J&L SUPPLIES GUYANA INC.

STORAGE OF HAZARDOUS AND NON-HAZARDOUS MATERIALS

PROJECT DESCRIPTION

J&L Supplies, Guyana Inc., located at Lot 3495. Block No. VIII, East Bank Demerara. Part of Plantation Prospect intends to store hazardous and non-hazardous products at their facility for the oil and gas sector. The company has developed Standard operating procedures that will be in place to guide the operations at the facility, to ensure conformance with international safety standards and environmental laws. In this regard, J&L supplies Inc. has been ISO 9001 certified.

The company will operate a warehouse facility located at Diamond, East Bank Demerara. The warehouse has been constructed with concrete and corrugated sheet metal, the structure has 24000 square feet of space for operations. There are three shutter doors on the northern, southern, and western sides of the facility that will be utilized to access the facility during operations.

The warehouse will initially be storing cement, Silica, and Barite only. J&L supplies Inc. will gradually expand its operations in the future to store other oil and gas materials depending the on the client's requirements. The following are products J&L Supplies Inc. will store in the future; API Grade Barite (sk). API Grade Bentonite (sk). NaCl (sodium chloride), Calcium Chloride powder (95-98 % Pure), Lignosulfonate, Sodium Hydroxide. Sodium Chloride an<l Potassium Hydroxide (KOH). Potassium Chloride (KCL), Soda Ash, Sodium Bicarbonate, Xanthan Gum viscosifier, Guar Gum, Polyanionic Cellulose.• Sulfonated Asphalt Material. Sized Calcium Carbonate, all grind size, Sized Graphite (Fine & Med). Calcium Chloride. Caustic Soda, Cement Class G, Dyckerhoff and Silica Flour.

PROJECT SIZE

The warehouse measures 300 ft. by 80 ft. and embodies 24000 square feet, with concrete and corrugated sheet metals sides. It is fitted with windows which provide ventilation and three large shutter doors to provide ingress and egress of machinery and personnel. There are also emergency exit doors, should an emergency arise at the facility.

BRIEF PROJECT EXPLANATION

Guyana's oil industry is young! Among the many services that are required to support this growing industry, storage and bulking operations are one such service, which J&L Supplies Guyana Inc. a locally owned company has decided to invest in. These materials will not be processed at the warehouse facility but will be stored and bulked then shipped to oil fields companies as required.

This support service that J&L Supplies intends to provide will allow the company to store and bulk essential oilfields materials for clients. This venture will allow J&L to make meaningful contribution to the development of the industry and country. Other benefits are envisioned from this initiative which includes; the creation of job, industrialization, and opportunities for additional storage facilities.

The proposed project by the Company is the Storage, Cutting & Transport of Class G Cement and Barite at this warehouse.

In the oil and gas industry, Class G cement is widely used for cementing operations in well construction due to its versatility and ability to perform under various downhole conditions. The process of "cutting and bulking" Class G cement involves modifying its properties to achieve specific performance characteristics for different well conditions.

Cutting Class G Cement

"Cutting" refers to the process of reducing the density and strength of the cement slurry by adding lightweight materials or extenders. This is often done to:

- **Reduce hydrostatic pressure**: In weak formations, lower-density cement reduces the risk of fracturing the formation.
- **Improve displacement efficiency**: Lighter cement slurries can be easier to pump and can displace drilling fluids more effectively.
- **Achieve zonal isolation in depleted zones**: Lower-density cements are needed in zones where the formation pressure is low.

Common materials used to cut Class G cement include:

- **Bentonite**: A clay that increases slurry volume and reduces density.
- **Pozzolans**: Such as fly ash or silica fume, which can also help reduce density while maintaining some strength.
- **Foaming agents**: Used to create foam cement that significantly lowers density.

Bulking Class G Cement

"Bulking" refers to the process of increasing the volume and often the density of the cement slurry by adding various materials. This can be done to:

- **Increase the strength and density**: For use in high-pressure, high-temperature (HPHT) wells.
- **Fill larger annular spaces**: Ensuring proper cement coverage and zonal isolation.
- **Improve the thermal stability and durability**: Important for deep wells with high thermal gradients.

Materials used to bulk up Class G cement include:

- **Silica flour or sand**: Increases the density and helps prevent strength retrogression at high temperatures.
- **Hematite or barite**: High-density materials that increase the slurry's weight.
- **Cement extenders**: Such as fly ash or blast furnace slag, which can increase the slurry volume while maintaining strength.

Class G Cement: is composed of 60-100% Portland Cement and 1-5% Crystalline Silica and quartz. It is a basic oil well cement with special hydraulic binding materials and is mainly used for cementing work in the drilling of oil wells where they are subject to high temperatures and pressures.

Barite: is a mineral composed of 84-98% Barium Sulphate, 1-5% Silica (quartz), 1-5% Calcium Carbonate, and 0.1- 6.0% Clay. The high specific gravity of barite makes it suitable for a wide range of industrial, medical, and manufacturing uses. Most barite produced is used as a weighting agent in drilling muds.

For the proposed Project, J&L Supplies Inc. has a contract with Halliburton Guyana to cut and bulk the Class G Cement and Barite for the oil and gas sector. Under the conditions of the contract these materials will be imported by Haliburton Guyana, upon request J&L Supplies Inc. will collect and transport the materials from Haliburton Guyana using flatbed trucks, cut and bulk at the warehouse, and deliver to Haliburton for shipments to clients via pneumatic bulk trailer.

At the warehouse, the facility is separated into storage and bulking sections. The Facility will store Class G Cement, Silica, and Barite initially, with plans to expand its operations in the future to store additional materials for the sector. Materials will be transported to the facility bulked and transported to Halliburton based on request or the client's need.

Cement and Barite will be stored in double-lined bags (inner plastic within polyethylene bag) on wooden pallets until it is ready for transfer.

Upon request by the client, the Cement or Barite will be loaded into a pneumatic bulk trailer using a screw conveyor. The process involves using a forklift to place the 1.5 ton bag of Cement or Barite over the rectangular top of the load equipment and into a hopper which has a sharp pointer to cut the Cement or Barite bag.

An enclosed screw conveyor is attached to the bottom of the hopper and this transfers the Cement or Barite to the top of the bulk container via an eight-inch diameter chute that fits into the loading hatch on the trailer. The pneumatic bulk trailer has a storage capacity of 30 metric tons and therefore can transport 30 metric tons per trip.

Upon completion of the transfer process, the bulk trailer will transport the Cement or Barite to the Clients for offloading.

UTILITIES:

ELECTRICITY:

The facility will be serviced by the national grid, from the Guyana Power & Light (GPL), which will be the main source of electricity. In addition, the company's operation will be supported by a 35 KVA quiet run Perkins Generator for seamless transfer of power at times of disruption from the national grid.

TELECOMINICATION:

Telephone Service is available within the area from GT&T as such application will be made for line phones and internet connections. In addition this service will be supported by cellular phones.

WATER:

Water is available from the Guyana Water Incorporated (GWI) system, J&L Supplies Inc. intends to add additional water storage systems to support the operations at the facility.

STANDARD OPERATING PROCEDURES;

J&L Supplies Inc. in its effort to ensure efficient and effective operations to meet required ISO standards have developer Standard Operating Procedures for the following; (***See the attached copies of SOPs)***

1. Work place Load and Unload procedures.
2. Operational Procedure for Pre and Post Inspection.
3. Vehicular Driving
4. Transporting Materials on Platforms
5. Forklift Inspection
6. Handling and Storage of Materials
7. Spill Kit Usage
8. Cutting and Bulking operations
9. Risk Assessment

FIRE FIGHTING MEASURES:

No Flammable materials will be stored at the facility. J&L Supplies Inc. will seek the Guyana Fire Service approval for the facility and ensure adequate fire suppression methods (such as Fire Extinguishers, sprinkler system, alarms etc.) are installed. In the event of a fire the company will use Dry Powder fire extinguishers. J&L Supplies Inc. will implement in its operations the following firefighting strategies:

1. Prevention and Preparedness

- **Risk Assessment:** Regularly conduct detailed risk assessments to identify potential hazards and implement appropriate mitigation strategies.
- **Facility Design:** Ensure the facility is designed with fire safety in mind, including the use of fire-resistant materials and the proper spacing for the storage of materials within the facility.
- **Safety Training:** Provide thorough training for all personnel on fire prevention, emergency response procedures, and the proper use of firefighting equipment.
- **Permits and Inspections:** Obtain necessary permits and ensure regular inspections by relevant authorities to comply with safety regulations.

2. Fire Detection and Alarm Systems

- **Smoke and Heat Detectors:** Install an extensive network of smoke and heat detectors throughout the facility to provide early warning of a fire.

- **Automatic Fire Alarms:** Integrate automatic fire alarm systems that can quickly alert personnel and emergency services.
- **Manual Alarm Stations:** Place manual alarm stations at strategic locations for immediate reporting of fire incidents.

3. Fire Suppression Systems

- **Sprinkler Systems:** Install automatic sprinkler systems that are suitable for flammable liquid fires, ensuring they are regularly tested and maintained.
- **Foam Suppression Systems:** Utilize foam suppression systems specifically designed for oil and gas fires, which can effectively smother flames and prevent re-ignition.
- **Dry Chemical Systems:** Employ dry chemical extinguishing systems for localized fire control, particularly in areas where electrical equipment is present.

4. Containment Measures

- **Spill Containment:** Implement spill containment measures such as dikes, berms, and secondary containment systems to prevent the spread of flammable materials in the event of a spill.

5. Firefighting Equipment

- **Fire Extinguishers:** Ensure an adequate number of fire extinguishers are readily accessible, with types suitable for different classes of fires (e.g., Class B for flammable liquids).
- **Personal Protective Equipment (PPE):** Supply firefighters and response teams with appropriate PPE, including flame-resistant clothing, helmets, gloves, and breathing apparatus.

6. Emergency Response Plan

- **Response Team:** Establish a trained emergency response team capable of handling fire incidents and coordinating with local fire departments.
- **Evacuation Procedures:** Develop and regularly practice evacuation procedures to ensure the safe and orderly exit of all personnel.
- **Communication Systems:** Maintain reliable communication systems to ensure swift coordination between onsite teams and external emergency services.

7. Coordination with External Agencies

- **Local Fire Departments:** Work closely with local fire departments to familiarize them with the facility layout, hazards, and emergency response plans.

- **Mutual Aid Agreements:** Establish mutual aid agreements with nearby facilities and organizations for additional support in case of a major fire incident.

8. Post-Incident Review and Improvement

- **Incident Investigation:** Conduct thorough investigations of any fire incidents to determine causes and identify areas for improvement.
- **Continuous Improvement:** Regularly review and update fire safety measures, incorporating lessons learned from incidents and advances in fire protection technology

PERSONAL PROTECTION EQUIPMENT

Personal Protective Equipment (PPE) is essential for ensuring safety when storing oil and gas, both hazardous and non-hazardous materials. The type of PPE required can vary depending on the specific materials and the potential hazards they present. In this regard J&L Supplies Inc. will provide its employees with the necessary PPEs based on the task being performed and may include but no limited tot the following:

1. Head Protection

- **Hard Hats:** Protect against impacts, falling objects, and electrical hazards.

2. Eye and Face Protection

- **Safety Glasses/Goggles:** Protect eyes from chemical splashes, dust, and flying particles.
- **Face Shields:** Provide full face protection from chemical splashes and flying debris.

3. Hearing Protection

- **Earplugs/Earmuffs:** Protect against high noise levels commonly found in industrial environments.

4. Respiratory Protection

- **Dust Masks:** Protect against dust and minor airborne particles.
- **Respirators (Full or Half Face):** Provide protection from harmful gases, vapors, and particulates. Types include:
    - **Air-Purifying Respirators (APRs):** Remove contaminants from the air.
    - **Powered Air-Purifying Respirators (PAPRs):** Use a battery-powered blower to pass contaminated air through filters.
    - **Self-Contained Breathing Apparatus (SCBA):** Provide clean air from a portable tank.

5. Hand Protection

- **Gloves:** Specific gloves are used based on the material handled, such as:
    - **Nitrile Gloves:** Resistant to oils, solvents, and some chemicals.
    - **Neoprene Gloves:** Provide protection from acids, caustics, and alcohols.
    - **Latex Gloves:** Common for general purposes, but not suitable for oil-based materials.
    - **Heat-Resistant Gloves:** For handling hot materials or working in high-temperature environments.

6. Body Protection

- **Flame-Resistant Clothing (FRC):** Protects against fire hazards and thermal risks.
- **Chemical-Resistant Suits:** Provide protection from chemical splashes and spills.
- **High-Visibility Clothing:** Ensures workers are easily seen, especially in low-light conditions.

7. Foot Protection

- **Steel-Toed Boots:** Protect feet from heavy falling objects and compression.
- **Chemical-Resistant Boots:** Provide protection from chemical spills and splashes.
- **Slip-Resistant Soles:** Prevent slips and falls on wet or oily surfaces.

8. Skin Protection

- **Barrier Creams:** Used in addition to gloves to provide extra protection against skin contact with hazardous materials.

General Guidelines for PPE Use:

- **Training:** Proper training on the use, maintenance, and limitations of PPE.
- **Fit Testing:** Ensuring proper fit, especially for respirators and protective clothing.
- **Regular Inspections:** Routine checks for damage and wear, replacing PPE as necessary.
- **Proper Storage:** Storing PPE in a clean, dry place to maintain its integrity and effectiveness.

ECOLOGICAL INFORMATION:

The products being stored are not known to have ecotoxicological effects.

The products are essential for the down-hole drilling of crude oil. It is safely used in onshore and offshore oil and gas drilling. J&L Supplies Guyana Inc. will meet all international safety standards in storing the products. Transporting the product in Guyana will be accomplished by companies certified and approved by the EPA to do so.

PLANS TO MITIGATE

Mitigation plans for the storage and bulking of Class G cement and other oil and gas materials for the oil and gas sector are crucial to ensure the materials remain in their optimal condition, and to prevent any issues that could affect the environment or performance during well cementing operations. In this regard J&L Supplies Inc. will implement measures to ensure impacts form its operations are minimized if not completely prevented. The anticipated environmental impact from the operations of J&L Supplies Inc. are to Noise and Air, as such the following strategies will be implemented by the company:

1. Storage Facility Design

- **Climate Control:** Ensure that the storage facility is well-ventilated and has climate control measures to maintain appropriate temperature and humidity levels.
- **Waterproofing:** The facility will be waterproof and equipped with moisture barriers to prevent any ingress of water.
- **Pest Control:** Implement pest control measures to prevent infestation, which could damage packaging and create environmental and human health impacts.

2. Handling and Transportation

- **Proper Sealing:** Ensure that all bags and bulk containers are properly sealed to prevent moisture ingress.
- **Gentle Handling:** Use equipment designed to handle cement and other materials gently to prevent breakage of bags and spillage. Additionally SOPs will be established for operations.
- **Transport Conditions:** Use covered and well-maintained, and appropreate transportation to protect the materials from the elements and reduce exposure, and impacts during transportation.

3. Inventory Management

- **FIFO Principle:** Employ the First-In, First-Out (FIFO) inventory method to ensure older stock is used first, reducing the risk of caking or setting in storage.
- **Regular Inspections:** Conduct regular inspections of stored cement to check for signs of moisture, hardening, or other deterioration.
- **Stock Rotation:** Periodically rotate stock to prevent long-term storage of any batch.

4. Safety Measures

- **Personal Protective Equipment (PPE):** Ensure that all personnel handling cement wear appropriate PPE, including masks, gloves, and safety glasses, to protect against inhalation of dust and skin contact.
- **Spill Management:** Have spill containment and cleanup procedures in place to deal with any accidental releases of cement.
- **Safety Data Sheets:** Safety Data Sheets for all hazardous materials will be made available at the facility, in an area that is easily accessible to all employees.

6. Environmental Considerations

- **Dust Control:** Implement dust control measures, such as dust collectors and proper ventilation, to minimize air pollution and protect worker health.
- **Waste Management:** Develop a waste management plan to handle any expired or unusable cement, ensuring it is disposed of in an environmentally friendly manner.

7. Training and Awareness

- **Employee Training:** Conduct regular training sessions for employees on proper handling, storage procedures, safety protocols and hazardous materials communication for Hazardous materials that will be handled by the company.
- **Emergency Preparedness:** J&L will Develop and communicate emergency response plans to employees for potential incidents such as spills, exposure, or fire.

EMERGENCY RESPONSE

In the oil and gas sector, the emergency response plan for the storage and bulking of Class G cement, a type of cement commonly used for well cementing, involves several critical steps to ensure safety, minimize environmental impact, and maintain operational continuity. In this regard J&L Supplies Inc. will develop a comprehensive Emergency Response Plan to address the potential impacts from the project. The ERP will encapsulate the following areas:

1. Risk Assessment and Preparedness

- **Risk Identification**: Identify potential hazards associated with the storage and handling of Class G cement, such as spills, exposure to personnel, fire, and equipment failure.
- **Training**: Provide regular training to all personnel on emergency procedures, including spill response, fire fighting, and first aid.
- **Emergency Equipment**: Ensure availability and maintenance of emergency equipment such as spill kits, fire extinguishers, personal protective equipment (PPE), and first aid kits.

2. Incident Detection and Initial Response

- **Monitoring Systems**: Install monitoring systems to detect spills, leaks, or equipment malfunctions. This includes sensors, alarms, and regular inspections.
- **Immediate Actions**: In case of an incident, immediately stop all operations in the affected area and activate the emergency response plan.
- **Notification**: Notify the emergency response team and relevant authorities as per the notification protocol.

3. Spill Containment and Control

- **Containment Measures**: Use spill containment measures such as berms, absorbent pads, and spill containment booms to prevent the spread of cement.
- **Isolation**: Isolate the affected area to prevent unauthorized access and further contamination.
- **Ventilation**: Ensure proper ventilation to avoid inhalation hazards.

4. Fire Response

- **Fire Suppression**: Use appropriate fire extinguishers (Class D for combustible metals) if a fire occurs. Do not use water on cement fires.
- **Evacuation**: Evacuate non-essential personnel from the area.
- **Fire Department**: Contact the local fire department if the fire cannot be controlled with on-site equipment.

5. Medical Response

- **First Aid**: Provide first aid to any injured personnel. This includes rinsing skin or eyes exposed to cement with plenty of water. Personnel from J&L Supplies will be periodically trained in First Aid and will have a designated first Aider present at all times during operations.
- **Medical Evaluation**: Ensure affected personnel are evaluated by medical professionals. The Diamond Hospital will be utilized by the company in the event

of any serious medical cases, additionally, Private hospital services will be utilized in emergency cases should the need arise.

6. Spill Cleanup and Decontamination

- **Cleanup Procedures**: Follow established procedures for the cleanup of cement spills. This may include vacuuming, sweeping, and disposal of contaminated materials.
- **Decontamination**: Decontaminate all equipment and surfaces exposed to the spill to prevent secondary contamination.

7. Incident Reporting and Investigation

- **Documentation**: Document the incident, including the cause, response actions taken, and any injuries or environmental impacts.
- **Root Cause Analysis**: Conduct a root cause analysis to identify underlying factors and prevent recurrence.
- **Regulatory Reporting**: Report the incident to relevant regulatory bodies as required by local laws and regulations.

8. Review and Improvement

- **Post-Incident Review**: Conduct a review meeting with all stakeholders to evaluate the effectiveness of the response and identify areas for improvement.
- **Update Plans**: Update the emergency response plan based on lessons learned from the incident.
- **Training and Drills**: Conduct regular drills to ensure readiness and familiarity with the emergency response procedures.

Additional Considerations

- **Communication Plan**: Establish clear communication channels for internal and external stakeholders during an emergency.
- **Environmental Protection**: Implement measures to protect the environment, such as using biodegradable spill response materials and ensuring proper disposal of waste.