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Jericho Diamond Mine

Explosives Operations & Procedures

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1. Documentation – Permits and Licenses

DYNO NOBEL NUAUVUT INC (DNNI) have applied for and received all necessary permits for the transportation and storage of raw materials and packaged explosives products. The company also has in place a factory license authorizing the manufacture of bulk explosives products.

2. Storage – Ammonium Nitrate & Packaged Explosives



Ammonium Nitrate is packaged in a 1000 kg tote bag and shipped to site on flat deck trucks usually in 34 tonne loads. To minimize exposure to weather conditions the totes are tarped.

Packaged explosives are stored in approved magazines built to the NRC – May 2001 standards.

The location of the storage magazines was chosen with the quantities of explosives to be stored and the required distances to other structures.

The isolated location will also serve to mitigate potential impacts that could result from an unlikely event such as fire, unintentional detonation or spillage.



3. Ammonium Nitrate – Handling & Transfers

The ammonium nitrate is transferred from the AN storage area to the emulsion plant using a dedicated boom truck and deck.

The deck has a maximum payload capacity of 8 totes (8000 kg's).



AN is then augured into the bulk delivery truck on a as need basis inside the emulsion plant.



The bulk truck will mix the appropriate blend of diesel fuel with the AN prill and transfer this product to the pit for borehole loading of dry holes.

The ANFO product is water-soluble and will require strict attention to ensure that this product is only used in dry holes. If wet holes are present, the bulk truck delivers a blend of waterproof emulsion explosives and ANFO at a ratio of 70% emulsion/30% ANFO. This product will reliably

initiate regardless of the amount of water present in the boreholes.

4. Emulsion Manufacturing

Once the AN Prill is transferred to the plant in the one-tonne totes the prill is augured into one of two solution tanks. Within the tanks, water and the AN prill are heated to produce (AN liquor) the oxidizer phase of the emulsion manufacturing process.

The tanks are in a concrete containment berm that holds 110% of the volume of the largest tank.

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In the fuel blend area of the plant, fuel oil is blended with emulsifiers to create the fuel phase. Quality control checks on both the fuel and oxidizer phases are conducted.

The two phases are mixed in a DYNO pin blender to form emulsion explosives.

The finished product is stored in an approved stainless steel emulsion silo. The Tahera plant site silo will have a storage capacity of 35,000 kg's.

The emulsion product is then pumped into the bulk delivery trucks on a as need basis for delivery to the open pit



DNNI have Standard Operating Procedures and Hazardous Operations Procedures in place to ensure safe manufacturing and pumping of explosives. The procedures cover items such as: receiving AN Prill, conditioning and testing the component phases, blending of the emulsion, equipment calibration, and preventative maintenance.

Chemicals used in the process are stored according to their MSDS sheets and copies will be posted in the plant and office.

5. Bulk Delivery Trucks

DNNI operate a “Triple Threat Truck” (TTT) to deliver bulk explosives product to the blast hole.

The TTT is capable of delivering three types of blends namely straight ANFO, emulsion ANFO blends or 100% emulsion product. The TTT allows the blaster the flexibility to load the holes based on conditions encountered.



The state-of-the art truck features a pump and hose reel for delivering the product. The truck operator takes periodic density samples to ensure quality control.

The truck has an onboard electronic metering system for tracking consumption and blends. The blaster will sign off delivery sheets after each delivery to ensure that

accurate tracking is attained.

6. Emulsion Manufacturing – Training and Certification

Emulsion plant process personnel will be certified as needed (e.g. boiler certification, supervision etc.). All plant personnel receive training in the following areas;

- a) TDG
- b) WHMIS
- c) Lockout/tag out
- d) Confined Space entry

- e) Hot Work
- f) Chemical awareness
- g) PPE
- h) Fall arrest
- i) Blending operations
- j) TTT operations
- k) Open pit blast site safety