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# USAID ENERGY POLICY PROGRAM

## GRANADA GROUP OBSERVATIONS & COMMENTS FMBS STUDY REPORT EVALUATION

December 2014

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## GRANADA GROUP

### OBSERVATIONS & COMMENTS

#### FMBS STUDY REPORT EVALUATION

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**FMBS STUDY REPORT EVALUATION****GRANADA GROUP OBSERVATIONS & COMMENTS**

DATE OF MODEL TEST:

OCT. 2014

PLACE OF MODEL TEST:

THE NETHERLANDS

WITNESS TO MODEL TEST:

TWO PILOTS OF PQA.

| ITEM   | DESCRIPTION   |
|--|---|
| <p><b>1. <u>TEST VESSELS.</u></b></p> <p>Q<sub>Flex</sub></p> <p>Q<sub>Max</sub></p> <p>FSRU.</p> <p><b>2. <u>CHANNEL.</u></b></p> <p>AHSAN CHANNEL</p> <p>PHITTI CREEK</p> <p>KADIRO CREEK.</p> | <p>310 m LOA – LNG Cargo Volume : 216,000 m<sup>3</sup></p> <p>LNG Cargo Volume: 266,000 m<sup>3</sup></p> <p>LNG Cargo Volumes: 151,000 m<sup>3</sup> &amp; 173,000 m<sup>3</sup>.</p> <p>Soundings , <u>May 2014</u></p> <p>Maintained depth as 15.3m shown on British Admiralty chart of Port Qasim was used in the simulation study. However, fresh data of May 2014 received after the model test and simulations indicated isolated places where depths are low i.e. 13.1m–13.90m. These patches essentially need to be removed and fresh survey to be carried out.</p> <p>200m Minimum Width of the channel exists against 250m required for a Q-Flex vessel of 50m width.</p> <p>Maintained depth as 14.0m shown on British Admiralty chart of Port Qasim was used in the simulation study. However, fresh data of May 2014 received after the model test simulations which indicated isolated places where depths are low i.e. 12.1m–12.9m exist. These patches essentially need to be removed and fresh survey to be carried out.</p> |

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|---|---|
| <p><b>3. TIDE, WIND &amp; WAVE CONDITIONS.</b></p> <p>GENERAL SOURCE OF DATA</p> <p>Source of Data for WIND,</p> <p>Source of Data for WAVES,</p> <p>Tide and Current, Source</p> <p><b>Recommendation:</b></p> | <p>Charted depth shown on chart is generally 14.0 m but fresh survey of May 2014 indicates isolated areas where depths 13.5 – 14.0 m exist in the channel and 10.0 – 12.0 m around EVTL.</p> <p><b>Note:</b> Fresh depth data (May 2014) of the whole channel was provided by PQA after the simulations have been completed. Source of data acquisition by PQA needs to be confirmed.</p> <p>Two Pilots of PQA.</p> <p>Raw Wind data for 2011, 12 &amp; 13 obtained from FOTCO Weather Station.</p> <p>Data received after Simulation has been completed.</p> <p>No data was available. Port Qasim Pilots' observations were taken in the study.</p> <p>Previous Study of 1980 &amp; Pilot's information.</p> <p>Raw Data for 2006 – 2012 was received after Simulation has been completed.</p> <p><b>Hydro-Meteorological Study +</b></p> <p><b>More detailed Vertical Ship Motion Study and</b></p> <p><b>Combined Wave and Tidal Study</b></p> |
|---|---|

|  |   |
|--|---|
| <p>4. <b><u>TUGS.</u></b></p> <p>Tugs used during Simulation</p> <p>Recommendation of PQA Pilots.</p><br><p>5. <b><u>VTS:</u></b></p> <p>Factual Position,</p><br><p>6. <b><u>DREDGING:</u></b></p> <p>Recommendation of PQA Pilots.</p><br><p>7. <b><u>MARKED ANCHORAGE:</u></b></p><br><br><p>8. <b><u>Q<sub>Max</sub> SHIPS:</u></b></p><br><p>9. <b><u>Q<sub>FLEX</sub> SHIPS:</u></b></p> | <p>3 x 60 ton bollard pull + 1 x 80 ton bollard pull</p> <p>2 x 60 ton bollard pull + 2 x 80 ton bollard pull</p><br><p>VTS system is not in use at PQA.</p><br><p>Dredging in the Southern part of the Channel in front of EVTL for Turning a LNGC / Vessel. Quantity of proposed / required dredging was not indicated.</p><br><p>Isolated or Specific marked Anchorage is not available for LNGCs in PQA.</p><br><p>Insufficient maneuvering with Q<sub>Max</sub>. (Result of Model Test). It needs more details / Studies.</p><br><p>Considers access of only Q<sub>Flex</sub> vessels to PQA under <b><u>Operational Constraints</u></b> i.e.</p> <ul style="list-style-type: none"> <li>• Mean Wind Speed 20 knots gusting to 25 knots.</li> <li>• Current not more than 80% of Spring Tide.</li> <li>• Preferred Turning Basin in front of IOCB (Local Pilots desires turning basin in front of EVTL)</li> <li>• Max. Swell height 2.5 m at entrance.</li> <li>• Always have a Pilot on Board Vessel, LNGC for the complete length of entry and departure.</li> <li>• Entry access maneuvers 3 Hrs. before High Water and Exit/Departure maneuvers 1 – 2 Hrs before High Water.</li> </ul> |
|--|---|

**10. POINTS OF CONCERN:**

- 1) The Study may be applicable to only the Q<sub>Flex</sub> Vessels under operational constraints.
- 2) Depths after Monsoon needs to be checked/compared.
- 3) For Operational reliability of Entry & Departure maneuverings current and longer duration data for Wind, Waves, Current and Tides should be available.
- 4) Draft to Depth Ratio of 1:1.5 should be ensured and maintained for LNGCs in the outer channel especially during Southwest Monsoon.
- 5) The width of Channel should be 5 Times the beam of LNGC. The Minimum Width of Channel should therefore be NOT LESS THAN 250 m.
- 6) Provision for inside Anchorage (all along the Channel) for Emergency needs to be addressed for implementation.
- 7) VTS system should be available at PQA before LNGCs are called on the Port, PQA.
- 8) Day time (Sun Light) entry and departure of LNGCs should be ensured.
- 9) PQA must be in readiness for emergency Night Navigation.
- 10) Distance of area from the moored LNGC that should be restricted for movement by any other cargo or large size vessel and high speed boats should be determined after site specific Hydraulic study based on authentic site-specific Met-Ocean and Wind data.
- 11) Turning Circle Dia should be double the length overall (LOA) of the maximum sized Q-Flex vessel and depth 15.30 m, in front of IOCB should be available before start of operations of LNGCs at PQA.
- 12) Determination of :-
  - Required minimum dimensions in the channel
  - Nautical procedures at PQA.
  - Escort tugs and ship speed while channel transit
  - Traffic intensity and Forecasts
  - Grounding and Collision Assessment
  - All risk Studies for Channel Transit
  - Moored Ship Study and Hydraulic/Hydronomic Study to determine the height of waves generated by passing vessels.

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