



شركة تقنية ليبيا للأعمال الهندسية
Taknia Libya Engineering Company

2023/05/24م

اعلان عن عطاء عام

تعلن شركة تقنية ليبيا للأعمال الهندسية للشركات المتخصصة عن طرح عطاء عام لمشروع تركيب محطة التسخين لصالح شركة مليتة للنفط والغاز (HSE Reviews & Studies Scope of Services)
(Installation of New Heating Station at A100/103A(30") Crude Oil Pipeline -2ND Phase
وفق الشروط أدناه وكذلك مجال العمل الفني المرفق طية، وعلى الراغبين في المشاركة عند تقديم عروضهم إرفاق المستندات التالية:

- 1- رخصة مزاولة النشاط
- 2- السجل التجاري.
- 3- شهادة إثبات القيد بالغرفة التجارية
- 4- شهادة إثبات السداد الضريبي.
- 5- النظام الأساسي للشركة
- 6- تسلم العروض باليد للسيد/ عضو ومقرر لجنة العطاءات بمقر الشركة الرئيسي بمدينة طرابلس، 167 شارع النصر.
- 7- على أن يكون آخر موعد لاستلام العروض في مظاريف مغلقة ومختومة بختم الشركة وكذلك بالشمع الأحمر، نهاية دوام يوم الخميس الموافق 2023/06/08م، ويكتب على الظرف مشروع تركيب محطة التسخين بشركة مليتة للنفط والغاز (HSE Reviews & Studies Scope of Services)
ويجب أن يكون داخل المظروف الرئيسي ثلاثة مظاريف مغلقة بالشمع الاحمر مفصولة ومصنفة كالتالي:

• الظرف رقم (1) ويحتوي على العرض الفني ، عدد (1) أصل + عدد (1) صورة. "مدون عليه من

الخارج العرض في

• الظرف رقم (2) ويحتوي على العرض التجاري غير المسعر، عدد (1) أصل + عدد (1) صورة

مدون عليه من الخارج عرض تجاري غير مسعر"



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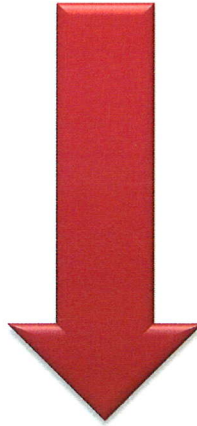


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- الظرف (3) ويحتوي على العرض التجاري المسعر، عدد (1) أصل+ عدد (1) صورة " مدون عليه من الخارج عرض تجاري مسعر مع ضرورة كتابة اسم المشروع على كل مطروف.
- 8- سوف لن يقبل أي عرض لا يلتزم مقدمه بالشروط الواردة أعلاه كما أن أقل الأسعار لن يكون المعيار الوحيد للإرساء.
- 9- لأي استفسار يرجى التواصل مع عضو ومقرر لجنة العطاءات والمشتريات على البريد الإلكتروني: salhodairy@taknia.ly



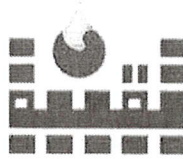
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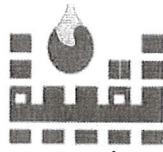
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**HSE Reviews & Studies Scope of Services
Installation of New heating Station at A100/103A (30")
Crude Oil Pipeline-2ND Phase**



Rev	DATE	ISSUED	ORIGINATOR	CHECKED	APPROVED
00	17/04/23	For Review	AB	VT	IS



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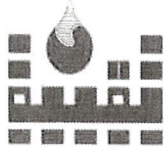
HSE Studies Scope of Works

Rev: 01

Pages: 2 of 10

1.	INTRODUCTION	3
1.1.	PROJECT LOCATION:.....	3
1.2.	ENVIRONMENTAL CONDITIONS:	4
2.	OVEALL PROJECT SCOPE OF WORK	4
3.	HSE REVIEWS & STUDIES SERVICES	5
4.	AIM OF THIS DOCUMENT	6
5.	HSE REVIEWS & STUDIES SCOPE OF WORK.....	6





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TAKNIA LIBYA ENGINEERING COMPANY

HSE Studies Scope of Works

Rev: 01

Pages: 3 of 10

1. INTRODUCTION

Abu-Attifel (A100) Field facilities include oil, gas and condensate production equipment as well as the supporting logistics maintenance and accommodation areas.

The Field is located in the A100 concession (Libyan Desert) approximately 400km southeast of Benghazi and about 50km east of Jalo Oasis. Bu-Attifel installation includes:

- Oil Centre facilities
- Gas compression plant
- Utilities plants
- Oil & Gas delivery pipeline
- NGL Recovery Plant
- Power station Water supply, Produced Water Treatment Plant and water injection facilities
- Oil (30"), Gas (34") and Condensate export line to A103 (about 130 km)

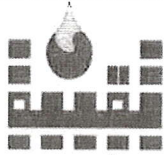
The 30 inch pipeline has been in service since 1972 delivering crude oil from Abu- Attifel Field A/100 to Zueitina oil field 103A, However, due to expected future declining of oil production and high pour point of the oil, MOG intends to carry out a feasibility study and Basic Engineering (optional) to maintain the crude oil above pour point either by installing new heating station or proposed alternative solution(s).

1.1. PROJECT LOCATION:

Abu – Attifel Field is located in the A100 concession (Libyan Desert) approximately 400 km southeast of Benghazi and about 50 km east of Jalo.

- The Geographic coordinates of Bu-Attifel
 - 22°07'16" Longitudinal East
 - 28°50'42" Latitude North
 - Elevation above sea level of the Bu-Attifel is 180 ft.
 - ZOC 103A oil field is located in the west of Bu-Attifel field for about 133km and 220km south of Ejdabya.
- The geographic coordinates of 103A oil field is
 - 290 02' 47.9" N





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TAKNIA LIBYA ENGINEERING COMPANY

HSE Studies Scope of Works

Rev: 01

Pages: 4 of 10

- 200 47' 18.9" E

1.2. ENVIRONMENTAL CONDITIONS:

The whole area is in a desert region with frequent sandstorms.

- Absolute minimum temperature 23F
- Absolute maximum temperature 131F
- Relative humidity 90 to 95%
- Rainfall: Rare
- Sandstorms Frequent during spring
- Seismic UBC Zone 2

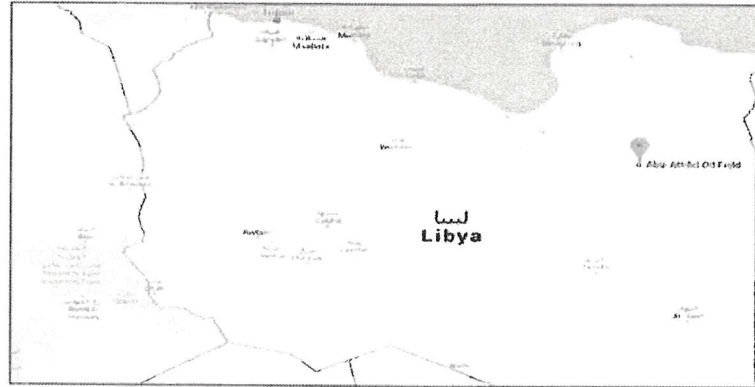
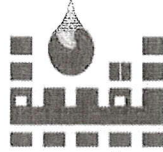


Figure 1 – Location of Abu Attifel Field

2. OVEALL PROJECT SCOPE OF WORK

To Carry out a basic engineering /FEED study for the installation of the New heating Station at A100/103A (30") Crude Oil Pipeline, for maintaining the crude oil temperature above the pour point at minimum expected oil production at 30 inch crude oil pipeline from A100 to A103 with different alternative solutions including the technical & economical evaluation.





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HSE Studies Scope of Works

Rev: 01

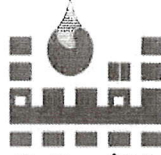
Pages: 5 of 10

3. HSE REVIEWS & STUDIES SERVICES

The BE/FEED package contains the provision of formal safety reviews and studies to be executed sequentially (See below) of the New heating Station at A100/103A (30") Crude Oil Pipeline, respectively in order to identify and assess inherent fire and explosion risks, and to ensure the required Safety Integrated Level (SIL) for Safety Instrumented Function (SIF) loops serving the tripping ESD and EDP .

1. Conduct HAZID review workshop as qualitative risks assessment of the severity of credible scenarios and their consequences,
2. Conduct HAZOP review workshop as qualitative risks assessment of the severity of credible scenarios and their consequences,
3. Conduct SIL Study to ensure required SIL for the specified Safety Instrumented Function (SIF) loops serving EDP and ESD Systems of the New Heating Station at A100/103A (30") Crude Oil Pipeline.
4. Perform an Environmental Impact Assessment (EIA) to identify all significant environmental impacts associated with the project and then demonstrate how mitigation measures are included within the design to minimise their impact in accordance with Company "MOG" Guidelines on Environmental Impact Assessment, Libyan Environmental Laws.
5. Perform a Fire and Explosion Hazard Analysis (FEHA) study as qualitative approach study to assess and analyse the severity of credible and extreme fire & explosion events in terms physical impacts. This study will review the location of occupied buildings and safety critical equipment in relation to the hazard consequences to confirm the adequacy of spacing and layout, to define the fire zones and gas leaks dispersion and to prove that fire prevention are optimal.





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HSE Studies Scope of Works

Rev: 01

Pages: 6 of 10

4. AIM OF THIS DOCUMENT

This document is intended to outline the scope of work in order to facilitate the subcontractor for submitting a commercial offer for preparing the following HSE Studies as part of the overall Basic Engineering and FEED package.

5. HSE REVIEWS & STUDIES SCOPE OF WORK

The followings Service Sheets describe briefly the Scope of Services for the expected Safety Studies to be conducted during Basic Engineering and FEED Phase :

CONSULTING SERVICES	SOW N°	PROJECT STAGE
Hazard Identification (HAZID) Study	SOW N° 01	Basic Engineering and FEED
Hazard Operability (HAZOP) Study		Basic Engineering and FEED
Safety Integrity Level (SIL) Assessment Study		Basic Engineering and FEED
Environmental Impact Assessment (EIA)	SOW N° 02	Basic Engineering and FEED
Fire and Explosion Hazards Analysis (FEHA)	SOW N° 03	Basic Engineering and FEED



Scope Of Work N° 01:

- HAZard IDentification (HAZID) Review Study
- HAZard OPerability (HAZOP) Review Study
- Safety Integrity Level (SIL) Determination Review Study

Brief Description of Scope Of Work:

1) Hazard Identification (HAZID)

CONSULTANT shall conduct a HAZID study at the TLEC Engineering's Offices, in accordance with Project HAZID study guidelines and Terms of Reference,

The HAZID will be plot plant layout and general arrangement plans based review, to cover the New heating Station at A100/103A (30") Crude Oil Pipeline, supporting utilities and infrastructure such as control room, electrical substation, and other annexed facilities.

The actions and recommendations raised during the workshop shall be recorded with their status and reported in the HAZID Follow Up Sheet.

CONSULTANT shall provide the HAZID Chairman, who shall be PHA Certified designated by TLEC and approved by COMPANY prior to the study.

HAZID Chairman shall facilitate the HAZID Study and shall provide the HAZID Report.

Deliverables:

The CONTRACTOR shall circulate first the draft Report of HAZID Study carried out, for comment.

Once the reports has been reviewed and agreed, the final copy shall be issued.

CONSULTANT shall provide the daily lump sum rate of the HAZID chairman inclusive of lodging, boarding and travelling expenses (scribe will be provided by the Engineering Contractor).

The lump sum prices, in US \$, should be offered separately for HAZID and SIL Workshops/Chairman.

2) Hazard Operability (HAZOP) Study

CONSULTANT shall conduct a HAZOP study at TLEC Engineering's Offices, in accordance with Project HAZOP study guidelines and Terms of Reference. The intent of this review is to confirm that the design contains suitable protection systems to ensure the process remains safe and operable when process parameters deviate from design intent.

The HAZOP will be a node-based review to cover the process of New heating Station at A100/103A (30") Crude Oil Pipeline, supporting utilities.

A holistic approach will be used covering commissioning, operation, and maintenance.

The HAZOP of all P&IDs, including implementation of review recommendations. When available, The chairperson in agreement with overall participant (TLEC and MOG), will hold detailed HAZOP review of vendor packages with vendor attending the review.

The HAZOP study shall be chaired by an external experienced facilitator PHA Certified, designated by TLEC and approved by COMPANY.

The third-party independent HAZOP Chairman, will fully chair the workshop and acting as lead during all the review.



The review shall assess provisions for maintenance and operability including the isolation for maintenance philosophy.

HAZOP shall comply with the project specific procedures, based on the TLEC's HAZOP procedure, approved by the COMPANY.

The HAZOP Close-out report including whole actions sheets which will be incorporated within the plant design through the action tracking and follow up process.

Deliverables:

The CONSULTANT shall prepare a HAZOP Study and Clos-out Reports sequentially.

The CONTRACTOR shall circulate first the draft of HAZOP Study report including worksheets and Clos-out Reports, for comment.

Once the reports have been reviewed and agreed, the final copies shall be issued.

CONSULTANT shall provide the daily rate of the HAZOP Chairman inclusive of lodging, boarding and travelling expenses (scribe will be provided by the Engineering Contractor).

The lump sum prices, in US \$, should be offered separately for HAZID, HAZOP and SIL Workshops/Chairman.

3) Safety Integrity Level (SIL) Assessment.

CONSULTANT to conduct a SIL study at the Engineering's Offices, in accordance with Project SIL study guidelines and Terms of Reference,

CONSULTANT shall assess the required Safety Integrity Level (SIL) of all the Safety Instrumented Functions (SIF) indicated on the P&IDs, such as High Integrity Pipeline Protection System (HIPPS) identified in the project.

SIL study will be conducted utilizing critical alarm inputs from the previous HAZOP Study in accordance with IEC 61508 part 5 and IEC 61511. The study will be chaired by external experienced facilitator designated by TLEC and approved by COMPANY. Recommendations of SIL Study will be followed up and incorporated into the design.

A SIL Assessment report shall be prepared by the CONSULTANT.

The Client and Engineering Contractor shall participate in the SIL assessment exercise.

CONSULTANT shall provide the daily rate of the SIL Chairman inclusive of lodging, boarding and travelling expenses (scribe will be provided by the Engineering Contractor).

The lump sum prices, in US \$, should be offered separately for HAZID and SIL Workshops/Chairman.

Deliverables: The CONTRACTOR shall issue SIL Study report of the deliverables to be carried out for comment. Once the report has been reviewed and agreed, the final copy shall be issued.

The CONTRACTOR will develop an execution statement and schedule for all the deliverables and submit the same along with the offer. CVs of the key personnel to be associated with the work will also be provided along with offer.



Scope Of Work N° 02: Environmental Impact Assessment (EIA)

Brief Description of Scope Of Works:

1) Environmental Impact Assessment (EIA)

The Environmental Impact Assessment shall identify all significant environmental impacts associated with the project and then demonstrate how mitigation measures are included within the design to minimise their impact.

The EIA shall be undertaken by the subcontractor in accordance with Company "MOG" Guidelines on Environmental Impact Assessment, Libyan Environmental Laws. The following shall be completed as a minimum.

- a) Review conceptual engineering reports.
- b) Describe significant HSE aspects for the project facilities.
- c) Carry out Environmental Screening Assessment of significant environmental aspects identified in the Process Hazard Assessment (HAZID/ENVID) studies and review.
- d) Prepare a draft Environmental Screening Report.
- e) Identify the potential environmental impacts and risks associated with the proposed design and evaluate significant HSE aspects and risk in accordance with Company standards, policy and risk criteria, and relevant laws and regulations.
- f) Examine alternatives and / or mitigation measures to demonstrate that Environmental Impacts are As Low as Reasonably Practicable (ALARP).
- g) Prepare draft Environmental Impact Assessment Report incorporating findings of all the above activities.
- h) Prepare final Environmental Impact Assessment Report incorporating both Contractor's and Company's comments.
- i) Prepare an environmental Impact Statement (EIS) for all planned significant Environmental Impacts.
- j) Prepare the Environmental Risk Register with all identified risks.

REFERENCE DOCUMENTS

If requested by the Engineering Contractor, the CONSULTANT will also make a Presentation of the draft EIA Report including EMP to the COMPANY in Tripoli, Libya.

Deliverables: The CONTRACTOR shall issue each individual report of the deliverable to be carried out for comment. Once all reports have been reviewed and agreed, the final copy shall be issued.

The CONTRACTOR will develop an execution statement and schedule for all the deliverables and submit the same along with the offer. CVs of the key personnel to be associated with the work will also be provided along with offer.



Scope Of Work N° 03 : Fire and Explosion Hazards Analysis (FEHA)

Brief Description of Scope Works:

1) Fire and Explosion Hazards Analysis (FEHA)

CONSULTANT to carry-out a Fire and Explosion Analysis in line with the requirements stipulated in the present Scope of Work and project documentation, including reference to the inputs for other Safety Report Studies.

The study shall include where applicable:

- a) Determination of loss of containment scenarios
- b) Definition of flammable inventories, including location
- c) Definition of system properties for each flammable inventory, including volume, mass, pressure, temperature, etc
- d) Determination of fire scenarios
- e) Determination of a number of typical flammable product leakage scenarios
- f) Quantification of leakages
- g) Sizing, heat radiation and full duration of jet fires, including scenario at 30 minutes
- h) Sizing, heat radiation and full duration of pool fires, including scenario at 30 minutes
- i) Quantification of toxic releases where applicable
- j) Determination of required fire protection measures
- k) Identification of design features that will prevent or at a minimum minimize hydrocarbon leakage
- l) Identification of design features that will minimize hydrocarbon leakage quantities
- m) Identification of design features that will minimize the probability of ignition of hydrocarbon leakage
- n) Determination of fire zoning arrangements
- o) Determination of fire escalation potential to adjacent zones; the domino effects caused by heat radiation, direct flame impingement, BLEVE or explosion
- p) The potential for BLEVEs, explosion, over and under pressures
- q) Determination of fire and explosion scenarios and identification of the control measures that should be used to minimize the probability of those scenarios
- r) Determination of the effects of fire and explosion and the illustration of potential outcomes using heat radiation contours and overpressure contours superimposed onto plot plans or satellite images.
- s) Determination of lower flammability limit (LFL) and upper flammability limit (UFL) range contours and toxic gas dispersion contours superimposed onto plot plans or satellite images
- t) The potential extent of both toxic and flammable gas dispersion
- u) This will provide sufficient information to enable the design of the fire protection design to proceed.

The FEHA study will not include the following items, which should be assessed by a fire design specialist:

- Sizing of drains needed to remove worst-case hydrocarbon spills and used fire water.
- The location and identification of potential bottlenecks that will result in pooling (topographical review)
- Per zone total passive / active fire protection requirements; duration to effective emergency shut down.
- The results shall be illustrated for People, Environment, Asset, and Reputation, demonstrating as low as reasonably practicable (ALARP) on the COMPANY risk matrix.

