# CLARIFICATION NO. 01

## TENDER ENQUIRY # PROC-SERVICES/CB/EXPL-4464/2019
## PROSPECTS DELINEATION THROUGH INTEGRATED SEQUENCE STRATIGRAPHIC STUDY OF LOWER GORU AND SEMBAR FORMATIONS IN SOUTHERN INDUS BASIN OF PAKISTAN

Following Clarification has been made in the subject tender. Please find OGDCL Clarification in RED.

1. Ref.1.3: Six (06) OGDCL operated exploration licenses i.e. Thal, Khewari, Bitrism, Sinjhoro, Nim & Tando Allah Yar and several operated/non-operated D&P leases fall in the study area (Figure 1.5)

   **Clarification Required**: Please clarify that data of several operated/non-operated D&P leases, other than mentioned 06 exploration licenses is supposed to be used in the study? Contractor is supposed to use just well/core data of "several operated/non-operated D&P leases" or seismic as well? If yes, then how much seismic volume is available? Kindly share details of 2D Seismic & 3D Seismic available in this regard.

   **Operated D&PLs: well/core data + seismic**
   **Non-operated D&PLs: well logs**

2. Ref 3.4: The study may be organized into levels of basin, play and prospect focus. The essential ingredients for the petroleum system may be verified by examining the basin as a whole and then play and prospect level.

   **Clarification Required** Please clarify if there is any Previous Petroleum Studies available at basin, play and prospect level and will it be shared with contractor?

   **No**

3. Tectonostratigraphic framework and basin history may be studied as it determines the fill, stratigraphic sequences and potential for generating and trapping hydrocarbons. In order to analyze the basin fill, seismic data may be combined with identified paleo-environmental, chronostratigraphic, and sequence stratigraphic interpretations of lithologic and biostratigraphic data. Different sequence stratigraphic models at different levels and chronostratigraphic charts (wheeler diagrams) on selected transects may be developed. A geological model may be built and then volumetrics, technical risk and confidence/ranking assessed for a range of models and prospects.

   **Clarification Required** Please clarify the number/quantity of transects.

   **6-8 transects as mentioned in TOR (section 5.15.11)**

4. Ref 4.1: Total eighty nine (89) wells is included in the study across the study area (Table 4.2). The well data includes conventional well logs, reports and any other available data. Total forty three (43) selected wells have 70 cores in different sands intervals of Lower Goru. Total nine (09) wells have TD in the Chiltan Formation while forty (40) have TD in the Sembar Formation. So the entire thickness of Sembar Formation has been penetrated in nine wells (09) while entire thickness of Lower Goru has been drilled in forty nine (49) wells. The study area is covered by approximately 6700 km2 3D seismic.

   **Clarification Required** Please clarify if it include seismic from areas other than 6 exploration licenses as mentioned in section 1.3

   **Seismic data of 06 exploration license and operated D&PLs.**

5. The contractor may identify the number of core and drill cuttings samples for lab analysis i.e. sedimentological, biostratigraphic etc. in order to carry out the study as mentioned in the study workflow.

   **Clarification Required** Please clarify that contractor can only provide recommendations based on available information in TOR. However, the decision on optimum number and kinds of tests/analyses can be best made once the contractor has access to all the data.

   **Decision on optimum number and kinds of tests/analyses will be based on available information in TOR**

6. The technical proposal must include the name and required optimum numbers of laboratory tests. Optimum number of core/drill cutting samples tests would be study with mutual consultation of the company and contractor The suggestions of company's professionals would be given due consideration in this regard.

   **Clarification Required** Please clarify that the recommendation of Contractor A might vary with Contractor B. What will be the basis of analyzing/evaluating recommendations from different contractors? Any addition/reduction in the number of analyses/test will have associated cost impact. Shall contract submit cost of analyses/tests separately?

   **Optimum number of tests/analyses based on logical decision should be included.**
   **Total Lump sum cost as per TOR; Table 12.3.1**

7. Ref 5.4: To undertake detailed core description of selected conventional cores to aid both construction of a series of depositional models and generation of the sequence stratigraphic scheme. During this phase, geologists/sedimentologist from OGDCL will participate in the core review and QC to facilitate the transfer of skills/technology and ideas.
   **Clarification Required** Please clarify that Core description needs to be done in OGDCL office or can be performed at Contractor's office/base.

   **OGDCL/HDIP (Hydrocarbon Development Institute of Pakistan), Islamabad, Pakistan**

8. Ref 5.7.1: Review of previous/existing interpretation.

   **Clarification Required** Please clarify how much seismic, 2D, 3D, Vintages, PSTM or PSTM/PSDM both is available/applicable.

   **Most of the area is covered by 3D PSTM data.**
   **2D data would be used where necessary and recommended by the company.**

9. Structural interpretation on 4-5 key horizons (top of Lower Goru, top of Basal Sand, top of Massive Sand, top of Sembar and top of Chiltan) will be available on all the 3D seismic data sets. Infill fault and horizon interpretation, where existing interpretation is sparse, and their smoothing/conditioning may be required for structural modelling. (IS it possible to specify the infill area?). Interpretation on additional structural horizons, stratigraphic horizons/segments as required for entire integrated sequence stratigraphic framework would be carried out by the contractor. Interpretation on 2D seismic profiles (in any) would also be required from contractor.

   **Clarification Required** Please clarify if OGDCL can specify the infill area.

   **It is not possible to specify the infill area. Minor infill fault and horizon interpretation would be required as mentioned in TOR.**

**10.** Ref 5.18: To carry out time to depth conversion of seismic interpretations using best possible/suitable methods as per SOPs.

**Clarification Required** Please clarify if the Velocity models are available?

**Not available**

**11.** Ref 7.3: The newly acquired data during the study time or any additional/replacement data, if any, will be provided to the contractor to refine their work as specified by the OGDCL or the contractor.

**Clarification Required** Please clarify the Data Cut-off date/time as it will be required to regulate project as per provided timelines by OGDCL in TOR.

**Upto the conclusion of Phase 2.**

**12.** Ref 8.1: The contractor shall have to complete the study within 14 months

**Clarification Required** Please clarify that review timelines required by OGDCL participants is included in 14 months. If so how many days will be catered for review of each step. Furthermore please clarify that any public holidays, weekends and vacations due to unforeseen circumstances shall also not be included in 14 months timeline.

**14 months including any public holidays, weekends and vacations etc.**

**13.** Ref 10.5: Any delay due to visas, air tickets etc. will be accommodated by the contractor,

**Clarification Required** Please clarify that any delays due to visas, air tickets etc shall be accommodated by contractor and OGDCL shall increase project timelines accordingly as per new Gantt Chart.

**No**

**14.** Are there side wall cores of the 89 wells available for Biostratigraphy/Sedimentology sampling? if so, can you share the depths?

**Only one well, Sinjhoro West-1, has 30 sidewall cores in Talhar Shale and Sembar.**

**Depth Intervals (m): 3036.57, 3036.72, 3036.87, 3037.03, 3037.18, 3095.85, 3096.01, 3096.16, 3096.31, 3096.46, 3537.51, 3537.66, 3537.81, 3537.97, 3538.12, 3669.0, 3676.0, 3679.0, 3686.0, 3686.5, 3687.0, 3687.5, 3723.0, 3723.8, 3723.4, 3723.8, 3724.1, 3839.7, 3841.0, 3841.8**

**15.** Do some of the wells have recent Biostratigraphy reports that can be integrated in the project? If so which ones?

**No**

**16.** The standard cuttings interval in these 89 wells is 9m or shorter interval? Will unwashed and washed cutting be available?

**Drill cutting interval is 02 m from top of Lower Goru to TD. Washed cuttings would be available.**

**17.** The knowledge transfer actions (training, mentoring, etc.) is to take place in Pakistan or in the contractor's office?

**Both. In Pakistan (TOR section 5.4) and in Contractor Office (TOR section 5.10 & 10.5)**