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GYSBI
Delivering Our Energy Future

PROJECT SUMMARY

Operation of a Maintenance and Mechanical Facility

Date: November 1, 2024

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1. INTRODUCTION

Guyana Shore Base Inc. (GYSBI) was established in 2017 to support Guyana's then emerging oil and gas industry. GYSBI successfully tendered for, and now provides a shore base facility and associated services to support the oil and gas exploration and development programs of Exxon Mobil Guyana (EMGL).

The main port based at Plantation 'A' Houston, Greater Georgetown consists of 30 acres of developed land with immediate water access and four berths, while the 140 acres Industrial Estate (Annex 1) based at Tracts GIL2 and AM1 Rome, East Bank Demerara was developed to suit various needs, from simple storage to purpose built facilities.

Three years ago, GYSBI was awarded an eleven (11) year contract extension with EMGL. Coupled with the continued success rate of oil discovery offshore, the need for additional support services and facilities continue to rise. GYSBI's latest addition is a Maintenance and Mechanical Facility.

2. DESCRIPTION OF THE SITE

The GYSBI Maintenance and Mechanical Facility is one of four structures located on Plot 7 of the GYSBI Annex 1 property where industrial activities are carried out. No residential or commercial users are in close proximity.

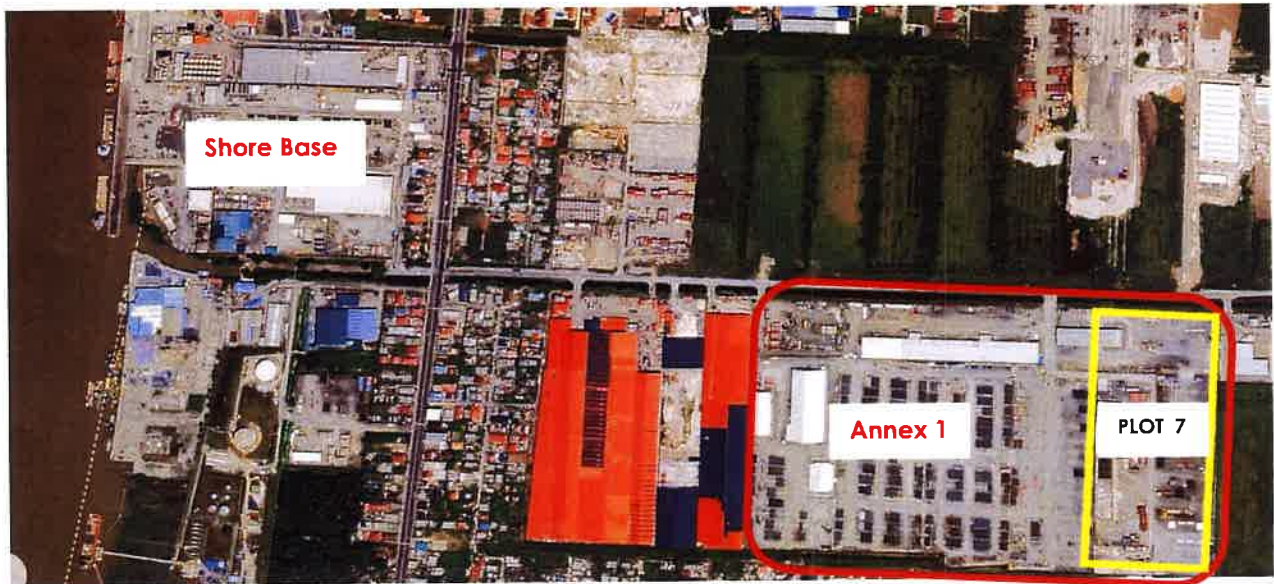


Figure 1: Location of Site

The Facility is divided into two operational areas: the Maintenance covered and open areas, and the general covered and open areas.

- The Maintenance covered and open areas currently provide office space for the GYSBI maintenance crew and mechanics, and storage space for their spare parts, tools, and equipment. Preparations are underway to also include other activities such as the maintenance/repairs of the GYSBI fleet (vehicles, equipment and generators), and the storage of diesel fuel in an 8000 gallon bunded tank for refuelling of the GYSBI fleet whenever necessary.
- The general covered and open areas is also being utilised for dry storage. Additionally, the area has been identified for possible cable spooling activities to allow different types of maintenance.

The red rectangle below indicates the area of influence where the GYSBI Maintenance and Mechanical Facility is being operated on Plot 7.

Link to location on Google Maps: <https://maps.app.goo.gl/nLXe9QyWj1LByCkA>

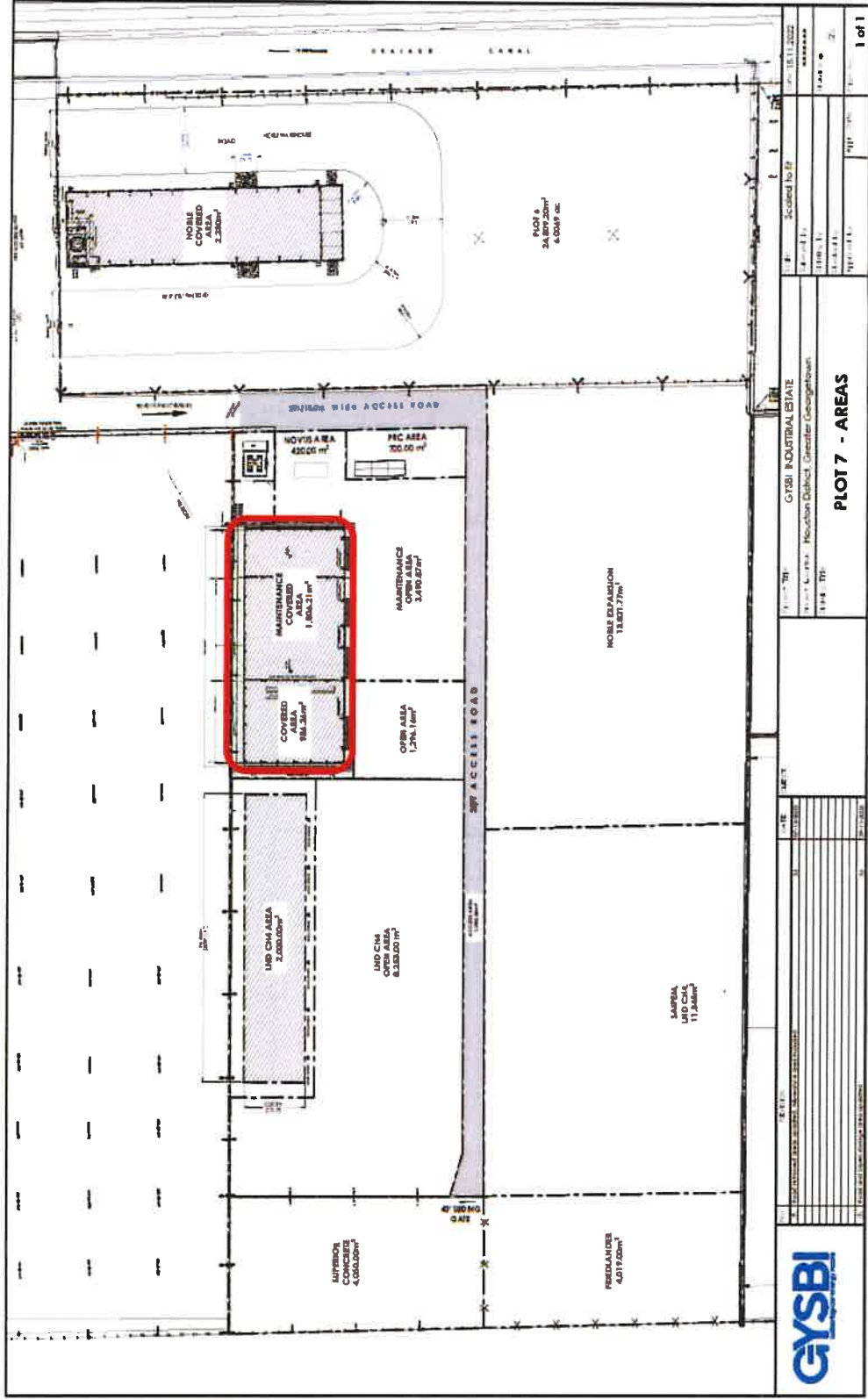


Figure 2: Area of influence

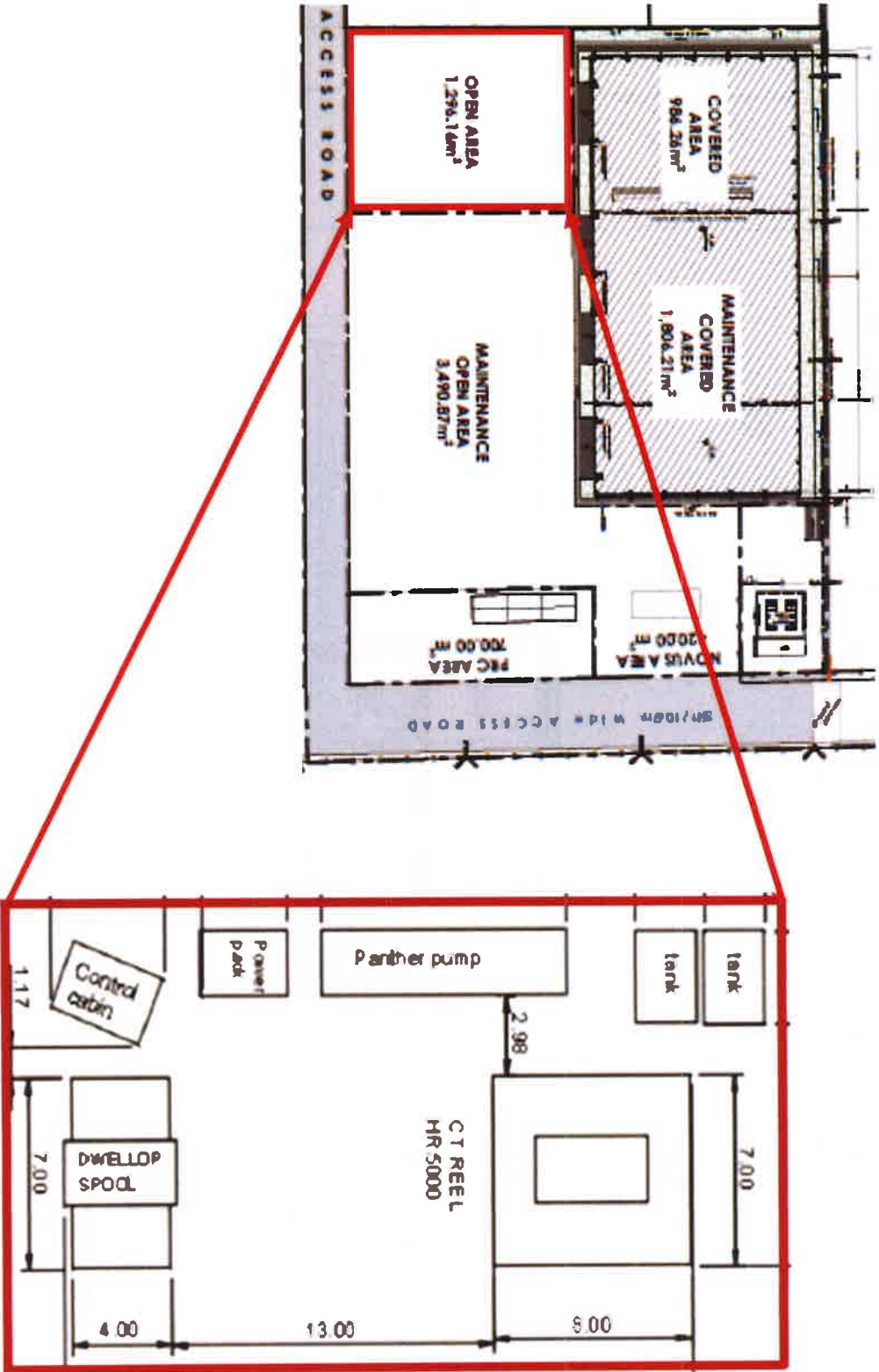


Figure 3: Area identified for proposed cable spooling activities

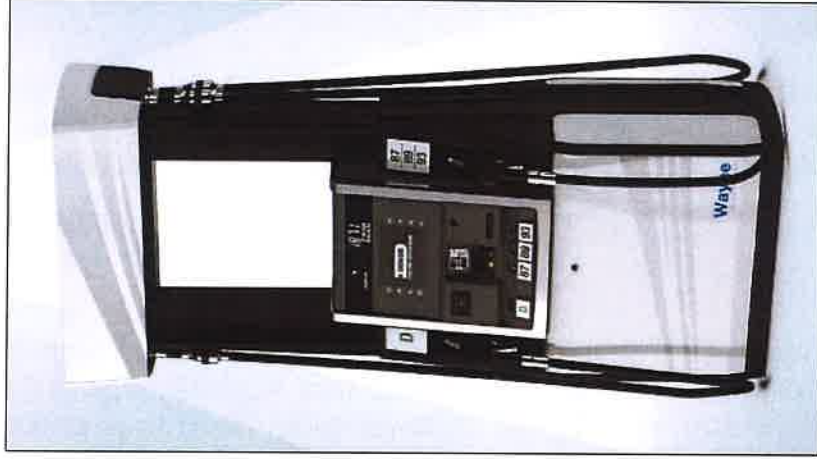
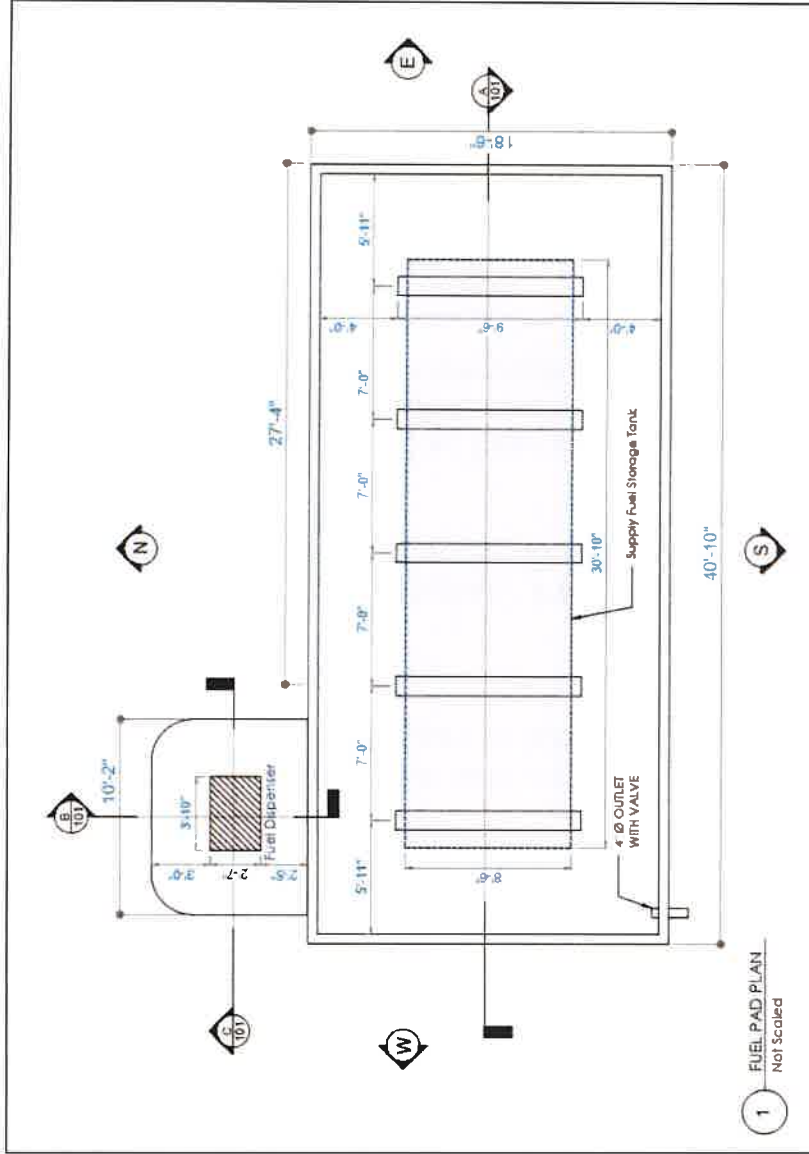


Figure 4: Design of banded fuel storage tank, and pump dispenser

4. IDENTIFICATION OF RECEIVING WATER(S)

The water used for operations will be sourced from the Guyana Water Inc. (GWI) and will be captured at intervals in a 2 day period. Any disposal of wastewater will be fully contained in closed tanks and circulated through oilfield service pipes. However, this will be at a minimum since any washing of the fleet will be done at the GYSBI Wash Bay also located on Annex 1.

Additionally, all the equipment including the reels containing and receiving the cable (pipe) have drip pans installed from the factory to avoid any fluids to drip to the land.

5. PROJECT DESIGN

No construction or modifications to the terrain, installations, or area of the GYSBI Maintenance and Mechanical Facility is required to perform spooling operations and any other maintenance/repair activities.

Operation: The general day-to-day would include documentation and other office-related activities by the maintenance and mechanical staff, maintenance and servicing of the fleet on an as-needed basis, and storage of their spare parts, tools and equipment when not in use.

Source of utility services:

- Power supply – The Facility is powered by two 500kva generator units located on Plot 7.
- Water supply – Water will be received and stored from a Guyana Water Inc. (GWI) connection.

GYSBI's Health & Safety Team usually oversees waste management:

- Solid waste - Consist mainly of packaging material, old/damaged tires from vehicles, and office related waste. These will be collected in skip bins and disposed of by an authorized waste collection service.
- Human excretions - Captured in septic tanks and portable toilets and collected and disposed of by an authorized waste collection service.
- Hazardous waste - Another authorized waste collection service is responsible for the disposal of any hazardous wastes arising from operations, mainly waste oil and oily rags.

6. PROJECT SIZE

GYSBI has invested more than US\$10M for construction and full operation of the Facility, including the hiring of key maintenance and mechanical personnel. Approximately seventy (70) persons are employed at the Facility on a shift system, allowing for 24/7 coverage.

7. A NON-TECHNICAL EXPLANATION OF THE PROJECT

The GYSBI Maintenance and Mechanical Facility was designed and constructed to provide:

- Offices for GYSBI's maintenance and mechanical staff,
- Amenities for staff, including lockers, showers, washrooms etc.,
- Racking for GYSBI's large inventory of equipment consumables, documentation, spare parts and tools,
- Operations for the repairs to, and servicing of equipment, including the storage of diesel fuel to refuel the fleet when necessary, and
- Operations for the spooling of cables between storage reels and work reels to allow different types of maintenance, and the carrying out of such maintenance activities as required.

8. DURATION OF THE OPERATION

The spooling operation will require between 6 to 8 hours and will be required to be performed usually every 6 months or when the customer requires.

Other maintenance and servicing activities performed on the company vehicles and machinery will be done on an as-needed schedule.

9. POTENTIAL EFFECTS ON THE ENVIRONMENT

Both the spooling operation, and maintenance/repairs of vehicles and machinery could have the following effects if not controlled:

- Soil contamination with industrial water.
- Soil contamination with fuel, lubricants, and waste oil.
- Noise: 85 db max.
- Co2 emissions within normal engine levels for a period inferior to 8 hours.

10. PROPOSED PLANS TO MITIGATE ENVIRONMENTAL IMPACTS

All equipment is designed with built-in drip pans capable of storing the normal volume of spills during operations. In addition, the following measures are implemented as standard work practice:

- Cover the soil with a plastic impermeable membrane where any soil contamination could occur.
- Inspect and replace, if necessary, all hoses, connections, and seals before initiating any spooling activity.
- Make sure all silencers and mufflers are in place and in good working condition.

- Spill containment and cleanup materials such as absorbent booms, pads, and skimmers available at the site.
- Train the crew on immediate response actions in case of a spill, including reporting procedures and containment strategies. Dedicated QHSSE staff also available.
- Waste management plan that includes the proper handling, storage, and disposal of waste materials generated during operations.
- Recycle or reuse materials when possible, to minimize waste.
- Schedule operations to avoid sensitive periods for the neighbours and animals, such as late afternoon or night.
- Regularly monitor engine maintenance plan to ensure emissions levels are within the normal range.
- Ensure that all aspects of the operations comply with environmental regulations and industry best practices.

11. CONCLUSION

The GYSBI Maintenance and Mechanical Facility which is not located in close proximity to any residential or commercial users, was designed and constructed to provide office space for the GYSBI maintenance crew and mechanics, and storage space for their spare parts, tools, and equipment.

Preparations are also underway to expand operations to include a workshop space for the maintenance/repairs of the GYSBI vehicles and machinery, diesel fuel storage, as well as the spooling of cables between storage reels and work reels to allow different types of maintenance. Though some environmental impacts may occur, plans are in place to mitigate such.

All activities at this Maintenance and Mechanical Facility will be monitored by a dedicated QHSSE team and captured in the company's overall reporting requirements.

PROJECT SUMMARY – Cable Spooling Procedure

TECHNICAL EXPLANATION OF THE PROJECT

The spooling operation involves transferring the cable (pipe) from the storage reel to the work reel (or vice versa) using the power stand. The purpose is to provide different types of maintenance of the pipe as required:

1. Spooling for internal or external corrosion inhibition.
 2. Spooling for cutting or splicing of the pipe.
 3. Change from transport to work reel or vice versa.
 4. Pipe string change to work reel.
 5. Pressure testing.
- *First, the crew review the equipment and drains any fluids contained into the drip pans of each equipment and authorised waste management service disposes of it properly according to HSE standards.*
 - *Equipment is transported to the Maintenance Warehouse temporarily to perform the spooling operation.*
 - *Spots plastic geomembranes at the critical areas as second container where a spill could occur such as below the ct pipe between the reels, diesel tank, returns tank and suction tank. Most of the equipment is equipped with built in drip pans.*
 - *Using a crane the crew moves the spooling machines (Dwellop and Ct HR 5000) at 13 m facing each other.*
 - *Then installs the empty reel into one of the spooling machines and the reel containing the pipe into the remaining spooling machine.*
 - *Spots the equipment. The equipment required is a control cabin, power pack, diesel tank, suction tank, returns tank, triplex pump, in the designated area over the geomembranes.*
 - *All hydraulic, electric and pipe lines are connected between the required equipment.*
 - *The free end of the pipe is extended to the receiving empty reel using a crane or forklift.*
 - *A threaded 1502 hammer-type nut that is welded to the end of the pipe is attached to the receiving reel threading into the matching male thread union inside the core of the receiving reel.*
 - *Using the two hydraulic power spools machines, the reel rotates to spool the pipe into the desired reel.*
 - *While the pipe is spooled a special lubricator installed just after a mechanical pipe guide (tubing guide) in the spooling machine applies a controlled thin coat of the corrosion inhibitor as it is spooled in the receiving reel. The tubing guide keeps every wrap of the pipe organized it is spooled.*
 - *All the excess corrosion inhibitor that has dripped to the reel drip pan or geomembrane is retrieved, stored in a closed tank, and disposed as per HSE indications.*

Internal corrosion inhibition:

Once completed the spooling a small volume has to be pumped through the pipe.

- *The triplex pump suction and returns tanks are connected by high pressure hammer union pipes and 4" low pressure suction hoses and nitrogen gas connections.*
- *The free end of the pipe reeled before is secured to the returns tank using special connectors and chains or straps.*
- *Using the triplex pump (Panther) clean industrial water is pumped inside the pipe to displace any residues until is received at the returns tank.*
- *A rubber wiper ball of dart is inserted inside the pipe,*
- *A small volume of corrosion inhibitor is pumped.*
- *A second whipper plug is inserted inside the pipe and displaced with Nitrogen gas until dry using gas bottles.*
- *Both darts and fluids are recovered in the displacement tank leaving a thin coating of corrosion inhibitor.*
- *A plug is inserted to the free end and the pipe is pressurized with Nitrogen.*

PROJECT SUMMARY – Cable Spooling Procedure

- A pressure gauge is installed to verify the pressure of the N2 is maintained.
- Once the spooling and inhibition is complete the pipe is covered with a plastic membrane to protect it from rain and wind.
- Both the work reel and the transport reel are either returned to their original positions on top of the special cradles that also have drip pans for storage or transported to the oil rig.

Pressure and function testing:

In some cases, the pipe or tools attached requires pressure testing:

- The triplex pump suction and returns tanks are connected by high pressure hammer union pipes and 4" low pressure suction hoses the same way as per the corrosion inhibitor.
- The free end of the pipe reeled before is secured to the returns tank using special connectors and chains or straps.
- Using the triplex pump (Panther) clean industrial water is pumped inside the pipe to displace any residues until is received at the returns tank.
- Depending on the operational requirements a tool or device is attached to the pipe or to the pump directly.
- A volume of clean industrial water is pumped inside the pipes depending on the type of test required until all air has been displaced.
- The device or tool is attached to the pipe using special industrial grade connectors.
- The device is pressurized to a low-pressure level using the triplex pump. Pressure is registered at the acquisition system of the control cabin or pump for 5 minutes.
- After check the pipes and devices in the lines present no leaks high pressure is applied and registered using the data acquisition system.
- If flow testing is required, then the recirculation of fluids between the tanks and pump is arranged using high pressure pipe.
- Depending on the operational needs, water is circulated using the pump. Noise level is high ranging 85 db or more for this operation so pressure testing hours has to be selected according to regulations.

