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USAID ENERGY POLICY PROGRAM

MONTHLY PROGRESS REPORT DECEMBER 2014

ENGRO LNG TERMINAL DEVELOPMENT AT PORT
QASIM, KARACHI, PAKISTAN

January 2015

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ENGRO LNG TERMINAL DEVELOPMENT AT PORT QASIM, KARACHI, PAKISTAN

Contract No: AID-EPP-I-00-03-00004

Order No: AID-391-TO-12-00002

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PROGRESS REPORT

Period Covered : December 01 to December 31, 2014

Project : Engro LNG Terminal Development at Port Qasim, Pakistan.

Client : AEAI – Project # A018

Subcontract # : EPP-C2-SC-010

Delivery Order # : EPP-C1-DO-001

1. For performance of Quality Assurance monitoring of ongoing civil works related to LNG Terminal comprising of trestle, loading platform, mooring and breasting dolphins and laying of 24" and 42" pipeline, field staff (Mr. Shahid H. Mirza and Mr. Zahid Ali) remained mobilized at site on all official working days during day shift only. The construction work though continued during week end days, holidays and beyond general shift hours to meet targets being a fast track project. This arrangement remained in knowledge of all and sundry.
2. ECIL / GG attended their functions only during the officially designated working hours and reported progress / status accordingly.
3. ECIL / GG kept asking for index of studies carried out so far by EETPL / PQA and other submissions.

The Consultants were provided civil engineering and pipeline construction drawings, specifications and other information during the month of December also in piece meal.

4. The Consultants assisted PQA in finalizing of Tender documents for hiring and lease / purchase of 4 ASD LNG Compatible Tugs on hire / charter and lease purchase basis.
5. The Consultants on the advise of PQA / LNG Advisor attended pre-bid meeting and assisted PQA in preparation of replies to the queries raised by the bidders

and issuance of corrigendum. This was done only in advisory capacity. Consultants made it clear that they were not part of bidding process.

6. Issues and observations noted by field staff were notified to PQA through LNG Advisor and also discussed in the weekly review meetings. Details of activity are reflected in the time sheets of relevant field staff.
7. HSE related monitoring was done periodically but effectively through Environmental Engineer, Mr. Tufail Zubedi. Points noted were highlighted and informed to all concerned through LNG Advisor.
8. Quarterly Environmental Monitoring report for the months of June, July and August, 2014 were received. Comments were submitted after thorough scrutiny of these documents. Monthly monitoring reports of September, October, November, 2014, were also received, and studied. Comments were offered on the IMC reports for the months of September and October, 2014. Likewise, copies of HAZOP / HAZID register and HSE manual related to construction were received and studied.
9. The IMCS were only for the LNG Terminal. However, no correspondence and submission to SEPA have been shared to indicate that the SSGC or other stake holders are undertaking environmental monitoring on their part for laying of pipeline and installation of CTS. This issue requires to be probed further.
10. Hydrographer-ECIL made numerous attempts to seek met-ocean data and hydrography related data / charts / reports from PQA. Pursuance meetings were held with Director General (Tech), PQA and Director (CD) / Chief Hydrographer by Project Director and Hydrographer. Channel related issues and role ECIL could play in offering design parameters for dredging at critical points of the existing navigation channel and alternate channel (Chhan Wado) were also discussed. It was agreed that PQA shall prepare a wish list in this regard so that Sellhorn German Consultants could be consulted in this regard. The same is still awaited.

11. On the advice of PQA, ECIL-Hydrographer accompanied PQA Survey team for the check survey of approach channel A-B area to ascertain latest position of channel after the dredging has been carried out by PQA Dredger "Donghai Tim".

12. In order to commence work on PQA Tariff for handling of LNG Vessels meetings were held on 16th and 30th December, 2014, with PQA officials to obtain necessary documents / data / information in this regard like estimated hiring / purchase cost of 4 ASD LNG Compatible Tugs inclusive of fuel and lubricants, capital and maintenance cost of dredging required for safe navigation of LNG Carrier and FSRU in accordance with SIGGTO and PIANC or as decided by PQA, cost of Navigational aids, patrol craft inclusive of manning / fuel cost and security deployment, refurbishment of Refit Jetty for parking of LNG Compatible Tugs, and cost of installation of vessel traffic system (VTS). Some information has been provided and the rest was agreed to be provided as soon as possible. This exercise will facilitate to work out tariff to be levied on LNG Carriers and FSRU.

If this exercise could not be completed before arrival of LNG FSRU and LNGC, PQA will have to adopt tariff as approved and in vogue in neighbouring countries as a makeshift or as adhoc measure.

13. Consequent upon receipt of copy of Port Operation regulations 1981, Mr. MAG Siddiqui, Legal Expert has commenced work on Port Safety and Security Manual and updating of Port Operation Regulation to conform to the requirement due to navigation and berthing of LNG Carriers and FSRU.

(A.N. Qabulio)
Project Director



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January 01, 2014

PROGRESS REPORT

Period Covered: December 01 to December 31, 2014
Project: ENGRO LNG Terminal Development at Port Qasim, Pakistan
Client: AEAI – Project # A018
Subcontract #: EPP-C2-SC-010
Delivery Order #: EPP-C1-DO-001

As mentioned in our last month's progress report, a request was sent out to AEAI to arrange for copies of the following documents as soon as possible in order to enable us to plan and schedule our activities according to our Terms of Reference. Appended below is the status of that request:

Overall Project Schedule	Received
Currently updated copy of the milestone schedule of project implementation activities :	Not Received
A complete list of all the studies and data used for design basis of the Terminal Jetty infrastructure and site selection	List of Studies has been received which shows a number of essential studies are missing especially – Met Ocean Data Acquisition
A complete list of all the vetted and approved design drawings	A list of Civil Engineering and Structural Drawings has been received from ECIL. No drawings or data received for LNG infrastructure details or the equipment and machinery
A copy of the Testing Schedule of all the machinery and infrastructure along with the planned testing procedures	Not Received
A copy of Commissioning Schedule and Commissioning Procedure of the Terminal	Not received



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A copy of the Safety and Operations Manual for the Terminal	Not received
A list of operational staff and their training details as well as qualifications who are to be responsible for the operation of the Terminal and handling any emergency situations	Not received
Details of Fire Fighting and Emergency Stations including design and equipment details as well as the training of staff responsible for handling LNG spill and fires	Not received
Copy of a Full Mission Bridge Simulation (FMBS) Study carried out by the Terminal Developers and results of the same	Has been received and evaluated. Comments forwarded to AEAL.
List of additional pertinent drawing and documents has also been submitted by ECIL for obtaining the same from PQA/Engro for review	Status not known

During the month of December, work continued on the Gap studies. To accomplish this task, templates were created for each of the codes and regulations and the following documents were then studied and compared with the requirements to determine the gaps between the actual studies and data used for the design basis and the operational planning of the LNG Terminal:

- Copy of a generic 260 - page QRA Report of three possible sites identified by Engro – VOPAK for an LNG Terminal issued by Lloyd’s Register of Shipping in April 2011. The report included results of Hazard Identification Study, Risk Assessment Study and Maneuvering Simulation Study
- Copy of a 74 – Page documents comprising of cover letter From ELENGY Terminal Co. Ref. PQA/DGM (PSP)/253/2007 dated March 14, 2014 dated March 24, 2014 along with the following attachments:
 - **Attachment 1:** Letter ref: TK/EVTL/March/01 issued by Lloyd’s Register of Shipping dated March 19, 2014 summarizing the findings on Consequential analysis Report Doc. No: OLG/DA/10080 Rev.1
 - **Attachment 2:** Letter from SEPA dated March 20th, 2014 approving the orientation of the proposed Jetty of the new LNG Terminal from perpendicular to parallel to the main channel of Port Qasim subject to a number of conditions.
 - **Attachment 3:** HAZID/HAZOP STUDY – Ref: OGL/DA/10078 dated March, 2014 issued by Lloyd’s Register of Shipping.



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- Copy of a 5- Page letter titled **Updated QRA Report** from ELENGY Terminal Co. dated March 31, 2014
- Copy of a 43 – document comprising of a one page cover letter from ELENGY Terminal Co. with attached Consequence Analysis Report dated February 22, 2014 issued by Lloyd’s Register under Reference # OGL/DA/10080.

Preliminary Report on the Evaluation of HAZID-HAZOP Study - March 2014 was prepared and forwarded to AEAI on December 04, 2014.

After reviewing these documents, Gap study was completed against the SIGTTO codes template and forwarded to AEAI on December 27, 2014. Subsequently, an update has been received on all the 68 pending actionable items of the HAZID-HAZOP worksheets – 2014. The Gap Studies are now being updated and we expect to issue the Updated Gap Studies and their reported findings during the middle of January.

In order to determine the basis of the Terminal design and its compliance with the required codes, we need to carry out a thorough review of all above documents to ensure that all the required data needed or used as the basis of design for the Terminal has been obtained through the required studies as a part of Quality Assurance process. The data obtained through these studies will also assist us in determining the operational and safety guidelines and limitations that will have to be built in the PQA Regulations for LNG ships calling the Terminal for discharging LNG cargoes without disrupting other traffic and operation of the port. This process would indicate the compliance of the terminal design, construction, testing, commissioning, operations, safety arrangements and emergency response with the required stipulations of the Pakistan LNG Policy 2011.

Recommendations for mitigations will then be suggested or discussed with PQA in order to minimize any identified significant risks through practical improvements in equipment or operational, safety and security procedures prior to commissioning of the Terminal.

A detailed report was prepared and forwarded to PQA Chairman, at his request, through AEAI on the typical list of studies that are normally required to be carried out for planning and implementing similar projects was prepared highlighting the rule or code that stipulates the requirement of those studies for the guidance and information of PQA. This report also gave a resume of the studies that appear to be missing at this time which are essential for obtaining the required basis of design and operations limitations of the LNG Terminal. Although these studies have been missed out but may still be carried out without any further delay prior to the completion or commissioning of the Project.

During this month, the finalization process for the Supply and Chartering of Four ASD LNG Tug Boats was continued. Several vendor queries and suggestions were received by PQA in response to the Tender documents that were issued by the PQA. The same were



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forwarded to us for review, comments and recommendations. The same were provided during a number of Skype meetings with AEAI, ECIL and PQA management and through written reports and recommendations.

Weekly meetings for reviewing and discussing the progress of Project implementations conducted by the PQA were attended through Skype and relevant inputs were provided. These meetings were attended by PQA, AEAI, ECIL and EETL representatives and minutes of the meetings were recorded and reviewed.

Latest version of FMBS Study conducted by EETL was received from PQA for evaluation which was carried out promptly and the report forwarded to AEAI. The authenticity of Met-Ocean data and its sources that was used in the simulation runs is questionable as it appears to be assumed and based on actual met-ocean studies and data collection procedures. Questions were also raised by Qatargas on the viability of their QFLEX vessels entry and navigation in the Port Qasim channel since the channel width, depth and the Turning Circle diameter are not in compliance with SIGTTO guidelines. The vessel speed of 12 knots during its passage through the channel was also considered excessive for attaching the tugs and carries the risk of vessel's grounding – especially in view of the limited width of the channel. Our recommendations and comments on the FMBS Study evaluation were forwarded to PQA through AEAI.

Design drawings of Mooring Systems and Berth pilings produced by CHEC were received along with the Mooring Layout Verification and Mathematical Mooring & Modeling Study. Initial review reports were sent to AEAI. However, the review could not be completed as a number of elements of the Study and Drawings are missing. Request has been made to AEAI to obtain the missing elements from the Developers and PQA in order to continue and complete our review.

Routine correspondence was carried out through emails and telephone calls with AEAI, ECIL and PQA representatives in order to resolve day to day issues related to smooth progression of the project.

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