



CNOOC IRAQ LIMITED

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**INVITATION TO TENDER  
FOR PURCHASE OF  
Chemical Materials for Oily water treatment plant  
SECTION 3  
Technical Package**

**Tender No: CMIT-PRT-10.30-160035**

April, 2016

Dubai, U.A.E

Scope of Work

**Requirement of Technical Standard:**

1. Supplier shall state and guarantee that the chemical specification should be unchanged and must be developed to give good results and to meet the requirements;
2. Chemical for Oily water treatment plant requirement:
  - 2.1 The raw oily water quality (From BUT and new CPF)

ITEM	UNIT	WATER QUALITY
pH	—	4.7-7.5
Total Suspended Solids	mg/l	≤200
Oil Content	mg/l	≤1000
Na+	mg/l	66900
K+	mg/l	1243.5
Ca <sup>2+</sup>	mg/l	11078.8
Mg <sup>2+</sup>	mg/l	1637
Sr <sup>2+</sup>	mg/l	525.6
Cl-	mg/l	135900
HCO <sub>3</sub> <sup>-</sup>	mg/l	334.4
SO <sub>4</sub> <sup>2-</sup>	mg/l	532.3
Total mineralization	mg/l	219400
H <sub>2</sub> S	mg/l	≤200
Temperature	°C	50-80
Specific gravity	—	1.148

**2.2 The standard specification for treated water (Drain to Pool)**

ITEM	UNIT	WATER
Total Suspended	mg/l	≤5
Mid. Particle Size	μm	≤3
Max. Particle Size	μm	≤4
Oil Content	mg/l	≤10. 0
Dissolved Oxygen	mg/l	≤0. 02
The Average Rate of	mm/a	<0. 076
SRB	Piece/ml	≈0
Iron Bacteria	Piece/ml	<104



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TGB	Piece/ml	<104
H2S	mg/l	≤30

### 2.3 The standard specification for treated water (Injection to Well)

ITEM	UNIT	WATER
Total Suspended	mg/l	≤5
Mid. Particle Size	μm	≤3
Max. Particle Size	μm	≤4
Oil Content	mg/l	≤10. 0
Dissolved Oxygen	mg/l	≤0. 02
The Average Rate of	mm/a	<0. 076
SRB	Piece/ml	≈0
Iron Bacteria	Piece/ml	<104
TGB	Piece/ml	<104
H2S	mg/l	≤30

5. Material Safety Data Sheets (MSDS) and Product technical Data Sheets (PDS) shall be provided by Supplier;

6. The chemical material shall be used and work effective to treat the oily water in the Missan Oil Fields.

7. The chemical material shall be effective and workable for a period of 24 months from the date of delivery;

#### **Requirement of Material Pack:**

1. The liquid chemical shall be packed in 200L/drum or other standard containers depend on the quantity of chemicals.

The drums will not return back to supplier.

2. The solid chemical shall be packed in 25kg/bag or other standard bags, and the package will strong enough to protect chemical during transporting and storage.

Consider the storage condition on site, all the solid chemical shall be transport, and storage in container, and container will not return back to supplier.

#### **Requirement of Material Delivery:**

1. Supplier shall delivery the chemical to Buzurgan Terminal, Missan Province, Iraq.
2. Supplier shall ensure delivery the required chemical to CIP or DAP BUZ Camp.



**Other requirement:**

1. The origin of the materials must be USA, EU or Japan.
2. TPI (Third Party Inspection) must be provided. The only accepted companies for TPI should be one of the five companies approved by MOC. The name list is as below:

1	Lloyd's Register EMA
2	Bureau Veritas of France
3	Intertek Group PLC
4	TÜV Rheinland Middle East FZE
5	DNV

3. Site service engineer may be required to support the water and gas chemical treatment in case of the chemical treatment in unsatisfied performance, the service, accommodation, transportation fee shall be free charge.
4. Supplier must print product information (product name, manufacture, logo, production date, technical standard, net weight/volume, contract number, etc)
5. FAT (Factory Acceptance Testing) shall be arranged by Supplier for 4 persons for 1 week at manufacture's origin to witness the acceptance test. All the Visa, Travelling, Living cost shall be paid by the Supplier.

**Evaluation Test for oily water treatment plant chemicals**

1. **Laboratory Evaluation Test** shall be conducted by Bidders, Company will provide site supporting which not including Bidders' site engineers visa, accommodation and transportation.
2. **Compatibility Test** shall be included in the **Laboratory Evaluation Test**.
3. The result of **Laboratory Evaluation Test** will be support bidders technical evaluation.

**Chemical list and quantity:**

Chemical For Oily Water Treatment					
No.	Item	Specification	Quantity (T)	Form	Function
1	Reverse Emulsion Breaker	Main Component: Organic amine	54.78	Liquid	Use to separate emulsified oil in oily water
				Concentration: 40% Liquid industrial synthetics	
2	Corrosion Inhibitor	Main Component: Phosphonate	146.4	Liquid	Use to slow down the corrosion of oily water pipe
				Concentration: 50% Liquid industrial synthetics	
3	Scale inhibitor	Main Component: Carboxylic acid salt	84	Liquid	Use to slow down the scale of oily water pipe
				Concentration: 0.5% Liquid industrial synthetics	
4	Coagulant	Main Component: Polymerization aluminum chloride (Calculated by $Al_2O_3$ , $Al_2O_3$ Concentration: 28%)	274.2	Solid	Use to remove suspended matter in oily water
				Concentration: 99% Technical pure	
5	Coagulant Aid	Main Component: Anionic polyacrylamide (A molecular weight of 12000000 or more)	10.98	Solid	Use to assist suspended matter removal
				Concentration: 90~99% Technical pure	
6	Citric Aid	Main Component: Citric acid	109.8	Liquid	Use to adjust pH value of oily water
				Concentration: 95% Liquid industrial synthetics	
7	Biocide	Main Component: Quaternary ammonium salt	91.8	Liquid	Use to remove microorganisms from oily water
				Concentration: 40% Liquid industrial synthetics	
8	Deoxidizer	Main Component: $Na_2SO_3$	36.54	Solid	Use to remove oxygen from oily water
				Concentration: 90% Technical pure	



9	Filter Aid	Main Component: Twelve sodium dodecyl benzene sulfonate	18.24	Liquid	Use to wash filter media
				Concentration: 80% Liquid industrial synthetics	
10	NaOH	Main Component: NaOH	109.8	Solid	Use to adjust pH value of oily water
				Concentration: 95% Technical pure	

Note:

1. For material item 1 Reverse Emulsion Breaker, item 4 Coagulant and item 5 Coagulant Aid, vendors should take samples to BUT to make bottle test before technical evaluation.
2. For the Process Flow Diagram, please refer to the ***attachment 1\_Water Treatment Plant PFD***.