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**1. INTRODUCTION:**

Gujarat Gas Ltd (GGL), a Group Company of Gujarat State Petroleum Corporation Ltd., (State Government undertaking), is in business of Natural Gas distribution to Industrial/ Commercial/ Non-Commercial/ Domestic Customers and CNG Stations in various cities authorized to GGL by PNGRB Viz: in the state of Gujarat, Maharashtra, Punjab, Haryana, Rajasthan, Madhya Pradesh and Dadra Nagar Haveli Union Territory etc.

**2. BIDDER'S SCOPE OF WORK:****2.1. GENERAL:**

- 2.1.1. The Scope/Specification covers the minimum specified requirement for the various activities to be carried out by the Bidder toward the Gas Analysis at CNG Stations.
- 2.1.2. Bidder shall, with due care & diligence, execute the work in compliance with all laws, by laws, ordinances, regulation etc. and provide all services and labor inclusive of supervision thereof.
- 2.1.3. All the materials, equipment, plant and machinery, appliances or other things of whatsoever nature required in or for execution of the work, whether of temporary or permanent nature shall be provided by the Bidder.
- 2.1.4. Before starting of work at site, Bidder shall make himself familiarize for the site conditions with prior approval/clearance from Owner engineer in charge.
- 2.1.5. Without limiting the generality thereon, Bidder shall do proper planning for job execution at test location (CNG station) located across Gujarat and will ensure site restoration.
- 2.1.6. Before Starting of Job, Bidder shall ensure tool box talk along with site engineer and identified work related site specific risky assessment done at CNG station where work is to be executed as per advice of Owner.

**2.2. SPECIFIC TERMS & CONDITIONS:**

- 2.2.1. Bidder shall carry out Gas Analysis at all active CNG Stations located across Gujarat.
- 2.2.2. Bidder shall note that the Frequency of Gas Analysis at respective CNG Stations shall be once in a Six Months or as per requirement of the Owner.
- 2.2.3. Bidder shall collect the Gas sample from CNG stations located across Gujarat and take it to the laboratory for further analysis.
- 2.2.4. For Execution of Gas Analysis, the Bidder shall arrange all necessary fittings along with Gas sampling SS bottle (MOC316) having minimum water capacity of 495ml or more, working pressure is 275bar and test pressure is 400 bar and above. Test records to be submitted to Owner for review and further action if needed.
- 2.2.5. Bidder shall have to provide valid certificate for Gas sampling bottle, tubing's, hose, fittings etc. to Owner in order to ensure its fit for purpose/validity.
- 2.2.6. Bidder shall carry out Gas analysis as per IS 15958. CNG mainly three components H<sub>2</sub>O (Moisture), H<sub>2</sub>S and CO<sub>2</sub>. H<sub>2</sub>O should be measured in mg/m<sup>3</sup>, H<sub>2</sub>S in µg/m<sup>3</sup> and CO<sub>2</sub> in %.
- 2.2.7. Bidder shall ensure competency of the operators, who will carry out the examination and analysis work.
- 2.2.8. Bidder shall arrange all instruments, equipment's and skilled manpower required for execution of job. The equipment / instrument shall be fit for purpose and certified to rated design capacity.
- 2.2.9. Bidder shall submit the equipment calibration record and Test Certificate of the Instruments to be used for analysis purpose, used for Gas Analysis.
- 2.2.10. Bidder shall carry Portable Applicable instruments /Analyzer for the analysis purpose along with required fittings.

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- 2.2.11. Bidder shall submit the analysis report within a week time from the date of collection of sample.
- 2.2.12. Bidder shall carry out work with safe operating practices and hand over the system in well operating condition.
- 2.2.13. Bidder shall arrange Transportation of Materials, To & Fro Fare and Accommodation Charges for his manpower of all Owner sites.
- 2.2.14. All the responsibility from sample collection from CNG station to submission at laboratory for further analysis and submission of reports will be in the Bidder's scope.
- 2.2.15. Bidder shall take due care of Owner equipment. Bidder shall indemnify against any damage to Owner equipment during and/or after execution of job.
- 2.2.16. Bidder shall allow Owner representative to his lab to witness the analysis.
- 2.2.17. Bidder shall submit the summarized report with observations and findings,
- 2.2.18. Gas analysis shall be carried out from specific designated location of all CNG stations and marked it as sample location.
- 2.2.19. Bidder shall check all the required parameters during execution of job.
- 2.2.20. Owner shall inspect calibrated instruments. If any discrepancy observed, Bidder shall do the rectification of instrument at his own cost.
- 2.2.21. Bidder shall strictly submit the detail Activities plan to Owner engineer in charge before starting the work.
- 2.2.22. Bidder needs to perform job within Owner duty hours. Any job at one Location/station his entry time and outgoing time needs to be recorded by himself in his Service Report as well as the Owner Location/station Register available with the Security. This mandatory for the Bidder while performing or attending any maintenance

### **2.3. HSE GUIDELINES**

- 2.3.1. Bidder shall ensure that all tools, appliances, or other equipment, are in safe working condition at all times and comply with current regulations and, where appropriate, are used only by authorized and competent persons. This provision includes all emergency response life-saving equipment.
- 2.3.2. Any breach of the HSE Exhibit shall be deemed by the Company to be a material breach of the terms of the Contract between the parties and the Company shall be entitled to take appropriate action including instructing the Bidder to (a) Remedy the breach; (b) Suspend Work or (c) Terminate the Contract.
- 2.3.3. All activities shall be carried out as per Owner HSE requirement and deviation from it shall be viewed seriously by Owner.
- 2.3.4. Bidder shall observe all prevailing HSE norms & labor laws applicable to them during the period of contract.
- 2.3.5. Bidder shall arrange for work related PPE (i.e. Safety shoes, Safety goggles, Hard hat, Gloves, etc.) for his deputed manpower and ensure to wear it during the execution of job.
- 2.3.6. Very high standard of Owner's health, safety & environment management system shall be observed in the connected services by the Bidder and workman engaged by the Bidder.
- 2.3.7. Bidder shall ensure that all the equipment's & safety devices are inspected and are suitable for use.
- 2.3.8. During handling of material, care should be taken to avoid any injury to the person handling material. Clear understanding of material handling process is needed amongst the Bidders Representative.

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- 2.3.9. Bidder shall strictly adhere to the environment norms as per the existing local rules and Owner's environment management system.

#### **2.4. COMMUNICATION**

- 2.4.1. Bidder shall provide mobile phone to his staff for effective communication from site to Owner office.
- 2.4.2. All persons engaged by the Bidder shall be Bidder's own employees and they will claim no privileges from Owner. The Bidder will be directly responsible for the administration of his employee as regard general discipline and courteous behaviors.
- 2.4.3. In case of any hazard like fire, leakage etc. due to gross negligence of the Bidder, Owner reserves the right to impose penalty up to actual damage cost and or termination of Work Order depending upon the gravity of the situation.
- 2.4.4. Bidder shall sort out the queries, if any during the inspection within reasonable time frame.
- 2.4.5. Communication to Owner as per contingency plan in case of any accident during execution of job.
- 2.4.6. Bidder must refer medical emergency management policy of Owner to handle any medical emergency on site.
- 2.4.7. If the works are not done as per Owner Satisfaction level then Bidder shall do the necessary rework at his own cost.
- 2.4.8. Bidder will get health check-up of his crew as per recommendation/ guidelines of Owner before starting of job and submit the reports / fitness certificate of Registered Medical Practitioner (Industries). He shall conduct the same of new members added to his team as and when
- 2.4.9. The work site would be on case to case basis, but no additional transportation charges / miscellaneous charges would be aid apart from the rate agreed upon.

#### **3. OWNER'S SCOPE OF SUPPLY**

- 3.1. Owner shall provide permission for executing the work.
- 3.2. Owner shall provide Work Permit to carry out the job.
- 3.3. Owner shall witness the entire job.
- 3.4. Owner shall provide necessary site clearance / approval for execution of the job.
- 3.5. Owner shall be providing technical assistance as and when required.
- 3.6. Owner shall inform Bidder about Risk Associated with the job & it's Control Measure.

#### **4. TECHNICAL CONSIDERATIONS**

##### **Spot Sampling**

This clause specifies a method of indirect sampling in which a suitable cylinder is filled with the sample. The sample is subsequently transported to the place of analysis.

Method suited for high- and low-pressure spot sampling is controlled rate Method.

##### **4.1. CONTROLLED-RATE METHOD**

In this method, a needle valve is used to control the sample flow rate. This method is applicable when the sample container temperature is equal to or greater than the source temperature. The source pressure shall be above atmospheric.

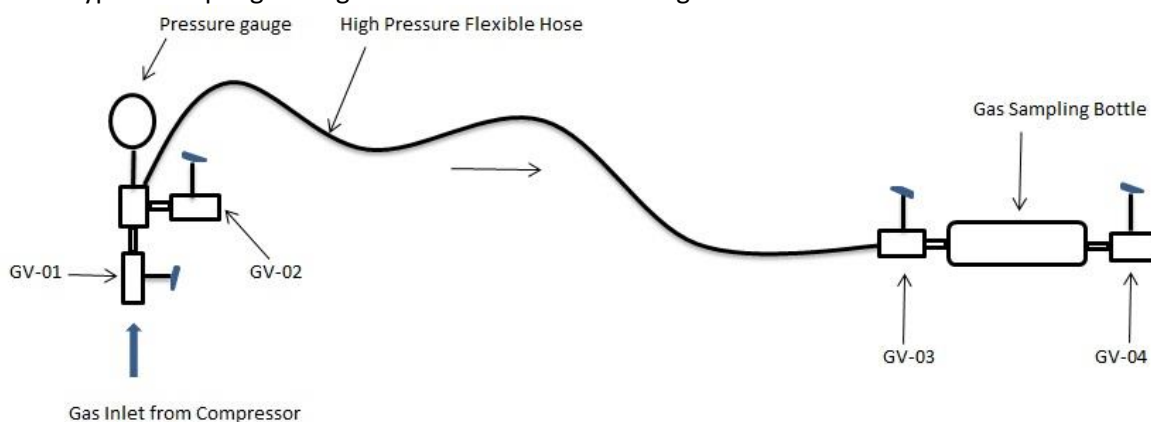
##### **4.2. PROCEDURE FOR SAMPLING BY THE CONTROLLED-RATE METHOD**

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## 4.2.1 THE FOLLOWING PRECAUTIONS ARE TO BE OBSERVED WHEN SAMPLING BY THIS METHOD:

- The source pressure must be sufficient to produce stable flow conditions in the flow tube. The pressure in the extension tube has to be 0.1 MPa or higher when venting to atmospheric.
- The valves and piping in the sampling apparatus are sized large enough to allow sufficient flow upstream of the flow tube.
- Venting and Purging Policy should be referred before execution of work.

Typical sampling arrangement is shown in below figure:



## 4.2.2 THE PROCEDURE FOR SAMPLING BY THIS METHOD IS AS FOLLOWS:

- Isolate the ¼" GV-1 as shown in the diagram
- Release reschedule gas of the section from ¼" GV-2 installed horizontally as shown in diagram
- Remove pressure gauge
- Install ¼" NPT SS male connector in place of PG
- Connect PARKER/ SWAGELOK/ SSP/ SYNFLEX make ¼" HP 5000 PSI threaded flexible hose on male connector
- Connect other end of flexible hose with ¼" SS GV-3 installed with SS High pressure gas sampling bottle (having capacity of 275 bar working pressure and 400bar test pressure)
- Clamping of SS Gas sampling bottle with M.S Channel by folding M.S. clamp in order to avoid hand holding
- Ensure opening condition of both isolation valves GV-3 and GV-4 of Gas sampling bottle
- Crack opening of GV-1 and allow gas into sampling bottle to flush out the atmospheric volume
- Isolate GV-4 and ensure the full opening of GV-1 to develop the pressure in sampling bottle
- Isolate GV-3 and GV-1 as shown in the diagram.
- Ensure complete isolation of GV-3 and GV-4 of sampling bottle and check with soap solution for no leakage
- Opening of GV-2 and vent out the reschedule gas of flexible hose and isolate the same once ensure the zero pressure
- Disconnect the HP flexible hose from GV-3 of gas sampling bottle and other end from ¼" SS male connector
- Install the pressure gauge and open the GV-1
- Remove sample bottle from M.S.Clamp and submit to vendor for further analysis.

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**4.3. CYLINDER TRACKING**

1. All information important to the laboratory shall be on a label with the cylinder. Labels shall be securely attached to the sample cylinders, but shall not interfere with the utilization of the cylinder.
2. Information attached should preferably include:
  - the cylinder number the cylinder type
  - the location of sampling
  - all details necessary for identification of the pipe sampled
  - the date and time, or period, of sampling
  - the method of sampling
  - the actual destination of the cylinder
  - any need for maintenance on the cylinder (e.g. leakage)
  - any information relevant to the analytical lab concerning the sample
  - the sample pressure, if a pressure gauge is not an integral part of the sampling cylinder
  - the line static pressure
  - the temperature of the gas stream
  - the differential pressure any field remarks

**5. MODE OF MEASUREMENT:**

Billing will be done as per actual work done and shall be submitted by Bidder, verified & approved by Owner Engineer in Charge and Group Leader of Respective Dept. Owner reserves the right to increase / decrease the quantity or replace the Scope of Work or delete them at any stage of the WORK

**6. PENALTY TERMS:**

Owner can recover penalty amount from invoices, if the Bidder neglects to execute his duties as per the Scope of Work or unnecessarily delays completion of work during execution of Contract. The amount of such recovery shall be as shown below for the given parameters or mutually determined in consideration of the consequence of Bidders' neglect.

- 6.1. Bidder shall submit the annual station wise Analysis Schedule within 15 days of acceptance of order to Owner Engineer in Charge. If Bidder fails to submit the Schedule as per agreed timeline then Owner shall deduct penalty of Rs. 500/- per delayed days from Bidder's invoice.
- 6.2. If Bidder fails to attend planned analysis schedule then Owner shall deduct a Penalty of Rs. 500/- per instance from Bidder's bill.
- 6.3. If Bidder fails to complete the job as per agreement then Security Deposit shall be forfeited.
- 6.4. Bidder shall immediately report any incident happened during the execution of the job to Owner project manager. If it is found that the Bidder is not reporting major incidents (like heavy gas leakage, fire etc) during job execution, the matter shall be seriously viewed and may attract penalty of Rs. 10000/- and may lead to contract termination.
- 6.5. If any Owner Material/Asset damage during the execution of job then Owner shall recover the actual amount from Bidder's bill.

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- 6.6. Bidder shall submit the bills along with Service Report to Owner Engineer in Charge within 21 days after completion of job. If Bidder fails to submit the same then Owner may deduct penalty of Rs. 100/- per delayed days from Bidder's invoice.
- 6.7. In case if Bidder does not respond immediately to intimations of defects in the workmanship, company reserves the rights of repair/replacement at Bidder's cost and risk. In case Owner undertakes the repairs/replacement expense of such repair/replacement shall be debited actual to the Bidder for each such instance
- 6.8. Bidder shall not employ any person below than 18 years age in any of the activities related to contracts given by Owner. If Owner observes violation, it shall be viewed very seriously and lead to heavy penalty of Rs. 20000/- per instance or termination of contract or blacklisting of Bidder from approved vendors list.
- 6.9. Bidder shall submit analysis report within 21 days of each service attended as per the schedule. If Bidder fails to submit analysis report, a penalty of Rs. 500/- per delayed day shall be deducted from Bidder's bill.
- 6.10. The Maximum Penalty arising out of any noncompliance as mentioned above and HSE penalties shall not exceed 10% of the contract value.

Approved



## TECHNICAL SPECIFICATION FOR NATURAL GAS ANALYSIS AT CNG STATIONS

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### ANNEXURE 1: FORMAT FOR LAB REPORT

Annexure 1-Natural Gas Sample Test Report							
Name of CNG Station:				Test Method:			
Type of Station:				Protocol:			
Date of Sampling:				Test Parameters:			
Sampling By:				Test Report No.:			
Sampling Procedure:				Customer Reference No.:			
Packing/Seal:				Lab ID:			
TEST RESULT:							
Sr. No.	PARAMETER	ALLOWABLE RANGE	UNIT	ACTUAL RESULT	NO. OF SAMPLES	DATE OF SAMPLING	DATE OF COMPLETION



## ANNEXURE 2: CONSOLIDATED REPORT FOR NATURAL GAS SAMPLING

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**ANNEXURE 3: QHSE REQUIREMENTS****1. SCOPE AND APPLICATION**

Contractor/Service providers are the key stake holder and an integral part of Gujarat Gas Ltd (GGL's) business. Contractors'/Service provider' Quality, Health, Safety and Environment (QHSE) performance reflects on the company's business performance and reputation. GGL has established QHSE Management Systems, Procedures & Guidelines to ensure compliance with GGL's QHSE requirements. These requirements apply to all jobs whilst conducting work for GGL including; Project, Construction, Operation & Maintenance, Field Operations and Services within any given contract or agreement.

The overall objective of QHSE management in contract/agreement is to improve the company and Contractor's/Service providers' QHSE performance in all aspects of activities. Active and on-going participation by both the GGL and Contractor/Service provider is essential to achieve this objective.

**2. RESPONSIBILITIES**

It is responsibility of GGL management and staffs to ensure that all Contractors/Service providers work under their direction & control are provided with relevant Integrated Management System (IMS) Policies, Procedures & Guidelines that describe the GGL requirements for undertaking work within the company. It is also the responsibility of Contractors/Service providers to ensure that their staff are informed of and comply with GGL's requirement whilst working for the company.

GGL HSE department provides advice and assistance on QHSE requirements across the complete spectrum of all work activities. Contract Owner (Department Head) and Contract Holder (Work in-charge) are responsible to ensure safe execution of work/service include the following:

- Ensuring that the QHSE Policy, Procedures & Guidelines are known and understood by all contractors'/service providers' staff and work force
- Monitoring, Inspecting & Auditing execution of work, activities to ensure adherence to the QHSE compliance requirements

The Contractors'/Service provider' will take the responsibility for implementation of GGL's QHSE Policy, Procedures, Guidelines and other requirements with the advice and support of the GGL's Contract Owner / Contract Holder and HSE representative.

Contractor/Service provider to ensure that all aspects relating to QHSE are adequately addressed and implemented in accordance with the GGL QHSE requirements and QHSE Management Plan, which shall include the management processes and activities to be implemented during the course of work with GGL.

Contractor/Service provider shall be responsible for ensuring that adequate HSE resources are put in place to enable satisfactory implementation of QHSE Management Plan.

This responsibility also applies to ensure the Health and Safety of the people are directly and indirectly engaged / involved whilst working or present at GGL's work area / sites.

**3. MOBILIZATION**

- Post selection and awarding of contract, GGL shall arrange a kick-off meeting with Contractor/Service provider where GGL team members Contract Owner (CO), Contract Holder (CH) & HSE

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representative) will discuss on QHSE Management aspects / plan and requirements in order to make sure that Contractor/Service provider and their team are fully understand the expectation of GGL. During the meeting, QHSE Management Plan shall be discussed and agreed between GGL and Contractor/Service provider

- Contractor/Service Provider shall ensure that all tools, tackles, equipment, machineries & instruments are adequately deployed and are 'Fit for Purpose'. Pre mobilisation checks/inspection shall be carried out by GGL team for the same before the start of work.
- GGL emphasizes on the importance of the Health and Fitness of all staff/work force deployed at GGL work sites. Contractor/Service provider shall adhere to medical check-up as per the GGL Health check-up matrix (as applicable)
- A proper HSE orientation and training will be organised by GGL for the Contractor/Service provider workforce before the start of work; under no circumstances should the Contractor/Service provider commence the work unless they have undergone the HSE training (as applicable)
- Contractor/Service provider shall ensure that all their staff/work force are provided required Personal Protective Equipment (PPEs) as per GGL PPE matrix (as applicable)
- Contractor/Service Provider shall ensure all required emergency arrangements like Medical treatment, FIRST AID box and Fire fighting equipment (as applicable)

#### 4. **EXECUTION**

Contractor/Service provider is responsible to ensure the compliance with GGL QHSE requirements. GGL overall QHSE performance is directly influenced by the contractors' performance.

- Contractor/Service provider is responsible for QHSE compliance monitoring at site/work activities to ensure that work/activity is performed in a safe manner. Moreover, they are responsible for reporting of all incidents, Hazard and Near Miss that might happen during work/activity
- Contractor/Service provider shall follow and comply with GGL "Work Permit" system
- During work execution and activities, GGL team will regularly monitor and evaluate the performance of the Contractor/Service provider to identify the shortfalls and weaknesses and assist to improve the overall performance including QHSE performance through CPAR process (as applicable)

We believe that everyone at GGL, Employees, Contractors, Service providers and Associates have the right to go home safely to their families.

QHSE Defaults and Penalties		
Sr. No.	Description	Penalty amount
1	Work without PtW/WA	Rs. 500/- per instance
2	Non-compliance - PPEs	Rs. 500/- per instance

**Remark: Issuance of MEMO against HSE non compliances including above mentioned defaults shall be decided by Contract Holder**

#### 5. **QHSE GUIDELINE (AS APPLICABLE) FOR ALL TYPE OF CONTRACTS**

##### 5.1 **CONTRACTOR/SERVICE PROVIDER**

- a) shall ensure that all staff/work force comply with the requirements of the GGL HSE Management System, QHSE policy, standard, procedures, guideline, plan & Life Savers at work site
- b) shall ensure issuance of Identity Card to their team members
- c) shall apply and obtain Permit to work (PtW/WA) before start of the work

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- d) shall arrange work related Personal Protective Equipment (PPEs) for their staff/work force and ensure proper use during the execution of job
  - e) shall carry out the work within the duty hours/office hours. No Work shall be carried out without permission of GGL's representative beyond the official duty hours unless otherwise agreed upon prior to start of work and recorded appropriately
  - f) shall ensure that all tools, tackles, appliances, machines, vehicles, instruments or other equipment are Fit for Purpose and maintained safe working condition at all times and are used only by authorized and competent persons
  - g) shall ensure that all the QHSE requirements are properly discussed for any sub-contracted activities with GGL. No such activity shall be performed without clearance from GGL management
  - h) shall ensure that all Hazards, Near miss, accident, incident, injuries are reported promptly to GGL. Action arises due to reported Hazards, Near miss, incident investigation; audit/inspection shall be closed out as per agreed timelines with site in-charge
  - i) shall deploy staff & work force trained, qualified and competent for the work and well aware of risks and mitigation action/s for the activities undertaken
  - j) shall make necessary arrangements for safe custody of equipment, materials in stores/warehouse and at site
  - k) shall ensure safe transportation, storage and handling of materials to prevent any damage which may impair safe performance of the equipment / material etc
  - l) shall initiate immediate actions to hospitalize injured person(s)
  - m) shall ensure an injury free, incident free workplace and protect people from harm caused by work activities
  - n) shall ensure use of seatbelts while driving four-wheeler and use of crash helmet for Two wheeler riders during job execution
  - o) shall ensure Lock out and Tag out (LOTO) after de-energizing and double check before starting any jobs. In case of conducting job for the purpose of fault finding & monitoring of voltage & current it is to be considered live working and all PPE'S to be worn to avoid exposure of flash arc current
  - p) shall take note that the use of open wires in sockets, use of wires with tape joints shall not be accepted at work site.
  - q) shall ensure proper collection, storage and disposal of solid / liquid waste as per GGL procedure and guideline
  - r) staff/work force shall not smoke or resort to misuse of drugs, medicines or alcohol while on duty
- 5.2 In case of any incident like fire, gas leakage etc. due to gross negligence of the Contractor's staff/work force, GGL reserves the right to impose penalty up to actual damage cost and or termination of work order depending upon the gravity of the situation.
- 5.3 Any breach of the QHSE requirements shall be deemed by the company to be a material breach of the terms & condition of the contract. GGL shall be entitled to take appropriate actions including instructing the contractor to (a) remedy the breach; (b) suspend the work or (c) terminate the contract.
- 5.4 All activities shall be carried out as per GGL's documented procedures and QHSE requirements, deviation from it shall be dealt with very strictly.