ATTACHMENT 02

SCOPE OF WORK FOR COP ANNUAL INSPECTION

1. Scope of work

Contractor is responsible for developing "Schedule of COP annual inspection ", submit to NSRP first for corrections and approval and to Vietnam Register (VR) for their approval.

The contractor shall mobilize equipment, manpower, material to carry out the COP annual inspection as per the scope below.

Contractor shall mobilize VR' representative to witness during inspection.

Contractor is responsible for receiving approval from VR for COP operation license 1 year renew.

Additional requirements shall be determined by Vietnam Register.

2. Program of Crude Oil Pipelines Annual Inspection

The program COP annual inspection must follow, but not limited to, TCVN6809/QCVN 69:2014/BGTVT National Technical Regulation for Classification and Technical Supervision of Subsea Pipeline Systems and NSRP requirements.

Contractor must study the mentioned regulation and make the program of COP annual inspection to match with the regulation, submit to NSRP for correction and approval and finally submit to VR and get their approval before carrying out the service.

3 Planning and instructions

- PTW required. Daily communication with JCB
- Risk assessments in place.
- Technical requirements should be determined Vietnam Register (VR).
- Use mini inspection ROV as much as possible to avoid diving. Minimize Risks.
- Contractor to use PTSC 10, supported by PTSC 09 for additional accommodation, to perform GVI Sonar.
- The location where COP show itself above the seabed / verify that there is no free spans, use diver or inspection ROV to check.
- Any free span should be measured accurately and photographed.
- To investigate and record location, dimensions and type of anomalies detected during the survey. Results include in the list of anomalies. Anomalies shall be photographed.
- If a reading of CP is more positive than -800mV, further reading shall be repeated at 0.5m distance in 02 directions of pipelines for clarification of abnormally causing, ADI may be required at the point where CP readings are found more position than -800mV
- Video and photograph recording shall be subject to Surveyor's approval
- The photos in all copies of the report shall be in color
- Surveyor's report shall be made according to the original written approved standard and DVD, in English.
- The survey report shall include general information about CALM buoy & PLEM, all result of the present survey report shall be approved by Viet Nam Register.

4 Scope of Work

Group	Item	Action required	Remark
General Visual Inspection (GVI)	Side scan sonar & multibeam survey of 100% pipeline	• Side scan sonar and multi beam echosounder survey of buried pipeline. • Measure erosion of seabed on pipeline. • All damages and anomalies shall be reported and subjected to Detailed Visual inspection (DVI).	If available use mini ROV for detailed inspection.
General Visual Inspection (GVI) crude oil pipeline on shore	**pig launcher & pig receiver area**	• Inspection of pipelines including: • Inspection the status of the piping including hose clamps, flanges, bolts and nuts on landfall. • Inspect for corrosion of the piping and flange connection for sign of leakage. • Visual inspection to assess the condition of all the surfaces in need of painting and identify potential water damage. • Concrete inspection cover on the pipeline. • All damages and anomalies shall be reported and subject to Detailed Visual Inspection (DVI). • Video and photograph recording shall be carried out during inspection the pipelines.	
DVI of Electrical and related equipment	100% of all equipment	• Electrical system. • Control and Instrument system.	
Anode detailed inspection (ADI)	100% anodes on piping at PLEM	• To execute ADI of condition and wastage of anodes.	
Wall thickness inspection (WTI)	04 positions on the PLEM pipe	• To carry out 04 WT measurements (at 12 O/C, 3 O/C, 6 O/C, 9 O/C around the pipe).	
Cathode Potential Measurement (CP)	02 pipes	• To carry out 01 CP measurements on the pipe	

5 Work frequency - Annual

The work is requested to perform following work package:

1. Contractor shall submit method statement to NSRP and VR for approval before starting work.

2. The work method statement should define following frequent as below:
   - Side Scan Sonar will be performed in firstly, PTSC 10 will come along the provided position of 02 crude oil pipelines to identify Exposure Location of Pipeline,
   - ROV or Diver will be deployed right after SSS completed work, to confirm actual situation of finding Exposure Locations of Pipeline to inspect and report these below information:
     + Confirming Free Span in exposure locations of Pipeline.
     + thickness measurement in exposure location.
     + Provide GVI video/picture in exposure locations dedicated.

6 Requirement for manpower

Contractor ‘s personal required for the performance of the services shall be proposed by the contractor and approved by NSRP which shall include at least the followings, unless otherwise decided by NSRP.

Position	Quantity
Project manager	01
Diving team	
Diving supervisor	01
Inspection diver	04
Diving technician	01
Topside team	
Mechanical engineer	01
Electrician and instrument technician	01
Navigation & positioning team	
Survey party chief	01
Surveyor	01