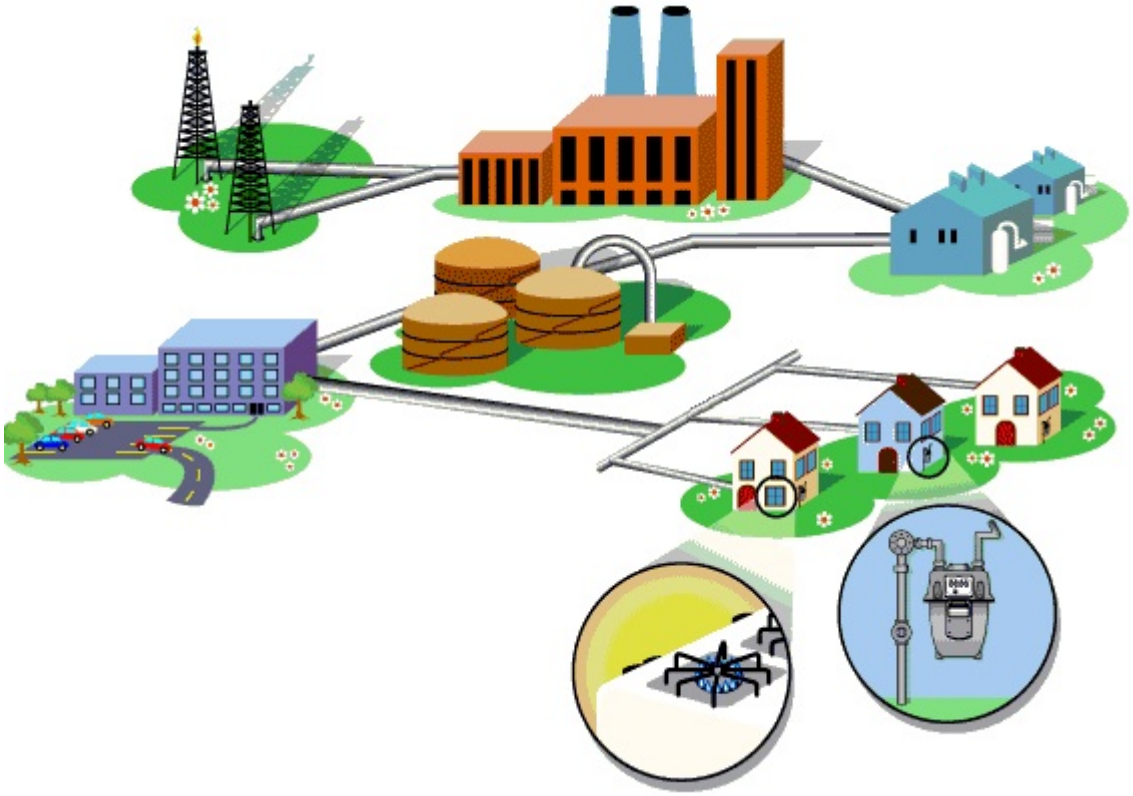
Georgian Oil
&
Gas Corporation

Executive Phase

Health and Safety Management Plan



A01	14 Apr. 2010	Issued for Approval	LK	AC	ZA	
Rev	**Date**	**Reason for Issue**	**Prepared by**	**Checked by**	**Approved by**	
Category Code			**Category Code Description**			
Area Code	GA00					
Document Type Code	PLN		Plan			
Life Cycle Code	X		Transitory			
Transfer Date						
Project Code	Area Code	Function Code	Document Type	Sequence Number	Language	Revision
GOGC001	**GA00**	**HS**	**PLN**	**00002**	**ENG**	**A01**

Table of Contents

1. INTRODUCTION

The purpose of this document is to identify the arrangements in place, present H&S information and procedures to be adopted by the contractor in compliance with GOGC H&S requirements and includes the following information:

The given document is developed pursuant to the requirements of section 2.4 of the North-South Gas Pipeline Rehabilitation Project Execution Plan. Purpose of this document is to facilitate the achievement of GOGC overall HSE goals stated as follows:

No harm to people;
No accidents;
No damage to environment.

Pursuant to these overall goals the given H&S Management Plan identifies the arrangements in place, presents H&S information and procedures to be adopted by the contractor in compliance with GOGC H&S requirements and includes the following information:

- The organization and contact details of the personnel with responsibilities under this contract.
- Details of the Health and Safety responsibilities of the identified personnel under this contract.
- A risk assessment of the activities to be completed
- The H&S procedures to be adopted to minimize and manage identified risks.
- To align the interfaces between the GOGC H&S management procedure and Contractor's to ensure that there is clear definition of how all activities will be managed as well as safe and environmentally acceptable working environment for all personnel concerned and associated with this contractual scope of work.

2. HSE PERFORMANCE STANDARDS

HSE standards set out for the Entire scope of works pursuant to this document are as follows:

- Zero fatalities.
- Reported Near misses.
- Zero Days Away From Work Cases (DAFWC).
- Zero medical treatment cases (recordable occupational illnesses).
- Zero vehicle accidents.
- Management field walks; 2 per week.
- Method statement and task risk assessment to be on site with the supervisor.
- Safety Passports issued as planned.
- Risk assessment briefings; 1 per day.
- Provide training schedule and follow the plan, reported to GOGC; 1 per month
- Daily vehicle inspection recorded.
- Drive right monitors installed on every passenger carrying vehicle working properly.
- Drivers/operators to receive training.
- Equipment and plant inspection and maintenance; 1 per month.

- Fill in GOGC field safety officer's daily checklist
- Schedule and follow H&S audits.
- Maintain quality of drinking water.
- 100% personnel, 100 % consumables, 100% equipment.
- Medical screening for all the Project personnel.
- No disturbance of rare species
- No land take beyond the minimum necessary for operations
- No risk to / or interference with local residents and enterprises
- No nuisance due to noise or dust
- No pollution of land, air and water
- Use of fuel and energy as efficiently as current technology allows
- Removal or re use of all temporary facilities, equipment and materials at the end of the contract
- no construction material obtained in a way that has significant environmental or ecological impact

3. MANAGEMENT PROCEDURE

GENERAL

This document reflects roles and responsibilities emanating from the interface between GOGC and Contractor with respect to the contractual scope of work.
Upon GOGC request Contractor shall promptly provide all notes, reports, memoranda, correspondence, records, and other documentation (in any media) relating to any H&S requirements in this Contract.

ORGANISATION

Contractor will provide full time safety officers dedicated to the site and an independent transport safety officer as well as quality control and assurance officer.

The Project Organization Chart for the execution of this work is presented below.

4. ROLES AND RESPONSIBILITIES

It is the responsibility of the Contractor H&S Supervisor to ensure that all Contractor personnel working or visiting the site understand the H&S requirements of this Plan and comply fully with them. The Contractor H&S Supervisor is the senior person on site and all issues regarding Health, Safety and Environment at the working site shall be addressed to him. GOGC HS Manager and Field Safety Officer(s) will monitor Contractor H&S personnel, their compliance to the H&S plan provided and agreed prior to construction commencement. All major changes in the plan, any accidents, near misses etc. should be agreed/reported to the GOGC HS manager. ***(Detailed information regarding the reporting requirements can be found below in chapter 17 Incident Reporting and Investigation.)***

PROJECT MANAGER

The role of the Manger is to provide Management of all issues associated to the activities considered by Scope of Works. This includes but is not limited to the following:

Project Manger provides assistance and advice to all employees. He/She would aid with implementation of the H&S Management Plan and Procedures, including coordination with the Contractor to provide a safety framework prior to mobilization as well as during implementation of the works. He/She will be available for consultation if required and will review weekly safety updates from the site.

The Project Manager will review at least twice a month all HSE issues with HS Manager and Environmental Manager.

CONSTRUCTION MANAGER

The Construction Manager is responsible for ensuring:

- Monitoring of Contractor technical personnel and accordance of technical documentations with GOGC HS requirements;
- ALL GOGC staff receives appropriate safety and environmental training, prior to commencement of work.
- A thorough investigation is carried out for any accidents or incidents which may occur.
- A self-regulatory review and/or audit of operation of the Safety Management procedure is carried out on a regular basis.

HEALTH AND SAFETY MANAGER

The HS Manager is the senior person responsible and accountable for the monitoring of GOGC and Contractor HS performance. The Health and safety manager reports directly to the Project Manger and is responsible to ensure the health and safety meets the standards for the project and the commitments in the agreements.

Although health and safety is the responsibility of each person in the project it is the Health and Safety Manager’s duty to ensure each person understands their obligations.

The health and safety manager is specifically responsible to:

- To report to the project manger on the health and safety work progress.
- Actively promote health and safety culture in the project.
- Cooperate with the Construction Manager to ensure site teams perform their work effectively.
- Ensure a consistent approach by all personnel engaged in health and safety work on the project.
- Ensure any problems or questions related to the health and safety work in the project are quickly and effectively resolved.
- Ensure the health and safety is QA/QC to the project standards.
- Monitor and verify compliance with the Health and Safety Management Plan (H&SP).
- Develop and implement a routine reporting program for the health and safety program.

- Ensure project team and contractors perform safety risk analysis before any activities.
- Prepare a health and safety training matrix for all personal in the project.
- Ensure the Construction Contractor has a complete understanding of the health and safety requirements they need to comply to.
- Reviews method statement and risk assessments provided by Contractor and ensures all safeguards are in place prior to mobilization to site.
- Ensures inspections/audits of the Contractor are performed to ensure satisfactory HS performance.
- Promotes open communication, co-operation and trust between himself and the employees with regard to optimising HS performance.

HS OFFICER

The HS Officer oversees the works directly during the process and ensures that all HS requirements are addressed. His responsibilities include:

- Monitors Contractor personnel compliance to HS requirements on the site.
- Reports and communicates HS performance to the HS Manager.
- Fill in GOGC Field Safety Officer's Daily Checklist
- Participates in any incident investigations.
- Delivers Toolbox talks to the site personnel.
- Carries out regular monitoring of Contractor safety inspections.
- Monitors that all Contractor site personnel has a safety passport on site.
- Makes sure that the risk assessment procedures are performed.
- Monitors PTW process.
- Reports of HS Incidents and "Near Misses" to the HS Manager.
- Maintains regular inspections of all GOGC vehicles/equipment/tools.
- Monitors Contractor inspections of all vehicles/equipment/tools.
- Monitors that all the necessary Personal Protective Equipment (PPE) is available and worn appropriately.
- Monitors that all vehicles are appropriately equipped with the required HS equipment.
- Monitors that all equipment operators have appropriate licenses and are trained.
- Monitors site conditions.

TRANSPORT COORDINATOR

- Maintains regular inspections of all GOGC equipment and ensures proper operation.
- Maintains that transport management plan is followed.
- Has continuous contact with all drivers in trip.
- In case of any equipment fails reports immediately to Project Manager and Safety Manager.
- Ensures all GOGC vehicles are appropriately equipped with the required HS equipment.
-

- Ensures all GOGC passenger carrying vehicles to be equipped with drive right monitors (black boxes)
- Monitors the Contractor inspections of all equipment;
- Monitors that Contractor transport management plan complies with GOGC HS requirements;
- Monitors that Contractor vehicles are appropriately equipped with HS equipment.
- Reports daily to GOGC HS Manager.
- Monitors that all contractor and GOGC drivers have valid driving permits
- Validity of GOGC driving permits are three and six months accordingly

RESPONSIBILITIES OF ALL PERSONNEL

Each individual has the responsibility for his safety and safety of others.

It will be the responsibility of every employee to ensure that they:

- Have received appropriate safety and environmental training
- Have understood the safety and environmental training provided to them
- Wear the PPE provided to them
- Do not drive any project related vehicle and/or equipment unless they have been appropriately licensed, trained and approved by the Management
- Act in a safe manner
- Keep work environmentally safe
- Ensure the satisfactory operational state of all equipment used
- Assist the driver (operator) where necessary (whilst reversing etc).

POINTS OF CONTACT

Project Manager – ???
Construction Manager – ???
Health and Safety Manager – ???
Safety Officer/Transport Coordinator – ???
Safety Coordinator/Trainer – ???

Georgian Oil and Gas Corporation
Kakheti Highway 21, Tbilisi, Georgia
Tel.: (+995 32) 24 40 40
Fax: (+995 32) 24 40 41

5. SAFETY REQUIREMENTS

RULES, NORMS AND CORRESPONDING LAWS

During the project progress HS program developed by GOGC should be precisely followed in order to guarantee safety of the project personnel.

It is necessary to use the following HS requirements during the project execution:

- carry out work risk assessment prior to work commencement;
- personnel should be correspondingly prepared and posses relevant expertise;
- it is necessary to wear personal protective equipment;
- prior to work commencement it is necessary to develop potential emergency response plan;
- in case of disease, injuries or safety regulation violation management should be informed right away.

All types of works should be stopped at once if the procedures are not regarded safe.

Currently active Georgian legislation regulates the general aspects of work safety requirements. Chapter VIII Compliance with Work Safety Conditions of parliamentary law #3132 dated 25 May 2006 defines the requirements that should be followed at any workplace during work execution. The plans and procedures developed by GOGC present detailed approach to all requests defined by the legislation.

Article 35 Right on Safe and Healthy Work Environment Point 1 states that the employer is responsible for ensuring maximally safe work environment for life and health of employees. The given approach is the principal objective of the procedures and plans developed by GOGC HS Department. Each employee is obliges to stop any type of work if it is considered to be unsafe.

Point 2 of the same Article requires the employer to provide in due time the complete, objective and comprehensive information concerning all those factors that influence employee's life and health or environmental safety. For the given requirement GOGC HS Department has developed corresponding procedures that cover all aspects related to pipeline constructions. Prior to any work commencement task risk assessments is carried out and there is a particular permit to work system that requires special permits for specific types of work. This of course implies that prior to work commencement all people involved in the procedure are made familiar with all work related aspects, including risks, mitigation measures and possible outcomes. Furthermore before the actual start tool box talks are carried out that once again summarize the details of work that is about to be carried out.

Point 3 enables the employee to refuse to carry out the work, task or assignment that contradicts to laws or due to work safety condition neglecting creates vivid and serious threat to his/her or third person's life, health, property or environmental safety. Employee is obliged to inform the employer right away of the conditions that cause him to refuse to carry out works defined by the work agreement. As already admitted and defined by the GOGC procedures and plans it is not only the right but also the obligation of each employee to stop work is it is regarded unsafe.

Point 4 defines the employer obligation on implementing safety system and providing employee with relevant information concerning safety risks and preventive systems, also information regarding dealing with hazardous equipment, provide personal protective equipment, change hazardous equipment with safe or less hazardous, take all reasonable measures to protect employee safety and health. This aspect is once again reflected in the task risk assessment procedure, permit to work system and tool box talks.

Point 5 requires employer to take all reasonable measures in order to localize all accidents and eliminate their outcomes, timely provide first aid and carry out evacuation. GOGC HS department has developed Emergency Response Plan that defines in details all necessary procedures that shall be followed in case of an accident.

This is a general overview of the Article 35 and the correspondence of GOGC Procedures and plans to the requirements of the given law. As admitted GOGC procedures are more detailed and cover all aspect that are requested by Georgian legislation.

WORK SPECIFICATION RISK ASSESSMENT

Work Safety Analysis is a safety awareness process designed to assist in eliminating accidents, injuries, illnesses and unsafe conditions. Work Safety Analysis is used to assist in planning the safety of work before it starts.

Concept

Danger zones should be defined and analyzed on the site by Supervisors, Project Author and Work Executor. Work commencement is only possible after the agreement between these people. The process is aimed at each personnel to define work safety analysis practice identification that will eliminate or minimize number of accidents.

In order to determine safe work meaning Work Executor should analyze safe work practice, health, environmental compliance and submit this information to supervisor. Supervisor from its side will define the dangerous situations that were not defined during the initial risk assessment.

Goal

It is only possible to achieve maximum level of safe work execution by improvement and strengthening of work quality, especially when the decision is made based on work safety analysis. Work safety analysis is based on personnel responsibility and obligation principals that should be a priority in planning process. Safety supervisors should explain practice and implementation of safe work execution.

Requirements

The following are minimum requirements for execution of the Work Safety Analysis. The usage is mandatory for all Supervisory personnel:

1. All supervisors on assigning any work, job or task to any person or group of people, in each instance, shall give sufficient caution or instruction with the assignment to adequately provide safety in the operation.
2. Work Safety Analysis is showing or explaining or both, to each employee the safety application that pertains to the Work they are to do. Supervisors can protect employees from possible injury by ensuring that each employee thoroughly understand every safety instruction given to each Work they are to perform.
3. Utilizing Work Safety Analysis is being proactive by Work planning, rather than reactive to Work circumstances.

4. The size of the task determines the amount of time allocated for Work Safety Analysis.
5. Any supervisor guilty of negligence in the use of Work Safety Analysis, whether involved in nay accident or not, is committing the most serious offence possible in our accident prevention plan. Failure to perform a Work Safety Analyses before beginning a task may result in disciplinary action up to and including termination of employment.

Responsibilities

It shall be the responsibility of each supervisor on the project to ensure that a Work Safety Analysis in conducted for each task that is performed on the project.

Construction Managers, HS Managers and their representatives shall monitor the Work Safety Analysis process to ensure the program is given serious attention by each foreman and supervisor and recommend and/or corrective action to the appropriate Construction Manager as required.

It shall be the responsibility of all employees to participate in the development of each Work Safety Analysis and to practice safe work habits and comply with the requirements of this Procedure.

Guidelines

The Project shall establish a plan for conducting a Work Safety Analysis before beginning each task or, in the task contentious over a period of more than one day that a Work Safety Analysis will be conducted at the start to the shift or before beginning the task. A properly executed Work Safety Analysis will help employees recognize hazards, identify training needs, and plan their work; thereby ensuring a more safe and efficient work process.

Training

Prior to work execution superintendents and construction managers of the executing company will be trained in the principles and applications of Work Safety Analysis.

By means of the training safety inspectors/designees will contribute to work executor responsibility in the aspect that no operation will be carried out without precise communication with the help of work safety analysis and this will intensify measures necessary to carry out works safely.

Work safety analysis and training consists of but is not limited to the following:

If there an adequate lighting is?

Could people trip over material on the floor?

Are there exposed, live electrical wires?

Are tools, machines, and other equipment in good repair?

Do machines have guards in place?

Is noise levels too high to allow communication?

Are fire alarms and portable fire extinguishers readily available?

Are emergency exits clearly marked?

Is personal protective equipment available, in good condition, and used when necessary?

During elaboration of Work Safety Analysis specific work stages should be considered and the list of possible hazards should be put together.

Include each stage.

Describe each step in adequate detail.

Include inspection and use of protective equipment.

Include the condition use, and safety of equipment and machinery.

Identify any machine parts or exposures that could create risk of injury.

It is necessary to determine the best option for risk identification and avoidance.

Problem identification.

Identify options of dangerous situation avoidance or mitigation.

Carry out equipment identification for hazard mitigation.

In case of necessity change instruments, add conditioning, carry out all changes that exclude hazards.

Identify all hazards that are impossible to avoid.

Work Safety Analysis Forms

Mentioned from is used to be filled in by safety officers. Columns should include potential risks related to executed work and hazard possibilities. Safety supervisor should identify and mitigate possible risks.

Work to Be Performed: Date:
Location: Foreman's Name:

Specific Steps of the Work (tasks to be performed)	Potential Hazards Associated with the Task	Methods of Reducing Risk	Recommended Safe Procedure to Combat Residual Risks

6. GENERAL SAFETY RULES

AWARENESS / INDUCTION MEETINGS / TOOLBOX TALKS

All employees should be fully aware of the consequences of unsafe acts and unsafe working conditions and should at all times make every effort to eliminate them. Awareness / Induction meetings / Toolbox Talks shall be held, for timely orientation of the workforce as part of the continual improvement programme to reinforce:

- Procedural understanding
- The risks associated with the relevant work scope
- Operations objectives (including key technical requirements).

Prior to commencement of any work under the Contract, CONTRACTOR on daily basis will inform its personnel of:

- The working conditions at the Site, including the hazards and risks associated with the Services, and the H&S management procedures used as safeguards, including without limitation the H&S Plan
- The need to immediately notify their supervisor of all H&S risks, which they believe not to be under adequate control.

Contractor shall maintain at the site copies of all permits, including environmental permits, required for the work being performed and shall ensure that its personnel are aware of the terms of such permits.

HOUSEKEEPING

Site management and supervisors who are in-charge of operations have a responsibility for day to day safety of works within their area of operations. Good housekeeping should be maintained at all times. Contractor has a responsibility to keep the workplace tidy at all times.

Contractor commits to the following:

- Rubbish will never be accumulated around the plant and machinery
- Nails projecting from timber will be removed or hammered down
- Cigarette ends or matches will never be discarded without ensuring that they are extinguished
- Surplus and loose materials not required for immediate use will be immediately removed
- Scrap and rubbish will be removed to designated tip area
- Walkways, fire doors, etc. will always left clear from materials and rubbish
- Any spills to land will be immediately mopped-up

PERSONAL PROTECTIVE EQUIPMENT

PPE will be made available and required to be worn by all site personnel. For the purpose of this Contract, PPE is defined as equipment designed to be worn by personnel to protect themselves against work related hazards, which may endanger their health or safety.
The use of PPE is mandatory. All issued equipment is the responsibility of the recipient and shall be maintained in an operational condition. In the event of accidental or mechanical damage, the defective equipment shall be reported to Site H&S Representative for replacement.

PPE will be issued on initial start of work and shall be replaced on the basis of wear and tear. The involved H&S personnel will assess where special PPE is required over and above the minimum level required for the task.

Each person shall be supplied with the following minimum PPE for the execution of this contract:

- Hard hat *
- Coveralls *
- Steel-toed boots *
- Eye Protection *
- Chemical Protective clothing – If applicable
- Gloves – in most cases

*Items are mandatory requirements to be worn on site.

Other PPE will be issued depending on the work discipline and the associated risks.

EYE PROTECTION

Eyes are very vulnerable. In this regard contractor site personnel will:

- Always wear goggles / eye shields/ face shields provided to protect the eyes from dust, flying particles, molten materials, liquids, fumes or injurious light and heat rays.
- Always be sure to have the correct eye protection for the work and wear it properly.
- During welding, chipping, grinding etc., the workplace will be screened off in order to protect other personnel in the vicinity.
- Never watch a welder at work with unprotected eyes.
- Never assume that one type of protection is suitable for all types of risks. For example impact resistant goggles may not protect from liquid splashes.

HEARING PROTECTION

Prolonged exposure to loud noise may permanently damage the hearing. Hearing protection must be worn in designated areas (=> 85 db/A) and where high noise levels can exist, e.g. near compressors and power tools.

SLIPS, TRIPS AND FALLS

When executing works connected with potential threat of slips, trips and falls the contractor is committed to:

- Always keep work place tidy. If spill anything has been spilled, clean it up immediately.
- Always use proper routes and walkways. Avoid short cuts and make full use of handrails.
- Always wear suitable protective footwear.
- Always report damage or obstruction to floor surfaces, hand rails, fences and barriers as well as poorly lit areas. A prompt report can prevent a fall.
- Always make sure that any temporary openings in walkways are securely fenced off. On completion of work replace gratings and covers securely.
- Never walk blind, always ensure the line of vision is free.

PORTABLE LADDERS

If correctly used, a portable ladder can provide a safe means of temporary access when working at heights. Incorrect use can cause severe injury.

- The correct ladder for the job shall always be chosen. It must extend at least 1 meter above the landing or work place.
- Always make certain that no overhead power lines are within person reach or within the reach of the ladder. Metal ladders must not be used where there is a risk of accidental contact with live electrical apparatus.
- the ladder shall always be inspected for defects. Wooden ladders should be clear varnished; not painted as paint can conceal defects.

- The ladder shall always stand on a firm base. it should be positioned so that it rested at an angle of 70° (i.e. 1 meter out for every 4 meters up).
- Ladders must always be lashed or footed.
- When climbing the rungs rather than the strings of the ladder shall be held.
- More than one person on the ladder at one time is strictly prohibited.
- Hand carriage of materials up a ladder is not allowed. Use a tool belt or hoist line.
- Lengthening of extending ladders beyond the safe overlap marked on the strings is also prohibited.

FALLING OBJECTS AND MATERIALS

Materials or equipment shall be stacked in a safe manner so that the possibility of accidents was minimized.

Safety helmets and protective footwear shall be worn at all times on site, and in special situations, other additional protective clothing may be required to be worn.

WELDING AND CUTTING OPERATIONS

Two major hazards are presented by welding. The obvious danger of fire and the possible dangers to health resulting from fumes or UV light from the electric arc. Welding operators must therefore be strictly controlled.

- Permission and/or necessary work permit shall always be obtained from site senior H&S representative prior to welding or burning work.
- Area of work shall always be cleared and screened to prevent accidental ignition of combustible materials and to protect passers-by and personnel.
- A proper fire extinguisher shall always be near the working area and the personnel involved in welding works shall know how to use it.
- The appropriate eye protection and protective clothing shall be worn.
- Cylinders shall be secured in an upright position in a safe area. Preferably in a properly designed trolley. Electric welding sets must be located in a safe area.
- Gas hoses and electric welding leads shall be kept as short as practicable not obstructing walkways or becoming tangled or chinked.
- All equipment, cables and hoses shall be checked before use - all defective materials shall be discarded.
- Adequate ventilation shall be ensured.
- Equipment shall be properly earthed and welding return lead be clamped as near to the work piece as possible.
- Never leave live equipment unattended - if you have to stop work for any reason, turn off gas supplies or switch off power.
- The cylinders shall never be transported with hoses and regulators attached unless carried on a proper trolley.
- All gas welding regulators must be equipped with flashback protective devices.

PORTABLE TOOLS

The main cause of most injuries involving hand tools are the use of unsuitable tools, their incorrect use or their incorrect storage. In this regard contractor will:

- Always use the correct tool for the job. Never use a spanner for a hammer.
- Always use spanners that fit the nut and bolt head properly.
- Always keep the hands behind the cutting edge when using cutting tools.
- Always keep unsheathed knives, chisels and other sharp tools in a safe place, not in the pocket.
- Always keep tools in a clean and good condition - protect the edges of sharp tools, both when carried and when placed in store.
- Always wear eye protection when chipping, scaling, dressing stone or concrete, fettling and cutting rivets or whenever there is a danger of flying particles.
- Never use damaged or worn tools e.g. hammers with loose heads, files with split or loose handles, chisels with mushroomed heads, spanners or wrenches with splayed jaws.
- Never use a file without a handle, file tangs are dangerous.
- Never place small tools on open grating floors, they may fall through and hit someone. Return them to the tool bag after use.

ELECTRICITY

Misuse of electricity can result in personal injury or death, fire or explosion. It is essential that a standard code of behavior be observed with all electrical equipment, in order that it is treated with the considerable respect it deserves. Only trained, authorized personnel are permitted to work on electrical systems or electrical equipment. The following will be maintained during the works in regard to contact to electricity:

- All switchboards and similar installations concerned to electrical hazard will be properly labeled indicating nature and purpose of such.
- If broken, ineffective or damaged electrical equipment including frayed cables, loose connections, etc. is noticed it shall immediately be reported to the competent person. Ensure no one comes in contact with such equipment until it is repaired.
- A clear access to switchboards and similar installations will be ensured in case isolation is required in an emergency.
- All electrical circuits shall be assumed as alive until there is a certain proof they are isolated.
- Care must be taken to avoid contact with overhead power lines.
- All equipment must be switched off at the socket before removing the plug.
- Before attempting first aid on electrocuted personnel the power MUST be turned off.
- The power MUST be switched off when finished using the equipment.
- Never attempt unauthorized use, repair or maintenance of the equipment.
- The cables shall not be hang on nails or left lying around where they can be damaged or become wet.
- All the electrical equipment MUST be earthed.
- Electrical equipment shall be installed, tested and maintained exclusively by trained electrical personnel.

POWER TOOLS

Before using any electric tool its order must be checked by competent person. The cable for damaged insulation and connections must also be inspected. At any signs of over heating, loss of speed and irregular running noises the site management shall be informed immediately.

PRESSURIZED SYSTEMS

When working on or near equipment forming part of a pressurized system (air compressor etc.) it is essential to treat it with the utmost caution. The sudden rupture of even a small piece of equipment under pressure can release a devastating amount of energy. Systems containing liquid under pressure are also very dangerous. Heavy fittings can be expelled from equipment and jets of liquid spraying out can blind, impregnate the skin with toxic liquids and even kill. The following safety rules shall be followed during the work on the pressurized equipment:

- Be sure the pressure has been released before opening a pressure system.
- Be sure any fittings added to a pressurized system are of the correct size and rating.
- Be sure screw threads used in pressurized systems are clean, in good condition and are fully engaged when done up.
- Report any defects immediately.
- Never subject equipment under pressure to shock loads; such as hammering or being dropped.
- Never apply heat to equipment under pressure and never weld anything to such equipment, whether under pressure or not, without proper approval.
- Never use pressurized equipment as a step or as a support for scaffolding and other working platforms.
- Never cut into any pipe work without first checking that it is not part of a system which is under pressure.
- Never isolate safety valves.
- Always handle equipment as pressurized until tested as zero pressure.

MANUAL LIFTING AND HANDLING

Correct manual lifting and handling can do a lot to prevent the strains and backache that account for a very high proportion of all industrial injuries. Contractor site personnel will following these guidelines to reduce this type of injury.

- The weight of the load will be assessed and help will be called if it is beyond the capacity (20 kg). Where appropriate mechanical aids provided shall be used.
- The job shall always be sized up - any obstructions must be removed. Any snags shall be noted and clear space where the load is to be set down ensured. The space over the load when carrying it must be seen.
- The knees shall be bended to a crouch position, keeping back straight and with the feet slightly apart (200 - 300 mm). The back shall never be twisted while lifting

RIGGING AND SLINGING

- All lifts require a lift plan to be completed and approved.
- Lifts shall be “floated” to ensure stability prior to full lift acceptance.
- Properly tested, assembled and marked lifting tackle of adequate strength shall be used for the job.
- Be sure there are no kinks or twists in the chains or slings.
- A proper safety hook with safety latch must be used not a make shift one. The end links, slings or shackles shall ride freely on the hook.
- The support used to suspend the lifting tackle shall be strong enough for the job.
- The lifting hook shall be positioned over the load so as to prevent the load swinging when it is raised.
- Hand must be taken away from the sling before the lift begins.
- The safe working load of the tackle MUST not be exceeded.
- Dropping lifting tackle or dragging it from under a load weakens it.
- A knot shall never be tied in a chain to shorten it.
- Never stand or work under a suspended load; keep well clear of all loads in motion.
- Banksman (signalman) shall assist crane operator and riggers during the operation.
- The area around the lift site shall be clear of un-authorized personnel, prior to commencing lift.

7. RESPONSE PLAN IN EMERGENCY SITUATIONS

Action plan in emergency situations defines those responsibilities and actions that should be used by GOGC employees and executor company for life, health and environmentally dangerous situations, in case of possible accidents or emergencies. Executor company should put together an emergency response team and the members of the team should attend special training. Mentioned team should elaborate possible accident avoidance and management plans. Accident management team should be formed by executor company management.

1. Head of Medical Team
2. Project Director
3. Project HS Manager
4. Project Construction Manager
5. Transport Manager
6. Environmental Manger

GOGC Safety Manager is responsible for the following inspections (please find appendix “1”):

1. Inspection of executor company safety officer Tool Box Talk, JSA, PTW documentations
2. Check manual and electric equipment and their usage
3. Carry out Work Risk Analysis and prepare inspection daily reports
4. In case of necessity carry out Tool Box Talks to employees and team management.

In case of an accident works should be stopped right away. Territory should be sealed off with warning lines and left untouched if it poses no threat to personnel. Executor company safety officer should provide detailed information to medical team and safety supervisor.

GOGC safety officer should carry out analysis of accident reasons. He/she should prepare report, describe accident level and casualty condition.

In case of an accident GOGC HS Manager is responsible to report to Project Manager and Construction Manager describing in details the accident, damage, reasons behind the accident and measures (please find appendix “2”).

8. CONTRACTOR SUPERVISION

GOGC HS plans are control documents for the management of the company executing works and it serves the following purpose:

These plans represent the principal tool that enables GOGC to check HS obligation fulfilment laws and rules of the company executing the works. The latter represents the combination of all those rules and methods that defines fulfilment of HS activities defined in the project – therefore obligation fulfilment progress. The plan ensures transparency of obligation fulfilment and enables GOGC to check that HS obligation undertaken by contract are fulfilled and executor is responsible for their activities.

9. SAFETY PROCEDURES

PERMIT TO WORK (PTW)

Permit to work should be defined in correspondence to work types and specific work locations. This system is used in order to control all risks that can be encountered during the work process that may pose potential threat. PTW system correct implementation requires qualified specialists. Mentioned system provides safety guarantee and makes certain people responsible. PTW system is used for reduction of accidents causing harm to personnel, property and environment, determines all inaccuracies and protection mechanisms prior to work commencement.

The Permit To Work System ensures that the responsibility and accountability for safe working practice is passed in a logical sequence to those responsible for the work being carried out and ensures that adequate safeguards are provided. It also ensures that personnel carrying out the work are informed of the potential hazards. The PTW System is used to demonstrate that risk to people, environment and assets have been minimized.

Before conducting work that involves confined space entry, heavy lifts, work on energy systems, ground disturbance in locations where buried hazards may exist, or hot work in potentially explosive environments, a permit must be obtained that:

- defines scope of work
- identifies hazards and assesses risk
- establishes control measures to eliminate or mitigate hazards
- links the work to other associated work permits or simultaneous operations
- is authorized by the responsible person(s)
- communicates above information to all involved in the work

- ensures adequate control over the return to normal operations

PTW procedure and format is attached to this document (see appendix 3).

RESPONSIBLE PERSON

Construction manager should ensure control over all types of permits that will be made by supervisors on the sites. Permit coordinators should be appointed and approved by HS departments with corresponding written orders. Only afterwards they will be granted the right to issue permit to work. PTW coordinator is responsible for storage and coordination of permit lists and copies of the originals as well as supportive certificates in the document location centre. PTW coordinator is responsible to keep permit register. All permits should be retuned to PTW coordinator office upon expiry. PTW coordinator is responsible to assist construction manger in PTW control and communication.

PROCEDURES

Based on the daily data from the supervisor all types of permits are approved by construction manager. All works are stopped from the moment of reception of the common signal, based on which all permits issued before are annulled. In case of stopping works supervisors send written notices and all other relevant information concerning the work stoppage. Works will be resumed only after issuing new permit.

The permits of all those employees that have negative impact on safety of works due to their activities should be annulled and they should be dismissed form the sites.

FIRE PROTECTION

Protection from fire is of vital importance to all employees. Lives, jobs and financial loss are at risk in the event of a fire.

The fire alarms, fire drill, emergency procedures and methods of summoning assistance shall be learned by all personnel.

Emergency evacuation plan and emergency telephone numbers shall be posted on the notice boards showing fire escape routes. Muster points shall be appointed and marked communicated to all site personnel prior to work commencement. Dry powder fire extinguishers shall be available at every “key” locations. Easy access shall be maintained to fire fighting equipment. Alarm horns shall also be available on site. Emergency procedure is detailed below in Emergency Response section. The following general conditions are important to be obeyed fully:

- All site personnel must know fire instructions, how to sound the fire alarm and location of the fire escapes, emergency exits and muster areas.
- Do not panic, be calm - panic causes disasters.
- The position of fire extinguishers at place of work shall be communicated with all site personnel; and be sure they know how to use them.
- Obey all local instructions aimed at preventing a fire, for example the observance of smoking controls and the control of other ignition sources.

- Do not obstruct access to escape doors, fire extinguishers and fire hydrants - they must remain accessible in an emergency.
- At least two ways out of the building shall be known.
- The emergency telephone number shall be learnt by all site personnel.
- Always use ashtrays for smoking materials – NOT waste bins.

If a fire is discovered that cannot be immediately extinguished then:

- Sound the alarm.
- Tackle the fire with a fire extinguisher only if the nature of the fire is identifiable and a suitable fire extinguisher is available.

Most fires start with a small blaze that can easily be controlled.

WORKING AT HEIGHTS

Working at heights of 2 meters (6 feet) or higher above the ground cannot proceed unless:

- a fixed platform is used with guard or hand rails, verified by a competent person(s) or …
- fall arrest equipment is used that is capable of supporting at least a 2275 kg (5000 lbs) static load per person and has:
- a proper anchor mounted, preferably overhead
- full body harness using double latch self locking snap hooks at each connection
- synthetic fiber lanyards
- shock absorber
- fall arrest equipment will limit free fall to 1.8 meters (6 feet) or less
- a visual inspection of the fall arrest equipment and system is completed and any equipment that is damaged or has been activated is taken out of service. person(s) are competent to perform the work

ENERGY ISOLATION

Any isolation of energy systems; mechanical, electrical, process, hydraulic and others, cannot proceed unless

- the method of isolation and discharge of stored energy are agreed and executed by a competent person(s)
- any stored energy is discharged
- a system of locks and tags is utilized at isolation points
- a test is conducted to ensure the isolation is effective before work starts isolation effectiveness is periodically monitored

HAZARD COMMUNICATION

Hazard Communication Program is used to ensure that the hazards of chemicals produced, imported, or used are evaluated, and that this hazard information is transmitted to affected employers and employees. Required components of a Hazard Communication Program are as follows:

- Method of hazard determination
- Material Safety Data Sheets (MSDS's)

- Labels and other forms of warning
- Employee information and training
- Written Hazard Communication Program (defines all of the above)

The purpose of this procedure is to provide guidelines for implementation of the Hazard Communication Program. The objective is to assure:

- Labelling and equipment with warning signs
- Information on Hazard communications utilization and on the potential risk connected to the transportation procedures;
- Control of personnel working on hazard communications for the exact fulfilment of safety requirements.

MATERIALS STORAGE AND HANDLING

DEFINITIONS

Combustible Liquid - liquid having a flash point at or above 60 °C.

Combustible Material - liquids, solids, or gases that are relatively difficult to ignite and that burn relatively slowly (such as paper, wood, etc.).

Flammable Liquid - liquid having a flash point below 37.8 C and a vapour pressure not exceeding 40 pounds per square inch (absolute) at 60 C.

Flammable Material - liquids, solids, or gases that are capable of being easily ignited, burning intensely, or having a rapid rate of flame spread (usually dusts, fine powders, or substances that ignite spontaneously at low temperatures).

Material storage and their handling must meet safety requirements.

Both temporary and permanent storage shall be neat and orderly. When planning material storage, a minimum of one (1) meter of clearance must be allowed under sprinkler heads. Automatic sprinkler controls and electrical panel boxes must be kept free and unobstructed.

There must be unobstructed access to fire hoses and extinguishers. Clear access to emergency exits and aisles shall be maintained. Areas immediately outside emergency exits shall be left clear for egress.

Lumber Storage

Lumber shall be stacked on solid, level sills. Cross-strips or cross-pilings shall be used where the pile is more than 4 feet high (1.2 meters). The top of each pile shall be kept as level as possible when lumber is being removed. Used lumber shall have nails removed before it is piled. Employees shall wear gloves when handling lumber.

Steel Storage

Reinforcing steel shall be stored in separate piles according to size and length. Corrugated and sheet steel must be stacked in flat piles. Spacing strips shall be placed between each bundle.

Pipe Storage

Pipe shall be stored on pipe sills or racks and shall be blocked to prevent rolling. When removing pipe, employees shall work from the end of the pile as much as possible.

Safety officer must carry out full monitoring and make reports on the correct fulfilment of works. Each employee is obliged to have safe locks and accomplish process requirements.

MATERIAL HANDLING

Supervisors shall give advance consideration to the size, shape, and weight of materials to be handled and plan the most efficient and safe method to accomplish the task. Proper tools shall be provided for the job, and alternate methods should be considered. Supervisors shall ensure that the work fits the employee in terms of knowledge and physical abilities. When unusual or hazardous operations are required, before beginning the work, employees shall be warned about all possible hazards and given specific safety instructions by their immediate supervisor. They must be trained on the safety instructions on avoiding of existing risks.

In case of material handling it is important to consider the following requirements:

- Chock and block tyres of trucks during loading and unloading
- Provide proper personal protective equipment
- Ensure that only properly trained personnel are used to handle hazardous materials and to oversee material handling methods
- Report any unsafe condition or practice that cannot be corrected within the scope of your authority
- Label floors and storage racks with maximum capacities
- Train warehouse and craft personnel responsible for storing and handling material

LIFTING OPERATIONS

Lifts utilizing cranes, hoists, or other mechanical lifting devices will not commence unless:

- an assessment of the lift has been completed and the lift method and equipment has been determined by a competent person(s)
- operators of powered, lifting devices are trained and certified for that equipment
- rigging of the load is carried out by a competent person(s)
- lifting devices and equipment has been certified for use within the last 12 months (at a minimum)
- load does not exceed dynamic and/or static capacities of the lifting equipment
- any safety devices installed on lifting equipment are operational
- all lifting devices and equipment have been visually examined before each lift by a competent person(s)

EXCAVATIONS

Work that involves a manmade cut, cavity, trench or depression in the earth's surface formed by earth removal cannot proceed unless:

- a hazard assessment of the work site is completed by the competent person(s)
- all underground hazards, i.e., pipelines, electric cables, etc., have been identified, located and if necessary, isolated

Where persons are to enter an excavation:

- ground movement is controlled and collapse is prevented by systematically shoring, sloping, benching, etc., as appropriate
- ground and environmental conditions are continuously monitored for change

CONFINED SPACE ENTRY

Confined space means any enclosed or partially enclosed space:

- Such spaces are designed for only one human
- Has restricted access or egress
- Is poorly ventilated
- Is not designed for long stay

Due to its nature, confined space may form a trap and become life threatening environment that is connected to atmosphere conditions (toxic, flammable, asphyxia).

Other procedural norms are acceptable while working in the confined space, i.e. during welding procedures there must be considered that specific norms that are connected to the welding.

General definition of the confined space includes all ambiguous spaces that might be considered as dangerous:

- Large diameter pipelines
- Trenches

It also includes any space in which dangerous contaminants can accumulate and ventilation is restricted.

Risk assessment required prior to entry into confined space. Risk assessment must identify:

- Those works that must be carried out in the confined space
- Known and supposed risk assessment

In order to reduce the existing hazards it is not allowed to enter the confined space without the risk assessment and without the discussion with the personnel who will be participating in this activity.

All personnel that must enter the confined space must be informed on all potential and supposed hazards prior to entry.

The purpose of above mentioned procedural norms is:

- Identification and definition of confined spaces
- Description of relevant procedures for the security of all personnel that are working in the confined space

MANAGEMENT OF CHANGE

Before any significant change of material, equipment or personnel that could affect the safety of the work scope activities or it's personnel is carried out, Contractor will perform relevant risk assessment and environmental impact evaluation and seek the full approval of the appropriate GOGC representative.

LOCK-OUT/TAG-OUT

SCOPE

This procedure is intended to assist in protecting personnel against injury that may occur due to the accidental start-up or release of energy from equipment that is being serviced or maintained. This energy may be from mechanical motion, pressure, gravity, springs, electricity, heat or other sources. These forms of energy must be isolated by being turned off, eliminated, dissipated or controlled. They will be securely maintained in the safe or off position until the servicing personnel are out of danger.

When the work is in progress on the site, the performing Company will verify that there is an understanding of, and respect for lock out / tag out procedures by all personnel present on site.

IMPORTANT NOTE

It is critically important that the procedures outlined in this document are followed in the interest of effective working and good safety practice. Any disregard of these procedures by relevant and authorised employees will be considered as a major failure in job responsibilities.

It is unacceptable, for any person to remove another individual's lock out device and/or tag.

It is unacceptable for an employee to work on unlocked and/or untagged equipment that requires such locking and tagging to prevent possible injury or death.

If total de-energising is not possible, the full procedure must have prior authorisation by the performing Company site manager.

PROCEDURE

Notification Of Lock-out/Tag-out Work

The person originating the Lock-out/Tag-out work is responsible for ensuring that a performing Company representative from the involved site or area is aware that equipment in the area will be locked and tagged. Any employees working in the area must be made aware that equipment will be locked out for maintenance or servicing work. All work requiring lockout will be accompanied by a Permit to Work. Details of the PTW should be recorded in the lockout register and details of locked out equipment etc. should be cross referenced on the actual permit.

Implementation Of Lock-out/Tag-out Procedure

All energy sources are to be locked out by attaching a lock-out device to the energy isolating device by the performing Company. These energy sources include, but are not limited to:

- Electrical,
- Mechanical,

- Gravity,
- Hydraulic,
- Pneumatic,
- Chemical
- Thermal.

The use of such lock out devices and means of isolation must be recorded in a local log or register.

Each employee must use only a key-type padlock that is tamper proof and operated by only one key. No two locks should be able to be opened by the same key.

CANCELLATION OF LOCK-OUT

1. Equipment/process: Before energy is restored to the equipment/process, visual inspection of the work area must be made by the persons performing the lock out to ensure that all non-essential items have been removed and that all components are operationally intact.
2. Lock and Tag removal: Lock and tag devices shall be removed from each energy isolating device by the person who applied the lock and tag.

After the last lock and tag has been removed, it is the responsibility of the performing Company person(s) operating the lock out to notify the designated person responsible for the equipment operation that the equipment is ready to be re-energised.

All reasonable notification shall take place before equipment/process is reinstated.

EXTREME EMERGENCY LOCK AND TAG REMOVAL

An extreme emergency shall exist when equipment that is essential to site safety or operations is locked out and the employee who performed the lock out is not present because of illness or injury, has left the site and is unavailable, or the key has been lost or misplaced.

If the holder of the key is not available, the senior performing Company person will call the site manager and discuss the situation. The manager, through this discussion, should satisfy himself that all reasonable safety precautions have been taken before authorising the removal of the lock and tag, (the use of any duplicate key(s) from a secure storage area can be authorised in this case by the site manager). This removal should be recorded and personally signed of by the site manager or senior nominated performing Company person.

The lock should be retained by the site manager, (or for the site manager if removed by the senior performing Company person).

If an employee's lock is removed by this procedure, the site manager with the lock has the responsibility to ensure that the employee has been notified prior to the time the employee resumes work.

LOCK-OUT/TAG-OUT PERMIT

LOCK-OUT/TAG-OUT PERMIT

Permit No:
Date:

This Permit is for work involving de-energizing of Electrical, Mechanical and Production piping systems.

Work Location _____Start Date / Time_____

Estimated Time / Days of Completion: _____
_____
_____

WORK DESCRIPTION
General Precautions:
Person-in Charge to insure:

- All affected workers are informed of the work to be done
- Equipment has been prepared for shut-down
- All energy sources have been isolated
- All stored energy has been depressurised
- Equipment has been prepared for zero mechanical state

Specific Precautions

Potential Hazards and Energy Sources

Other Remarks

I have reviewed the general LO/TO precautions stated above and understand the job I am about to start

Signed:_____

Signed:_____

Signed:_____

Approval_____

10. TRANSPORT AND TRAFFIC MANAGEMENT

Contractor Drivers or vehicles used specifically in conjunction with this contract scope of work will comply fully with GOGC Transportation Standards described in GOGC's documents:

- GOGC Minimum Driving Competence Standards – For Light Vehicles
- GOGC Minimum Driving Competence Standards – For Off Road Driving
- GOGC Minimum Vehicle Standards and Safety Equipment – For Large Goods & Passenger Carrying Vehicles
- GOGC Minimum Vehicle Standards and Safety Equipment – For All Vehicles

Contractor should demonstrate compliance with the above-mentioned Standards to the respective GOGC Transportation Department prior to commencement of work. Contractor will immediately consider remedial action required where any personnel has violated safe driving rules (Speeding, night driving, unsafe driving).

The Contractor shall:

- Implement safety, health, environmental, social and technical Project requirements pertained to transportation management.
- Develop and implement procedure and method statements related to transportation of Project personnel and cargo.
- shall be the base for undertaking detail road assessments in the areas heavily affected by increased construction traffic identifying specific measures to mitigate any predicted impacts.
- As appropriate, consult federal or local authorities, local communities and police of the planned increase of traffic movement.
- Identify those responsible for development and implementation of transport management and relevant documents.

Final roads selection including construction of new access roads for transportation of project cargo and personnel will take place when a full road survey, including photograph and descriptive reports, has been completed and a proposal is presented by the Transport Manager to the Contractor's Management, Company and Ministry of Environment (MoE) for approval.

The road survey will enable the following:

- Document the initial condition of roads and bridges. This will also allow reinstatement of temporary access roads and the satisfactory handling of any complaints received (any complaints will be addressed through the grievance procedure in the Community Liaison Management Plan);
- Facilitate the identification of any work required to upgrade the transport routes;
- Health and Safety and Environmental risk assessments;
- Road maintenance and upgrade where necessary to allow the safe movement of traffic and facilitating liaison and records between the Contractor and local authorities where repairs are required;
- Ensure that upon construction completion roads are as good or better than the condition before project commencement.

It is envisaged that, the Contractor will have to upgrade, repair and/or construct new access roads to support construction. For each of those activities Contractor will obtain relevant permits from the Authorities prior to work commencement. Suitable measures will be implemented to avoid damage to public roads and any damage will be repaired to an equal or better standard in a timely manner.

Advance warning will be given of any proposed road diversions and closures required for both repair of roads, pipeline road crossings, which include open-cut roads and tracks.

Advance warning will be undertaken through liaison with the Construction Team, Community Relations Team (refer to Community Liaison Management Plan) and the local authority. Safe diversions, temporary bridges, traffic controls, barricades, signs and warning lights will be maintained by the Contractor if, as and when required at crossing points. All pipeline crossings of tracks and roads will be reinstated on completion of activities.

- All drivers/operators will hold a current full driving license appropriate to the vehicle being driven/operated.
- All local heavy goods and passenger carrying drivers to be approved by GOGC HS department.
- All passenger carrying vehicles to be equipped with drive right monitors (black boxes)
- All vehicles will be of adequate capacity and of a design suitable for the work to which they are allocated. All vehicles will carry fully comprehensive insurance for the vehicle, the driver and all passengers.
- All vehicles used in connection with the Services will be serviced and maintained in accordance with the manufacturer's recommendations. Prior to use, all vehicles used in connection with the Services must have vehicle maintenance check sheet filled out and signed by the driver.
- GOGC Driving Permits will be obtained upon completion of a successful assessment and training.

All vehicles used in connection with the Services will at least be equipped with:

- Three point inertia reel seatbelts in the front and rear outer seats and lap belts in the middle for the maximum capacity of Personnel carried.
- Dry powder fire extinguisher
- First aid kit
- Flashlight (handheld)
- Serviceable tires/spare wheel, jack, tire pressure pump and gauge
- Radio or cell phone
- Reflective jacket
- Set of tools
- Towing strap
- Reflective warning triangle
- Cargo screen on load carrying vehicles
- All vehicles and heavy equipment/machinery front head restraints
- All vehicles and equipment/machinery will be fitted with audible reversing alarms.
- All vehicles and heavy equipment/machinery will be fitted with audible reversing alarms.
- Headlights on at all times while driving

Vehicles will not be operated unless:

- Vehicle is inspected and confirmed to be in safe working order
- Drivers are trained and certified to operate the class of vehicle by driving assessor and trainer

- Passenger number does not exceed manufacturer's design specification for the vehicle
- Seat belts are installed and worn by all occupants
- Hand-held cell phones and radios are not in use by driver.
- During the refueling operation the vehicle engine should be switched off
- No smoking while driving

FLAGMEN/BANKSMEN AND TRAFFIC VESTS

PURPOSE

One of the main guarantees of safe fulfilment of works is the existence of flagmen/banksmen on the construction territories and access roads, the responsibility of the flagmen is the identification of threat and timely notice to executive persons during the working period, transportation or excavation works. The mentioned person must be competitive, respectively trained, carry out risk assessment and undertake adequate measures. It is also important to use traffic vests for all working personnel who are working on the construction territory.

REQUIREMENTS AND RESPONSIBILITIES

Whenever employees are required to work in the immediate vicinity of moving traffic, it is necessary to have one flagman as a minimum. Personnel must wear a fluorescent orange or red traffic safety vest. (fluorescent orange or red).

If hoisting equipment must pass under overhead electrical lines and it is possible for the boom to contact or be in close proximity to the line, then a flagman shall be used to eliminate the potential for contact. In general, whenever signs or barricades do not provide adequate protection then flagmen should be used. If the flagman will be hand signalling then he shall use red and green flags.

Safety managers must ensure the abovementioned procedural norms for whole personnel; they also are responsible for the location of flagmen during the fulfilment of difficult operations. Safety department representative must ensure monitoring and control of accomplishment of similar procedural norms and report to the project management. Also take urgent measures in case of any disturbance.

A Personnel is obliged to familiarize with procedural norms

11. JOURNEY MANAGMENT PLAN

Journey management principles will guide the application of controls as follows:

- A journey by road must be necessary and business-related;
- The trip initiator must complete the Logistics Trip Field Plan;
- The Trip Initiator / Base Dispatcher must complete a written Journey Management Plan form and communicate Plan to Driver.
- The driver must complete the Pre-Use Vehicle Daily inspection Checklist
- The driver must be fully fit, rested and sober;
- A Man Lost Procedure must be activated if the driver is twenty minutes overdue.

APPLICABILITY OF PROCEDURE

All vehicle movements are subject to the Journey Management Procedure.
This procedure applies to all journeys:

- Other than local ones (i.e. those within 25km of the project office in Tbilisi)
- Includes all off-road routes of travel (including any off road within 25km radius of project office)
- Undertaken during partial or total darkness. These trips should normally be associated with emergency incidents and must be approved by the Incident Commander;
- Includes all Contractor, Sub-Contractor and Company journeys initiating from Contractor sites.

JOURNEY MANAGEMENT PLAN AND IMPLEMENTATION

Trip Initiator

The Trip Initiator together with the Base Dispatcher is responsible for completing the Journey Management Plan. Journey must be recorded in the Journey Management Plan form, stating the following details:

- Driver's name and mobile telephone number;
- Passengers' names and mobile telephone numbers;
- Vehicle registration number or fleet number;
- Start time (ETD) and arrival time (ETA);
- Check calls (time and location) to be made by the driver (not to exceed 2 hours);

Planned stops (not to exceed 3 hours).

Having completed the Journey Management Plan the Trip Initiator shall file the plan with the base dispatcher.

Prior to departure the Trip Initiator and driver shall complete the pre-trip check sheet to ensure:

- All required equipment for the journey and work on location are on-board.
- Ensure that the vehicle has had a pre-use inspection;
- Confirm that safety equipment and equipment required to complete the work is on board (as required);
- Confirm that the driver has a Journey Management plan that includes rest breaks;

Driver Responsibilities

The driver shall complete the pre-use daily vehicle checklist and submit to the journey manager / base dispatcher with a copy of the journey management plan for logging.

Journey Manager / Base Dispatcher Responsibilities

The Journey Manager / Base Dispatcher must ensure that:

- the driver's hours of work are not exceeded;
- the driver informs the destination of his/her departure (ETD) and reports back to base during the trip and upon arrival at destination;
- Journey forms are maintained by the *base dispatcher.

*Base is the point of origin for the journey; Tbilisi CONTRACTOR's Base Camp/Office.

Note: Deviations from the trip must be called in to the dispatcher immediately.

The Base Dispatcher is responsible for maintaining a log of available vehicles and drivers. For journeys that do not require a Journey Management Plan such as personnel pick-ups from airport etc, the Base Dispatcher shall maintain a log of vehicle / driver movements / locations.

Passenger Responsibilities

Passengers also have responsibility in vehicle safety. They are not only clients, but also supporters of the driver. Passengers' behaviour encourages the driver to drive well or puts pressure on him/her to break the rules. Before beginning a journey outside Tbilisi passengers must:

- Be on time to avoid rushing the driver;

During the journey passengers must:

- Always wear seatbelts;
- Always secure cargo;
- Not distract the driver; do not drink, eat or smoke inside the vehicle;
- Provide clear directions to the driver, if required;
- Assist the driver when parking and manoeuvring in hazardous locations;
- Warn the driver, if he is travelling too fast for road/weather conditions or shows any non-compliance with the Safe Driver's Code.

Passengers also have responsibility to correct the driver should he/she drive in an unsafe manner; e.g., too fast for the road conditions. They should also report any defective equipment, vehicle or road conditions or behaviour outside the Safe Driver's Code to the responsible manager.

MAN LOST PROCEDURE

In the event that a driver fails to report into the dispatcher within 20 minutes of a pre-set check in call time or ETA time, then the dispatcher shall activate the Man Lost Procedure.

The purpose of this procedure is to rescue the driver and passenger(s) who fail to get to their check calls or destination by the ETA designated on the Journey Management Plan. This is an essential part of a journey and the basic principles are:

- Attempts to establish contact with the driver/vehicle will start if the driver is 10 minutes late for a check call or arrival at the destination. After a subsequent 10 minute time period, a second attempt will be made to contact the driver. If there is no contact made by this time, the Incident Commander in TBILISI should be notified immediately, and the Man Lost Procedure executed.
- Site Emergency Response Team will be activated at the nearest site location;
- No assumptions should be made, debate started nor blame for over-reaction given; a full-scale search will be started at this time.
- The search will use all means of rescue, including air and local emergency services;
- The senior managers at the departure site and the arrival site will both personally investigate the journey plan;

- A man lost incident counts as a serious near miss and an investigation will always be carried out;
- The system should default to over-reaction, not under-reaction.

12. TRANSPORT MANAGEMENT PLAN

PURPOSE

The objective of this document is to outline in detail the Transport Management Plan. Contractor recognises the critical importance placed by the Project on controlling and managing all transport related activities.

Contractor recognises that the step changes required for overall improvement of H&S on North-South Gas Pipeline Rehabilitation (NSGPR) Pipeline Projects will be measured, amongst other factors, by the effectiveness of the organisations ability to control this safety critical issue.

TMP states the Contractor commitment to safety constrained within GOGC Driving Rules. This TMP also addresses the commitments contained within the H&S contract with respect to managing traffic and its potential environmental and social impacts, including community safety and accidents. In, addition traffic related impacts to occupied dwellings, in terms of noise, dust and burden on existing infrastructure are also covered by this TMP. These issues are covered either directly in this TMP and associated procedures and method statements or indirectly through other documents and Management Plans referenced from this TMP.

TMP will identify potential environmental and social impacts associated with project transportation, all those impacts are either avoided or appropriately mitigated.

SCOPE

The scope of this TMP addresses movements of Contractor vehicles, as well as all subcontractors' light vehicles, buses, trucks and heavy equipment, with respect to construction of the pipeline, which includes right of way (ROW), temporary camps associated with pipeline rehabilitation, pipe yard and temporary access roads to ROW.

It will also address the transportation of construction materials, equipment, camps, consumables and personnel from the point of origin to various destinations along the pipe route.

Transport Management Plan (TMP) will deal with environmental and social impacts due to increased traffic in areas directly affected or adjacent to construction routes.

It will provide guidelines for vehicles roadworthiness and quality.

TMP aims to provide overview of qualification, certification and training of transportation personnel.

If and when required it will identify transport related supporting documents in the form of Method Statements, Procedures, Traffic Assessments or Risk Assessments to be generated by the Project.

CONTRACTOR'S RESPONSIBILITY

The Contractor shall:

- Implement safety, health, environmental, social and technical Project requirements pertained to transportation management.
- Implement Transport Management Plan requirements.
- Develop and implement procedure and method statements related to transportation of Project personnel and cargo.
- TMP shall be the base for undertaking detail road assessments in the areas heavily affected by increased construction traffic identifying specific measures to mitigate any predicted impacts.
- As appropriate, consult federal or local authorities, local communities and police of the planned increase of traffic movement.
- Identify those responsible for development and implementation of transport management and relevant documents.

The Contractor Project Director has overall responsibility for implementation of the TMP with key responsibilities and roles fulfilled by the Pipeline Project Manager and Pipeline Transport Manager.

HEALTH AND SAFETY

All drivers shall undergo a medical examination to ascertain fitness to drive, and this shall be certified.

All vehicles shall be inspected and confirmed to be in safe working order.

All drivers shall be trained and certified to operate the class of vehicle.

Passenger number does not exceed the manufacturers design specification for vehicle.

Load shall not exceed the manufacturers design specification for vehicle.

Seat belts are installed and will be worn by all occupants.

Prior to the mobilization of any vehicle Transport Manager shall ensure that above rules are implemented and adhered by the Contractors and Subcontractors.

Prior to the start of any journey, a risk assessment and Journey Management Plan will be completed and logged.

ENVIRONMENTAL POLICY AND COMMITMENT

A set of polices will be established for the execution of the work undertaken by the Contractor. The Contractor recognises its responsibility to ensure that through the implementation of good environmental management practices, all potential adverse impacts on the environment associated with the Project transport are either avoided or appropriately mitigated.

Environmental impacts with respect to traffic operation and movements arise from engine emissions, dust generation, noise and fuel leaks and spills. By their very nature a number of the procedures in place, as discussed throughout this TMP, covering vehicle operations, speed limits and routes, and vehicle maintenance, to ensure the continued smooth operation of vehicles, address Contractor environmental commitments.

Transport related environmental concerns are (pollution related):

- Engine Emissions,
- Dust generation,
- Noise
- Fuel leaks and spills.
- Refuelling
- Visual intrusion

13. CARGO

Cargo classification:

- Light
- Medium
- Heavy
- Oversize.
- Hazardous Cargo

Light and medium cargo.

- JMP will have to be completed for movement of the light and medium size cargo.
- Contractor vehicles will undertake transport of light and medium cargo.
- Delivery services may be subcontracted.

Heavy and oversize cargo.

Contractor vehicles will be used for transportation of the heavy and oversize cargo.
Prior to transportation of heavy and oversize cargo e.g. oversize equipment, camp modules etc the Contractor will carry out a road and structure survey with emphasis placed on width, height and weight road restrictions. JMP and TA will have to be completed, approved and logged.
Light duty vehicle escort must travel in front of the cargo on safety distance and appropriate/safety speed. Escort must be equipped with visual signal.

If subcontractors are used they will have to implement all project requirements related to transportation. Prior to finalising contract agreements with subcontractors the Contractor must obtain the Company approval.

Hazardous Cargo.

Journey Management Plan has to be in place prior to transportation of hazardous material.

Issues to be addressed prior to journey being undertaken are:

- All permits to be obtained.
- Emergency contact numbers.
- Where possible, travelling through towns and villages shall be avoided.
- Monitoring and permanent surveillance of the load will be implemented while stationery.
- Vehicle shall be appropriate marked and MSDS shall be in the vehicle.
- If necessary according to the material being transported escorts will be provided

Light duty vehicle escort must travel in front of the cargo on safety distance and appropriate/safety speed. Escort must be equipped with visual signal.

14. REVIEW AND AUDIT

GOGC will carry out and implement HS audit and reviews and will ensure effectiveness of the given system. GOGC management has the right to carry out audits of the company executing the works in order to make sure that safety management procedure is effective. Project management should carry out equipment check based on the list. Received information should be reviewed and safety measures should be elaborated.

OBJECTIVE

Principal objectives of reviews and audits:

a) define correspondence with safety objectives, requirements, strategies and procedures;
b) make sure that corresponding management supervisor is in place and works effectively;
c) define areas that require potential improvement, long term improvement.

15. TRAINING & COMPETENCY

HS TRAINING MATRIX

Project personnel should undergo corresponding HS trainings. Based on works scale HS training matrix will be prepared in order to ensure that personnel training corresponds to work level.

PROJECT TEAM AND EXECUTOR HS TRAINING

Training parts that is aimed at management as well as HS personnel includes obligatory training cycles that should be taken by project management and entire HS personnel. Personnel should undergo detailed training based on positions in safety rules. On the initial

stage introduction training should be carried out in health, safety and environment. Apart from this field personnel should also attend additional training that describes in details risks connected with work that should be executed by specific person. Training deals with the following areas: first aid, work progress organization, work area organization, equipment/vehicle organization and dangerous areas to be considered during work, safe operation, personal protecting equipment on the sites, electrical equipment technical service and operation, cargo transportation, warning signs on sites.

FIRST AID AND TRAINING

All project participants should attend HS training, where qualified personnel will teach them first aid methodology. Upon the completion the person should pass the test. Executor company is obliged to have a emergency aid team that will work 24 hours. This plan and schedule should be elaborated by executor company HS manger and medical team leader. Medical team should be equipped with all necessary equipment. The team should always be reachable, they should have at least one telephone and radio that should be on 24 hours.

PRINCIPE AND NECESSITY

All personnel should be familiar with first aid methods in order to help injured quickly and professionally in case of an accident. In case of an injury first aid should be provided right away and emergency team should be called on site. If it is impossible to call emergency team, the injured person should be transported to the nearest hospital as soon as possible after the provision of the first aid. The process should be carried out with full compliance to the rules introduced during the training.

COLOUR CODING

Colour coding inspection for all types of equipment, devices and personal protecting stuff should be defined based on monthly or quarterly inspection scheme on the site.

16. MEDICAL CHECK AND INSURANCE

All employees of the project, who will perform specific tasks are obliged to undergo medical checks in order to ensure that their health will not be negatively influenced by performance of their assignments. Medical check results should be recorded and stored until the expiry of the work agreement. All personnel including work group should be insured.

17. CONTROL OF CONSTRUCTION ACTIVITIES

Within 10 days of contract award the contractor (s) shall produce a schedule detailing the overall duration, length of time for each construction activity and lag between subsequent activities.
GOGC and Contractor(s) shall organize construction activities to cause minimum disruption and inconvenience to landowners, local authorities and the general public. CONTRACTOR(s) shall establish safe crossing points for pedestrians, and as necessary vehicles, at frequent points along the spread and trench length.

As a principle GOGC and the contractors shall minimize the extent of open trench in unstable areas, populated areas or when experiencing adverse weather conditions.

All works shall be in accordance with the agreed risk assessment and controlled by a Permit to Work system.

Employment and management of personnel involved in the works shall be in accordance with the Social Management Plan *(confirm)*.

ACCESS

Studies of existing access roads and tracks as well as necessary authorizations and permits required to develop the Project Traffic Plan shall be conducted. A traffic plan detailing all necessary licenses, permits and permissions shall be conducted.

Care shall be exercised when using both public and private roads for traveling to and from construction ROW and shall upgrade and maintain during works as necessary for safe operations, and reinstate them to their existing condition or better following completion of construction activities. Roads through private property as approved by property owners and GOGC and shall be identified in the traffic plan. Equipment or personnel shall not travel beyond ROW limits unless authorized in writing by GOGC.

Temporary access roads shall be designed to facilitate their complete removal. The design shall also ensure that the access road and its associated drainage is sufficiently robust to minimize environmental damage resulting from the break up of road construction and drainage washouts.

GOGC will furnish the contractor(s) with information acquired by GOGC for ROW purposes including special provisions and restrictions. Contractors (s) shall become familiar with all such permits, authorizations licenses and any other information acquired by GOGC, local and state authorities for ROW purposes including special restrictions and provisions. Contractors (s) shall confirm in writing receipt and acceptance of the conditions specified in all permits, authorizations, licenses and any other documents etc relating to ROW.

All damaged property including, but not limited to, buildings, fences, hedges, highways, paved roads, railroads, bridges, culverts, drainage ditches, drainage tiles, streams, canals and rivers occupied or crossed during construction, such property shall be restored to original condition

PRE-ENTRY AGREEMENTS

GOGC shall obtain all applicable rights for the ROW and conclude pre-entry agreements as the case may be. Contractor(s) shall obtain all necessary pre-entry agreements for any land other than ROW.

Contractor (s) shall ensure that prior to entering the land, commencing any preparation and/or clearing of ROW the conditions and requirements of the landowners/tenants detailed in the pre-entry agreements are clearly understood and formally agreed.

CONSTRUCTION AND INSTALLATION RIGHT OF WAY (ROW)

The nominal ROW width for construction shall be as detailed in the typical ROW drawings. The width can be extended locally only after the contractor(s) obtains written permission in advance from GOGC.

GOGC shall co-ordinate with all local authorities and utility owners to obtain clearance and approval prior to commencing preparation and clearing of the ROW.

Prior to any clearing operations, the contractor(s) shall be fully conversant with all conditions and provisions contained in the pre-entry agreements for land secured by GOGC and shall comply with such conditions throughout the duration of work.

LOCATION AND PROTECTION OF EXISTING SERVICES

All work carried out in the vicinity of existing pipelines and other underground and above ground services and associated installations shall comply with the safety requirements of the existing GOGC safety practices and Project H&S requirements.

GOGC shall provide the contractors (s) with a list of the statutory authorities, companies, agencies or other known organizations that may own and/or be responsible for the operation and maintenance of the services that cross or are within close proximity to the pipeline ROW. The contractor(s) shall contact and co-ordinate with all relevant owners and/or operators prior to locating and identifying the existing services which cross or are at close proximity to the pipeline ROW or those which might be affected by construction activities.

Buried services shall be located using the most effective and latest underground detection equipment and the location shall be confirmed by means of hand excavated trial holes carried out in advance of any construction operation that could cause damage.

GOGC may issue drawings showing provisional locations of existing buried services. Such information shall be for guidance only and no guarantee is offered or implied as to its completeness or accuracy, the contractor (s) will check all information and as necessary perform the necessary work to confirm the situation .

SETTING OUT OF PIPELINE ROUTE

Prior to commencement of any clearing activities pipeline route shall be delineated using durable pegs to identify the pipeline centerline and the ROW boundaries. The pegs shall be driven firmly into the ground and shall be of sufficient height to ensure adequate visibility. All necessary steps shall be taken to locate any buried services prior to driving of pegs.

The entire pipeline route shall be delineated in accordance with the Project Drawings and any subsequent data made available by GOGC. GOGC shall issue information relating to the topographical survey control points. Initially the location and accuracy of all permanent ground markers installed during the topographical survey shall be verified to establish the survey control. Where the original ground markers have been destroyed or disturbed the survey control points shall be re-established and tied back into the existing topographic survey control network.

PREPARATION AND CLEARING OF THE ROW

ROW CLEARANCE

Full working width of the ROW shall be cleared with the exception of any areas to be preserved in accordance with the pre-entry agreement. The ROW shall be cleared of all hedges, fences, walls, brush, vegetation, non-saleable wood, stumps, tree roots, boulders, debris and other obstructions, including derelict buildings. All cleared items shall be disposed off in accordance with the related Project Rules and Practices.

Damage to irrigation systems crossing the ROW shall be avoided and temporary arrangements shall be setup to maintain these services for the duration of the construction activities.

Temporary drainage culverts or flume pipes shall be installed at all ditches and watercourse crossings that could be obstructed during the construction period.

TREE FELLING

All approvals and permits required for tree felling shall be secured prior to the felling of any trees; GOGC and local authorities shall agree on site, which trees are to be removed and which trees are to be protected, accordingly the trees shall be suitably marked to prevent any damage throughout construction period.

All saleable timber shall be carried to designated storage locations selected by GOGC. The timber shall be stacked in neat piles and in a manner that will allow safe handling during collection.

TOPSOIL STRIPPING

When the ROW passes through areas of agricultural land and grassland the topsoil shall be stripped over the full working width excluding the area that will be used to store topsoil or as stated in the pre-entry agreement, leaving only those areas designated for topsoil storage.

In all other areas the top strata, which holds the seed bed, shall be stripped and stored to one side of the ROW to facilitate satisfactory environmental reinstatement and shall be treated as per top soil. This requirement may be modified in rocky ground and semi-desert terrain taking into consideration the local conditions, pre-entry agreements and the need to satisfactorily environmentally reinstate the pipeline route.

The topsoil shall be stripped to its full depth if it is less than 300 mm thick and up to a maximum of 300 mm deep if it is greater than 300 mm thick. Care shall be taken to eliminate mixing topsoil with sub-soil. Stripped topsoil shall be stored to one side of the ROW and kept free from the passage of vehicles and plant. Top and sub-soil stacks shall be placed to ensure that they are free draining. Gaps shall be left in the topsoil stack to permit reasonable access across the ROW and at low areas where surface water may be held against the stack.

Surfaced roads and paved areas shall be prepared by removing material only directly over the width of the pipe trench; this material shall be kept separate from other stripped or excavated material.

ARCHAEOLOGY

If archaeological remains or relics are uncovered work shall be stopped immediately and findings reported to GOGC. All archaeology or other such relics discovered prior to and during construction activities shall be treated in accordance with the applicable Project documents.

GRADING OF THE ROW

After the ROW has been cleared it shall be graded to provide an adequate surface for pipeline construction and safe access to the pipeline during construction.

The graded width of the ROW shall be in accordance with the Project Drawings for ROW. The working side for the construction of each pipeline section shall be as defined on the Project drawings, subject to site conditions. Any existing pipeline ROW shall not be used without prior approval from the relevant authority.

The ROW shall be graded to remove sharp, high points, to minimize cold bending. Elastic bending shall not be used.

Where the construction ROW intersects with roads, tracks or any other improved or confined areas, only the width of the ROW necessary for excavation of the pipeline trench shall be excavated except the areas where construction activities require greater width.

All survey control points that are already staked shall be maintained and preserved until construction operations are completed. Missing bench marks shall be reinstated, to allow accurate levels to be taken during pipe laying or as-built surveys of the pipeline.

The pegs installed to define the ROW boundary and pipeline centerline for the clearing, grading and backfilling operations shall be maintained throughout construction. All missing pegs shall be replaced before any ROW activities are carried out.

Distinct markers shall be installed to identify special construction points. The markers shall be used for, but not limited to, identify warning notices, foreign service and special crossings, wall thickness changes and above ground installations.

The type of markers and materials used shall be subject to GOGC approval and fit for purpose. the maintenance and replacement of the reference markers shall be the responsibility of the contractor until the permanent pipeline markers have been installed and the pipeline operations group has taken responsibility

Fences and Barriers
Following completion of backfill and initial reinstatement activities any damaged or relocated fencing, pipeline corridors, and property boundaries shall be reinstated to their original condition. Fencing and barriers shall be continuously maintained throughout the construction period.

Where the ROW crosses tracks utilized by vehicles temporary access shall be provided during excavation of track crossings. Permits from the relevant Authorities may be necessary even for brief closures of these tracks.

REMOVAL OF DEBRIS

All loose debris, timber, rock and similar material, dislodged from the ROW shall be removed and disposed off in a manner and method agreed by GOGC and Local Government Authorities having jurisdiction over the areas concerned. All project participants shall accept the high standards of Environmental care as set out in the Project documents.

ACCESSES

ROW grading shall be carried out in conjunction with construction of access roads. ROW grading and access roads construction shall be carried out in such a way as to allow the safe movement of loaded trucks and equipment without causing undue wear and tear to the graded surface. Where necessary, cuts through hilly terrain shall be formed to allow vehicle access, safe laying of the pipeline without elastic bending and excavation of rock where encountered. The ROW shall be graded and constructed to ensure the trench is excavated to the correct cover in undisturbed ground. At no time shall the pipeline be laid in false fill material. All necessary drains and culverts shall be installed as required to ensure adequate and safe drainage of all works, temporary and permanent.

All temporary accesses shall be constructed such as ramps, temporary bridges, etc., to enable plant, equipment and personnel to cross obstructions safely and efficiently. The temporary accesses shall permit continuous use of vehicles and construction traffic and shall preserve the banks and structure of crossings. Existing crossings shall not be filled or otherwise obstructed without approval of the Authority having effective control or ownership of the crossing. Such accesses shall be maintained in a usable condition and shall be reinstated upon completion of construction activities to a condition equal or better to that existing before commencement of the works.

RESTRICTED ROW

When the ROW passes through woodland, crosses public roads and under overhead power lines, environmentally sensitive areas or other restricted areas, the available ROW shall be limited to the width as directed by GOGC and identified in the Constraints Schedule and Alignment sheets. The work shall be performed in such a manner as to minimize the risk of damage to trees, plantation and public roads and shall comply with any specifications or environmental constraints in force.

ROW width shall be restricted when the new pipeline crosses existing above ground or buried pipelines, roads, and other foreign services to those areas with protection, ensuring that vehicles do not cross off the protected area. During construction activities, work shall be performed in such a manner as not to interrupt the operation or damage the existing pipelines or other such services.

Temporary fence or barrier shall be erected to indicate the presence of any foreign service. All crossings of foreign services by plant and equipment shall be restricted to a minimum. Crossing points shall be designated and protected as a minimum by 5 m wide crossing mats or other crossing protection as required by the owner/operator of the pipeline or utility. All precautions shall be taken as defined in previous sections.

ROW DAMAGES

All damage to existing pipelines and associated equipment, tracks, roads, highways, and all other utilities, etc., caused by execution of the work shall be repaired. Responsibilities for these repairs are the contractor as is outlined in their contract. Contractors (s) shall inform GOGC of any damages immediately on the damage being identified.

PROVISION OF DIVERSIONS

At locations where any part of the works is routed along, over, under or across tracks, roads or highways safe diversions, temporary bridges and traffic controls shall be provided and maintained including warning lights as may be required by the respective authorities. The works shall also include permanent diversions required due to site conditions and as agreed by GOGC and local authorities. All construction activities shall be carried out ensuring the safety of the private and public access. Public travel shall not be unnecessarily inconvenienced nor shall it be wholly obstructed at any point during construction activities. Watchmen shall be present at any location where safety and construction operations justify their use, or where called for by GOGC.

ROW IN ROUGH AND ROCKY TERRAIN

Necessary specialist equipment shall be used to prepare the ROW through rough and rocky terrain that occurs in certain locations.

When rocky terrain is encountered, preparation of the ROW will be carried out by ripping, drilling, wedging and chiselling techniques using hydraulic jack hammers, or recognized methods approved by GOGC.

ROW ON STEEP SLOPES OR DIFFICULT TERRAIN

A pre-entry survey shall identify all areas which require abnormal working conditions or areas presenting an increased safety risk; specifically those areas including steep slopes. Steep slopes are to be considered as those greater than 20°, however consideration shall be given to shallower slopes where soil conditions, weather and access conditions dictate.

For such areas a detailed method statement shall be produced identifying techniques and safety measures to be employed during all phases of construction. These are specifically to address minimum requirements for vehicle access and line pipe handling techniques, storage of materials including top soil and sub soil, drainage, erosion control and reinstatement.

HANDLING OF PIPE AND OTHER PERMANENT MATERIALS

GENERAL

GOGC will provide free issue materials as listed in the ANNEX 1, as required for pipeline construction. The contractors (s) shall accept custody of all free issue material at designated points. Prior to acceptance the contractors (s) shall inspect all free issue material, identify and agree all defects with GOGC. The contractors (s) shall be responsible for carrying out any repairs to the pipe and coating following receipt of this material.

The contractors (s) shall provide adequate equipment and personnel to unload receive and store materials, and to load and haul free issue materials from receiving point to storage and to ROW, as necessary.

PIPE HANDLING AND STRINGING

Line pipe whether bare or coated shall not be rolled or dropped, or allowed to strike any objects which may damage the pipe. Stepping or walking on coated pipes shall be avoided wherever possible.

End hooks shall be of suitable material as to prevent damage to the pipe and bevels and shall be smooth faced and properly fit the curvature of the pipe bore. Wherever lifting hooks are used, spreader bars shall be provided for the lifting chains or ropes. Whenever line pipe is supplied with end caps the end caps shall be removed and replaced after lifting. Under no circumstances shall one end of the pipe be lifted alone.

The use of tongs, bare pinch bars, chain slings, pipe hooks without proper padding, ropes, chains or wire cables or any such other handling equipment shall not be permitted.

All lifting equipment shall be of sufficient size and capacity to lift pipes and materials completely clear of obstacles so as to avoid causing damage to the materials, pipe and its coating. Pipe shall not be dragged along the ground or across supports.

TRANSPORTATION OF MATERIALS AND EQUIPMENT

A detailed procedure/method statement specifying the transportation of materials shall be developed for the project.

Precautions shall be taken to ensure that no damage is caused to line pipe or other materials at any time.

Line pipe and other materials shall be transported on vehicles in a suitable manner. Truck bolsters for handling bare or coated pipe shall be well padded and of suitable width and shape to distribute the pressure on the pipe and coating. Suitable padding shall be provided between the layers of pipe. The height of pipe stacking on the vehicles shall not exceed the limits appropriate to the pipe diameter and type of coating. This shall be no more than a total of 3 (48'' O.D. or larger) pipes per lorry or trailer.

Upon completion of loading, pipe and all materials shall be adequately secured in such a manner to protect the pipe and coating during transportation. Chains shall be suitably padded wherever they make contact with the pipe to prevent coating damage.

STACKING AND STORAGE

Line pipe shall be stacked clear of the ground and shall be adequately protected against damage to pipe and coating and accidental rolling. Stacks shall not be constructed on sloping ground. Pipe shall be rested on stone free earth or sand berms covered with a geo-textile or other suitable material. Suitable padding shall be provided between pipe tiers. Pipe shall be placed with a slight fall to allow drainage of rain water.

Line pipe shall not be stacked more than 4 tiers high and shall not exceed the safe limits for the diameter and wall thickness of the pipe and type of coating. The front and back ends of the pipe stacks shall be adequately blocked to prevent any movement.

Pipes shall be stacked in accordance with the line pipe and coating manufacturers' recommendations.

Concrete coated pipe shall not be loaded, stacked or nested with pipe coated with any other coating material.

Valves, flanged fittings or other equipment with finished surfaces shall be placed on to skids to prevent the finished surfaces from coming into contact with the ground. Debris caps shall be fitted and not removed until installation, except for inspection purposes.

STRINGING

Pipes shall be strung only onto ROW which has been cleared and where necessary, graded. The pipe shall be strung for the correct placement of size weight and grade and shall be lapped and not butted.

Coated pipe shall not be placed directly on to the ground but shall be placed on sand bags or padded skids. Wooden wedges shall be installed at each side to ensure the pipe is safely chocked on to the skids.

Gaps shall be left between pipes at intervals to permit the passage of stock and agricultural equipment across the ROW, and where necessary, to permit the use of public rights of way.

Where stringing takes place on a slope or cross gradient pipe shall be axially and laterally restrained during stringing, alignment and welding operations. Detailed method statement shall be prepared before any of the operations are undertaken. Pipe should be prevented from penetration of atmospheric precipitations.

Where rock is encountered along the ROW, pipe shall not be strung until all blasting has been completed, and the ROW cleared of all loose rock.

Any damage to pipe or coating caused during handling, transportation, stacking, storage or stringing, shall be repaired or the pipe rejected if so directed by GOGC.

TRENCHING

GENERAL EXCAVATION

The pipe trench shall be carefully excavated and the trench bottom graded so that the pipeline is evenly supported throughout its length. The trench bottom profile shall be such as to obtain a smooth profile for the pipeline and to minimize field bending,

The pipe trench shall be excavated along the pegged alignment but where there is a change in direction, the trench shall be cut so as to accommodate the specified radius of the pipe bend. Clearance shall be maintained between the bend and trench walls to accord with the trench dimensions set out on the Project Drawings.

The finished trench shall be free from roots, stones, rocks or other hard objects which could cause damage to the pipe and its coating. De-watering shall be carried out where necessary and prior to lowering-in.

TRENCH DIMENSIONS AND PIPE COVER

The minimum depth of cover shall be in accordance with the Project Drawings, the pipe trench shall be excavated to a sufficient depth to provide the specified cover, allowing extra depth for any soft padding which may be required beneath the pipe. The trench width shall be at least 400mm greater than the outside diameter of the coated pipe. At locations where further work on the installed line may be necessary, such as at tie-ins, the trench shall be widened and supported by timbers or battered so that welding and other work may be performed safely around the pipe in the trench. Due consideration shall be given to ground/soil conditions in determining the appropriate trench profile.

EXTRA DEPTH

Extra depth cover shall be provided as required to provide mechanical protection from third party intervention at specified locations. These shall include but not be limited to road, rail, water and Foreign Service crossings as shown on the drawings and crossing schedule. Construction of special crossings is specifically referenced in Section 20 of this specification. Approvals for construction of special crossings by the regulating authorities may include provisions affecting the depth of cover.

Where there is extra depth all additional H&S precautions shall be taken to ensure safe access and egress and the trench shall be supported with close supports or battered back to a safe angle.

LIMITATION OF OPEN TRENCH

In order to reduce the hazard of excessive lengths of open trench and the risk of land slips and trench instability in inclement weather, constructor shall plan their construction program and excavation operations so that the trench remains open for a minimum practicable period.

TRENCH SUB-SOIL STORAGE

The bank of earth subsoil produced by pipe trench excavation shall not be contaminated by organic and other foreign materials that would produce an un-satisfactory backfill. Gaps in spoil bank shall be maintained so that rainfall shall not cause water to accumulate and flood adjacent cultivated fields and the ROW. Edge of the trench to edge of the soil heap shall be not less than 1m.

ROCK TRENCH

The term rock shall be deemed to include any hard compact material (other than concrete or paved surfaces of roadways) which cannot be removed by mechanical excavators, rippers or by manual means and therefore requires the use of pneumatic drills, rock breakers, rock cutting machines or blasting.

The trench depth in rock shall be such that the cover is not less than stated on the Project Drawings.

Where the bottom of the pipe trench is in rock, or has hard protrusions capable of damaging the pipe coating, the bottom of the trench shall be excavated for a further 200mm across the full trench width, so as accommodate the soft padding, pipe and specified cover.

ACCESS

Where fenced access is provided across the ROW, safe access across the trench shall also be provided. Such access shall be provided at reasonable intervals and where required by land owners or tenants.

TIMBERING AND SUPPORTS

When ground conditions are such that the trench sides are liable to become unstable between trenching and pipe lowering, all necessary safety and construction precautions shall be taken such as stabilizing the trench walls or battering the side of the trench to a safe angle in accordance with the Project H&S requirements.

EXCAVATIONS IN RUNNING SAND AND AREAS OF HIGH WATER TABLE

In advance of all works the proposed method of excavation in running sand and in areas of high water table with details of ground de-watering equipment to be developed . Inlet filters shall be fitted and used on all pumps used for dewatering.

EXCAVATION ON STEEP SLOPES

In advance of all works, a method statement and detailed construction drawings for excavation on steep slopes in both standard and rocky terrain shall be developed . The method statement shall address safety issues, ROW preparation, trenching, construction techniques and restoration activities.

DISPOSAL OF WATER

Water shall not be pumped on to the ROW or adjacent land, but shall be pumped through separate hoses to suitable water courses. Where no suitable water courses are available suitable environmental and erosion control measures shall be developed for review and approval by GOGC.

The deposition of silt in ditches or water courses due to the disposal of any water from dewatering activities shall be cleared upon completion of the any dewatering process.

Disposal of water to watercourses shall be approved by GOGC, and the relevant local authority.

EXISTING SERVICES

The approved method statements for support and protection of existing underground services, shall be followed

All underground services shall be located using hand dug trial holes, operating to agreed procedures, Permits to Work and supervision will be required by the owners/operators of the apparatus.

Excavation around existing services shall be carried out by hand with such care as is necessary to avoid damage to the services.

The pipe trench shall be excavated so that the clearance between a buried pipeline and any other underground service or structure is not less than specified on the Project Drawings.

PADDING MATERIAL

Suitable fine soft material free from sharp stones, flints, organic matter or other materials which may cause damage to the pipe coating shall be selected from the excavated material other than top soil.

Where excavated material is unsuitable for processing into padding and intimate backfill, sand or other suitable material shall be imported from the nearest borrow pit approved by GOGC.

BENDS, FITTINGS AND PIPE CUTTING

FACTORY OR HOT BENDS

Factory made hot formed bends shall be used where indicated on the Project Alignment Sheets. A field bend shall not be used where a hot formed bend has been specified.

FIELD BENDING

All necessary field bends required in the construction of the pipeline shall be made . Line pipe shall be bent to accommodate changes in direction and grade changes due to terrain conditions.

The minimum acceptable cold bend radius shall be the equivalent of 40 pipe diameters. Should it be necessary to reduce this radius a factory made bend shall be installed.

All bends shall have a smooth contour and be free of mechanical damage, cracks, wrinkles or buckles. The longitudinal axis of the pipe shall not be deflected greater than as detailed on the Project Drawings. If pipe has a longitudinal seam, the seam shall be located near the neutral axis. Longitudinal seams in adjacent joints shall be offset by at least 250 mm at the pipe circumference. The difference between the maximum and minimum diameters of the bent pipe due to ovality shall not exceed 2.5% of the nominal diameter. All bends shall have a tangential straight no less than 1 meter on each end.

All bends shall be made cold and with the GOGC approved bending equipment. A cold, smooth bending machine shall be used having a full-circle bending shoe and an internal mandrel. Lined bending shoes and mandrels will be required to protect the internal and external coating. Spot heating or wrinkle bends are not allowed.

Prior to the start of field bending, a bending procedure on each and every pipe size and wall thickness in the presence of GOGC shall be developed . The completed bend shall be ultrasonically checked before and after the test to ensure that any reduction in wall thickness does not exceed the maximum under thickness tolerance as specified in the line pipe data sheets.

Each bend shall be inspected and approved by GOGC. All field bends shall have a gauge plate of 95% of the nominal internal diameter pulled through after completion of the bend, to ensure the pipe inside diameter is still within specification. Any bend damaged from any cause or bend that does not fit the ditch as specified, shall be cut out and replaced.

Where bends have been formed from coated pipe, the coating shall be inspected after bending. Wherever damage has occurred, the coating shall be repaired or replaced in accordance with the project Coating Specification.

A bend register shall be developed which shall indicate the following types of information:

a) The date that the cold bend was pulled
b) The bend angle
c) Pipe number
d) KP location

FLANGES AND FLANGED JOINTS

Flanges, blank flanges, bolts and gaskets shall comply in all respects with the details shown on the Project Drawings and Data Sheets.

Flanges shall be set square to the end of the pipes and flanges of adjoining components and shall be aligned so that the mating faces are parallel.

Bolts and gaskets shall be carefully stored such that to ensure that only the correct bolts and gaskets are used for each joint.

All joints shall be tightened in such a manner to ensure that an even pressure is exerted around the circumference of the joint and to a torque / tension not exceeding manufacturer recommendation. Excessive torque shall not be applied.

BUTT WELDING FITTINGS

Butt Welding Fittings shall comply with MSS SP-75 – Specification for High Test Wrought Butt Welding Fittings.

CUTTING AND BEVELING OF PIPE

All pipe cutting shall be performed by either an approved pipe cutter or by a thermal cutting and bevelling machine. Manual cutting shall not be permitted.

Stringing and layout of the pipeline shall be executed to ensure that wastage due to short cut-off pipe sections is kept to a minimum.

Prior to cutting, all pieces of pipe to be cut off shall have the unique pipe identification number transferred externally by a system approved by GOGC.

The pipe coating shall be removed prior to cutting the pipe, in order to provide the same cutback as the original pipe joint.

TRANSITION PIECES

A sufficient number of machined transition pieces shall be manufactured from the pipe supplied for inclusion into the works when required.

PUP SIZES

The minimum length of pup piece shall be 2 meters, unless otherwise specified in writing by GOGC.

SWABBING AND CLOSING PIPE ENDS

All pipe joints shall be thoroughly cleaned to remove all dirt or foreign matter from the inside of the pipe before it is lined up for welding.

The cleaning operation shall not be carried out more than ten pipe joints ahead of the front end welding operation. The swab shall be designed and constructed to prevent any damage to the pipe or coating by the swab during the cleaning operation.

Each section of the new pipeline shall be securely closed in after the section has been welded. The sectional night caps shall not be removed until the pipe section is ready to be tied-in.

WELDING AND WELD INSPECTION

GENERAL

All pipeline welding shall be carried out in accordance with the provisions of the Project Specification for Field Welding of Pipeline. Only competent, skilled, and qualified welders using qualified procedures shall be used for welding the pipeline.

WELDING PROCEDURES

There shall be produced detailed welding procedures in accordance with the Project Codes and Standards and Specification for Field Welding of Pipeline. Formal written Welding Procedures Specification (WPS) shall be submitted to GOGC for approval prior to start of qualification testing.

Once each WPS is approved, procedure qualification tests may begin. The tests shall be witnessed by GOGC with results of the destructive testing recorded and provided to GOGC for approval.

TIE-INS

Wherever possible an overlap of pipe is left between two test sections to allow for only one tie-in weld to be made as opposed to two.

Wherever possible, tie-ins shall be undertaken in the trench. Where tie-ins are required outside of the trench, holding and lowering operations shall be undertaken in such a manner

as to minimize the stresses in the pipe. Due consideration shall also be given to ambient temperature changes throughout the day and the resultant pipe length changes/stresses. Where necessary temperature controlled tie-ins shall be carried out.

WELDING INSPECTION

All welds shall be tested by non-destructive means; however GOGC may require removing welds and subjecting them to mechanical tests.

In general non-destructive testing shall consist of radiographic inspection, though GOGC may specify another method.

Welding inspection personnel shall be qualified by training and experience for the specified inspection task they perform.

The details of all radiographic and other NDT procedures shall be recorded. A copy of the record shall be furnished GOGC for approval.

FIELD JOINT COATING

The pipeline shall be protected against external corrosion by external coating. The external coatings shall be suitable for the operating conditions to which they are subjected and shall have proven good resistance to cathodic disbondment.

The external coatings used on line pipe and components shall mitigate corrosion, have sufficient adhesion to the metal surface to resist underfilm migration of moisture, resist cracking and have strength sufficient to resist damage due to handling and soil stress.

Manufacturer's recommendations with respect to handling, shelf life, storage and application requirements of the field joint coating materials shall be strictly adhered.

LOWERING IN

HOLIDAY DETECTION

Prior to commencing lowering-in operations, an electric holiday detector inspection shall be performed over the entire coated pipe at a speed not exceeding 300 mm per second. The invert area of the pipe shall be thoroughly checked by both visual and holiday detection, and all coating repairs shall be satisfactorily made and cured before the pipe is lowered into the trench following satisfactory holiday detection.

The setting of the DC voltage of the holiday detector shall be as specified by the coating manufacturer for the respective coating thickness used.

TRENCH PREPARATION

Before lowering-in, the trench bottom shall be inspected to ensure that it is clean and free from boulders, stumps, debris or any organic material. Additionally, pipe shall not be lowered into free-standing water or snow.

LOWERING IN

The pipeline shall be lowered into the ditch in such a manner as to ensure "slack" is carried forward in an acceptable manner. To avoid excessive stresses being imposed onto the pipe section, sufficient lifting machines shall be employed during the operation. All linepipe shall be installed in such a manner that it is supported by undisturbed soil or compacted bedding material except for tie-ins where unsupported lengths of up to 3m are acceptable.

All over bends shall be made and installed in such a manner that the pipe is continuously supported on the padding so that no point of the bend has excessive stress placed upon it. At side bends, the pipe shall be bent and lowered so as to lie near the outside wall of the ditch. All sags shall rest on the bottom of the ditch.

At wetland areas the use of concrete coated pipe may be required in accordance with the Project Drawings.

BACKFILLING

GENERAL

No section of the pipeline shall be backfilled without GOGC approval. Any damage to the protective coating and wrapping shall be repaired and let sufficient time to thoroughly cure and rechecked with a holiday detector before allowing the pipeline to be backfilled. If any portion of the pipeline is covered without approval, the pipeline section shall be uncovered for inspection, repaired and/or replaced any damaged or defective work and backfilled again.

After lowering in has been completed, but before backfilling, the ditch shall again be inspected to ensure that skids, brush, stumps, trees, boulders or debris are not in the trench.

No cinders, scrap metal, welding rods, vegetable matter or any other materials potentially harmful to the pipe and coating shall be allowed in the backfill material.

After inspection of the ditch and approval is obtained from GOGC, pipe shall be immediately backfilled, after being lowered in. The intimate backfill material shall be firmly compacted under and around the pipe to a level at least 200 mm above the pipeline. Where the pipeline is supported above the bottom of the ditch intimate backfill shall flow under the pipe and fully support it along its length. Further layers of final backfill material shall be added not exceeding 300 mm in depth and shall be compacted using whacker plates or other approved mechanical means in accordance with industry standard practices. Under no circumstances shall topsoil be used as padding material.

Any excess sub-soil shall be either removed from the ROW or shall be spread over the ROW to match existing ground contours. Topsoil shall then be spread over the ROW to match the existing ground contours.

Ditch/trench breakers shall be installed as specified by GOGC. Barriers shall be installed in accordance with the Project drawings and Alignment sheets, to prevent the passage of water down the trench and the subsequent washing out of intimate or final backfill.

Backfilling shall be undertaken as closely behind the lowering in operation as is practicable. Wherever third party services are present within the trench line, backfill shall be carefully placed by hand around all affected services as agreed with the owner/operator of the equipment, to avoid potential damage

All ditching and backfilling across drainage ditches, irrigation ditches, terraces, private drives, trails or roads, rivers and other streams shall be performed in accordance with the Project Drawings, or as directed by GOGC.

INTIMATE BACKFILL

Intimate backfill is the backfill surrounding the pipe from the bottom of the trench and including any necessary bedding to a level of 200 mm above the crown of the pipe, and shall be used to maintain coating integrity (except in locations where the pipeline is encased in concrete weight coating).

Selected excavated materials other than topsoil shall be returned to the trench, at the sides of pipes and over the pipeline. This shall be firmly compacted to a compacted depth of 200 mm above the crown of the pipe by hand rammers (or by mechanical vibrators/rammers). In selecting the intimate backfill from excavated materials, excavated sub-soils shall be treated by rotovating, sieving, shredding or similar methods to ensure that sufficient quantity of fine grained material is available.

FINAL BACKFILL

After the placing of the intimate backfill is approved, the remaining excavated material shall be returned to the trench in 300 mm layers and thoroughly compacted by whacker plate or other approved mechanical means to prevent subsequent settlement of the top of backfill below original ground level. The original soil sequence shall be preserved. Backfilling shall not be considered complete until such time as all drains and services crossed by the pipeline have been repaired to the satisfaction of the relevant parties.

EROSION CONTROL

Erosion and sedimentation control structures shall be installed in accordance with the Project Drawings and as a minimum shall include installation of ditch breakers.

THIRD PARTY, RAILWAY, ROAD AND WATER CROSSINGS

THIRD PARTY CROSSINGS

When construction crosses third party utilities and services, special care shall be taken for protecting all such existing pipelines, power lines, sewers, cables, or other facilities from being damaged during execution of the works and in accordance with the requirements of the third party. The owners of any affected utilities shall be given adequate prior notice of the proposed construction so that the owner can make operational preparations and provide a representative at the crossing.

CONTRACTOR(s) shall provide detailed construction crossing drawings and method statements approved by GOGC for each third party crossing along the designated pipeline route.

RAILWAY AND ROAD CROSSINGS

The construction of all railway and road crossings, including all details relevant to the installation of such crossings, shall be in accordance the Project Drawings, and shall comply with such specifications and conditions as may be required by the railway and district highway engineers, or any other authority having jurisdiction. Crossing permits shall be signed off by all relevant parties prior to commencing the works.

After backfilling, the surface of the road shall be replaced with material of quality and quantity in a manner satisfactory to authority having jurisdiction.

When crossing over railroads with equipment other than at a public crossing, the requirements of each railroad company shall be meet and acquire the necessary permission by application to the proper railroad officials a reasonable length of time before such crossing is needed in order that railroad company can clear any required licenses or agreements. When making railway, and roadway, crossings, care shall be taken not to block traffic while such crossings are being installed.

At major highway crossings, whenever heavy equipment moves on or across the highway, a flagman shall be stationed adjacent to the work to warn traffic of danger. When heavy equipment moves across a highway, the pavement shall be protected from damage by suitable planking, rubber tires, or other approved means.

In all cases where it is necessary for a pipe to cross a public road, track or railway, the portion of the ditch at the said crossing shall be immediately backfilled and the crossing restored so that the inconvenience to the public is minimized.

WATER CROSSINGS

Water crossings include canals, aqueducts, drainage ditches, natural streams and rivers. Streams and rivers shall be treated as water crossings though they may be dry during certain periods of the year. Additionally, areas with marshes or high water tables may require water crossing type construction. Concrete coated pipe shall be installed as specified, to facilitate negative buoyancy of the pipeline in river crossings and through wetland areas.

Detailed construction crossing drawings and method statements shall be developed for each water crossing along the designated pipeline route. Installation of river and stream crossings shall be carried out whenever possible during periods of low or no flow conditions and outside the fish spawning season.

River and stream crossings shall generally be constructed using the conventional open cut procedure unless stipulated otherwise in the specific method statements and crossing drawings. The designated minimum distances shall be maintained between bottom of true cleaned channel and top of pipe and that all environmental requirements are met.

Pipe to be placed into major river crossings shall have been gas tested prior to installation. Construction of all crossings shall conform to conditions of permits granted by governmental agencies having jurisdiction.

Generally all trenches in rivers shall be backfilled with the excavated material. The use of imported materials to backfill the trenches shall be subject to GOGC approval.

REINSTATEMENT

UNPAVED SURFACES AND AGRICULTURAL LAND

All areas affected by the construction operations shall be cleaned up after backfilling. The final condition shall be equal or better to that prior to the works being undertaken. Reinstatement shall be undertaken as soon as practicable following completion of the backfill.

In the case of cultivated land or grassland, the subsoil shall be broken down to a depth of 350mm by tined cultivators, to a loose and workable condition and leveled before replacement of the topsoil and any final topsoil treatment is undertaken. Stones in excess of 100mm diameter shall be removed to an offsite location approved by GOGC.

ENVIRONMENTALLY AND ECOLOGICALLY SENSITIVE AREAS

All provisions of Project specifications, procedures, EIA conditions and any other responsible Authorities requirements for the reinstatement of environmentally and ecologically sensitive areas shall be met.

REINSTATEMENT OF MINOR ROADS AND TRACKS

Any intention to work on or use any public or private road or track shall be notified to GOGC. No road or track shall be used until such time as the owner/authority has agreed the condition of the road prior to such work or use and the owner/authority grants appropriate permission. The road/track shall be photographed/filmed prior to making use of it.

Public or private road or track shall be permanently reinstated to the satisfaction of owner/authority and written approval from owner/authority shall be obtained.

MARKER POSTS AND SIGNS

Signs and pipeline markers shall be installed at all station sites, road, track, rail crossings, water crossings, field boundaries, as identified on the Project Drawings and anywhere else deemed necessary to identify the pipeline. Each marker shall be in line of sight contact with adjacent markers. Signs and markers shall be assembled and installed in accordance with the construction drawings.

VERIFICATION OF STANDARD OF REINSTATEMENT

All reinstated areas shall be inspected upon completion of reinstatement before Contractor's demobilization from site. Reinstatement shall be undertaken in accordance with the requirements of applicable Project specifications to the complete satisfaction of GOGC.

Contractor shall obtain sign-off of the pre-entry form from the landowner agreeing the standard of reinstatement.

TESTING AND COMMISSIONING

CLEANING

Prior to commencement of testing each pipeline section shall be cleaned using trains of pigs fitted with brushes and magnets. Each pig train shall contain a minimum of 2 Brush pigs followed by a magnetic pig. Temporary launchers and receivers shall be fitted to either end of the cleaning section. These shall incorporate a pressure monitoring and recording device to provide a record of each cleaning run. Cleaning pigs shall be run as often as necessary to clean the pipeline to an acceptable degree of cleanliness.

GAUGING

Prior to hydrostatic testing, all sections of the pipeline shall be checked for buckles, dents and similar irregularities with a gauging plate manufactured from 13mm aluminum plate, having a diameter equivalent to 95% of the minimum internal diameter of the relevant pipeline section to be gauged.

TESTING

One hour pneumatic leak test shall be performed to ensure that the pipeline is free from material defect. The pneumatic test gage pressure shall be set as 100 psi (7 bar) minimum. The safety of personnel during the tests is of paramount importance and no procedure shall be allowed which would violate this concept. All safety precautions shall comply with statutory and other relevant regulations and shall be approved by GOGC.

COMMISSIONING AND HANDOVER

When any subsystem of the pipeline e.g. section of pipeline, item of equipment, piping subsystem, electrical circuit, instrument loop etc., is considered by Contractor to be adequately complete, he shall notify GOGC that it is ready for inspection. A joint inspection will then be carried out by GOGC and Contractor. Following satisfactory inspection, the subsystem shall be subjected to applicable tests. GOGC will witness the tests and signify satisfactory completion on the relevant Test Forms. Contractor shall then pre-commission and commission the subsystem. When a set of subsystems forming a complete system have been commissioned, the system shall be handed over by issuing of a System Handover Certificate. The System Handover Certificate shall include systematic reference to all associated inspection and test documentation, certification, punch lists, as-built drawings, etc.

A detailed pipeline commissioning and handover methodology shall be developed to outline Project requirements for the pre-commissioning and commissioning phases. This in turn will form the basis for the development by Contractor of the Pre-commissioning and Commissioning Plan and Procedures.

OPERATION REQUIRING USE OF HEAVY PLANTS

GENERAL

Operations requiring the use of heavy plant shall be completed prior to the pneumatic testing of respective sections of the pipeline unless such operations have been previously agreed by the GOGC.

Where any operations are to be carried out subsequent to the pneumatic testing of respective sections of the pipeline, special precautions approved by GOGC shall be taken to prevent damage to the pipeline.

MOVEMENT OF PLANT AND VEHICLES

Should the Contractor need to move heavy plant across a section of the installed pipeline this shall only be done with the approval of the GOGC who will require adequate protection of the pipeline.

FINAL REINSTATEMENT

Where the final surface reinstatement has not been carried out prior to the pneumatic testing of a section of the pipeline, the proposed method of working shall be agreed with the GOGC including measures to protect the pipeline. In any case, only the use of approved machines shall be permitted in carrying out these activities.

18. INSPECTIONS

There is a right of GOGC to inspect contractual work scope activities. Contractor will also conduct H&S inspections of the work site. Wherever possible the inspection programme shall consider an integrated inspection programme, which can assure reduced disruption to the workforce.

The aim of audit, monitoring and inspection is to ensure that internal process is conducted in a systematic and objective manner to verify that regulations, standards, policies, requirements, procedures and good practices are in place.

Audit / inspection findings will be recorded, assessed for resolution and actions will be elaborated. GOGC will keep the records of the inspection in project Document Control Centre.

GOGC will develop and implement an H&S audit and inspection plan/schedule and will ensure an effective system is in place for monitoring the follow-up and implementation of inspection and audit action. Copies of audit / inspection reports will be submitted to MCG on request.

The table below summarizes the responsibilities of GOGC personnel in ensuring that this system is implemented.

Personnel:	Frequency:
Project Manager	Weekly
Construction Manager	Weekly
HS Manager	Weekly

HS Officer	Day to day

The GOGC HS Manager will ensure that inspections and audits are conducted using proper checklists as a guide.

All findings will be reported to management, corrective actions and responsible persons will be identified. Reports will be analysed and preventive actions will be implemented. The relevant persons are then responsible for implementing corrective actions. Progress will be reviewed against implementation of these actions, as required, to verify that they have been fully addressed.

Upon completion of the corrective actions the responsible person will sign-off the original inspection or audit or inspection form to verify the actions have been completed.

19. INCIDENT REPORTING AND INVESTIGATION

INCIDENT REPORTING

Immediately after the accident occurred, eyewitnesses must verbally notify the Supervisor and Safety officer who will in turn contact the Contractor Project Manager and H&S Manager.

Contractor must immediately notify GOGC HS Manager and Project Manager of the accident. GOGC will send the official notification to MCG within 24 hours of the incident occurring.

In case of a serious incident both GOGC and the contractor will appoint an Incident Management Teams (IMT), whose purpose is to deal with emergency situations. For all incidents the GOGC IMT will be contacted and they may form part of the Contractor IMT.

Detailed information can be found in GOGC *Emergency Response Plan* and *Incident Investigation Procedure*.

a. Reportable Cases

A Reportable Case is defined as all work-related deaths and illnesses, and those work-related injuries which result in: Loss of consciousness, restriction of work or motion, or require medical treatment beyond first aid.

b. High Potential Incident

An incident or near miss, including a security incident, where the most serious probable outcome is a major incident.

c. Major Incident

Is an incident including security incident involving any one of the following:

- A fatality associated with Project Activities
- Multiple serious injuries
- Release of more than 10 tones of a classified chemical

a. Road Accident

Road accidents are accidents involving vehicles, which occur on the road and result in damage or a work related injury. This includes work related operation of vehicles by the Project vehicles used for project activities.

A zero threshold is applied and reporting is irrespective of whether the accident was judged preventable or non-preventable. A Project Operated vehicle is a delivery or other vehicle driven by a Project employee for work related purposes, although the vehicle may be owned, hired or leased.

b. Near Miss

Other incidents, which, strictly by chance, do not result in actual or observable injury, illness, death, or property damage, are required to be reported. The information obtained from such reporting can be extremely useful in identifying and mitigating problems before they result in actual personal or property damage.

Examples of near miss incidences required to be reported include the falling of a compressed gas cylinder, slipping and falling on a wet surface without injury, dropping a tool from working at heights, etc.

c. Environmental Incidents

Incidents, which result in the accidental emission or discharge of a substance, categorized as harmful to the environment.

Examples of Environmental Incidents include but are not limited to the following:

- Spills
- Inappropriate waste disposal
- Poor site housekeeping
- Damage to flora, fauna and soil
- Dust / air emissions
- Noise complaints
- Trapped wild or domestic animals

INCIDENT INVESTIGATION

Investigation of accidents/incidents should be made to prevent the reoccurrences of the accident/incidents. The focus of incident investigation is to prevent future incidents and injuries in order to minimize the risk to the safety and health of all employees and to protect the environment.

Contractor staffs have a particular responsibility for preventing accidents and should always ensure safe working conditions and methods are provided. The investigation should be

conducted in a methodological fashion and should utilize all personnel connected with the incident and any personnel with specialist knowledge concerning the incident. All personnel will comply with the requests of the incident investigator and will assist in whatever way possible during the course of the investigation.

The final investigation report should include, but is not limited, to the following:

- Initial report form
- Photographs, drawings, exhibits of the scene
- Narrative of incident
- Sequence of events
- Contributing information
- Findings and recommendations
- Action items and completion dates, if necessary
- Responsible persons
- Follow-up procedure to ensure completion

The contractor should submit the mentioned report to GOGC. GOGC from its side will prepare the investigation report and submit it to MCG.

ACTION TRACKING

GOGC shall ensure an effective system is available for the recording, monitoring and the follow-up of corrective actions; findings and recommendations arising from, as a minimum, inspections, all forms of exercises, audits, incidents and accidents or near misses. Based on priorities, the system shall effectively manage the close out of all actions in a timely manner. HS activities will be reported to MCG in the from of the monthly report.

Detailed information can be found in GOGC *Emergency response plan NSGP001-RE00-HS-PLN-00003*

20. OCCUPATIONAL HEALTH

MEDICAL SCREENING

All project employees should be medically screened or supply existing medical certification of all of its individuals prior to recruitment to ensure that all employees are medically fit to undertake their occupation.

Copies of all medical certificates shall be held by the project management team. If the personal health problem poses a threat to the other workers or the individual himself, they will be removed from the worksite, until such time as the personal health problem is corrected.

By virtue of the nature of the contract during the works Contractor will provide mobile unit, in case of any emergency permanently mobilized on the worksite.

FIRST AIDERS

Contractor has the qualified first - aiders within their contractual workforce permanently existed on the worksite.

21. REPORTING

Contractor will submit, on a daily basis, a formal report in a format approved by GOGC to be, summarising Contractor H&S performance. Appendix 3 – Daily Incident Check should be filled in daily and submitted to the GOGC HS Management.

Daily reports shall include, as a minimum,

- Toolbox talk carried out, identifying the subject of the talks and number of people involved.
- Inspections carried out, identifying the type of inspection, actions recommendations raised and number of actions closed out if any.
- Incident & Accident reports, identifying the type of incident /accident, actions recommendations raised and number of actions closed out if any.

Relevant reporting from are attached as appendixes.

22. PLANT AND EQUIPMENT CONTROL

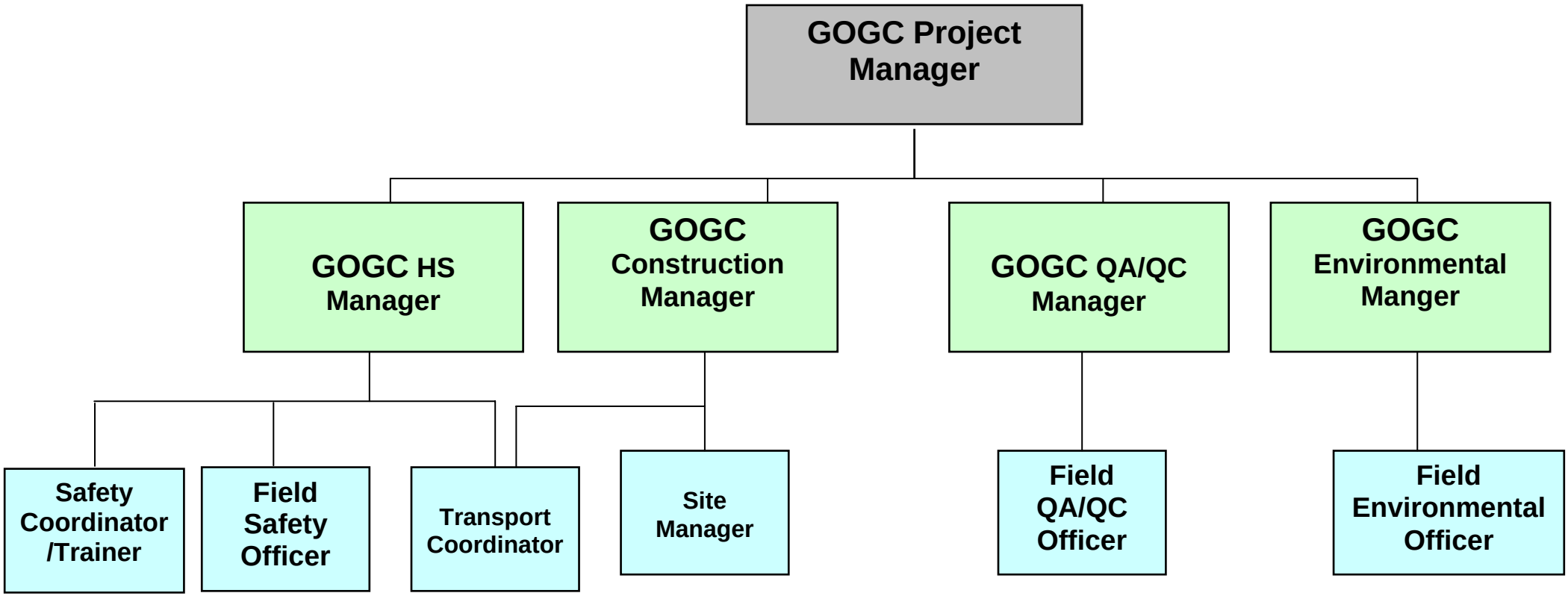
Contractor is responsible for ensuring that all equipment delivered by them and used on the respective working sites is fit for purpose including inspection, certification and maintenance.

The inspection and maintenance of all fixed plant and equipment is the responsibility of the Contractor Project Manager and/or other responsible person appointed.

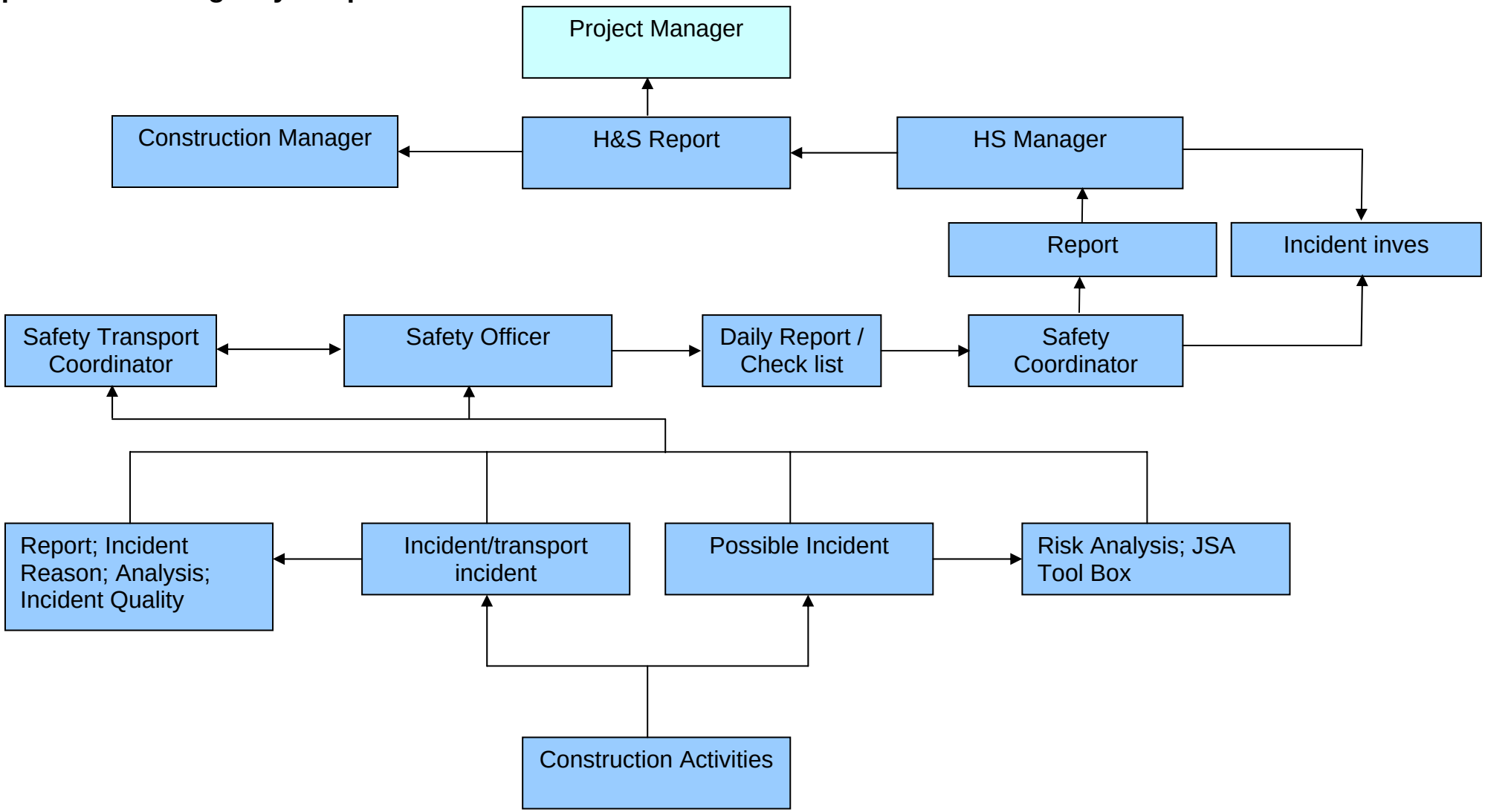
The Contractor Project Manager / field Team Leader shall ensure that any known hazard or safety-related deficiencies are reported to the GOGC Representative as soon as practicable.

GOGC on its side is responsible for all vehicles and the equipment that is used by GOGC personnel. GOGC HE team will also monitor and inspect Contractors maintenance system.

Appendix 1 - GOGC Field Supervision Team



Appendix 2 - Emergency Response Plan



Appendix 4 - Daily Incident Check

DAILY INCIDENT CHECK

Date dd/mm/yy

Type of Incident	Project	Time	Site	Number of Incidents
Accident				0
Near Miss				0
Incident				0
Personal Injury				0
Spill to Environment				0
Property Damage				0
Road Accident				0
Gas Leak				0
Fire/Explosion				0
First Aid Case				0
Medical Treatment Case				0
Fatality				0
Total				0

Appendix 5 - Vehicle Daily Checklist

Light Vehicles **Daily Vehicle Check List**		Mon ორშ		Tue სამ		Wed ოთხ		Thu ხუთ		Fri პარ		Sat შაბ		Sun კვ	
		თარიღი														
		Yes კი	No არა	Yes კი	No არა	Yes კი	No არა	Yes კი	No არა	Yes კი	No არა	Yes კი	No არა	Yes კი	No არა
National Driver's License	მძღოლის მართვის მოწ														
GOGC Driver's Permit	GOGC მართვის უფლება														
Road Safety Hand book	უსაფრთხოების ბუკლეტი														
Daily vehicle Log	დღიური აღნიშვნ. ფორმა														
External Vehicle Damaged	მანქანის გარე დაზიანება														
Vehicle Cleanliness	მანქანის სისუფთავე														
All external Lights	გარე განათებები														
Wheels-tires	საბურავების მდგო.														
Reversing Alarm	უკანა სვლის სიგნალი														
Mirrors	სარკეები														
Wipers	შუშის მწმენდავები														
Engine Oil Level	ძრავის ზეთის დონე														
Antifreeze Level	ანტიფირიზის დონე														
Brake Fluid Level	მუხრუჭების სითხის დ.														
Clutch Fluid Level	კონუსის სითხის დონე														
Power-steering fluid Level	ჰიდრავლიკის სითხის დ.														
Battery fluid Level	აკუმულატორის სითხ.														

	დ.														
All engine drive belts	ძრავის ღვედები														
Internal electrics	შიგა ელექტრობა														
Horn	სიგნალი														
Heater	გათბობა														
Base radio (if issued)	რაცია თუ გაცემულია														
Hand Brake	ხელის მუხრუჭი														
Drive Right Monitor	შავი ყუთი														
Fire Extinguisher	ცეცხლმაქრი														
First Aid Kit	პირველადი დახმ. ყუთი														
Jacking Equipment	ამწევი მოწყობილობა														
Reflective Vest	ამრეკლი ჟილეტი														
Seat belts	უსაფრთხოების ღვედები														
Head Rests	თავის მისაყრდნობი														
Tool Kit	ხელსაწყოების ყუთი														
Towing Strap	საბუქსირე ბაგირი														
Flash Light (Hand held)	ფანარი														
Tire pump/Pressure gauge	საბურ.ტუმბო/წნევის საზ.														
Warning Triangles	გამაფრთხ. სამკუთხედი														

Driver's Initials	მძღოლის ინიციალები							

Keep in Mind Safety First!	მუდამ გახსოვდეთ **უსაფრთხოება უპირველეს ყოვლისა**

Appendix 6 - Incident Notification Form

Georgian Oil & Gas Corporation

INCIDENT REPORT NO ➔ _____

TYPE OF INCIDENT

(tick off one) ➔	*(tick off one or more)* ➔	
☐ Accident	☑ Personal Injury	☐ Road Accident
	☐ Spill to environment	☐ Gas leak
☐ Near miss	☐ Property damage	☐ Fire/explosion

TIME AND PLACE OF THE INCIDENT

Facility/Site	Area/module	dd/mm/yy	Time	Contractor

WORK PROCESS

(tick off)

☐ Production/Injection	☐ Pipe laying	☐ Lifting	☐ Maintenance	☐ Diving	☐ Leisure
☐ Construction/mods	☐ De-oiling	☐ Catering	☐ Office-work	☐ Storage	☐ Security
☐ Oil transportation	☐ Drilling	☑ Inspection	☐ Pipe coating	☐ Deck operation	☑ Survey
☐ Wireline/wellservice	☐ Sea transport	☐ Road transport	☐ Air transport	☐ Other *(Specify)* ➔ _____	

SURROUNDING FACTORS

Company involved	Activity in progress	Equipment involved	Substances involved

DESCRIPTION OF THE INCIDENT

(Describe what happened)

IMMEDIATE CAUSES

SUBSTANDARD ACTS	SUBSTANDARD CONDITIONS
☐ Operating equipment without authority	☐ Inadequate guards or barriers
☐ Failure to warn	☐ Defect equipment
☐ Failure to secure	☐ Substandard housekeeping
☐ Failing to keep the workplace tidy	☐ Inadequate ventilation
☐ Making safety device/equipment inoperable	☐ Fire hazards
☐ Using defective equipment	☐ Inadequate maintenance
☐ Incorrect use of machine and equipment	☐ Temperature extreme
☐ Failing to use PPE properly	☐ Climate extreme
☑ Improper work position for the task	☐ Inadequate warning system
☐ Servicing/working on equipment in operation	☑ Slippery or uneven surface
☐ Improper lifting	☑ Restricted access
☑ Lack of respect for barriers/signs	☐ Loose/falling objects
☐ Using defective tools	☐ Inadequate lighting
☐ Failing to select PPE properly	☐ Defect tools
☐ Improper loading/placement	☐ Wrong substances
☐ Horse play	☐ Explosion hazards
☐ Improper speed	☐ Inadequate warning signs
☐ Outside control	☐ Force major
	☐ Flooding
	☐ Outside control

BASIC CAUSES

PERSONAL FACTOR	JOB FACTOR

☑ Lack of respect for procedure ☑ Risk not properly identified ☐ Lack of knowledge ☐ Lack of skill ☐ Lack of experience ☑ Physical stress ☐ Lack of physical ability to do the job ☐ Lack of motivation ☐ Distraction ☑ Failure to follow procedure ☐ Lack of training ☐ Psychological stress ☑ Failure to follow instructions ☐ Lack of psychological ability to do the job	☐ Inadequate procedure/instructions ☐ Inadequate accountability ☐ Inadequate supervision ☐ Inadequate shift hand over ☐ Inadequate standards ☐ Inadequate maintenance program ☐ Inadequate equipment ☐ Inadequate specification ☐ Inadequate planning ☐ Lack of procedure/instructions ☐ Inadequate monitoring ☐ Inadequate design ☐ Inadequate purchasing ☐ Inadequate tools ☐ Outside control

ACTIONS TO PREVENT RECURRENCE

	Action

CONSEQUENCES

PERSONAL INJURY

Injury class:	Type of injury:	Type of event:	Body part injured:
☐ Recordable fatality ☐ Permanent disability ☐ Occupational illness ☐ Restricted work ☑ First aid treatment	☐ Squeezed ☑ Cut ☐ Fracture ☐ Burn ☐ Foreign body ☐ Electrical shock ☐ Internal injury ☐ Chemical exposure ☐ Stretched/twisted ☐ Poisoning ☐ Radiation ☐ Welding flash ☐ Other ☑ Bruise ☐ Psychological ☐ Wound ☐ Strain/sprain ☐ Concussion	☐ Hit against ☐ Hit by ☑ Fall to lower level ☐ Fall to same level ☐ Stuck in ☐ Hooked by ☐ Squeezed between ☐ Contact with(current/temp/chem. etc.) ☐ Overload/strain ☐ Bite/sting ☐ Inhalation ☐ Injection	☐ Ankle ☑ Arm / shoulder ☐ Finger ☐ Foot ☐ Hand ☐ Head ☐ Skin ☑ Knee ☐ Chest ☐ Thigh / leg ☐ Back ☐ Throat ☐ Tooth ☐ Toe ☐ Ear ☐ Eye ☐ Other ☐ Internal lesions ☐ Mouth ☐ Extensive injuries ☐ Wrist

Name	Company name	Age	Sex	Experience in present inst./location	Experience in present position	Shift	Employment contract
Robert King	Environment/Ecology consultant of Millennium Challenge Corporation	60	☑ Male ☐ Female	n/a	n/a	☑ Day shift ☐ Night shift ☐ Overtime ☐ Leisure ☐ Training	☐ Permanently employed ☐ Contractor ☐ Subcontractor ☐ Substitute ☑ Third party ☐ Visitor

SPILLS and LOSS OF CONTAINMENT

Type of discharge	Total Volume	Volume not recovered	Discharge to
n/a	n/a	n/a	☐ Sea/water ☐ Air ☐ Ground

PROPERTY DAMAGE

Description	Loss in $
n/a	n/a

SIGNATURE

Safety Officer	Site Supervisor	Construction Manager

Appendix 7- Field Safety Officers' Daily Checklist

Checklist No		Inspection Date		Area Inspected		Inspected by	

ITEMS	ISSUES CONSIDERED	OBSERVATIONS /COMMENTS
ENVIROMNENT/ CONDITIONS	Weather	
	Landscape	
	Landslides	
	Steep Slopes	
	Stone falls	
	Wet/ Dry crossings	
	Access/aggress roads/ traffic signs	
	Third Party Plants and Services	
SYSTEM	Working on active/dead system	
	Isolation(s) is in place and controlled	
	Isolations are libeled/locked	
PEOPLE	PPE is used	
	Correct position	
	Prepared and competent for job	
	Healthy and adequate	
	Unauthorized personnel on site	
WORK	PTW(s) is on site and observed	
	Risk is accessed and controlled	
	No work outside PTW is conducted	
	Supplementary certificates are filled	
	Lifting operations/ rules are observed	
	Working at height / rules are observed	
	Earth movement /rules are observed	
	Confined space/ rules are observed	
	All procedures are established	
	Workplace is tidy and clean	
TOOLS	Right for job	
	Correct use	
	Checked foe safety and certified	
	Signs and caution notes, barricades	
	Emergency equipment/ fires aid kits	
	Task specific PPE	
	Minor leak clean –up equipment	

	Fire extinguishers	
VECHICLES/ HEAVY EQUIPMENT	**Fatigue control**	
	Daily checklist is filled	
	Roll-over protection	
	Seat belts are used	
	Speed control	
	Driving permits	
	Safe parking place	
	Passengers/ loose/falling objects	
	Movement is authorized and controlled by a flagmen	
	Rear movement sounders and lights are working	
	Refueling at the specified place	
TIMING	**Duration of work**	
	Shift handover procedures	
SIMOPS	**Effects of the given work on SIMOPS**	
	SIMOPS Effects on the given work	

FIELD SAFETY OFFICERS' DAILY CHECKLIST (Reverse side)

Checklist No		Inspection Date		Area Inspected		Inspected by	

A D D I T I O N A L C O M M E N T S	No Comments	Tick

RECOGNITION FOR EXEPTIONEL SAFETY PERFORMANCE