

FRIEDLANDER (GUYANA) INC
FABRICATION FACILITY AT GYSBI ANNEX PLOT7
GUYANA-GEORGETOWN
Tel : (592)695 9453
Georges.linder@ortec.fr

PROJECT SUMMARY/ ENVIRONMENTAL MANAGEMENT PLAN

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1. ABBREVIATIONS AND DEFINITIONS

EPA	ENVIRONMENTAL PROTECTION AGENCY
CONTRACTOR	FRIEDLANDER GUYANA
SOW	Scope Of Work
EMP	Environmental Management Plan
QHSE	Quality, Health, Safety, and Environment

2. REFERENCES DOCUMENTS

2.1. INTERNATIONAL STANDARDS

Code	Titles
ISO 9001:2015	Quality management system (excluding §8.3)
ISO 14001:2015	Environmental Management Systems: Requirements with guidance for use
ISO 45001:2018	Occupational health and safety systems: Requirements with guidance for use

2.2. CORPORATE DOCUMENTS

Documents	Reference
QHSE Manual	6000-AMC-MAN-001
Managing HSE Risks	6000-HSE-PRC-002
Managing hazardous Products	6000-HSE-PRC-006
Managing accidental spillage during road transportation	6000-HSE-PRC-007
Management of limited spillage	6000-HSE-PRC-008
Hygiene rules for catering	6000-HSE-STD-016
Safety in the performance of radiographic testing	6000-HSE-STD-009
Checking and measuring HSE performances	6000-HSE-PRC-019
HSE requirements for the management of environmental impacts	6000-HSE-STD-015
Legal and other requirements	6000-AMC-PRC-003
QHSE communication	6000-AMC-PRC-004
Management of change	6000-AMC-PRC-005
Observations management	6000-AMC-PRC-006
Audit management	6000-AMC-PRC-009
Non conformance solving	6000-AMC-PRC-010

3. PURPOSE

This document is the main document for our environmental management. It defines the programs implemented to monitor and manage the environmental aspects of our operations. The main purpose of this plan is to:

- Clarify the role and responsibilities of everyone
- Assess the environmental impact of FRIEDLANDER activities
- Implement corrective actions and the necessary monitoring
- Ensure good communication and information about environmental issues
- Plan the emergency response

This plan is following the HSE management plan and details the environmental impact of Friedlander activities.

This Plan is a live document and as such, will be developed as necessary during Friedlander activities. Environmental management throughout the FRIEDLANDER activities will be a line management responsibility. The implementation and updates of the environmental management plan is controlled by the QHSE MANAGER.

The QHSE Manager and Operational Manager control the distribution and update of the Environmental Plan.

All subcontractors will have their own Environmental Plans in support of the current FRIEDLANDER Environmental Plan, or will abide by the FRIEDLANDER Environmental Plan. Subcontractors Environmental Plans shall meet or exceed FRIEDLANDER's environmental plan.

4. SCOPE OF WORK

4.1. FRIEDLANDER ACTIVITIES

FRIEDLANDER Guyana is involved in the oil sectors (offshore/onshore), energy, mining, and heavy industry. The business is specialized in the following activities:

- Metal Fabrication works
- Boiler making, Pipe-making, Painting works
- Industrial maintenance,
- Industrial shutdown,
- Electrical works
- Civil Engineering,
- Industrial cleaning.

5. COMPLIANCE WITH RULES AND REGULATIONS

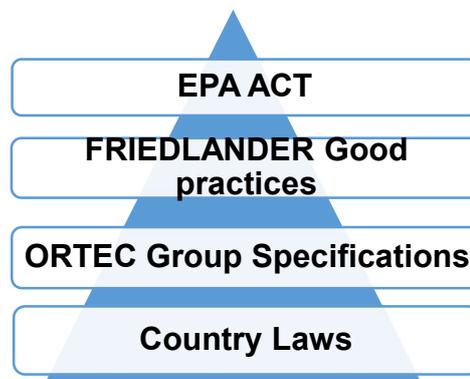
5.1. NATIONAL AND INTERNATIONAL LAWS

Current Local QHSE legislation, industry standards and codes of practice is maintained and accessible to all personnel within the FRIEDLANDER Branch available on SharePoint.

FRIEDLANDER will follow “GUYANA’s” regulations for:

- All Health, Safety, Security, Social and Environment aspects
- Company personnel and subcontractors personnel (in particular the regulations issued by national labour and health authorities)
- Logistics (IMO, IATA, ICAO)
- Work & equipment

These regulations are as following:



FRIEDLANDER will obtain valid permits, certificates and/or authorizations before the start of its activities and will maintain compliance throughout the period of its presence at the worksites.

5.2. INTERNATIONAL NORMS

FRIEDLANDER will comply with good practices & industry standards and will ensure compliance with:

- ISO 45001 v 2018
- ISO 9001 v 2015
- **ISO 14001 v 2015**

6. LEADERSHIP AND COMMITMENT

6.1. POLICY

In order to comply with GYSBI requirements FRIEDLANDER will follow the Ortec Environmental policy:

ENVIRONMENTAL POLICY /

Our corporate values

- Limiting the environmental impact of our activities and operating plants.
- Joining our clients' effort to control the environmental impact on their operating site.
- Preventing pollution and natural disasters.

Our commitments

- Complying with environmental requirements under the applicable law.
- Applying an efficient waste management policy in our offices and operating plants.
- Complying with and improve the waste management's policy to be implemented on our clients' plants.
- Changing our own waste management system, in order to favor recycling waste instead of elimination.
- Ensuring that our waste disposal partners' are in full compliance the applicable regulation.
- Adopting best practices for the transportation and storage of Dangerous Goods.
- Monitoring our energy consumption and generate awareness to energy saving and eco-conduct among our collaborators.
- Ensuring a good maintenance of our equipment and the necessary renewal.
- Training and promoting eco-driving among our employees.
- Implementing standardized management systems.
- Defining action plans and KPIs
- Analyzing and addressing deficiencies.
- Taking audit results into account in the view of continuous improvement.

6.2. ENVIRONMENTAL OBJECTIVES AND TARGETS

QHSE Objectives follow the QHSE objectives of ORTEC group and comply with GYSBI HSE Policies.

We will define explicit environmental objectives as:

Objectives:

- No major impacts on the flora and fauna
- No major spill
- Monitor and control energy consumption
- Good waste management by properly segregating waste streams
- Implement a good environmental culture for all workers
- Noise control to minimize impacts on the neighbouring population

Project Targets:

- Environmental Incident = 0
- Accidental oil spill = 0
- Environment awareness program = 100 % workforce
- Spill awareness program = 100 % workforce
- Training on responsible use of chemicals = 100 % workforce
- Noisy work at night and on weekends = 0
- Progress of energy saving action plan = 100%

7. ORGANISATION, STRUCTURE AND RESPONSIBILITIES

7.1. QHSE MANAGEMENT SYSTEM

The QHSE management system of FRIEDLANDER has been designed in accordance with the principles articulated within the ISO 9001, 45001 & **140001** standards.

These principles are based around the concept of continual improvement through the issue of policy statements, the development of plans to fulfill the intent of the policy, the implementation of those plans and the measurement of performance against those plans and the regular review of the process.



7.2. QHSE DEPARTMENT ORGANIZATION CHARTS

Friedlander QHSE Team will be organized with an QHSE Manager supported by HSE officers.

7.3. RESPONSIBILITIES

Top Management have leadership roles and responsibilities that have a direct bearing on the overall safety performance management for the execution of the works.

Line management must at all times lead by example and highlight the ORTEC Group Policy.

7.3.1. INDIVIDUAL

Each employee shall confirm that they understand their responsibilities, which include:

- Carry out activities in accordance with the HSE Management System and environmental procedures.
- Attend training and follow environmental procedures
- Co-operate fully with Supervisors or Managers in the promotion of good environmental management.
- Become familiar with any information published by FRIEDLANDER or brought to their notice regarding the safe use of equipment, plant and materials relevant to their work.
- Report any non-conformances, observation or environmental damage.
- Ensure continually good housekeeping on the worksite

7.3.2. SUPERVISORS

- Report any environmental damage: incident, spills, etc
- Inspect their own area, filling out applicable forms,
- Implement and follow up corrective actions.

7.3.3. MANAGEMENT

- Approve the EMP and environmental procedures
- Support and enforce the EMP and periodically review its effectiveness.

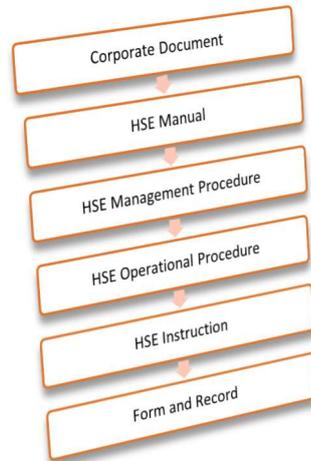
7.3.4. QHSE DEPARTMENT

- Personally promote the QHSE Management System.
- Ensure the communication, information and training about environmental compliance.
- Report to the International Department QHSE Manager on all matters concerning the QHSE Management System.
- Prepare a monthly QHSE report based on the information communicated by project managers.

- Inspect and monitor continuously the workplace ensuring that all environmental procedures are properly implemented.
- Assist in organizing and carrying out emergency response drills and training.
- Assist in reporting and investigation of environmental damage.
- Maintain records of all environmental damage on site.

7.4. DOCUMENTATION SYSTEM

FRIEDLANDER Guyana Inc. would operate based on exhaustive documentation systems from ORTEC QHSE requirements:

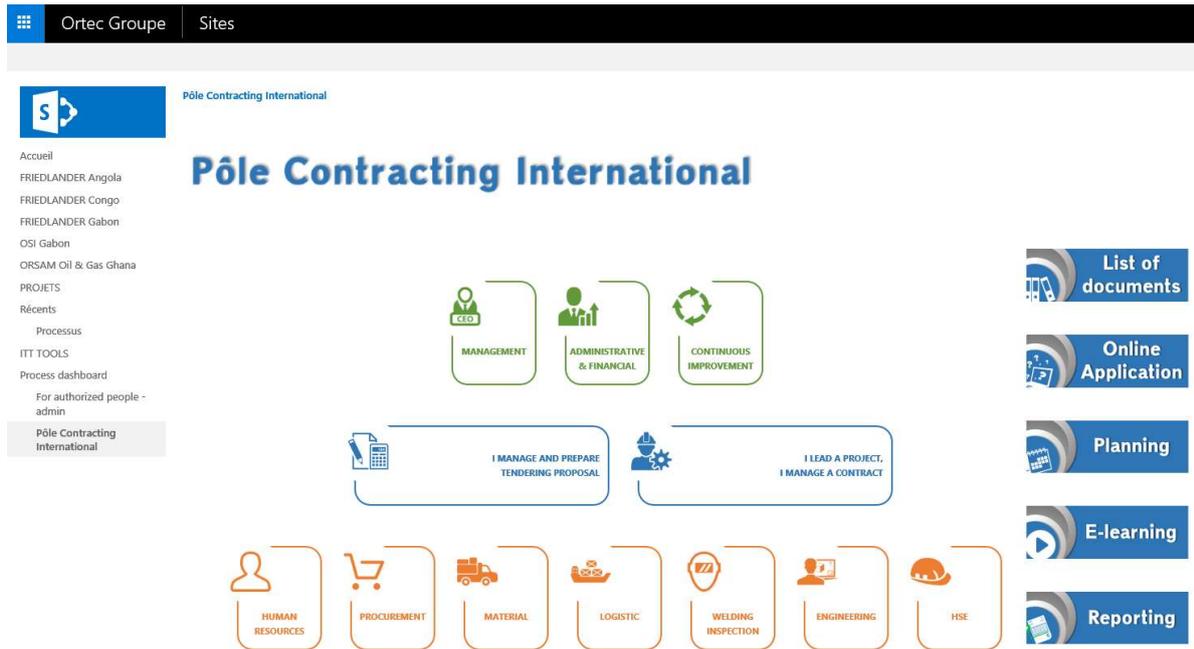


For the project the application of this requirement is led by an QHSE Manual which contains the QHSE management system.

Procedures are identified according to their use. They can be for the management of QHSE or for the operational application of QHSE.

Procedures can be completed by instructions for specific work specification. Finally, forms are completed to record actions realized.

The ORTEC GROUP and its subsidiaries documentation is available on a SHAREPOINT network (available on each site):



8. ENVIRONMENTAL RISK EVALUATION & MANAGEMENT

8.1. ENVIRONMENT RISK ASSESSMENT

Before the beginning of work FRIEDLANDER will ensure that all risks are defined and the preventive methods are adapted.

To reinforce its environmental culture FRIEDLANDER employees will perform the identification of hazards, assessment of risks and implementation of preventive measures as determined by the FRIEDLANDER QHSE department before fabrication starts. FRIEDLANDER Operational Manager must ensure risk analysis compliance with the work to be performed.

8.2. IDENTIFICATION

The environmental aspects and impacts identified relative to FRIEDLANDER activities are the following:

Environmental Aspect	Nature	Environmental impact
Chemical storage	Spill	Ground and water pollution
Dust generation	Dust and particles	Ground pollution
Grinding	Noise, dust, particles	Ground and noise pollution
Leak from mechanical equipment	Spill	Ground and water pollution
Leak of mechanical lifting equipment	Spill	Ground and water pollution
Loading and unloading chemicals	Spill	Ground and water pollution
Oil changing	Spill, waste	Ground and water pollution
Oil storage	Spill	Ground and water pollution
Oxyacetylene	Fumes	Air pollution

Refuelling	Spill	Ground and water pollution
Repair of equipment, vehicle, engines, etc.	Waste generation	Ground pollution
Use of additives	Spill, waste	Ground and water pollution
Use of chemicals	Spill, waste, fumes	Air, Ground and water pollution
Use of chemicals: oil, grease, solvents, etc.	Spill, waste	Ground and water pollution
Use of crane, forklift	Fumes, noise	Air and noise pollution
Use of equipment : air compressor, power generator, fabrication equipment	Power supply, fumes, noise, spill	Air, Noise, ground, water pollution and energy consumption
Use of equipment – blast and paint can	Fumes, Power supply, noise, spill	Air, Noise, ground, water pollution and energy consumption
Use of gas cylinder	Fire	Air pollution
Use of vehicles	Fumes, noise	Air and noise pollution
Use of water	Water supply	Energy consumption
Used water	Waste generation	Water pollution
Waste generation	Waste generation	Ground pollution
Welding	Fumes	Air pollution

8.3. ASSESSMENT

Any environmental aspect and impact shall be assessed for normal, abnormal and emergency conditions using the following 5 criteria:

8.3.1. THE ENVIRONMENTAL SENSITIVITY

The environmental sensitivity is quantified through 4 aspects: Location, air quality, water quality and nature of the soil

	1	2	3
Site location	Industrial area	Inhabited area	Natural area
Air quality	Poor	Medium	Good
Water quality	Poor	Medium	Good
Nature of the soil	Non permeable	Semi permeable	Permeable
Sensitivity = (A+B+C+D)/4			

8.3.2. LIKELIHOOD

The likelihood is the probability of occurrence of environmental impact

1	Unlikely (Yearly)
2	Infrequent (Monthly)
3	Occasional (Weekly)
4	Frequent (<10hours/day)
5	Permanent (>10hours/day)

8.3.3. SEVERITY

The severity measures the consequence of the impact on the environment

1	Minor: No or minimal environmental or social impact: -no measurable/unlikely effect on waterway/stormwater quality and ecosystems -no or isolated community complaints -no or isolated events where areas of soil is contaminated -no or unlikely impact on archaeological/heritage places, sites or objects
2	Moderate: Moderate undesirable environmental or social impacts: -localized, short term noticeable/measurable change in waterway/stormwater quality, minor changes to ecosystem -soil contamination over an area <1m ² -some annoyance or nuisance to community -isolated, partial disturbance or movement of archaeological/heritage places, sites or objects
3	Serious: Serious environmental or social impact -medium term, noticeable/measurable change in the waterway/stormwater quality, medium change to ecosystems -soil contamination over an area 1m ² to 10m ² -frequent annoyance or nuisance to community, partial damage of archaeological/heritage places, sites or objects
4	Major: Major environmental or social impact: -long term, measurable change in the waterway/stormwater quality, serious change to ecosystems -soil contamination over an area 10m ² to 100m ² -Permanent annoyance or nuisance to community, serious damage of archaeological/heritage places, sites, or objects
5	Catastrophic: significant damage or impact on environment or community: -severe or persistent waterway/stormwater quality pollution, major changes to ecosystem -soil contamination over an area >100m ² -widespread community impact resulting in illness, injury or objects -loss or destruction of archaeological/heritage places, sites or objects

8.3.4. REVERSIBILITY

Reversibility quantifies the ability (human, technical, time) for environmental recovery

1	No consequence for the environment
2	Minor consequence that can be fix easily
3	Serious consequence that need important intervention
4	Irreversible consequence for the environment

8.3.5. CONTROL MEASURES

The control measures corresponds to the actions necessary to mitigate the environmental impact

	Human	Organizational	Technical
1	Qualified operator	Procedure, instruction implemented	Adapted equipment – effective maintenance program (preventive)
2	Trained operator – no evaluation	Procedure incomplete or not efficient	Perfectible equipment - corrective maintenance implemented
3	Operator not competent	No existing procedure, instruction	Equipment not adapted – no maintenance

8.3.6. LEVEL OF RISK

The level of the risk is the product of the 5 criteria; it will determine the type and amount of environmental protection measure that will be required on site.

Normal situation	If the product is greater than 48, the environmental aspect is considered as significant
Abnormal situation	If the product is greater than 64, the environmental aspect is considered as significant
Emergency	If the product is greater than 72, the environmental aspect is considered as significant

For all significant environmental aspects, environmental mitigation measures must be implemented to reduce the risk to an acceptable level.

9. ENVIRONMENTAL MITIGATION MEASURE

9.1. GENERAL REQUIREMENTS

FRIEDLANDER will act to minimize any nuisance, which may arise from its operations.

FRIEDLANDER shall ensure its full compliance with regulations and EPA ACT requirements relating to the environment. FRIEDLANDER will ensure that its mitigations measure will be in compliance with mitigation measures required by EPA .

Especially FRIEDLANDER shall:

- Give instructions on pollution prevention, waste management, dust and noise control...as part of the induction for all staff, partners and SUBCONTRACTORS.
- Maintain a permanent environmental awareness of personnel throughout Tool Box Meeting, specific training, inspections,etc.
- Ensure continual suitable cleaning and good housekeeping of all FRIEDLANDER work locations including those of its Subcontractors.
- Establish and maintain good waste management on worksite.
- Ensure that all Material Safety Data Sheets (MSDS) are archived and available on site and that FRIEDLANDER comply with (PPE, storage, fire-fighting, transport, handling) protocols.
- Ensure that no substance (including flammable and toxic materials) will be allowed to enter sea or watercourses without treatment.
- Use as much as possible secondary containments.

9.2. WASTE MANAGEMENT

The Waste Management Plan shall identify the approximate volumes of each waste, the potential environmental impact of the waste and the proposed means of disposal for each waste stream, including identification of the eventual end point.

The different types of waste to be segregated:

- Hazardous waste such as:
 - Waste containing hydrocarbons,
 - Waste from solvents, paints, oil,
 - Waste from consumables,

Non-hazardous waste such as:

- Domestic waste,
- Inert waste: waste which are not subject to major physical, chemical or biological modification, (examples: rubble, cement, glass, plastic, etc.)
- Green waste

The storage area on site must be properly chosen, have properly signage, organized to avoid inappropriate mixing and audited. Dangerous materials shall be properly identified, stored within a proper containment area and handled in a clean and safe way.

A list of the waste generated at the site shall be recorded.

A suitable Waste Management Procedure would be adapted for the site and shall be documented including: segregation methods, storage, containers features, labeling, inspections, transportation, etc.

9.3. WATER

The water consumption volume delivered by GWI (at SE corner of the yard) shall be recorded .

Sewage sludge and oil sludge shall be considered as hazardous waste.

9.4. NOISE CONTROL

The general goal of noise control actions is to maintain noise impacts, to both local communities and workers at acceptable levels.

FRIEDLANDER will:

- Use equipment with appropriate and properly functioning noise abatement equipment;
- Require workers to use hearing protection for noisy activities,
- Properly maintain construction equipment and noise suppression devices.
- In the case of workshops, maintenance shops, and other sources of afterhours noise, certain loud activities may be prohibited at night.
- Areas of the facility exceeding 85 dBA will be identified and designated as "Restricted Areas" where employee noise exposure will be controlled by limiting access and the mandatory use of appropriate hearing protection.

Noise surveys shall be performed twice a year and periodically as deemed fit at noisy areas.

9.5. REINSTATEMENT ACTIVITIES

FRIEDLANDER will leave the SITE/WORKSITE(S) in acceptable environmental conditions and will perform all necessary restoration to achieve such acceptable conditions.

FRIEDLANDER will develop a Reinstatement Plan in compliance with the EPA requirements.

FRIEDLANDER will remove any equipment, temporary facilities and/or constructions that are not part of the contract scope, material storage, and any waste before leaving any location.

9.6. CHEMICAL MANAGEMENT

To prevent any issues with chemical use and to prevent any chemical pollution FRIEDLANDER will manage chemical products with a Chemical Management Plan. This Chemical management plan will include the following, as a minimum:

- Chemicals sources (activity or place where the chemical is used);
- Updated chemical inventory (type of chemicals and estimated quantity);
- Classification: as per Material Safety Data Sheet (MSDS will be attached).
- Training of all personnel on responsible use of chemicals;
- Chemicals handling, use and storage procedure at SITE/WORKSITE(S); and Final disposal procedure off SITE/WORKSITE(S)

9.7. OIL SPILL RESPONSE PLAN

FRIEDLANDER provides an Oil Spill Response Plan.

FRIEDLANDER will be responsible for:

- Maintaining oil prevention equipment (fuel transfer facility, secondary containment / drip pans availability, etc.) to avoid environmental incident / oil spill;
- Providing and maintaining at SITE/WORKSITE(S) oil spill consumables and equipment ready to handle any oil spill incident caused by its operations

10. TRAINING, COMMUNICATION, AND INFORMATION

Training is essential for ensuring the Environmental Management Plan provisions are implemented efficiently and effectively. Training needs should be identified based on the available and existing capacity of the site personnel to undertake the required EMP management actions and monitoring activities.

In addition to training, general environmental awareness shall be fostered among the workforce to encourage the implementation of environmentally sound practices.

Environmental awareness shall be fostered in the following manner:

- Induction course for all new hired workers
- Refreshing courses during environmental toolbox talks

11. DOCUMENTATION AND RECORD KEEPING

A document management system shall be established to ensure accurate updating of EMP documents and availability of documents required for the effective functioning of the EMP.

EMP documentation shall include:

- Environmental aspect and impact assessment
- Environmental action plan
- Environmental incident procedure
- Emergency response procedure
- Incident report
- Training report
- Site inspection report
- Complaints received reports

12. NON-CONFORMANCE AND REPORTING PROCEDURE

Any Environmental non-conformance or observation shall be reported in the Non conformance follow-up register.

12.1. ENVIRONMENTAL DAMAGE:

With any high potential environmental damage the QHSE department has to report the event using the 6000-HSE-PRC-001 Analyse and management of work accident procedure as soon as is practicable after the event.

12.2. ENVIRONMENTAL OBSERVATION

Any environmental observation shall be logged on the QHSE management tool 60XX-HSE-REG-00. The QHSE department has the responsibility to implement actions to prevent the recurrence of the environmental damage or observation. These actions shall be recorded in the appropriate QHSE register of the QHSE Management tool.

This action plan shall be followed regularly at least weekly to ensure that actions continue to progress to completion.

13. EMERGENCY RESPONSE PROCEDURE

13.1. IDENTIFICATION OF MAIN EMERGENCY SCENARIO

Identification of potential major emergency scenarios and procedures to use in such scenarios:

- Fire
- Oil/ Chemical Spill
- Air pollution (dust emissions)

13.2. EMERGENCY RESPONSE PLAN

All persons on the yard must be aware of the Emergency Response Plan to be used in the event of an environmental damage event. This contains the basic requirements for raising the alarm, liaising with the Emergency Services, emergency response team, responsibilities.

Toolbox talks and site audits will be carried out to ensure a continual awareness.

The Emergency phone numbers list will be displayed and communicated during the Induction Course. In addition, periodical emergency drills shall be conducted to assess the efficiency of the response procedures.

14. MONITORING

14.1. MONITORING PROGRAM

A Monitoring program shall be prepared:

- to ensure that environmental impacts are within the predicted levels and that specified environmental targets are being achieved
- to determine the effectiveness of the environmental actions.

14.2. PERFORMANCE

Measurement:

- Number of waste bins collected during the year
- Number of environmental damage and spillage record

Feedback:

- Availability and use of performance records
- Review at QHSE meetings

15. AUDITS AND INSPECTIONS

15.1. INTERNAL INSPECTION

FRIEDLANDER will conduct regular inspections/audits of its QHSE Management System, workplace, and waste storage.

The different types of inspections/audits are:

- **HSE Tour:** on a weekly basis a team (including at least the safety manager, the visited area supervisor, site workers and GYSBI Safety Manager as much as possible) visits the site filling out an action list which will be followed up and updated.
- **HSE Inspection:** monthly minimum, the Site Manager shall visit the site or part of the site regardless of planning, procurement, staffing but considering HSE matters only.
- He shall fill out a short checklist, write comments and mention actions to be taken.
- **Internal Audit:** assessing the compliance with the ORTEC GROUP Standards and Policy.
Periodicity: Annual.

After each audit and/or inspection, a report shall be issued, and an action plan shall be completed with the appropriate corrective action to implement.

15.2. EPA AUDIT

EPA can audit FRIEDLANDER activities and shall notify by email the FRIEDLANDER operational manager or HSE manager about the terms of the audits.

Result of the audits will be discussed during a meeting between the auditors and FRIEDLANDER management. The non-conformance or observations shall be added to the action plan.

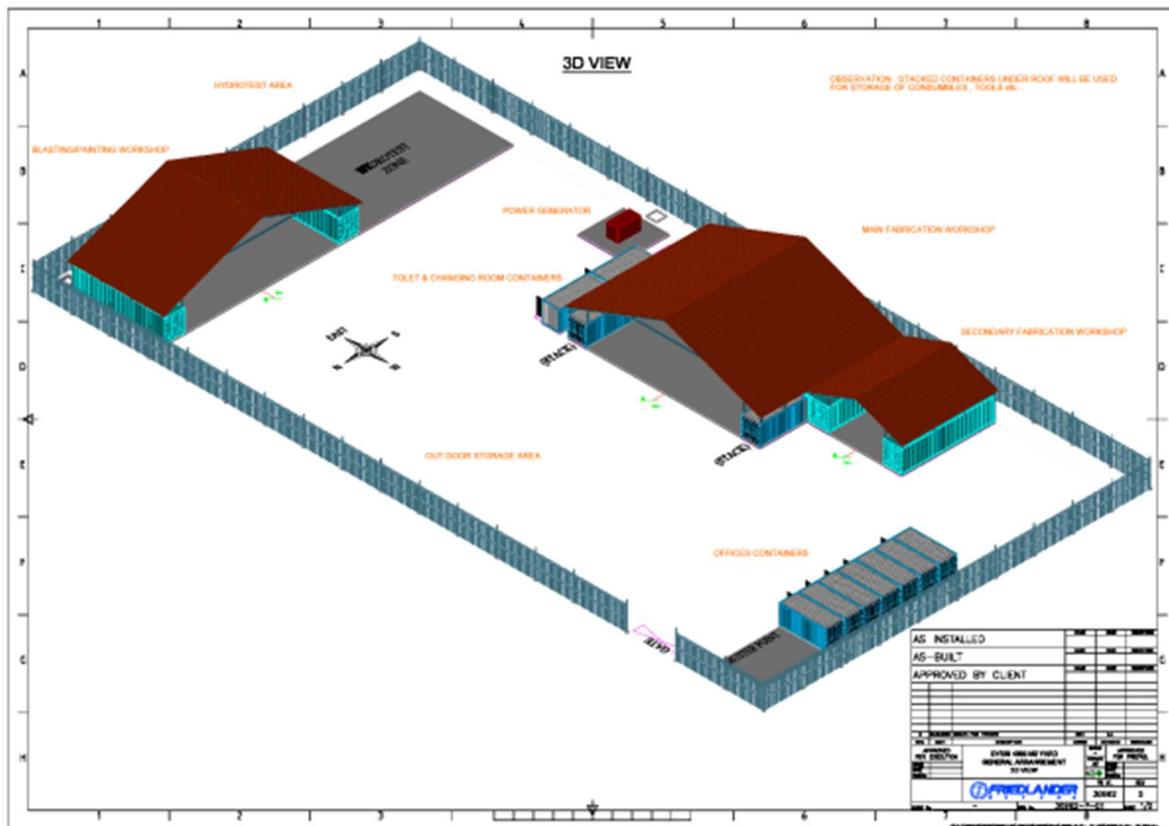
ANNEX 1

FRIEDLANDER (GUYANA) INC
FABRICATION PROCESS
&
RELATED IMPACT ON ENVIRONMENT

§1 : INTRODUCTION

FRIEDLANDER (GUYANA) INC , registered in GUYANA on the 18th April 2023 (Incorporation Certificate 14335) plan to start fabrications of piping , structures and various equipment for OIL & GAS companies , and industrial sector such as MINING , ENERGY , FOOD INDUSTRIES , on it's own fabrication facility currently under construction inside the GYSBI shore base ANNEX , PLOT 7 in GEORGETOWN-GUYANA .The main fabrications inside this facility are METAL structures in general assembled from METAL PLATES , METAL PIPES and related accessories .

Below is an image of the fabrication facility located on 1 acre land of that could be later extended to 2 acres :



Global view of the different workshops :



LIST OF MAIN FABRICATION/STORAGE SHOPS ON SITE

- ⇒ Offices containers for the management staff
SAFETY/ENVIROMENTAL & QUALITY officers , accounting officer , class room / meeting room
- ⇒ Dedicated area for 80KVA Diesel Power generator
- ⇒ Changing room container for company workers
- ⇒ Toilet container with underground septic tank
- ⇒ One main fabrication workshop , with roof on top and walls on the 3 sides but no wall or gate in front
- ⇒ One secondary fabrication workshop , with roof on top and walls on the 3 sides but no wall or gate in front
- ⇒ One blasting/painting workshop , with roof on top and walls on the 3 sides and with tarpaulin protections in front
- ⇒ One open space for hydrotest & NDT (non destructive testing)
- ⇒ Open spaces for storage of raw material outdoors (plates & pipes)
- ⇒ Open spaces for storage of completed fabrications before delivery to client
- ⇒ Storage containers for :
 - . Portable tools and piping accessories such as fittings , bolts , valves
 - . Welding/grinding consumables as welding rods , grinding discs
 - . Blasting material such as grit
 - . Paint material & tinnerns
 - . Welding gases such as Oxygen – Acetylene – CO2

LIST OF MAIN FABRICATION EQUIPMENT ON SITE

- ⇒ Diesel Power Generator 80KVA
- ⇒ Diesel Powered Fork Lift 3.5tons
- ⇒ Hydraulic crane Diesel Powered 20tons to 40tons
- ⇒ Diesel Powered Truck 10/15tons
- ⇒ Diesel Powered Air Compressor
- ⇒ Diesel Powered Gauging/welding machines
- ⇒ Electrical Welding machines
- ⇒ Plasma/air cutting machine & Oxygen Acetylene torch cutting sets
- ⇒ Electrical grinding cutting machines
- ⇒ Hydrotest Pumps
- ⇒ Mobile Manual Gantry Cranes

CITY WATER & POWER ENERGY ON SITE

- ⇒ At this date no electrical power available on this zone from GPL (could be delivered during the 2 coming years)
- ⇒ Water delivered by GWI is available and delivered on the SE corner of the land

§2 : DETAILED FABRICATION PROCESS , RISKS FOR ENVIRONMENT ASSOCIATED

The flow chart of the fabrication process is as follow :

- ⇒ **STEP 1** : detailed Engineering after client provides general arrangement issue , that means in a first time MATERIAL TAKE OFF QUANTITIES for the procurement of the raw material & consumables to order INCOUNTRY if possible or OUTCOUNTRY , and then the design of the fabrications on AUTOCAD , & welding-assembling-testing-painting ENGINEERING .

There is no impact & risks for the environment at this stage , and our engineering crew onsite will keep in mind to use digital processes (PAPER LESS) as much as possible for communication with clients and fabrication crews

Waste collected from this process are very few mainly used paper and empty printer ink cartridge

- ⇒ **STEP2** : delivery & storage of the raw material & consumables on site . All will be delivered by trucks or pickup vehicles on site and offloaded with cranes or forklift .
Raw material such as pipes , plates will be stored out doors on a dedicated area

The following specific consumables will be stored as follow :

- Oxygen , Acetylene stored separately under roof structure (with no walls around)
- Paint material stored inside container with ventilation & with air temperature control
- Paint tinnors stored inside container with explosion proof ventilation
- Diesel for all machines & equipment delivered by specialized vehicle and transferred from tank installed on the vehicle to machines reservoir by pump

There is some potential impact & risks for the environment at this stage coming from cranes , forklift hydraulic system possible breakdown (hydraulic hoses) during the handling operations , and possible spills during machines & equipment diesel reservoir filling operations

Waste collected : engine oil during periodic maintenance , around 120 liters used oil per month

- ⇒ **STEP3** : fabrication including cutting , grinding , welding , assembling operations inside the main and secondary workshops : all operations will be done on the plasma air cutting machine & manually with portable tools such as grinding machines , flame OX-AC torch , manual or semi automatic welding sets .

There is some potential impact on the environment coming from noise emitted during the use of portable tools (hammers , grinding machines)

Waste collected : pipes & plates metal scrap around ½ ton per month and used grinding discs around 100 per month

- ⇒ **STEP4** : hydrotest and non destructive test (NDT) .
Hydrotest operations consist of testing after fabrication all spools by water pressure . Water will be from GWI (available on the SE corner of the land)
NDT will be done onsite by a third party : only ultrasonic (US) , or magnetic inspection (MPI) or dye penetrant inspection (DPI) are planned at this stage ,
No RADIO GAMMA-RAYS or XRAYS will be used on site .

There is no impact & risk for the environment at this stage .

Waste collected : water after hydrotesting will be re-used as much as possible after hydrotesting

Used DPI spray can after NDT : around 20 cans per month

- ⇒ **STEP5** : Painting operations after fabrication & testing , to be conducted inside the blasting/painting shop
Blasting operations will be done by compressed air & abrasive blasting grit .
All will be less than 1% crystalline silica and silica sand will not be used .
Painting operations will be done by spray (AIRLESS) or manually . Paint material used will depend of client request , and mainly will be EPOXY or POLYURETHANE , diluted with specific thinners .

There is some potential & risk for the environment during the blasting operations done inside the closed blasting/painting work shop

Waste collected : used abrasive grit of around 4 tons per month , and empty EPOXY or POLYURETHANE paints cans around 25 cans per month

§3 : MITIGATIONS MEASURES IN PLACE TO REDUCE THE IMPACT ON THE ENVIRONMENT

⇒ POSSIBLE SPILL DURING **STEP2** :

During possible oil or diesel spill on site , spill consumables & equipment available at worksites will be used immediately to contain the pollution according to our oil spill response plan .

The Diesel Power Generator will be installed on a concrete slab equipped with a drip pan for the collection of possible oil spills

⇒ NOISE DURING **STEP3** :

Power Diesel Generator & Diesel Welding Machines will be sound proofed equipped in order to reduce noise emission

Wall protection (with roofing plates) would be installed at the rear of the fabrications workshop in order to reduce noise emission towards the road at the rear of the workshop

⇒ USED WATER DURING **STEP4**

After hydrotest , water will be collected as much as possible in order to be re-employed during further hydrotest .

⇒ DUST DURING BLASTING OPERATIONS **STEP5**

Wall protection (with roofing plates) would be installed at the rear of the blasting workshop in order to avoid dust emission towards the back rear of the workshop and there would be a retractable tarpaulin in front in order to avoid dust emissions into the operations compound.

§4 : COLLECTION , DISPOSAL & WASTE TREATMENT

⇒ Different types of waste will be segregated on site :

- . Papers & used cardboard packaging
- . Waste containing hydrocarbons
- . Metal scrap (carbon a stainless steels)
- . Used grinding discs
- . Empty paint and thinners cans
- . Empty DPI spray cans
- . Used abrasive grit
- . Used rags & PPE

The storage area on site must be properly chosen, have proper signage, organized to avoid inappropriate mixing and audited. Dangerous materials shall be properly identified, stored within a proper containment area and handled in a clean and safe way.

A list of the waste generated at the site shall be recorded.

A suitable Waste Management Procedure would be adapted for the site and shall be documented including: segregation methods, storage, containers features, labeling, inspections, transportation, etc.

Further collect , transportation & disposal to city approved land or waste treatment will be discussed and contracted to a certified company in GUYANA (The selection & Choose of the correct company will be discussed with EPA)

§5 : TECHNICAL DESCRIPTION OF MAIN FABRICATION EQUIPMENT & RAW MATERIAL & CONSUMABLES

§5.1 MAIN FABRICATION EQUIPMENT

⇒ **Diesel Power Generator 80KVA**



⇒ **Forklift 3.5tons**

Year of Manufacture: 2022
Model: FD5.0T-MWJ3
Engine: MITSUBISHI S6S-T DIESEL



⇒ **Hydraulic crane 20 to 40tons**



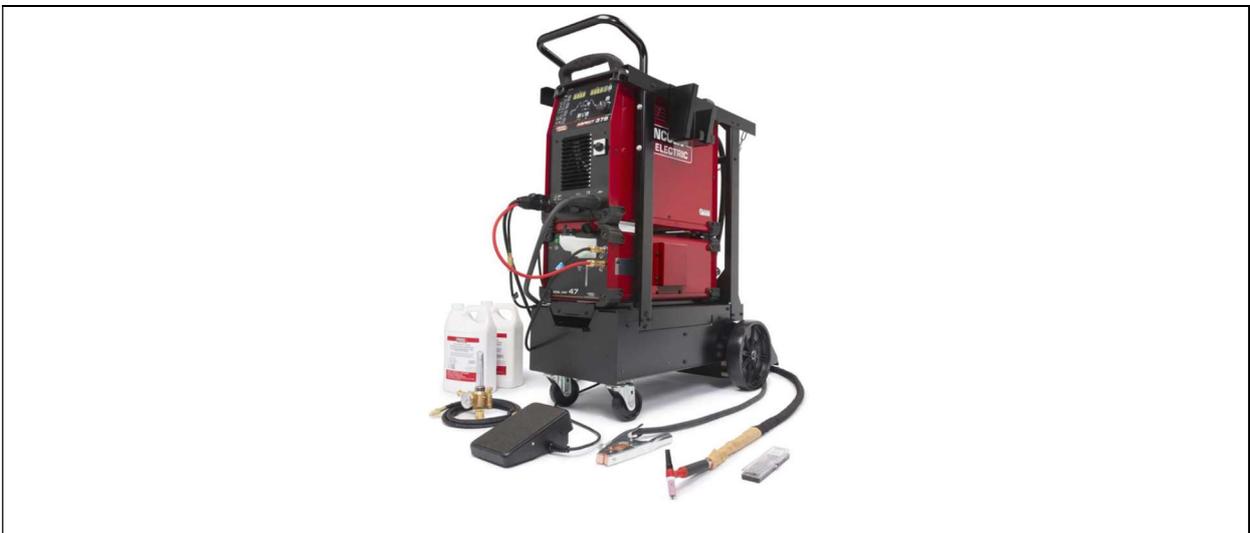
⇒ **Truck 10/15tons**



⇒ **Diesel Welding machines 300 to 450Amp**



⇒ **Electrical Welding machine 400Amp**



⇒ **Plasma Air Cutting machine**



⇒ **Mechanical band saw**



⇒ **Plate Rolling machine**



⇒ **Plate Bending machine**



⇒ **Drilling machine**

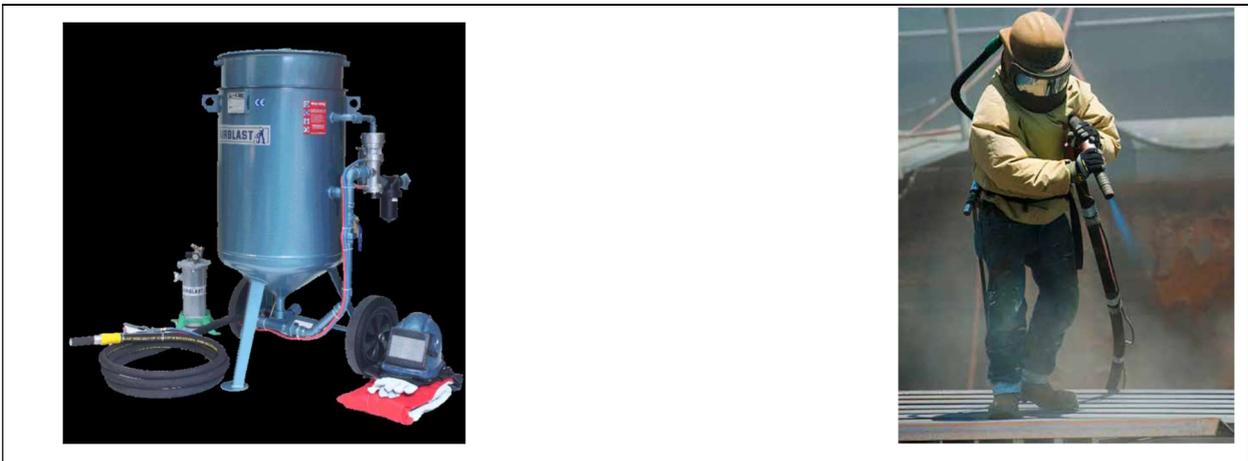


⇒

⇒ **Grinding machine (manual)**



⇒ **Blasting machine**



⇒ **Painting spray gun**



⇒ **Hydrotest Pump**



⇒ **Air Compressor**



§5.2 RAW MATERIAL STORED ON SITE (PLATES & PIPES)

⇒ RAW BASE MATERIAL currently used (15-20 tons per month) :

- . CARBON STEEL PLATES & BEAMS grade ASTM A36
- . STAINLESS STEEL PLATES grade 316L
- . CARBON STEEL PIPES grade API5L GrB or ASTM A106



⇒ Chemical composition carbon steel typical

C(%)	Si(%)	Mn(%)	P(%)	S(%)	Cr(%)	Ni(%)	Mo(%)	V(%)	Cu(%)
0 ≤ 0.30	≥ 0.10	0.29 - 1.06	0 ≤ 0.035	0 ≤ 0.035	0 ≤ 0.40	0 ≤ 0.40	0 ≤ 0.15	0 ≤ 0.08	0 ≤ 0.40

⇒ Chemical composition stainless steel typical

C Carbone	0.030 +/- 0.005
Si Silicium	1.00 +/- 0.05
Mn Manganèse	2.00 +/- 0.04
P Phosphore	0.045 + 0.005
S Soufre	0.030 +/- 0.005
Cr Chrome	16.5 18.5 +/- 0.20
N Azote	0.11 +/- 0.01
Mo Molybdène	2.00 2.5 +/- 0.10
Ni Nickel	10.00 13.00 +/- 0.15
Fe Fer	Le reste

§5.3 TYPICAL CONSUMABLES SORED ON SITE

⇒ **Welding gasses bottles :**

. **ARGON (20 bottles 9m3)**



. **CO2 (20 bottles 9m3)**



. **PROPANE GAS (2 Bottles)**



⇒ **Oxy-Cutting gasses bottles :**

. OXYGEN

. ACETYLENE

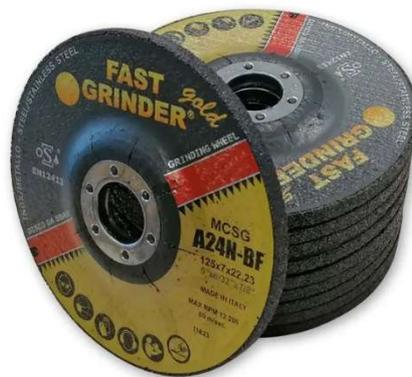
Total 30 bottles 7 to 9m3



⇒ **Welding Rods & Filler (5 tons)**



⇒ **Grinding Discs (2000)**



⇒ **Paint material**

- . Epoxy&Polyurethane paints : SIGMA MARINE/VINKOTE specs or equivalent (20 x Can 2,5 & 1 Liter)
- . Epoxy&Polyurethane paints : JOTUN HARDTOP/JOTOMASTIC/MARATHON specs or equivalent (20x Can 2,5 & 1 liter)
- . Thinners (4 x Can 5 liters)



⇒ **Abrasive material**

- . Metal abrasive grit ISO 11126 and non-metal abrasives ISO 11127 (15 tons BLASTRITE B60/B90 or equivalent specs)



Observation : above QTY are average monthly estimate at the beginning of our operations , and could increase 100% after one year production