEW AND CONTINUOUS IMPROVEMENT

The plan will be reviewed annually but also following drills, exercises and spill responses. Updates will consider the accuracy and currency of the information included in the plan and changes to equipment, personnel and the site/risk. Records such as equipment inventory and maintenance, personnel training, drills and exercises, and updates of plans will be maintained.

The controlled copy of this document will be updated, and copies made as required. It is the responsibility of all employees to refer to the most current version of the plan. Copies or extracts of this document, which have been printed, are uncontrolled copies and cannot be guaranteed to be the latest version.

11 REFERENCES

AMNS. 2021a.. Updated Environmental Impact Statement. Beaver Dam Mine Project. Submitted to the Impact Assessment Agency of Canada and Nova Scotia Environment. May 2021. Marinette, NS.

Atlantic Gold Corporation. 2020. Emergency Response Plan AMNS-PLN-HS-001, Amended: August 1, 2020

Nova Scotia Environment (NSE). 2013. Notification of Contamination Protocol. Effective Date Jul 6, 2013

Nova Scotia Environment (NSE). 2016. Contingency Planning Guidelines. Effective Date: May 10, 2016

Nova Scotia Environment (NSE). 1994-95, c. 1, s. 1. Nova Scotia Environment Act.

Prospectors and Developers Association of Canada (201 e3 Plus: A Framework for Responsible Exploration, Excellence in Environmental Stewardship e-toolkit (EES) Version 01 Chapter 11 Spill Management ES-SM-v1.0

12 ACRONYMS AND UNITS

12.1 Acronyms and Abbreviations

| | |
|-------|--|
| AMNS | Atlantic Mining NS Inc. |
| BMP | Best Management Practices |
| ERP | Emergency Response |
| ERC | Emergency Response Coordinator |
| ERT | Emergency Response Team |
| ETP | Effluent Treatment Plant |
| H&S | Health and Safety |
| HDPE | High-density polyethylene |
| MSDS | Materials Safety Data Sheets |
| NRC | Natural Resource Canada |
| NSE | Nova Scotia Department of Environment |
| OHS | Occupational Health and Safety |
| PPE | Personal Protective Equipment |
| SMRT | Senior Management Response Team |
| SCP | Spill Contingency Plan |
| TDG | Transportation of Dangerous Goods |
| ULC | Underwriters Laboratories of Canada |
| WHMIS | Workplace Hazardous Materials Information System |

APPENDIX A
SPILL REPORTING FORMS



SPILL REPORT INCIDENT HEADS UP FORM

AGC ENV FRM 001 REV 2

NOTIFY: environmental.incident@atlanticgold.ca

INITIAL REPORT OF THE INCIDENT (Supervisor)

| | | | | | |
|--|--|--|--|--|--|
| Date of Event | Time of Event | Date Reported | Time Reported | Main Person Involved | Reported By |
| <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

| | | | |
|---|--|--|--|
| Employer | Contractor (If Applicable) | Department | Location |
| <input type="checkbox"/> Atlantic Gold <input type="checkbox"/> Contractor | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

| | | | | |
|------------------------|----------|--|-----------|--|
| UTM Coordinates | Northing | <input style="width: 90%;" type="text"/> | Easting | <input style="width: 90%;" type="text"/> |
| Geographic Coordinates | Latitude | <input style="width: 90%;" type="text"/> | Longitude | <input style="width: 90%;" type="text"/> |

Spill / Release

| | | |
|--|---|---|
| Substance Spilled | Quantity <small>(Estimate Acceptable)</small> | Receiving Environment (i.e. Where did the spill go?) |
| <input style="width: 95%;" type="text"/> | <input style="width: 95%;" type="text"/> | <input style="width: 95%;" type="text"/> |

| | | |
|--|--|--|
| Is the spill controlled/contained? Yes <input type="checkbox"/> No <input type="checkbox"/> | Is the spill into a watercourse or wetland? Yes <input type="checkbox"/> No <input type="checkbox"/> | Does the spill have potential to travel off-site? Yes <input type="checkbox"/> No <input type="checkbox"/> |
|--|--|--|

| | |
|--|--|
| Initiating Event | Method of Cleanup |
| <input style="width: 95%;" type="text"/> | <input style="width: 95%;" type="text"/> |

Spill Waste (i.e. contaminated soil, oil-soaked pads, etc.) Storage Location

Detailed Description

Immediate Actions Taken to Secure Scene, Protect Peoples or Environmental and Equipment

Immediate Cause of the Incident



SPILL REPORT INCIDENT HEADS UP FORM

AGC ENV FRM 001 REV 2

FOR ENVIRONMENTAL DEPARTMENT TO COMPLETE

Further Investigation Required? Yes No

If Yes - Use Environmental Incident Report Form
AGC ENV FRM 002 Rev 3

Reportable? Yes No

Regulator Notified? Yes No

Regulator Name

Date Reported

Reference Number

Contact Name

Environment Department Comments



ENVIRONMENTAL INCIDENT REPORT FORM

AGC ENV FRM 002 REV 3

NOTIFY: environmental.incident@atlanticgold.ca

STEP 1. INITIAL REPORT OF THE INCIDENT (Supervisor)

| | | | | | |
|--|--|--|--|--|--|
| Date of Event | Time of Event | Date Reported | Time Reported | Main Person Involved | Reported By |
| <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

| | | | |
|---|--|--|--|
| Employer | Contractor (If Applicable) | Department | Location |
| <input type="checkbox"/> Atlantic Gold <input type="checkbox"/> Contractor | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

| | | | | |
|------------------------|----------|--|-----------|--|
| UTM Coordinates | Northing | <input style="width: 90%;" type="text"/> | Easting | <input style="width: 90%;" type="text"/> |
| Geographic Coordinates | Latitude | <input style="width: 90%;" type="text"/> | Longitude | <input style="width: 90%;" type="text"/> |

Environment

Spill/Release
 Wildlife Interaction
 Other:

Spill / Release

| | | |
|--|---|---|
| <input style="width: 90%;" type="text"/> | Quantity <small>(Estimate Acceptable)</small> | Receiving Environment (i.e. Where did the spill go?) |
| <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

| | | |
|--|---|---|
| Is the spill controlled/contained? Yes <input type="checkbox"/> No <input type="checkbox"/> | Is the spill into a watercourse or wetland? Yes <input type="checkbox"/> No <input type="checkbox"/> | Does the spill have potential to travel off-site? Yes <input type="checkbox"/> No <input type="checkbox"/> |
|--|---|---|

| | |
|--|--|
| Initiating Event | Method of Cleanup |
| <input style="width: 90%;" type="text"/> | <input style="width: 90%;" type="text"/> |

Spill Waste (i.e. contaminated soil, oil-soaked pads, etc.) Storage Location

Detailed Description



ENVIRONMENTAL INCIDENT REPORT FORM

AGC ENV FRM 002 REV 3

Immediate Actions Taken to Secure Scene, Protect Peoples or Environmental and Equipment

Immediate Cause of the Incident

Using the Incident Classification, the **Actual** Consequence of this incident was _____

Using the Incident Classification, the **Reasonable** Potential Consequence of this incident was _____

| Consequences | Insignificant | Minor | Moderate | Major | Catastrophic |
|--------------------|-----------------------------------|-------------------------------|---------------------------------------|--------------------------------------|---|
| Environment | Non-reportable event No impact | Reportable Event No Impact | Reportable Event Reversible Impact | Reportable Event Long-Term Impact | Reportable Event Irreversible Impact |

STEP 2. INFORMATION GATHERING (Investigator)

Investigator (s)

Lead Investigator

Others

Witnesses Present

Photos available of the Incident?

Witness Statements (Attach as Appendix)

| | |
|---|--|
| 1 | |
| 2 | |
| 3 | |

FOR ENVIRONMENTAL DEPARTMENT TO COMPLETE

Reportable? Yes No

Regulator Notified? Yes No

Regulator Name

Date Reported

Reference Number

Contact Name

STEP 3. CAUSAL ANALYSIS (Investigator)
At least one must be selected (two or three are typical).



ENVIRONMENTAL INCIDENT REPORT FORM

AGC ENV FRM 002 REV 3

Contact Environmental Department for guidance, if necessary.

| Equipment Failure Issues | Procedural Issues | Communication Issues | Engineering Issues |
|---|---|---|---|
| <input type="checkbox"/> 1.1 Defective Parts/Tools/ Equipment | <input type="checkbox"/> 3.1 No Procedure | <input type="checkbox"/> 5.1 Shift Change Impact | <input type="checkbox"/> 7.1 Workplace/ Roadway Layout/ Design/ Conditions |
| <input type="checkbox"/> 1.2 Design Issue | <input type="checkbox"/> 3.2 Error in Procedure | <input type="checkbox"/> 5.2 Failure to Agree on how task to be Performed | <input type="checkbox"/> 7.2 Congested Work Area/ Restricted Action |
| <input type="checkbox"/> 1.3 Preventative Maintenance Issue | <input type="checkbox"/> 3.3 Procedure too Complex | <input type="checkbox"/> 5.3 Failure to Understand Communication | <input type="checkbox"/> 7.3 Inadequate display, signs, labels, alarms, warnings |
| <input type="checkbox"/> 1.4 Repeat Failure | <input type="checkbox"/> 3.4 Procedure not Followed | <input type="checkbox"/> 5.4 Inadequate Communication | <input type="checkbox"/> 7.4 Inadequate Guards of Barriers |
| <input type="checkbox"/> 1.5 Tolerable Failure | | <input type="checkbox"/> 5.5 Cross-Department Communication Issue | <input type="checkbox"/> 7.5 Noise/ Vibration/ Light |
| | | | <input type="checkbox"/> 7.6 Poor Body Mechanics, Body Placement, Positioning, Repetitive |
| Natural Elements Issue | Training Issue | Work Direction Issue | Quality Control Issue |
| <input type="checkbox"/> 2.1 Temperature Extremes | <input type="checkbox"/> 4.1 No Training | <input type="checkbox"/> 6.1 No Direction Provided | <input type="checkbox"/> 8.1 No Quality Controls |
| <input type="checkbox"/> 2.2 Weather Conditions | <input type="checkbox"/> 4.2 Training not Followed, Unintentional | <input type="checkbox"/> 6.2 Inadequate Direction Provided | <input type="checkbox"/> 8.2 Inadequate Quality Controls |
| <input type="checkbox"/> 2.3 Ground Movement | <input type="checkbox"/> 4.3 Trained but Inexperienced | <input type="checkbox"/> 6.3 Failure to Follow Work Direction | Other |
| <input type="checkbox"/> 2.4 Flooding | | <input type="checkbox"/> 6.5 Fatigue | <input type="checkbox"/> 9.1 Other (explain below) |
| | | <input type="checkbox"/> 6.6 Impairment | |

Cause Explanation (For Each Cause Identified in Casual Analysis - Provide a Brief Explanation of Why)

| Code | Explanation |
|------|-------------|
| | |
| | |
| | |

Corrective Actions:

| No. | Description | Issued To (Name) | Due Date |
|-----|-------------|------------------|----------|
| | | | |
| | | | |
| | | | |



ENVIRONMENTAL INCIDENT REPORT FORM

AGC ENV FRM 002 REV 3

| Investigation Team and Factors Limiting | | |
|---|----------|---|
| Name | Position | Signature |
| | | <input type="checkbox"/> Investigation Accepted |
| | | <input type="checkbox"/> Investigation Accepted |
| | | <input type="checkbox"/> Investigation Accepted |

| STEP 4. FINAL COMMENTS BY INVESTIGATORS OR MANAGEMENT | | |
|---|---------|------|
| Name | Comment | Date |
| | | |
| | | |
| | | |

APPENDIX B
REPORTABLE RELEASE AMOUNTS

Table B-1: Reportable Release Amounts

| TDGA Class* | Description of Substance | Reportable Release Amount |
|-------------|---|---------------------------------|
| All Class 1 | Explosive | Any amount |
| 2.1 | Compressed gas (flammable) | 100L or more |
| 2.2 | Compressed gas (non-corrosive, non-flammable) | 100L or more |
| 2.3 | Compressed gas (toxic) | Any amount |
| 3 | Flammable liquid | 100L or more |
| 4.1 | Flammable solid | 25kg or more |
| 4.2 | Spontaneously combustible solid | 25kg or more |
| 4.3 | Water reactant solid | 25kg or more |
| 5.1 | Oxidizing substance | 50L or more -or- 50kg or more |
| 5.2 | Organic peroxide | 1L or more -or- 1kg or more |
| 6.1 | Poisonous substance | 5L or more -or- 5kg or more |
| 6.2 | Infectious substance | Any amount |
| 7 | Radioactive substance | Any amount |
| 8 | Corrosive substance | 5L or more -or- 5kg or more |
| 9 (in part) | Miscellaneous product or substance, excluding PCB mixtures and environmentally hazardous substances | 25L or more -or- 25kg or more |
| 9 (in part) | PCB mixture of 50 or more parts per million | 0.5L or more -or- 0.5kg or more |
| 9 (in part) | Environmentally hazardous substance | 1L or more -or- 1kg or more |
| N/A | Asbestos waste as defined in the Asbestos Waste Management Regulations made under the Act | 50kg or more |
| N/A | Used oil as defined in the Used Oil Regulations made under the Act | 100L or more |
| N/A | Contaminated used oil as defined in the Used Oil Regulations made under the Act | 5L or more |
| N/A | Pesticide in concentrated form | 5L or more -or- 5kg or more |
| N/A | Pesticide in diluted form | 70L or more |
| N/A | Unauthorized sewage discharge into fresh water or sensitive marine water | 100L or more |
| N/A | Ozone-depleting substance as defined in the Ozone Layer Protection Regulations made under the Act | 25kg or more |

*"TDGA Class", in relation to a substance, refers to the class of that substance as listed in the Schedule to the Transportation of Dangerous Goods Act (Canada). Nova Scotia Environment (NSE). 1994-95, c. 1, s. 1. Nova Scotia Environment Act.

APPENDIX C
KEY CONTRACTOR RESPONSE CONTACTS

Table C-1: Key Contractor Response Contacts

| Company | Contact | Phone | Email |
|--|---|--|--|
| Alva Construction | Colin Maas | (902) 870-2087 | Colin@alva.ns.ca |
| Clean Earth Technologies | Russel Campbell | (902) 835-9095 | rcampbell@cleanearthtechnologies.ca |
| GHD - FIRST | Murray Vidito | 1-800-679-9082 | Murray.Vidito@ghd.com |
| McCallum Environmental | Meghan Milloy | (902) 443-8252 | Meghan@mccallumenvironmental.com |
| AECOM | Rory McNeil | (902) 428-2055 | rory.mcneil@aecom.com |
| Stantec | Mark Flinn | 1-866-569-6577 | |
| Emergency Response Consultant | Service | Telephone Number | |
| Stantec Consulting Ltd, Dartmouth. | 24-hour Emergency Spill Response Services | (866) 569-6577 (902) 468-7777 (Daytime) | |
| GHD – Emergency Response, Dartmouth | Emergency Spill Response Services | 24-hour Hotline: 1-800-679-9082 Dartmouth Office:(902) 468-1248 | |
| Intrinsic Consulting, Halifax | Toxicology | (902) 429-0278 | |
| McCallum Environmental Ltd., Bedford | Biology/Wetlands | (902) 446-8252 | |
| Emergency Service Providers | Service | Telephone Number | |
| Canadian Helicopters (Goffs, NS) | Emergency Helicopter Access | (902) 873-0015 | |
| Cougar Helicopters (Goffs, NS) | Emergency Helicopter Access | (902) 873-8346 | |
| Vision Air Helicopters (Goffs, NS) | Emergency Helicopter Access | (902) 873-3488 | |
| Battlefield – Cat Rentals - Ken Totten | Pump Supplier | (902) 292-1715 | |
| External Contractor - Colin Mass (Alva) or Allan MacDonald | Contractors/Heavy Equipment Fleet | Radio Channel 3 (902) 870-2087 | |
| United Rentals - Tyler Arnone | Pump Supplier | (905) 643-0999 or (289) 439-8318 | |
| Sansom Equipment Ltd. -Duane Webber | Pump Supplier | (902) 895-2885 | |
| Clean Earth Technologies | Hydro Vac / Soil Remediation | (902) 835-9095 | |
| Northeast Equipment Ltd. - Gord Skinner | Pipelines | (902) 468-7473, Gords.northeast.ns.ca | |
| Engineered Pipe Group -Brian Parker | Pipelines/pumps/flanges | (902) 465-2200 | |
| Can-Am Instruments Ltd - Lou Dinato - | Metering Equipment | (905) 829-0030 | |
| MacGregors Industrial | Metering Equipment | (902) 759-7410 | |

APPENDIX D
SPILL KIT SUPPLY LIST

SPILL KIT SUPPLY LIST

There are several spill kits available on-site. The kits are packed inside marked yellow drums. Each kit contains personal protective equipment and spill containment materials. All light vehicles contain a smaller, portable spill kit. Spill Kit contents are listed below. New spill kits can be found in the warehouse.

Table D-1: Contents of portable spill kits

| Item | Quantity |
|----------------------------|----------|
| Absorbent pads (15" x 19") | .10 |
| Absorbent socks (3" x 4') | 2 |
| Disposal Bag | 1 |
| Instruction Sheet | 1 |
| Pair Nitrile Gloves | 1 |

Table D-2: Contents of 30-gallon spill kits

| Item | Quantity |
|-------------------------------|----------|
| Spill pads (15" x 19") | 25 |
| Spill socks (3" x 4') | 4 |
| Spill pillows (18" x 24") | 4 |
| Disposable Bags w/ Ties | 3 |
| Emergency Response Guide Book | 1 |
| Pair Nitrile Gloves | 1 |

APPENDIX E
HAZARDOUS MATERIALS LIST & SAFETY DATA SHEETS

HAZARDOUS MATERIALS LIST & SAFETY DATA SHEETS

Table E-1: Potential Hazardous Materials

| Material | Storage Location | State | Purpose |
|-----------------------------------|------------------|-----------------|-------------------|
| Activated Carbon (Coconut shells) | TBD | Solids | Carbon Adsorption |
| Anti-Scalant | TBD | Liquid Solution | Anti-Scaling |
| Coagulant | TBD | TBD | Water Treatment |
| Polymer | TBD | TBD | Water Treatment |
| DT9040 | TBD | Liquid Solution | Dust Suppression |
| Hydrated Lime | TBD | Solids | pH Control |
| Hydrochloric Acid | TBD | Liquid Solution | Acid Wash |

Note: SDS can be found at: S:\PoliciesProcedures\Safety Data Sheets (SDS)