



## CAMPLUS GROUP Operating and Maintenance Work UPSTREAM AND DOWNSTREAM

- Operating and maintenance of upstream & downstream fields (Well Services, Wireline, Tubing, Pumping...)
- Workover and Slickline technical support
- Assistance needed in Asset Management
- Welding and Maintenance (Integrity work)
- Opening – closing – industrial cleaning and decontamination of sites
- Work on Ropes Access (Pressure test, magnetoscopy, non-destructive test, welding, ultrasonic and thickness measurement)

All our operations of degassing and cleaning of retention tanks, but also of control in CND are made with the participation of our partner EIM GABON, which intervenes on the sites alongside CAMPLUS.



# **CAMPLUS GROUP**

**The human resource is our first wealth**



## TECHNICAL INFORMATION

### 1. Presentation Camplus Group

Founded in 2017, **Camplus Group** is a Gabonese company specializing in various oil and gas performance works including industrial cleaning, decontamination and maintenance services.

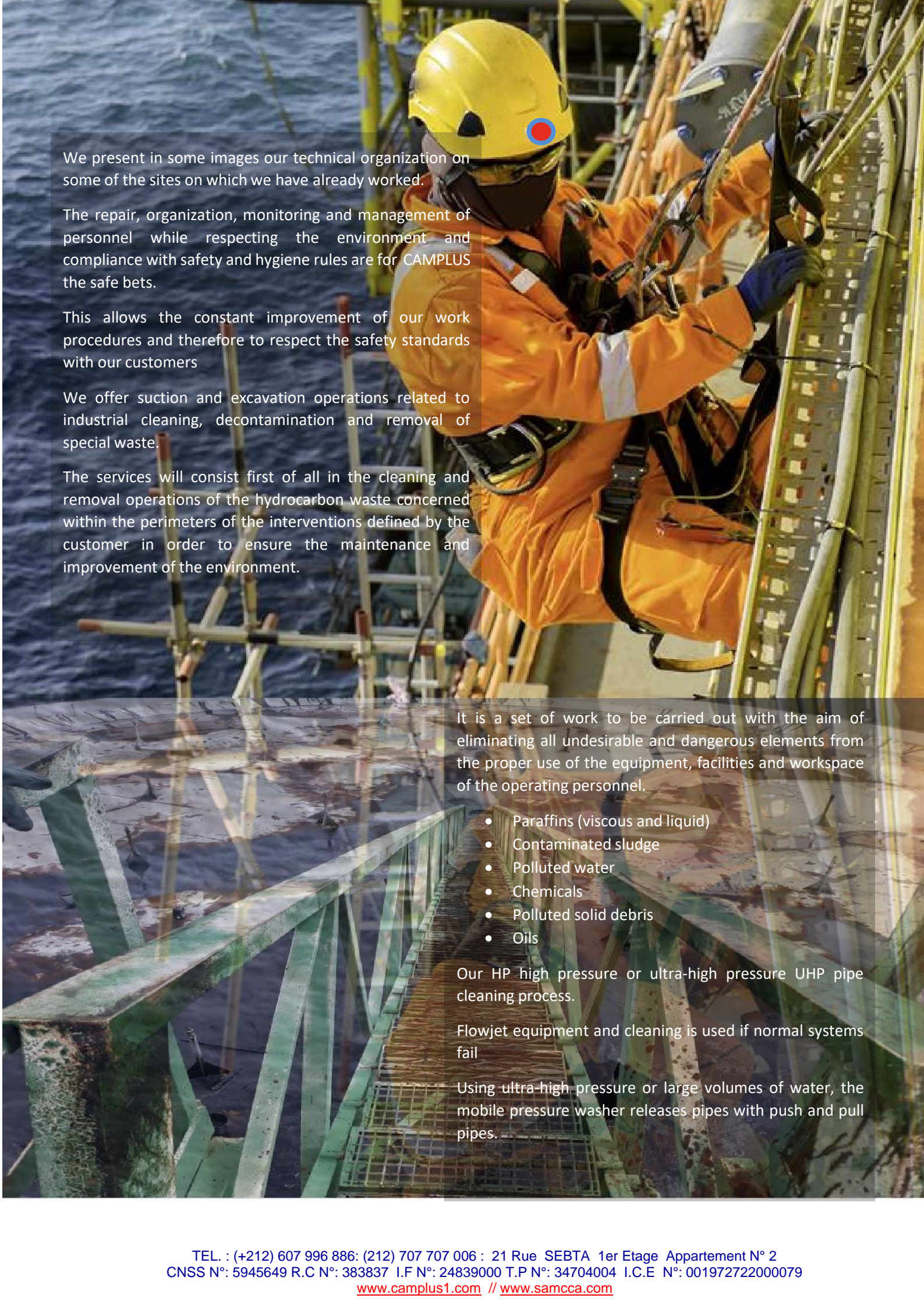
The company leverages over 5 years of know-how accumulated on maintenance facilities and services during its long-term partnerships with many companies in Gabon, Equatorial Guinea, Morocco, Senegal, France, Polonia. In the context of the execution of this tender, **Camplus Group** makes use of these services, specialized. We have been operating for several years in specialized services such as:

- ✚ **Various industrial cleaning operations:**
  - Work on industrial cleaning, decontamination and removal of special waste
  - confined space work
  - Flowjet pipes
- ✚ **Maintenance of rotating equipment such as:**
  - Generators, centrifugal and piston pumps, diesel generators, gas turbines, reciprocating compressors
  - Maintenance and static equipment such as: storage bins, separators, heat exchangers, high temperature furnaces
  - Metering systems, automated systems, building and industrial electricity, high and low intensity electricity.
- ✚ **Operating and maintenance of upstream & downstream fields**
  - Well Services, Wireline, Tubing, Pumping
  - Workover and Slickline technical support
  - Assistance needed in Asset Management
  - Welding and Maintenance (Integrity work)
- ✚ **Work on Ropes Access**
  - Pressure test,
  - magnetoscopy, non-destructive test,
  - welding,
  - ultrasonic and thickness measurement

Also, Camplus Group is committed to providing a turnkey service in asset management by providing experienced local engineers and operators in the management of production stations, and benefiting from several years of experience in the field of maintenance with various experiments in large oil groups both internationally and in Gabon.

Camplus Group is a private company, with its registered office in Morocco, Gabon, Equatorial Guinea, France, Senegal and the coordinating offices and operation between Casablanca and Port-Gentil.

Since its strong experience in oil maintenance projects, such as the general maintenance of the **SOGARA** plant and operating with **PERENCO, ADDAX SINOPEC and MAUREL & PROM, Trident Energy**, Camplus has set up a consortium of two multi-sectoral companies «CAMPLUS Manpower – Camplus Group» and is now relying on the expertise in cleaning work and engineering services qualified for production operators on all oil companies operating in Gabonese territory.



We present in some images our technical organization on some of the sites on which we have already worked.

The repair, organization, monitoring and management of personnel while respecting the environment and compliance with safety and hygiene rules are for CAMPLUS the safe bets.

This allows the constant improvement of our work procedures and therefore to respect the safety standards with our customers

We offer suction and excavation operations related to industrial cleaning, decontamination and removal of special waste.

The services will consist first of all in the cleaning and removal operations of the hydrocarbon waste concerned within the perimeters of the interventions defined by the customer in order to ensure the maintenance and improvement of the environment.

It is a set of work to be carried out with the aim of eliminating all undesirable and dangerous elements from the proper use of the equipment, facilities and workspace of the operating personnel.

- Paraffins (viscous and liquid)
- Contaminated sludge
- Polluted water
- Chemicals
- Polluted solid debris
- Oils

Our HP high pressure or ultra-high pressure UHP pipe cleaning process.

Flowjet equipment and cleaning is used if normal systems fail

Using ultra-high pressure or large volumes of water, the mobile pressure washer releases pipes with push and pull pipes.



## TECHNICAL INFORMATION

### 2. EXAMPLE FOR SCOPE OF WORK UNITS OF GAMBA-SOGARA-RABI

The scope of work is for the provision of beach cleaning and maintenance services in Gamba and in the areas, it includes, but is not limited to Provision of a study on beaches against oil contamination:

- Maintenance services inside Gamba terminal and Ivinga station: clean oil particles on the floor, cleaning gutters, cleaning tank storage rim seals; Cleaning of:
  - Capacity retentions (exchangers, oil, water, PPD pumps, separators)
  - Collectors
  - Retention of air and gas transport compressors
  - Retention of export counter slippage
  - Retention of scrapers at the terminal (MOL, Bendje, Ivinga)
  - Assistance in the event of an oil spill on an appeal basis
  - Waste collection inside the Gamba terminal and disposal in Vembo garbage can
  - The work/services will be carried out on 28/28

Maintenance services within Ivinga Station & Field (Gamba & Ivinga Field, Ndogo base, Mayonami base): clean oil particles on the floor, cleaning the gutters at the request of the Onshore installation manager.



The various clean-up operations during the month of March took place mainly in the areas mentioned below

### 1.1 Zones de nettoyage U-200 :

|                     |  |
|---------------------|--|
| <b>Zone U - 200</b> | Nettoyage à la HP surface pompe 1101 A à 1100, rétention, escalier, passerelles, tuyauterie, sol B 1101. |
|                     | Désensablage dans la cuvette TK 1043, balayage des U 400, E 1101 à 1105.                                 |



#### Description des Travaux

- Nettoyage des huiles cuve Nalco, P 1110, 1202, B 2451
- Mise en place d'une rétention purge du toit TK 1043.
- Nettoyage à HP de l'ensemble des Unités raclages des eaux U 1100, 1200.
- Nettoyage des huiles au sol pomperies eau de mer.
- Nettoyage et rangement des locaux. Ancien bâtiment SDC.
- Enlèvement des coffrets usagés pour le parc à ferraille.
- Sortie des panneaux (magasin anti dépollution), Collecte des déchets divers

### 1.2 Zones de nettoyage TK-1043 :

|                     |   |
|---------------------|---|
| <b>Zone TK-1043</b> | Pollution dans la cuvette du TK 1043 due au faite qu'une rétention n'a pas été mise en place pendant le démontage de la vanne. Benne de stockage de déchet de RAT et déchet souillé sont en attente d'être vidés. |
|---------------------|---|



|                                       |   |
|---------------------------------------|---|
| <p><b>Description des Travaux</b></p> | <ul style="list-style-type: none"> <li>▪ Mise en place d'une rétention et polyane cuvette de rétention TK 1001</li> <li>▪ Vidange d'un fut de déchet d'hydrocarbure, raclage des eaux dans l'ensemble des unités de fabrication U 1100 U1200, balayage P-2001 B, P-2210 A/B, P-2303 A/B, nettoyage hydrocarbure allée principale autour des regards U- 1100. Nettoyage des huiles au sol pomperies eau de mer.</li> <li>▪ Mise en place d'une rétention et polyane ligne 10 cuvette TK 1041, mise en place d'une rétention et polyane 1043 pour big bag remplie de terre souillée, dépollution de RAT au sol, rangement demi fut sur palettes, dépollution, U-900 côté gauche zone de lavage, dépollution des hydrocarbures P-110 B, 1102 à E61105 allée principales U-1100, nettoyage du canal Sud, changement du boudin.</li> </ul> |
| <p><b>Observations</b></p>            | <p>5 demi-futs rangés, 28 demi-futs de boue et de terre souillée. Déchets divers (herbes, sachet, bois, bouteilles, plastique).</p>   |



|                          |   |
|--------------------------|---|
| <p><b>Zone U-900</b></p> | <p>fuite d'hydrocarbure sur une purge de la ligne de 8" de transfert du bac TK-1001 au niveau léger écoulement de produit noir en dessous d'une ligne de transfert du dessaleur B-1101.</p> |
|--------------------------|---|





Nettoyage des huiles au Sol Pomperies



Nettoyage des huiles au Sol Pomperies à HP

**Description des Travaux**

Dépollution de RAT au sol, rangement demi fut sur palettes, dépollution, U-900 côté gauche zone de lavage, dépollution des hydrocarbures P-110 B, 1102 à E61105 allée principales U-1100, nettoyage du canal Sud, changement du bourdin. Nettoyage des huiles au sol pomperies eau de mer

Enlèvement des coffrets usagés pour le parc à ferraille, , écrémage des huiles canal Sud, vidange d'une rétention d'huile usée CDS, rangement flexible eau et vapeur, U-1100/ U-1200, B-322, R-302, nettoyage des hydrocarbures PV 1102, PV 436, P 1108, P 1108, P261, E301, K201, raclage des eaux, nettoyage à la HP des vannes et des lignes de transfert, escaliers et rambarde imbibés d'huile

TK-1041, U-1100, pomperies émulseur, balayage E-414, P-201 A et B, P-203 A et B, E-207, E-306A, K-302, U-1100 allée principale, nettoyage à la HP des équipements sur toute la surface P1101 à P 1102.

Nettoyage des huiles au sol pomperies eau de mer, collecte des déchets divers, vidange de demi-fut de RAT, tri des déchets, nettoyage des huiles et verdure, nettoyage des huiles sous assistance du camion hydrocueur canal Sud, . Nettoyage des huiles au sol pomperies eau de mer

**1.5 Zones de nettoyage U-900 POMPERIE :**

|                           |   |
|---------------------------|---|
| <b>Zone U-1100 / 1200</b> | Opération de nettoyage des installations des unités U1100/1200                              |
|                           | Opération connaît un point bloquant pour cause d'échafaudage non monté autour de la C-1201. |
|                           | Nettoyage à Haute Pression.   |





## **II. PURPOSE**

This technical proposal describes the terms and conditions for the provision of:

- Project management,
- Engineering,
- Procurement,
- Fabrication and site installation
- Lifting, Handling, and Transportation on site

To be performed as part of the project:

**« REPLACEMENT GRE WATER LINE FROM T-3401 TO ISF's PROJECT – PIPING SCOPE »**

The purpose of this technical offer is to describe all the process of Piping fabrication, installation including supporting and the installation of new transfer pumps, then the Coating services and pressure test following the inspection summaries.

Our offer takes into account the studies, the follow-up and the supervision necessary for the realization of the works in the rules of the art.

The work will be done on the following sites:

- Prefabrication: POG
- Site Works: Onshore GAMBA terminal

## **III. SCOPE OF SERVICES**

A Project Engineering has been done by Company and the related drawing and documents provided in tender documents. AFC Drawing are supplied by company.

CAMPLUS will endorse the companies engineering documentation and upon signature of contract, will realised a detailed engineering for a good execution of the actual scope.

## **IV. PARTIES INVOLVED IN THE PROJECT**

### **A. EIM GABON By CAMPLUS**

The works are entrusted by the COMPANY to EIM GABON which is in charge of the full management of its subcontractors and suppliers.

### **B. ASSALA GABON SA**

The project management of the works is entrusted to a dedicated project team within the Project & Construction Division of ASSALA GABON SA.



## **V. REFERENCE DOCUMENTS USED FOR THE TECHNICAL OFFER**

This offer is based on the following documents

- RFQ Specifications : Replacement GRE water line from T- 3401 to ISF's – Piping Scope

### **V.1 Document order of precedence**

In order of precedence, the applicable technical repositories are as follows:

- Water transfer pumps and Wash Water HEXs - 25023001
- SGG-SGA-TER-PX2365-25011(D)-001\_R02.0.2
- Codes, standards and norms applicable to the project;

### **V.2 Applicable regulations**

- Gabonese regulations
- ASSALA Anti-Corruption Policy (October 18 2017)
- ASSALA Code of Conduct (October 11, 20

### **V.3 Applicable Specifications**

The applicable ASSALA ENERGY specifications are:

- DEP 34.00.01.30 Structural Design and Engineering of onshore structures
- DEP 80.00.10.11 Layout of onshore facilities
- DEP 82.00.10.10 Project Quality Assurance
- ISO 14001 Environmental Management Systems Requirement with Guidance for Use
- ISO 9000 Quality Management System.



## B. DETAILED ENGINEERING

### a. Engineering work to be carried out and documents to be issue for COMPANY approval before execution of work starts

#### ◆ PIPING AND STRUCTURES

- Site surveys for taking measurements and evaluation of the construction process
- The piping layout will be updated if required (Together with the 3D Model)
- AFC fabrication isometrics booklet provided by company will be Updated if necessary
- AFC Pipe supports drawings provided by company will be Updated if necessary
- AFC Pumps support will be issue by contractor with detail of fixing on new concrete pad

#### ◆ PROCEDURES

- Lifting and dismantling procedure of exchangers to be scrapping
- Bonding Workbook including GRE technicians qualifications
- Pressure test Procedure

## C. Quality Control

Regardless of the quality plan that will be deployed on the project, our offer considers the following quality actions:

- Writing of the Bonding book
- Drafting of the quality plan and the control plan (QCP and ITP)
- Verification of all GRE Technician qualifications involve in the Project
- Hydraulic test organization
- Painting sheet
- Manages subcontractors
- Dimensional and visual inspection

## D. Manufacturer's file

The quality department archives all the quality records in order to build the end-case record (or manufacturer) file, this file will include at least the following:

- All the achievements' as built drawing (ASB)
- GRE material Certification
- Paint cards and associated receipt PVs, with consumable CCPU
- The provisional and definitive reception PV
- End-case-record delivered in paper and electronic format on CDROM

## E. Security

In accordance with ASSALA HSSE specifications, EIM GABON will be responsible for

- The establishment of the JSAs,
- The presence of one or more HSE supervisor on site
- The organization of information meetings on possible risks during the execution of the project
- Enforcing compliance with site requirements and instructions.
- Ensure compliance with the HSSE specifications and the work permit system defined by ASSALA for all personnel involved, including subcontractors.

As part of the project, and as specified, an HSE plan will be submitted for approval to ASSALA ENERGY before beginning of works. This plan will deal with the Quality and Management of Safety and the Environment on site. The management of EIM GABON guarantees a strict compliance with quality requirements, and every effort will be made to ensure the satisfaction of ASSALA ENERGY throughout the duration of the Work.



## F. Supply

On the basis of the scope of work provided in the RFQ, EIM GABON will supply all GRE material; and other Material in particular the check valves, valves, pipe and fitting in CS and GALVANISED.

All supplies supported by EIM GABON are made by suppliers guaranteeing traceability of their products. For this purpose, EIM GABON may specify the origin of the supplies, and where applicable, provide the certificates of conformity according to the international rules in force, particularly for GRE Material.

EIM GABON will be in charge of the following supply:

PROJECT : Replacement GRE Water line from T-3401 to ISF's project

CLIENT: EIM GABON for ASSALA GABON

Quotation Reference : EIM-2021-RFQ002 Dated : 01-03-2021

| S. Number                               | Installation Type      | Service     | Type             | SubType        | Material | Dia 1 (mm) | Dia 2 (mm)   | Design Pressure (Barg) | Pressure | Stiffness | Drilling Standard | End 1  | End 2 | Unit | Quantity |    |
|---|------------------------|-------------|------------------|----------------|----------|------------|--------------|------------------------|----------|-----------|-------------------|--------|-------|------|----------|----|
| Drawing Number: AGG-AGA-TER-MP2343-3404 |                        |             |                  |                |          |            |              |                        |          |           |                   |        |       |      |          |    |
| 1                                       | WASH WATER SKID A-3401 | Salty Water | Elbow            | 90° (Molded)   | GRE      | 200        | R = 1.5 x ID |                        | 25       | STD       | N/A               | TB     | TB    | PCS  | 1        |    |
| 2                                       |                        | Salty Water | Elbow            | 45° (Molded)   | GRE      | 200        | R = 1.5 x ID |                        | 25       | STD       | N/A               | TB     | TB    | PCS  | 1        |    |
| 3                                       |                        | Salty Water | Pipe             | STD            |          | GRE        | 200          |                        |          | 25        | STD               |        | TB    | TS   | M        | 1  |
| 4                                       |                        | Salty Water | Full Coupling    | STD            |          | GRE        | 200          |                        |          | 25        | STD               |        | TB    | TB   | PCS      | 10 |
| Drawing Number: AGG-AGA-TER-MP2343-3406 |                        |             |                  |                |          |            |              |                        |          |           |                   |        |       |      |          |    |
| 5                                       | WASH WATER SKID A-3401 | Salty Water | Pipe             | STD            | GRE      | 200        |              |                        | 25       | STD       |                   | TB     | TS    | M    | 20       |    |
| 6                                       |                        | Salty Water | Pipe             | STD            | GRE      | 150        |              |                        | 25       | STD       |                   | TB     | TS    | M    | 10       |    |
| 7                                       |                        | Salty Water | TEE              | RED            |          | GRE        | 200x150      |                        |          | 25        | STD               |        | TB    | TB   | PCS      | 3  |
| 8                                       |                        | Salty Water | TEE              | RED            |          | GRE        | 200x100      |                        |          | 25        | STD               |        | TB    | TB   | PCS      | 1  |
| 9                                       |                        | Salty Water | Reducing Saddles | Flanged Branch |          | GRE        | 200x25       |                        |          | 25        | STD               | ASA150 |       |      | PCS      | 1  |
| 10                                      |                        | Salty Water | Reducing Saddles | Flanged Branch |          | GRE        | 150x25       |                        |          | 25        | STD               | ASA150 |       |      | PCS      | 4  |
| 11                                      |                        | Salty Water | REDUCER          | ECC            |          | GRE        | 200x150      |                        |          | 25        | STD               | N/A    | TB    | TB   | PCS      | 3  |
| 12                                      |                        | Salty Water | FLANGES          | FLG            |          | GRE        | 200          |                        |          | 25        | STD               | ASA300 |       |      | PCS      | 3  |
| 13                                      |                        | Salty Water | FLANGES          | FLG            |          | GRE        | 200          |                        |          | 25        |                   | ASA150 |       |      | PCS      | 2  |
| 14                                      |                        | Salty Water | FLANGES          | FLG            |          | GRE        | 150          |                        |          | 25        | STD               | ASA150 |       |      | PCS      | 6  |
| 15                                      |                        | Salty Water | FLANGES          | BLIND          |          | GRE        | 200          |                        |          | 25        |                   | ASA150 |       |      | PCS      | 1  |
| 16                                      |                        | Salty Water | Gasket           | KZ G-ST-P/S    |          | NBR        | 200          |                        |          |           |                   | ASA300 |       |      | PCS      | 3  |
| 17                                      |                        | Salty Water | Gasket           | KZ G-ST-P/S    |          | NBR        | 200          |                        |          |           |                   | ASA150 |       |      | PCS      | 2  |
| 18                                      |                        | Salty Water | Gasket           | KZ G-ST-P/S    |          | NBR        | 150          |                        |          |           |                   | ASA150 |       |      | PCS      | 6  |
| 19                                      |                        | Salty Water | Gasket           | KZ G-ST-P/S    |          | NBR        | 25           |                        |          |           |                   | ASA150 |       |      | PCS      | 5  |



Drawing Number: AGG-AGA-TER-MP2343-3408 Sheet 001

|    |                        |             |                  |                |     |         |              |  |    |        |        |    |    |     |     |    |
|----|------------------------|-------------|------------------|----------------|-----|---------|--------------|--|----|--------|--------|----|----|-----|-----|----|
| 20 | WASH WATER SKID A-3401 | Salty Water | Pipe             | STD            | GRE | 200     |              |  | 25 | STD    |        | TB | TS | M   | 40  |    |
| 21 |                        | Salty Water | Pipe             | STD            | GRE | 150     |              |  | 25 | STD    |        | TB | TS | M   | 20  |    |
| 22 |                        | Salty Water | Elbow            | 90° (Molded)   | GRE | 200     | R = 1.5 x ID |  | 25 | STD    | N/A    | TB | TB | PCS | 7   |    |
| 23 |                        | Salty Water | Elbow            | 90° (Molded)   | GRE | 150     | R = 1.5 x ID |  | 25 | STD    | N/A    | TB | TB | PCS | 4   |    |
| 24 |                        | Salty Water | Elbow            | 90° (Molded)   | GRE | 100     | R = 1.5 x ID |  | 25 | STD    | N/A    | TB | TB | PCS | 2   |    |
| 25 |                        | Salty Water | TEE              | RED            | GRE | 200x150 |              |  | 25 | STD    |        | TB | TB | PCS | 3   |    |
| 26 |                        | Salty Water | TEE              | RED            | GRE | 200x100 |              |  | 25 | STD    |        | TB | TB | PCS | 1   |    |
| 27 |                        | Salty Water | Reducing Saddles | Flanged Branch | GRE | 200x25  |              |  | 25 | STD    | ASA150 |    |    |     | PCS | 1  |
| 28 |                        | Salty Water | Reducing Saddles | Flanged Branch | GRE | 150x25  |              |  | 25 | STD    | ASA150 |    |    |     | PCS | 4  |
| 29 |                        | Salty Water | REDUCER          | ECC            | GRE | 200x150 |              |  | 25 | STD    | N/A    | TB | TB | PCS | 5   |    |
| 30 |                        | Salty Water | FLANGES          | GRIFICE        | GRE | 200     |              |  | 25 | STD    | ASA150 |    |    |     | PCS | 2  |
| 31 |                        | Salty Water | FLANGES          | FLG            | GRE | 200     |              |  | 25 |        | ASA300 |    |    |     | PCS | 3  |
| 32 |                        | Salty Water | FLANGES          | FLG            | GRE | 150     |              |  | 25 | STD    | ASA300 |    |    |     | PCS | 2  |
| 33 |                        | Salty Water | FLANGES          | FLG            | GRE | 200     |              |  | 25 |        | ASA150 |    |    |     | PCS | 3  |
| 34 |                        | Salty Water | FLANGES          | FLG            | GRE | 150     |              |  | 25 | STD    | ASA150 |    |    |     | PCS | 13 |
| 35 |                        | Salty Water | FLANGES          | BLIND          | GRE | 200     |              |  | 25 |        | ASA150 |    |    |     | PCS | 1  |
| 36 |                        | Salty Water | Gasket           | KZ G-ST-P/S    | NBR | 200     |              |  |    |        | ASA300 |    |    |     | PCS | 3  |
| 37 |                        | Salty Water | Gasket           | KZ G-ST-P/S    | NBR | 200     |              |  |    |        | ASA150 |    |    |     | PCS | 6  |
| 38 |                        | Salty Water | Gasket           | KZ G-ST-P/S    | NBR | 150     |              |  |    |        | ASA300 |    |    |     | PCS | 2  |
| 39 |                        | Salty Water | Gasket           | KZ G-ST-P/S    | NBR | 150     |              |  |    |        | ASA150 |    |    |     | PCS | 13 |
| 40 | Salty Water            | Gasket      | KZ G-ST-P/S      | NBR            | 25  |         |              |  |    | ASA150 |        |    |    | PCS | 5   |    |

Drawing Number: AGG-AGA-TER-MP2343-3408 Sheet 002

|    |                        |             |                     |                |     |         |              |  |    |     |        |     |     |     |     |     |
|----|------------------------|-------------|---------------------|----------------|-----|---------|--------------|--|----|-----|--------|-----|-----|-----|-----|-----|
| 41 | WASH WATER SKID A-3401 | Salty Water | Pipe                | STD            | GRE | 200     |              |  | 25 | STD |        | TB  | TS  | M   | 190 |     |
| 42 |                        | Salty Water | Elbow               | 90° (Molded)   | GRE | 200     | R = 1.5 x ID |  | 25 | STD | N/A    | TB  | TB  | PCS | 11  |     |
| 43 |                        | Salty Water | Elbow               | 45° (Molded)   | GRE | 200     | R = 1.5 x ID |  | 25 | STD | N/A    | TB  | TB  | PCS | 4   |     |
| 44 |                        | Salty Water | Reducing Saddles    | Branch         | GRE | 200x80  |              |  | 25 | STD |        |     |     |     | PCS | 1   |
| 45 |                        | Salty Water | FLANGES             | FLG            | GRE | 200     |              |  | 25 |     | ASA150 |     |     |     | PCS | 2   |
| 46 |                        | Salty Water | FLANGES             | FLG            | GRE | 80      |              |  | 25 | STD | ASA150 |     |     |     | PCS | 2   |
| 47 |                        | Salty Water | FLANGES             | BLIND          | GRE | 80      |              |  | 25 |     | ASA150 |     |     |     | PCS | 1   |
| 48 |                        | Salty Water | Gasket              | KZ G-ST-P/S    | NBR | 200     |              |  |    |     | ASA150 |     |     |     | PCS | 3   |
| 49 |                        | Salty Water | Gasket              | KZ G-ST-P/S    | NBR | 80      |              |  |    |     | ASA150 |     |     |     | PCS | 2   |
| 50 |                        | Salty Water | Cement Kit Easy Fit |                |     |         |              |  |    |     |        |     |     |     | ST  | 180 |
| 51 |                        | Salty Water | Lamination Kit      | Field Straight | GRE | 100     |              |  | 25 | STD | N/A    | N/A | N/A |     | PCS | 2   |
| 52 |                        | Salty Water | Lamination Kit      | Field Straight | GRE | 200     |              |  | 20 | STD | N/A    | N/A | N/A |     | PCS | 5   |
| 53 |                        | Salty Water | Adaptor             | STD            | GRE | 200     |              |  | 25 | STD | N/A    | TS  | TS  |     | PCS | 6   |
| 54 |                        | Salty Water | Adaptor             | STD            | GRE | 150     |              |  | 25 | STD | N/A    | TS  | TS  |     | PCS | 3   |
| 55 |                        | Salty Water | Heating Blankets    |                |     | 150-200 |              |  |    | STD | N/A    |     |     |     | PCS | 2   |
| 56 |                        | Salty Water | Heating Blankets    |                |     | 25-100  |              |  |    | STD | N/A    |     |     |     | PCS | 3   |
| 57 |                        | Salty Water | CERTIFICATE         |                |     |         |              |  |    |     |        |     |     |     | PCS | 1   |



EIM

PROJECT : Replacement EG Water line from T-3401 to ISF's project

CLIENT: EIM GABON for ASSALA GABON

RFQ Reference : EIM-2021-RFQ004 Dated : 02-03-2021



### REQUEST FOR QUOTATION

| Item | Désignation                     | Diamètre | Matière    | Quantité |
|------|---------------------------------|----------|------------|----------|
| 1    | FER IPE 120                     | XX       | S235 JR    | 12m      |
| 2    | CORNIERRE EGAL 50x50x5          | XX       | S235 JR    | 12m      |
| 3    | FER PLAT 50 x 8                 | XX       | S235 JR    | 102m     |
| 4    | HEA 140                         | XX       | S235 JR    | 18m      |
| 5    | HEA 200                         | XX       | S235 JR    | 12m      |
| 6    | TPN 2000x1000x10                | XX       | S235 JR    | 1        |
| 7    | ROULEAU DE NEOPRENE EP:5mm      | XX       | caoutchouc | 1        |
| 8    | CHEVILLE TYPE SPILT             | M16x120  | ZING       | 60       |
| 9    | BOULLONS (VIS +ECROU+RONDELLE ) | M16x50   | ZING       | 192      |



PROJECT : Replacement GRE Water line from T-3401 to ISF's project

CLIENT: EIM GABON for ASSALA GABON

RFQ Reference : EIM-2021-RFQ003 Dated : 02-03-2021

**REQUEST FOR QUOTATION**

| Item | Désignation   | Diamètre   | Matière    | Quantité |
|------|---|------------|------------|----------|
| 1    | PIPE SMLS ASTM A106-B, SCH 30   | 8"         | CS         | 12m      |
| 2    | PIPE NIPPLE THRD/PE SMLS ASTM A106-B SCH 160  | 1/2"       | CS         | 4        |
| 3    | PIPE API 5L-B   | 1"         | GALVANISED | 18m      |
| 4    | PIPE API 5L-B   | 1/2"       | GALVANISED | 6m       |
| 5    | PIPE NIPPLE THRD ENDS L=100 API 5L-B  | 1"         | GALVANISED | 4        |
| 6    | PIPE NIPPLE THRD ENDS L=100 API 5L-B  | 1/2"       | GALVANISED | 10       |
| 7    | WELDNECK FLG.150#,BW, RF, ASTM A105, SCH 30   | 8"         | CS         | 5        |
| 8    | WELDNECK FLG.150#,BW, RF, ASTM A105, SCH 160  | 1/2"       | CS         | 4        |
| 9    | BLIND FLG.150#, RF, ASTM A105   | 1"         | CS         | 11       |
| 10   | BLIND FLG.150#, RF, ASTM A105   | 1/2"       | CS         | 2        |
| 11   | ELBOW 90° THRD ASTM A105  | 1"         | GALVANISED | 3        |
| 12   | TEE EQUAL BW ASTM A234-WPB, SCH 30  | 8"         | CS         | 1        |
| 13   | TEE EQUAL THRD ASTM A105  | 1"         | GALVANISED | 1        |
| 14   | TEE EQUAL BW ASTM A105  | 1/2"       | GALVANISED | 3        |
| 15   | TEE RED THRD ASTM A105  | 1"x1/2"    | GALVANISED | 3        |
| 16   | REDUCER CONC THRD ASTM A105   | 1"x1/2"    | GALVANISED | 2        |
| 17   | PLUG THRD ASTM A105   | 1/2"       | GALVANISED | 8        |
| 18   | CHECK VALVE DUEL PLATE LUG FF FLGD,150#,ASTM A351-CF8M AISI 316 EPDM                          | 6"         |            | 3        |
| 19   | BUTTERFLY VALVE CONC LUG TYPE FLGD, 150#,ASTM A536 60-40-18 DISC.ALUMINIUM BRONZE LINING-EPDM | 6"         |            | 6        |
| 20   | GATE VALVES FLGD RF, 150#, ASTM A105 NORMALISED AISI 410/STELLITE                             | 1"         | CS         | 10       |
| 21   | BALL VALVES FLGD RF, 150#, ASTM A105/A216WCB/WCC AISI 316 PTFE                                | 1/2"       |            | 2        |
| 22   | BALL VALVES FLOAT RB THRD, ASTM B148-UNS C95400 TRIM ALUMINIUM BRONZE PTFE                    | 1/2"       |            | 7        |
| 23   | MONOFLG SMLINE SBB G10MM TUB F FLGD RF,150#,ASTM A182 F316 AISI 316 PTFE                      | 1/2"       |            | 2        |
| 24   | GASKET 150# SW,AISI316,Graphite CS centring SS inner ring                                     | 8"         |            | 7        |
| 25   | GASKET 150# SW,AISI316,Graphite CS centring SS inner ring                                     | 1"         |            | 15       |
| 26   | GASKET 150# SW,AISI316,Graphite CS centring SS inner ring                                     | 1/2"       |            | 10       |
| 27   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 7/8" x160  |            | 60       |
| 28   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 7/8" x 240 |            | 20       |
| 29   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 3/4" x 285 |            | 30       |
| 30   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 3/4" x 240 |            | 55       |
| 31   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 3/4" x 220 |            | 55       |
| 32   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 3/4" x 180 |            | 20       |
| 33   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 3/4" x 110 |            | 30       |
| 34   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 5/8" x 135 |            | 10       |
| 35   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 1/2" x 105 |            | 50       |
| 36   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 1/2" x 75  |            | 45       |
| 37   | STUDBOLT WITH NUTS,ASTM A193-B7/A194-2H   | 1/2" x 65  |            | 30       |

**VII. WORKSHOP WORKS****G. WORKSHOP PREFABRICATION**

EIM Gabon will perform all the prefabrication of the GRE and carbon steel Piping spools as well as all pipe and pumps supports according to the approve for construction drawings (AFC),

This will include the prefabrication of:

- isometric AGG-AGA-TER-MP2343-3404 approximately 16" estimated in GRE
- isometric AGG-AGA-TER-MP2343-3406 approximately 236" estimated in GRE and 16" in carbon steel
- isometric AGG-AGA-TER-MP2343-3408/sheet 001 approximately 460" estimated in GRE
- isometric AGG-AGA-TER-MP2343-3408/sheet 002 approximately 460" estimated in GRE
- isometric AGG-AGA-TER-MP2343-3813 approximately 40" estimated in Galvanised steel
- Prefabrication of pipe supports and pipe clamps according to drawing AGG-AGA-TER-MP2343-PS
- Prefabrication of the 03 pumps supports



That workshop prefabrication includes all the following phases:

- The reception of both local and external materials from suppliers
- Materials received check-up and storage
- Handling, cutting, assembling, welding of the received materials
- Adapted Quality controls(dimensional control, size, parts aspects, Hydro-test)
- Sandblasting and Painting
- Packing and delivery at ASSALA GABON logistics base

## H. HYDRAULIC TEST

Our quality department and the workshop manager organize the Hydro-test. ASSALA's work supervisor is notified in order to validate the test devices and compliance with the Approved procedures.

Hydro-test of the piping is carried out according to ASSALA specifications, and EIM approved procedure. These works include:

- Blinding all flanges at spools end,
- Assembly of test rods
- Filling spools with fresh water
- Leak testing
- Recording of the pressure and temperature curve over the duration of pressurization of the pipe spools
- The emptying and blow-drying of pipe spools
- Measurements editing and PV Control, then the archiving
- The electronic recorder used will be certified and the certificate attached to the test file,

## I. COATING WORK AND PACKING

All pipe and pumps supports will be blasted and painted as per ASSALA Painting Specifications.

The Following work will be carried out by our subcontractor in POG:

- Abrasive blasting in accordance with SA 2, 5 of all pipe and pumps support.
- Blow out for proper cleaning of the blasted material prior painting
- Application of paint as per ASSALA painting LC1-N system for a total of 300 microns paint protection:
  - o Supply and application of Zinc Epoxy primer after blasting 60 microns
  - o Supply and application of Epoxy Anticorrosive paint 180 microns
  - o Supply and Application of Finish Polyurethane paint 60 microns

Painted structures will be protected as much as possible prior handing and transportation on installation site as to minimize damage during transit.

## VIII. SITE-WORKS

### J. Mobilization

The installation work will be carried out at the GAMBA Oil Production Site of ASSALA. All prefabricated GRE pipes, Carbon steel pipe, Pipe support and Pumps supports, equipment, tools for site installation and personnel are to be mobilized on site for installation work.

EIM will transport all material and equipment to ASSALA logistic Yard (DPS quay) for Company to mobilize them on site as well as its personnel to the airport after a period of confinement observe and the transport to the GAMBA Site will be carried out by company

Mobilisation includes the transportation of different materials to the site necessary for the execution of the work. This material is certified by a Port Gentil inspection authority.



## K. Site Installation

All prefabricated material and EIM equipment and tools will be store at the dedicated area while at GAMBA Site

EIM will also install at the dedicated area its site base work with one Office Container and a ware house container, Power of the office container will be supply by Company.

This item also includes:

- Safety induction for all new arrivals
- The training of the personnel to the work permit
- The visit to the doctor of YENZI for presentation of the medical certificate and taking of the parameters of entry on site
- The installation of the personnel in a hotel of GAMBA
- Collection of the mobilized EIM material at the GAMBA terminal and their transfer to the storage area indicated by the site.
- Installation of EIM working area.

### VIII.1 Site Construction and Installation Work

After EIM is mobilize on site and all material and equipment received, the site construction and installation work will be carried out as follows:

#### ◆ *Survey for reception of Civil supports and platform*

The first action on site for EIM will be to survey work site for control and make sure the construction of new concrete Pad, and concrete block for pipe support have being done as per site plan (drawings and measurements).

A report of this survey will be done and if the drawing and all required measurement are confirm to be satisfactory, ***an acceptance certificate will be drawn up and signed between EIM, the civil company in charge of the civil work and the company. After that EIM can then start with its site installation work.***

#### ◆ *Dismantling works*

The ASSALA process operators must, prior to our intervention on the installations, put all the concerned lines out of service by proceeding to the closing of the shutting valves upstream

##### 1. Dismantling of the Exchangers E-3403/4 and the existing GRE pipe, valves connected on

The dismantling work of the E-3403/4 Interchanges will be done according to the following schedule: a removal procedure will be submitted to COMPANIE for validation before the start of the work.

- Verification of the disposal of the piping lines by the site operators
- Verification of the disposal of electricity and instrumentation.
- Erection of scaffolding of 5m x 5m x 4m in multidirectional LAYHER around the exchangers
- Removal of all the pipes and valves and storage for evacuation:
  - The removed valves will be returned to the maintenance department of CPY who will determine the storage place
  - The GRE pipes to be scrapped will be loaded on trailer to be transfer to the storage area of ZOUBIA.
- Dismantling of the scaffolding around the exchangers
- Crane positioning according to the removal procedure validated by CPY
- Dismantling of the exchangers according to the procedure of dismantling validated by CPY
  - The dismantled exchangers will be loaded on the trailer to be transfer to the storage area of the ZOUBIA.

##### 2. Removal of transfer pumps P-3405/06/08 and evacuation of corroded SKID

- Decommissioning of pumps by site maintenance team.
- Removal of all the pipes and valves connected to the pumps and storage for evacuation:
  - The removed valves will be returned to the maintenance department of CPY who will determine the storage place
  - The GRE pipes to be scrapped will be loaded on trailer to be transfer to the storage area of ZOUBIA,
- Disconnect the pumps from the corroded skid and storage in dedicated container for their relocation on new concrete PAD,
- Dismantling of all corroded pipe supports
- Dismantling of old corroded skid of the Exchangers E-3403/04,,
- Dismantling of old corroded skid of the Pumps P-3405/06/08,
  - The corroded skids and old pumps supports will be cut into four pieces and loaded into containers for their evacuation to Port Gentil.



## 5. Commissioning

EIM will provide CPY with all the personal and material means necessary for the commissioning activities. The list of needs will be communicated by CPY. These activities will be recorded on a time sheet and will be re-invoiced to CPY according to the unit price schedule attached to our commercial offer.

### ◆ **Handling, loading and transport works**

EIM will provide all the lifting equipment and accessories necessary for lifting and handling operations. A lifting procedure will be submitted to ASSALA for approval before the start of work on site.

All the elements to be dismantled will be loaded on trailers provided by EIM, we will therefore ensure the lifting, loading and transport of the said Equipment to be scrapped.

## **IX. MAN POWER AND EQUIPEMENT NEEDED**

### **IX.1 Personnel**

| Management and Engineering (5 Pax)  | Field Work (15 Pax)   |
|---|---|
| 1 Project manger<br>2 Designer / Drafters / Preparators<br>1 HSE Manager<br>1 QA/QC Manager | 1 Construction Supervisor<br>2 Pipefitters Bonders<br>1 Fitter<br>3 Riggers<br>1 Arc welder<br>1 ASE<br>2 Scaffolders<br>1 Crane Operator<br>1 Fork-lift driver<br>1 Truck driver<br>1 Bus driver |

### **IX.2 Material resources and equipment**

| On site  |   |
|--|---|
| 01 A construction box containing :<br>- Slings<br>- Shackles<br>- Grinders<br>- torque wrench<br>- A gas cutting set.<br>- A lot of assembly keys<br>02 fire extinguishers with powder<br>01 bus of 15 seats | 01 Manitou 4 tons<br>01 HIAB truck<br>01 Air compressor<br>01 Diesel tank 1000l<br>01 pick-up equipped with site<br>01 Crane of 45tonnes<br>01 Office Container 20'<br>01 Store Container 20' |



|   |   |   |  |  |  |  |
|---|---|---|--|--|--|--|
| <br>Elingues          | <br>Manilles            | <br>Meuleuses | <br>Boulonneuse  | <br>Compresseur               | <br>Oxyoupage          | <br>Extincteurs à poudre   |
| <br>Pick-up chantier | <br>Mini Bus 15 Places | <br>Manitou  | <br>Camion Hiab | <br>Cubiteinaire pour Gasoil | <br>Grue de 45 Tonnes | <br>Lot de clé de montage |

## **X. LIMITS OF SUPPLY - EXCLUSIONS**

### **X.1 At EIM's responsibility**

- The engineering works (survey site, studies of details, MTO, procedure)
- Supply of GRE material including bolts and nuts, gaskets, fittings, glue kits, valves and check valves,...
- Prefabrication at POG
- Installation on site GAMBA
- Supply of energies on site
- Supply of all consumables
- The logistics of the material and the personnel on site
- Accommodation and catering for our staff at GAMBA
- Certification of all equipment and lifting gear
- The EVASAN of EIM personnel at POG

### **X.2 At ASSALA GABON's charge**

- Approval of the procedures and other documents necessary for starting the work
- The provision of the facilities
- Supervision of the works
- Signing of work permits
- The provision of the locations, equipment and lines, subject of the intervention with in particular a storage area as well as the consignment of the equipment
- The consignment of all the energies (electric, pneumatic, hydraulic, ...) of the equipment objects of interventions
- EVASAN of EIM personnel to POG
- The standby due to the works of Co-activity not planned or for reasons which do not fall under the responsibility of EIM GABON (logistics, exploitation, weather, ...) whatever is the duration
- Reception of works

### **X.3 Exclusions from this offer**

- Decommissioning and disconnection of pumps and other instruments
- The realization of civil works.
- The execution of electrical and instrumentation works

## **XI. WORK EXECUTION SCHEDULE**

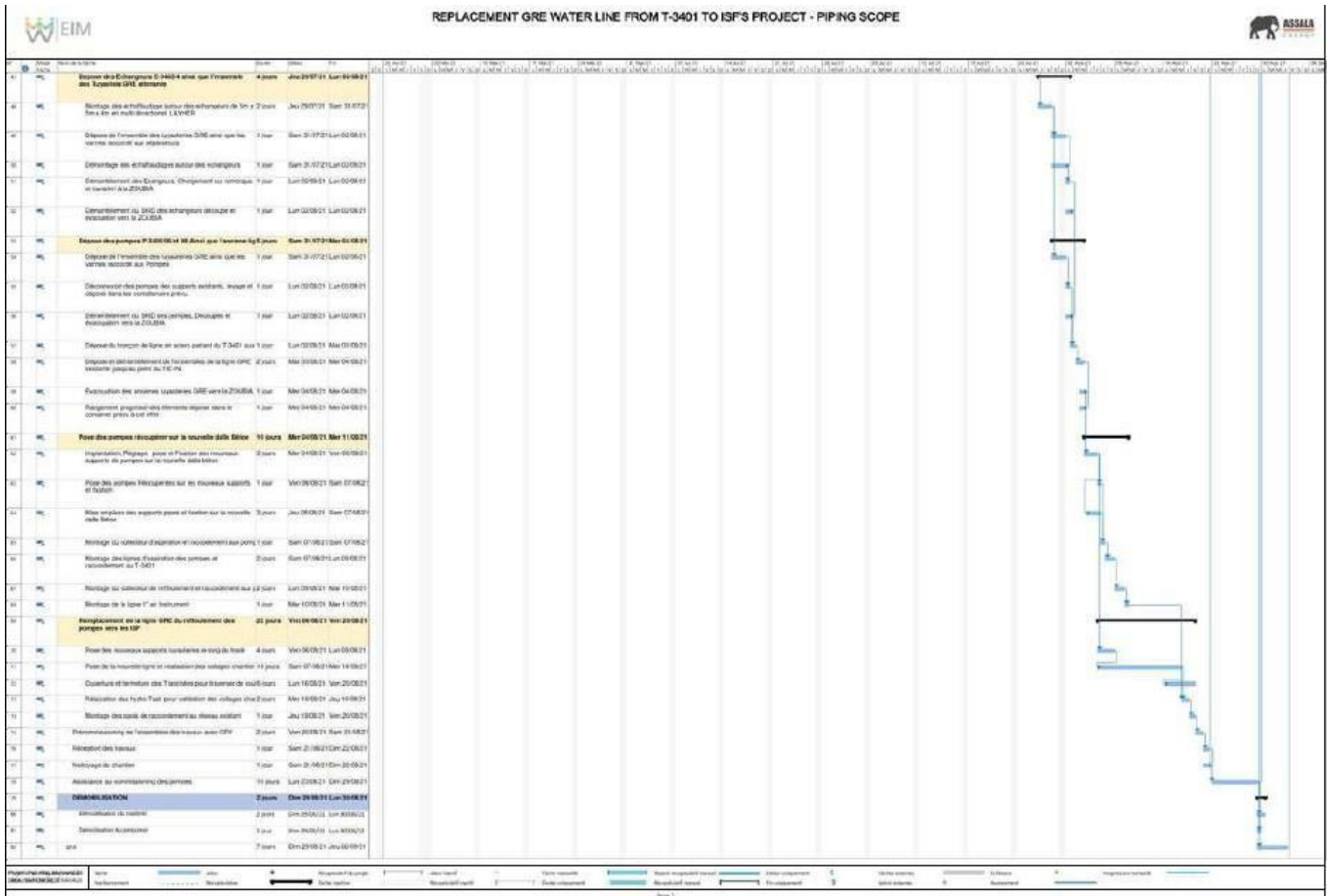
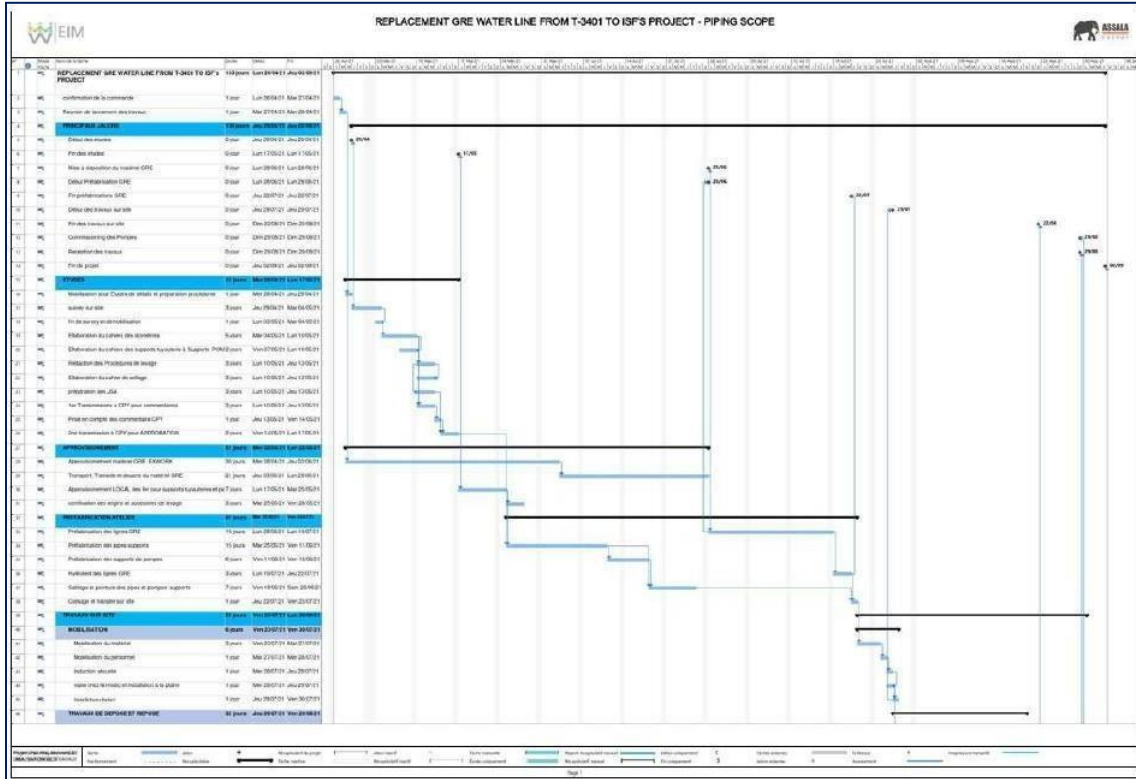
See the detailed schedule in the appendix,

We plan to work according to the site's schedule:

- From 7:00 am to 12:00 pm Arrival at the GAMBA terminal and work start-up
- From 12:00 to 13:00 lunch break
- From 1pm to 5:30pm end of work and departure to the hotel.

## **XII. APPENDIXES LIST**

- Proposal Butterfly Valve Data sheet
- Proposal Check Valve Data sheet
- Proposal Ball valves Data sheet



**ROBINET A PAPILLON A OREILLES DE CENTRAGE GAMME EXCELLENCE TTV  
CORPS FONTE PAPILLON CUPRO ALU MANCHETTE NBR**

Robinet papillon à oreilles de centrage (Wafer) TTV gamme excellence pour le sectionnement ou le réglage de réseaux d'eau de mer. Déconseillé en ambiance atmosphérique, essence, super, acétone, acide acétique et solvant.

Robinet avec certification Marine Bureau Veritas, garantie 5 ans.

Le corps est en fonte ductile EN GJS-500-7, le papillon en cupro-alu et la manchette est en NBR.

Montage possible entre brides PN10, PN16 ou Class 150 suivant les DN.

Compatible pour les atmosphères explosives, ATEX Zone 1&21 et Zone 2&22 sur demande.

Commande possible par levier inox, réducteur à volant, réducteur à chaîne et avec rehausse.

Le robinet peut être commandé par un actionneur monté directement sur la platine ISO 5211 grâce à l'axe carré (jusqu'au DN400).



- Dimensions :** DN32 à DN1400
- Raccordement :** Entre brides PN10/16 et Class 150 (PN20)
- Température Mini :** -10°C
- Température Maxi :** +90°C
- Pression Maxi :** 16 Bars jusqu'au DN300
- Caractéristiques :** Col long pour calorifuge  
Modèle à oreilles de centrage (Wafer)  
Axe traversant  
Motorisable (montage direct, platine ISO 5211)
- Matière :** Corps fonte GJS, papillon cupro-alu, manchette NBR

\* la garantie fabrication ne couvre pas les défauts d'installation ni les défauts d'usure

**ROBINET A PAPILLON A OREILLES DE CENTRAGE GAMME EXCELLENCE TTV  
CORPS FONTE PAPILLON CUPRO ALU MANCHETTE NBR**

**CARACTERISTIQUES :**

- Col long pour calorifuge
- Motorisable ( platine ISO 5211 avec montage direct )
- Oreilles de centrage
- Montage entre brides PN10/16 du DN32 au DN400 et CLASS 150 (PN20) du DN40 au DN400 inclus ( au-delà sur demande )
- Montage entre brides PN10 à partir du DN450
- Axe traversant
- Manchette NBR en queue d'aronde démontable
- Papillon cupro-alu B148 (C95500)
- Poignée 9 positions , cadenassable jusqu'au DN200 , blocable en toutes positions et non cadenassable du DN250 au 300
- Peinture risanisée couleur RAL 5024 épaisseur 250-300 microns
- Réhausse du col de 75 mm ( option )
- Carré de manoeuvre 30x30 mm pour clé de fontainier ( option )

**UTILISATION :**

- Applications : Eau de mer
- Déconseillé pour : en ambiance atmosphérique, essence, super, acétone, acide acétique et solvant
- Température mini et maxi admissible Ts : - 10°C à + 90°C
- Pression maxi admissible Ps : 16 bars jusqu'au DN300, 10 bars au-delà

**GAMME :**

- Commande par levier du DN 32 au DN 300
- Axe nu du DN 350 au DN1400
- Commande possible par réducteur à volant IP65 ( Réf. 1197 ) du DN 32 au DN 1400
- Commande possible par réducteur à chaîne IP65 ( Réf. 1194 ) du DN 32 au DN 500
- Sur demande, réhausse avec longueur spéciale ( Réf. 98665 )
- Sur demande, poignée Inox CF8M et visserie Inox ( Ref. 9831250-9831264 )

**RACCORDEMENT :**

- Entre brides PN10-PN16 du DN 32 au DN400 et CLASS 150 (PN20) du DN40 au DN400 inclus
- Entre brides PN10 à partir du DN 450

**COUPLES DE MANŒUVRE ( en Nm avec coefficient de sécurité de 30 % inclus ) :**

|  | Pression (Bar) | DN    |    |    |    |     |     |     |     |     |     |     |     |     |     |      |
|--|----------------|-------|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
|  |                | 32/40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600  |
| Couple (Nm) avec papillon résiné (sur demande) | 1-5"           | 2     | 4  | 6  | 8  | 10  | 14  | 15  | 25  | 64  | 118 | 179 | 265 | 353 | 490 | 686  |
|  | 6"             | 3     | 5  | 7  | 10 | 12  | 18  | 31  | 55  | 123 | 216 | 333 | 519 | 735 | 931 | 1372 |
|  | 10"            | 6     | 8  | 10 | 14 | 18  | 31  | 59  | 93  | 206 | 330 |     |     |     |     |      |
| Couple ( Nm )                                  | 16             | 9     | 11 | 20 | 29 | 47  | 82  | 130 | 210 | 360 | 475 |     |     |     |     |      |

|               | Pression (Bar) | DN  |      |      |      |      |      |      |      |       |       |       |       |       |       |
|---------------|----------------|-----|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
|               |                | 350 | 400  | 450  | 500  | 600  | 700  | 750  | 800  | 900   | 1000  | 1100  | 1200  | 1300  | 1400  |
| Couple ( Nm ) | 10             | 425 | 640  | 1176 | 1450 | 2850 | 4600 | 5800 | 7400 | 11000 | 13600 | 14200 | 16400 | 17800 | 19200 |
| *Sur demande  | 16"            | 760 | 1300 | 1600 | 2340 | 3300 |      |      |      |       |       |       |       |       |       |

**ROBINET A PAPILLON A OREILLES DE CENTRAGE GAMME EXCELLENCE TTV  
CORPS FONTE PAPILLON CUPRO ALU MANCHETTE NBR**

COEFFICIENT DE DEBIT Kv ( m<sup>3</sup> / h ) :

| DN    | Angle d'ouverture |      |       |       |       |       |       |       |        |
|-------|-------------------|------|-------|-------|-------|-------|-------|-------|--------|
|       | 10°               | 20°  | 30°   | 40°   | 50°   | 60°   | 70°   | 80°   | 90°    |
| 32-40 | 3                 | 5    | 10    | 16    | 22    | 31    | 36    | 36    | 36     |
| 50    | 3                 | 7    | 15    | 33    | 44    | 48    | 54    | 54    | 54     |
| 65    | 6                 | 10   | 21    | 40    | 57    | 86    | 102   | 102   | 102    |
| 80    | 7                 | 16   | 37    | 56    | 84    | 182   | 246   | 246   | 246    |
| 100   | 9                 | 22   | 51    | 88    | 134   | 187   | 255   | 336   | 336    |
| 125   | 21                | 33   | 91    | 153   | 232   | 331   | 468   | 560   | 560    |
| 150   | 45                | 69   | 149   | 281   | 302   | 597   | 822   | 1015  | 1072   |
| 200   | 55                | 131  | 254   | 420   | 631   | 904   | 1388  | 1758  | 1758   |
| 250   | 64                | 246  | 442   | 710   | 1056  | 1522  | 2128  | 3096  | 3096   |
| 300   | 100               | 275  | 472   | 953   | 1450  | 2093  | 2972  | 4193  | 4480   |
| 350   | 152               | 341  | 766   | 981   | 1773  | 2788  | 3978  | 6251  | 6260   |
| 400   | 182               | 542  | 1060  | 1764  | 2666  | 3836  | 5470  | 8403  | 8839   |
| 450   | 227               | 611  | 1229  | 2064  | 3133  | 4510  | 6458  | 9387  | 9387   |
| 500   | 342               | 837  | 1635  | 2795  | 4100  | 5896  | 8398  | 11830 | 13079  |
| 600   | 432               | 1143 | 2296  | 3833  | 6187  | 8369  | 11916 | 17917 | 17917  |
| 700   | 573               | 1569 | 3178  | 5359  | 8153  | 11770 | 16830 | 26139 | 26667  |
| 750   | 619               | 1947 | 3585  | 6361  | 9239  | 13359 | 19142 | 28298 | 31312  |
| 800   | 723               | 2167 | 4148  | 7008  | 10674 | 15426 | 22085 | 36080 | 35850  |
| 900   | 758               | 2434 | 4916  | 8280  | 12582 | 18142 | 25757 | 39127 | 39127  |
| 1000  | 1297              | 3282 | 6429  | 10701 | 16159 | 23266 | 33166 | 51427 | 51427  |
| 1100  | 1622              | 3682 | 7459  | 12441 | 19495 | 29186 | 36539 | 64101 | 68797  |
| 1200  | 1792              | 4612 | 9151  | 15308 | 23204 | 33449 | 41355 | 69264 | 76584  |
| 1300  | 2378              | 5293 | 10736 | 17255 | 28441 | 41241 | 53171 | 71746 | 84294  |
| 1400  | 2608              | 6343 | 12117 | 21341 | 31568 | 45727 | 66609 | 75811 | 117171 |
| 1600  | 3215              | 6869 | 14229 | 25493 | 35968 | 56628 | 77558 | 86501 | 137335 |

CALCUL DE PERTES DE CHARGES :

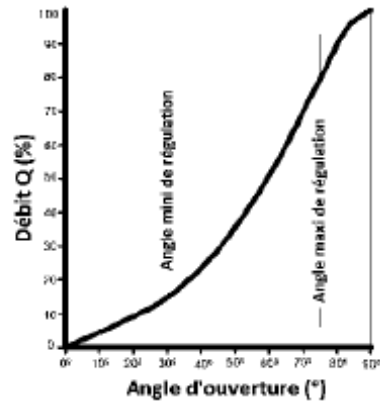
$$\Delta p = ( Q / Kv )^2 \times SG$$

Q : débit en m<sup>3</sup>/h

$\Delta p$  : Perte de charge en bar

SG : gravité spécifique (= 1 pour de l'eau)

Kv : coefficient de débit, volume d'eau en m<sup>3</sup>/h qui passe au travers de la vanne et pour lequel la perte de charge sera de 1 bar à 20°C.



ROBINET A TOURNANT SPHERIQUE SPLIT BODY 2 PIECES ACIER A BRIDES CLASS 150 PN20

DIMENSIONS PLATINE ISO ET AXE ( en mm ) :

DN 15 – 50

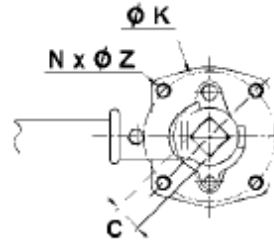
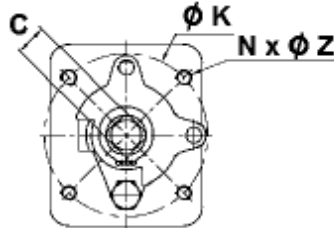
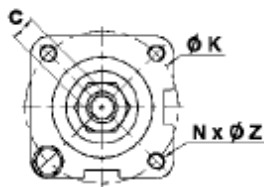
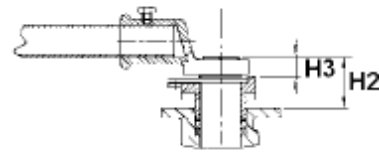
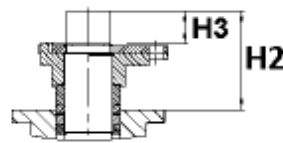
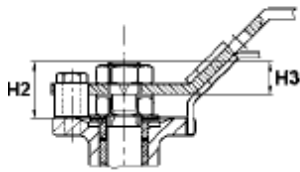
DN 65 – 100

DN 125 - 200

NPS ( 1/2" - 2" )

NPS ( 2"1/2 - 4" )

NPS ( 5" - 8" )



| DN ( mm ) | 15   | 20   | 25   | 32    | 40    | 50   | 65    | 80    | 100   | 125   | 150   | 200   |
|-----------|------|------|------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| NPS ( " ) | 1/2" | 3/4" | 1"   | 1"1/4 | 1"1/2 | 2"   | 2"1/2 | 3"    | 4"    | 5"    | 6"    | 8"    |
| C         | 9    | 9    | 11   | 11    | 14    | 14   | 17    | 17    | 17    | 27    | 27    | 36    |
| Ø K       | 42   | 42   | 50   | 50    | 70    | 70   | 102   | 102   | 102   | 125   | 125   | 140   |
| ISO       | F04  | F04  | F05  | F05   | F07   | F07  | F10   | F10   | F10   | F12   | F12   | F14   |
| N x Ø Z   | 4xM5 | 4xM5 | 4xM6 | 4xM6  | 4xM8  | 4xM8 | 4xM10 | 4xM10 | 4xM10 | 4xM12 | 4xM12 | 4xM16 |
| H2        | 14.5 | 14   | 18   | 17    | 22    | 21.5 | 65.5  | 66.5  | 65.5  | 52    | 50    | 85.5  |
| H3        | 8.5  | 8.5  | 12   | 12    | 14    | 14   | 27    | 27    | 27    | 19    | 19    | 43.5  |

### 3- Scope of work by sector of intervention

| ITEM              | ZONE, EQUIPEMENT & INSTALLATION   | OPERATIONS   | FREQUENCE DE NETTOYAGE |
|-------------------|---|--|------------------------|
| <b>T-PHASE1</b>   | Inspection des éléments à l'intérieur de la capacité                        | Ramassages des déchets d'HC et autres dans l'équipement, curage, vidanger ou pomper/ écrémer/ décanter | Journalier             |
| <b>T-PHASE2</b>   | Nettoyage de la capacité  | Enlèvement terre polluée et gravas   | Mensuel                |
| <b>T-PHASE3</b>   | Nettoyage des particules solides dans la capacité avec Pompe HP eau chaude. | Enlèvement et aspiration de la paraffine par le Vacuum truck ; « <b>Si validé par le client</b> »      | Journalier             |
| <b>T-PHASE4</b>   | Injection des dégraissants dans la capacité ou nettoyage des retentions     | Nettoyage « Jetting flow »   | Journalier             |
| <b>T-PHASE 5</b>  | Contrôle PV de réception  | Permit de travail  | Journalier             |
| <b>T-PHASE 6</b>  | Zone rétention  | Echangeurs, pompes PPD, séparateurs, collecteurs   | Journalier             |
| <b>T-PHASE 7</b>  | Nettoyage des particules solides dans les API                               | Enlèvement produits colmatés dans le bac   | Journalier             |
| <b>T-PHASE 8</b>  | Nettoyage avec Pompe à vis ou à membrane                                    | Opération avec manche incendie ou flexible antidéflagrant  | Mensuel                |
| <b>T-PHASE 9</b>  | Aspiration des eaux usées   | Vacuum truck « <b>En option</b> »  | Journalier             |
| <b>T-PHASE 10</b> | Raclage des produits chimiques  | Nettoyage des particules dans les retentions   | Journalier             |
| <b>T-PHASE 11</b> | Nettoyage avec Pompe HP   | Aspiration avec Vacuum Truck des sédiments « <b>En Option</b> »  | Mensuel                |
| <b>T-PHASE 12</b> | <b>Inspection et validation des travaux</b>                                 |  |                        |





Nous effectuons des travaux d'entretien d'usine dans le cadre de programmes de maintenance préventive ou de missions spécifiques sur vos installations et ateliers avec un personnel Qualifié.

Les programmes d'action sont développés grâce à notre connaissance des processus industriels, des outils et des machines mis en œuvre selon les spécifications de construction.

Dans le cadre de missions spécifiques, un diagnostic préalable à l'intervention est posé par nos Ingénieur chef de projet et un calendrier de maintenance est établi sur la base de leurs recommandations.

Suite à l'opération ponctuelle qui a nécessité notre intervention et à votre demande, nous sommes en mesure

D'établir des programmes de maintenance réguliers







## **SOLUTION DE TUYAUTERIES COMPOSITES EN FIBRE DE VERRE**

### **COMPOSITE PIPING SOLUTIONS IN GLASS VIBERS**

*Providing water and energy to  
the world in the most efficient  
and sustainable way*



In association with our local and international technical partners, we offer expertise in the supply, manufacture and installation of Fiberglass Composite piping.

Fiberglass composite piping is used for a wide range of applications, from oil refineries to petrochemical plants, heating or district cooling, water transmission and distribution networks, CO2 injection and recovery lines, marine pipes and firefighting networks.

Relying in particular on its qualified staff, to which is added the know-how of its partners CAMPLUS GROUP mobilizes for each project all the necessary resources to deliver a turnkey solution, meeting all the requirements of its customers.

Capitalizing on the experience acquired over complex and diversified projects, CAMPLUS sets up an optimal organization and operating mode (modularization, pre-assembly in the workshop, etc.) to meet the constraints of the field and best integrate its operations into the client's schedules.

Combining expertise and agility, CAMPLUS's teams are constantly listening to the customer, anticipating hazards and working to bring proposals aimed at controlling quality, deadlines, costs, and, above all, project safety.







| Client                  | Project Description   | Location | Award / Completion Dates       | Contract Value FCFA | Peak Manpower |
|-------------------------|---|----------|--------------------------------|---------------------|---------------|
| <b>SOGARA SERVICES</b>  | <p>This contract was carried out in the framework of multiple services with maintenance characters: cleaning the tanks</p> <ul style="list-style-type: none"> <li>▪ bridge with scaffolding</li> <li>▪ API maintenance and cordially</li> <li>▪ BALL AND VARIOUS DRINS</li> <li>▪ paraffin healing and recuperation</li> <li>▪ toxic waste treatment</li> <li>▪ maintenance laboratory control room</li> <li>▪ maintenance and cleaning of hazardous areas</li> <li>▪ mud bowl cleaning</li> <li>▪ floating roofing intervention</li> <li>▪ retention Cup</li> <li>▪ maintenance mill diaphragm pump</li> <li>▪ tank cleaning with vacuum truck</li> <li>▪ pollution of the entire site by operators</li> </ul> | GABON    | 06/2017<br>To<br>06/2020       |                     | 25            |
| <b>SESI</b>             | <p>Operation of scaffolding and hot work:</p> <ul style="list-style-type: none"> <li>▪ scaffolding 20m</li> <li>▪ welding work maintenance on nuts of pipes lines</li> <li>▪ management of operators for the sites of Obangué is and Perenco</li> <li>▪ Welding</li> <li>▪ Hire various soldering post</li> </ul>   | GABON    | 02/2018<br>To<br>08/2019       |                     | 30            |
| <b>NEWREST MANPOWER</b> | <ul style="list-style-type: none"> <li>▪ Management Manpower Perenco site</li> <li>▪ Maintenance and electricity on site</li> <li>▪ Manpower du catering</li> </ul>   | GABON    | 02/2018<br>To<br>08/2019       |                     | 122           |
| <b>Perenco site</b>     | Manpower Operating  | GABON    | Monthly rate                   |                     | 33            |
| <b>Otto 1 site</b>      | Manpower Operating  | GABON    | Monthly rate                   |                     | 8             |
| <b>Rabi site</b>        | Manpower site   | GABON    | Monthly rate                   |                     | 81            |
|                         | Manpower Operating site   | GABON    | 02/09/2019<br>To<br>30/10/2024 |                     | 26            |



|                              |   |            |              |      |    |
|------------------------------|---|------------|--------------|------|----|
| <b>ADDAX SINOPEC</b>         | Negociation welding services                        | GABON      | Monthly rate | .    | .  |
| <b>MAUREL &amp; PROM GAB</b> | Negociation integrity services                      | GABON      | Monthly rate | .    | .  |
| <b>PERENCO OIL &amp; GAS</b> | Integrity works FSO Mayumba                         | GABON      | 25/03/2022   | SPOT | 2  |
| <b>TRIDENT ENERGY</b>        | Integrity works FSO<br>Welding services /<br>Okoumé | Guinée Equ | Monthly rate |      | 35 |

### Organization Personnel Corporate

At the head of the organization of Camplus Manpower are young men and women with a common goal which is to develop and flourish by becoming a model of excellence in assisting the majors "Oil and Gas" in Gabon.

Both entities are entirely Gabonese companies that are committed to green, local and participatory management for its employees.

The company consists of an operational team based in Port Gentil, Libreville, and then teams dispersed over the operational sites.

The Port Gentil organization provides all the logistical and technical support that teams on the ground may need.

CAMPLUS remains the main contact with customers, while CAMPLUS Manpower manages the Manpower component internationally as well as in Gabon.

CAMPLUS Manpower brings in engineers and technicians ready to be mobilized at any time, and we have the ability to build a strong organization to achieve very ambitious goals.

Site web : [www.camplus1.com](http://www.camplus1.com) | [www.samcca.com](http://www.samcca.com)



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