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MONTHLY PROGRESS REPORT JANUARY 2015

ESTABLISHMENT OF FAST TRACK LNG IMPORT TERMINAL

February 2015

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Establishment Of Fast Track LNG Import Terminal

Monthly Progress Report

January 2015

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**Fast Track LNG Import Terminal
At Port Qasim
PROGRESS REPORT
FOR THE MONTH OF January 2015**

1. Introduction:

1.1 This report covers the activities and progress of the work for the month of January, 2015. The Sub-consulting Services Contract for Study and Review of past Studies Reports and Quality assurance of project works was awarded to ECIL + Granada Group in association with M/s. Sellhorn, Germany. The notice to proceed (work order) was issued to the Consultants vide Subcontract No. EPP-CE-SC-010 dated October 15, 2014. Description of services and LNG Specific Services along with budgetary details was provided vide DO No.C1-DO-001 and further specified upto 31st March, 2015 vide Task Order #1.

1.2 Location of Project

The under construction Terminal is located in the Port Operation Zone of Port Qasim, between the existing Engro Vopak (EVTL) Liquid Chemical Jetty and PQA's Iron Ore & Coal berth (IOCB). The distance between the LNG jetty and the open sea is about 40 Km. measured along the navigation channel (refer Fig. A, B, C). The berthing line of the (EETPL) Jetty is about 150m from toe line.

The RLNG pipeline 24" dia. runs from Loading Platform of jetty to the Custody Transfer Station (CTS) with a length of 6.5 Km and 42" dia. Pipeline (SSGC) runs from CTS to SMS Pakland. The total length of both the pipelines is 22.7 Km.

1.3 FSRU + LNG Vessels & Gas Delivery

- a) The FSRU will have nominal capacity of 173,400 M³ although in the first phase it may handle LNG load 138,000 /151,000 M³.
- b) The RLNG will be delivered to SSGCL gas distribution network at a rate of 400 MMSCFD under pressure ranging between 300 psi & 1200 psi and temperature between +5°C and + 38.8°C.

2. Salient features of the Project:

2.1 General

- a) Client : Advanced Engineering Associates International (AEAI)
- b) Consultants : Engineering Consultants Intl. (Pvt.) Ltd. Pakistan and Granada Group of Companies Inc. USA.
- c) Developer : Engro Elengy Terminal (Pvt.) Limited, Pakistan.
- d) EPC Contractor (Civil Works) : China Harbour Engineering Company (CHEC)

- e) Date of signing of Implementation Agreement between PQA and EETPL : June 23, 2014
- f) Date of development of Consultants' : October 20, 2014
- g) Implementation Schedule of the Developer : Annex-5
- h) Tendered Cost of Infrastructure : Confidential.
- j) Completion date as per developers programme : 12-15 March 2015

2.2 Major Components of the Project:

- a) Dredging of Berthing Basin.
- b) Construction of coffer Dam and disposal of dredged material,(reclamation keeping environmental protection aspects)
- c) Loading Platform supported on Steel Tubular Piles.
- d) Mooring and Berthing Dolphins with fendering system, supported on Steel Tubular Piles.
- e) Loading arm installed on loading platform.
- f) Trestle supported on prestressed concrete piles.
- g) Walkways – prefabricated steel sections resting on supporting dolphins constructed on steel tubular piles.
- h) RLNG pipelines and Allied works.
- i) Electrical Power Supply, Lighting and Control System
- j) Electro-Mechanical Works
- k) Metering System
- l) Water Bath heater
- m) Back Pressure Skid
- n) Fire Protection / Fire Fighting Arrangement
- o) FSRU along with allied equipment will be brought to Site and stationed on long term basis on completion of the jetty, pipelines and allied works
- p) Fenders, Bollards
- q) Quick Release Hooks

3. Updated Physical Progress of Field Work (till January 31, 2015).

3.0 Overall Progress

Overall progress of the project upto January 31, 2015, is approximately 86%

3.1 Dredging and Related Works

Dredging was carried out during the period from 20th Aug to 1st October 2014. The dredged area is about 89,000M².and the designed dredged level is -14m CD which will be increased to -15m CD in next phase. Post dredging survey was conducted by PQA.

- 3.1.1 Bathymetric and topographic surveys were carried out during May 2014.
- 3.1.2 Geotech studies were carried out during May to June 2014.
- 3.1.3 Construction of coffer dam was carried out during 15 May 2014 to 5 August 2014.

3.2 Jetty Structure:

The following activities have been carefully monitored in the light of the Quality Assurance Requirement and the updated status is as under.

3.2.1 Steel Tubular Piles & Concrete Works

a) Piles:

Pile driving was done during Mid September 14 to 25 November 2014. Status is as under:

- Steel Tubular Piles of Loading platform, 20 done out of total 20 nos. 100 %
- STP breasting dolphins (BD1) 18 done out of total 18 and now concreting also done, installation of two nos. cell type fenders in progress. 100 %
- STP of (BD2), 18 done out of total 18 nos. now concreting also completed. 100 %
- Installation of two nos. cell type fenders in progress.
- STP of Mooring Dolphin (MD1), 14 done out of total 14 nos. Steel binding works also done, form works also done concreting completed. 100 %
- installation of Quick Release Hook (QRH) remaining.
- STP of MD2, 9 Nos. done out of total 9 nos. Installation of QRH is remaining. 100 %
- STP of MD3 & 9 done out of total 9 nos. The concreting of MD3 also completed. 100 %
- Installation of QRH is remaining.
- STP of MD4, 14 done out of total 14 nos. Concreting also completed. 100 %
- Installation of QRH is remaining.

b) Concrete Works:

- | | |
|--|------------------------|
| ▪ Precast High Strength Concrete Piles (PHC), 96 completed out of total 96 nos. | 100 % |
| ▪ Longitudinal Concrete Beams (LB) 147 done out of total 147 nos. | 100 % |
| ▪ TB1- 31 done out of total 31, TB2- 1 done out of 1, TB6- 1 done out of 1 done, TB4 is also done. | 100% |
| ▪ Pile Heads 96 done out of total 96 numbers. | 100 % |
| ▪ Deck slab of LNG trestle completed, including parapet wall on both sides of Trestle. | 100% |
| ▪ On Deck Slab of LNG trestle, parapet wall work completed, 31 spans done out of 31 spans each 12 meter long. The concrete Sleepers for gas pipeline and other services completed. Other side parapet wall 31 spans done out of 31 spans each 12 meter long. | 100% |
| ▪ Loading platform concreting has been completed.

During installation of hydraulic tube MLA, minor damage occurred to the piping which is to be rectified. | Substantially complete |
| ▪ Breasting Dolphins 1&2 reinforcement completed, also last layer of concrete is done. On BDI Fenders cell type (two nos.) installation is in progress, on BD2 not yet started. | In progress |

c) Issues of Concern:

- The HSE is not strictly complied with, specifically in Mooring Dolphin works. The workers were not wearing proper PPE and adhering to the required norms.
- **EETPL may be directed to submit the Contract BOQ of all maritime civil works.**
- **EETPL may be directed to submit the Factory Test Certificates of Fenders and all other fixtures manufacturers used / installed in LNG terminal.**
- Some of the STP are not driven to the designed toe level of – 30 meter as noticed. EETPL to get a confirmation certification from their designer, that the reduced penetration of STP will remain as good as required in all adverse met ocean condition.

3.2.2 Miscellaneous Elements of Jetty, Trestle of walkways

The Walkway Platforms comprising of 6 pieces. Their welding and bolting remained in progress.	In progress
Cathodic protection on steel piles, 188 anodes installed on 94 piles i.e. each pile to have two anodes installed on it.	In progress
Work on supporting dolphins 1 and 2 (SD1 & SD2) work on SD2 complete, on SD1 in progress.	In progress
Installation of fenders, bollards and quick release hooks, etc.	In progress

3.3 Pipeline Works

Related works are detailed as under:

3.3.1 Major items related to Pipeline Works

Main Activities comprise of the following:

- Acquire ROW clearance 15 meter width.
- Digging of Trial pits to explore the other underground service lines such as (Electricity Cables, fiber optic cable, oil, gas & water lines) in ROW.
- Line pipes strung on sand bags throughout the ROW.
- Welding joints & Radiography Test (RT) being carried out.
- Excavation of trenches for laying pipeline. Thrust boring & Horizontal Drilling Direction for (Main Road, Railway, & Canal / Nalla Crossing).
- Sand Blasting as SA-2.5 as per Swedish standard & wrapping of Heat shrink sleeve application on welding joints.
- Laying of Pipeline in trenches.
- Holiday testing for coating inspection.
- Backfilling with soft sand around the pipeline 6"to 12" to protect the pipeline coating.
- Pig Launcher & Pig receiver cleaning (wire bush pig & Gauging pig).
- Cathodic Protection (CP) System.
- Hydro static test from LNG Jetty to CTS & from CTS (42"dia pipeline) to SMS Pakland for 24 hours.

- Dewatering with foam pig, & cleaning pig.
- Complete backfilling with developing crown on top of pipeline 1.5 ft high above the surface of natural ground level (NGL) of land.

Overall updated progress:

Overall progress on construction of both the pipelines 24" & 42" dia, remained at about 90%.

3.3.2 Breakdown of Progress upto 31st January, 2015, is as under:

- l) Construction of 24" dia pipeline as per API-1104, from Loading Platform to Custody Transfer Station (CTS)
- Welding joints works were in progress on 24" dia pipeline. 90% work completed.
 - Radiography testing (RT) of welding joint were in progress. 90% work completed.
 - Heat shrink sleeve application on welding joints were in progress, Sand/Shot blasting was done on welding joints as per Swedish Standard SA-2-1/2, wrapping the Heat shrink sleeve with the help of gas torch. 100 % work completed.
 - Excavations of trench for pipeline were in progress 100 % work completed. 100% work completed.
 - Backfilling were in progress. 90% work completed.

Observations:

- Excavation of trench for pipeline should be 5ft deep 2 fts dia of pipeline & 3fts for backfilling top cover as per requirement of code & standards.
- It was noted that inside EVTL premises, excavation & back filling was not done as per code of API-1104 / ASME B31.8, It was back filled as 1.5 fts on top cover of buried pipeline instead of 3.3 fts quality Inspection Plan (QIP) submitted by EETPL. This reflects the deviation of standard & Codes.
- Monolithic Insulating Joint: Intake Channel of Steel Mill, Cage placed over Steel Mill channel crossing & 24" dia pipeline has been crossed without installation of insulation joints. Monolithic Insulating Joints are used to electrically isolate pipeline segments. The joints are used for the sectioning of main pipelines (gas, oil or water) and service lines and ensure cathodic protection and electrical safety in pipelines.
- Monolithic insulating joints must be installed between underground & above ground pipelines to prevent the short circuit and to ensure the cathodic protection of pipeline as per design life of CP System.

II) Thrust Boring:

Casing pipeline has been crossed from below main crossing of Roads & Railway

- PQA Road crossing near Tariq Restaurant.
- Railway crossing near PQA Office.
- Al-Tawarqi Steel Mill road.

Observations:

- Vent pipes were not installed on casing pipes which is the requirement of international Codes & Standards.
- Vent pipes should be installed on both ends of a casing.
- The casing vent hole should be at least one-half the diameter of the vent pipe (25 mm [1.0 in] minimum). The casing vent pipe should be a minimum of 50 mm (2 in) in diameter.
- Leak test to be monitored at vent pipes at required intervals to determine if a leaks exists on carrier pipeline of RLNG.
- The casing to be cleaned and filled with wax type filler accordingly.

III) Trestle line pipes:

Sand blasting have been carried out by AU Engineering as per Swedish Standard SA- 2-1/2, after that primer & Epoxy paint were applied on line pipes/ Spools in yard.

IV) Pipeline lowered in Trench:

Holiday test has been conducted to check integrity of pipeline coating & back filling carried out- overall 95 % work have been completed.

v) Cathodic protection system

- Cathodic protection system was in progress on 24" & 42" dia pipeline.
- Ground bed developed inside the plant five anodes buried (05) HSCI- for the 24" dia pipeline & Ground bed developed anodes 07 buried at CTS for 42" dia pipeline , Junction Box (JB) installed for the monitoring of CP System, Test post installation (40) were in progress approximately-20 test post have been installed.
- Anode: High-silicon-cast-iron; Sacrificial Anodes weighing 28 Kg, used.

VI) Hydraulic Test

Hydrostatic test of Pipeline 24" dia (underground first portion) were in progress from Jetty to battery limits of EVTL, gauges and all allied fittings have been installed, water filling & pressuring the pipeline with pump were in progress- overall 10% work completed.

VII) Anchor Block

Anchor blocks were required at raiser position, fabrication was in progress in Yard of AU Engineering.

Anchor Block 10 numbers are required for holding buoyant pressure in pipeline as per drawing of pipeline- overall 10% work completed.

B. Custody Transfer Station (CTS):

Custody Transfer Station is in progress for the delivery point / Metering station for Regasification. Liquefied Natural Gas (RLNG). It comprises construction of, metering skid, intake Manifold assembly, Filter vessels, Pig receiver for 24"dia pipeline & Pig launcher for 42"dia pipeline etc.

Civil foundation work for metering skid & Water bath heater, other equipment's at the CTS work were in progress- overall 75 % works completed.

C. Constructions of 42"dia pipeline as per API-1104, from Custody Transfer Station (CTS) to SMS Pakland boundary wall.

- Welding joints work were in progress on 42"dia pipeline- 95 % work completed.
- Radiography testing (RT) of welding joint were in progress - 95 % work completed.
- Heat shrink sleeve application on welding joints were in progress, Sand/Shot blasting was done on welding joints area as per Swiss Standard SA-2-1/2, including the wrapping the Heat shrink sleeve with the help of gas torch. Over all work have been 95 % completed.
- Horizontal drilling direction (HHD) jobs which was in progress.
- Horizontal Drilling Directional (HDD) crossing railway main Track carrier 42" dia pipeline in progress.
- Main Railway crossing was in progress.
- Excavation of trench for pipeline were in progress- 95 % work completed.
- Pipeline lowered in Trench and before back filling Holiday test has been conducted to check integrity of pipeline coating, 92 % work completed.
- Cathodic protection system was in progress on 42"dia pipeline. At different locations, test post installations were in progress.
- Anchor pipe spool welded the main pipeline near to Custody Transfer Station.
- Anchor pipe & Anchor block were required at raiser position, Anchor Block (10) number are to be required for holding buoyant pressure in pipeline as per drawing of pipeline- overall 10% work completed.
- Hydrostatic test of Pipeline 42" dia, (underground line) from CTS to SMS Pak land boundary will be done in portions.

Civil foundation works continued at Custody Transfer Station (CTS). Installation of some equipment such as metering skids, filter assembly, water bath heater, and back pressure skid are in the process of installation. Piping interconnection works were in progress. It is to be noted proper monitoring / QA is difficult without access to the documents listed in Annexure-4 which have been requested earlier and reminded.

4. Electromechanical and E&I Works

4.1 Mechanical Works (CTS)

Status is as under:

- All equipment foundations completed.
- JER/JSR placed on foundations on New Trestle.
- LER/LSR placed on foundations on CTS.
- PCS, ESD and communication panels installed at EVTL CCR.
- Construction of Generator Room completed.
- Construction of transformer Rooms completed.
- WBHs under custom clearance, expected delivery at site on Jan 10, 2015.
- Diesel Day Tank fabrication work started – ETC Jan 10, 2015.

4.2 E&I Works

Status is as under:

- Cable Tray installation completed on existing Trestle.
- Cable Tray installation on New Trestle is in progress, 300/514m completed.
- All cable laying for Fiber Optic, Power & Telephone cables on Existing Trestle completed.
- Fiber Optic Cable laying is in progress, about 4,500m completed.
- Cable laying at CTS is in progress total 1,400/1,900m cable laid from LER to equipment foundation.
- Cable laying from Coca-Cola grid station to CTS & Bin Qasim Power to CTS is in progress – ETC Jan 10, 2015.
- Cable laying for lighting work is in progress, about 4,500m cable laid.
- 11KVA feeders installed by KE, KE will energize CTS power supply by Jan 10, 2015.
- Lighting Poles, Fixtures and ESD push buttons received at site and installation will be started from Jan 10, 2015.

5. Review of Reports Studies and Comments.

5.1 Environmental Studies:

Activities on environmental works are described as under:

- 5.1.1 Second Quarterly Environmental Monitoring report (Sep/Oct/Nov-2014), the one submitted to SEPA
- 5.1.2 Monthly Environmental Monitoring report (Dec 2014)
- 5.1.3 Minutes of Meeting dated 7 Jan 2015 & 14 Jan 2015
- 5.1.4 Updated schedule of activities at EETPL.

- 5.1.5 HSE Manual contains China Harbour HSE / construction safety manual. It contains plans to ensure safety during construction activities and all good working practices that will be followed. Because this manual was received after 28th Dec 2014 when construction works for jetty and trestle are at completion stage, there is no need to scrutinize the document any more and there are no further comments on it.
- 5.1.6 Report of IUCN responding mangrove replantation not shared with ECIL-Granada.
- 5.1.7 Environmental Consultant's Observation & corresponding response of EMC are given in Annex-6.

Minutes of meeting dated January 2015 may also be referred regarding the activities on Environmental works.

5.2 Hydrographic Studies:

- A) Based on the available PQA documents and charts following works have so far been done.
- Exact location of all Jetties/Terminals have been marked.
 - The existing outer anchorage area and different sites for anchorage/ waiting areas alongside the entire channel has been marked.
 - The coordinates of the LNG terminal were plotted on the existing Drawing of the main channel.
 - The latest bathymetric data are being plotted for the entire PQA channel with all existing navigational facilities which will help to review the critical turns, widening, volume & quantum of dredging involved.
 - The LNG Terminal & Berthing Basin has been incorporated in the PQA channel.
 - Bathymetric chart of Chan Waddo creek has been prepared on scale 1:10000
 - Met-Ocean data available in Hydrographic Department, PQA.
 - Two reports on soil & Bio-chemical studies received from PQA Hyd Deptt.
 - Latest Bathymetric digital data of the entire PQA navigational channel for straightening , passing bays for two way traffic, widening & dredging etc.

Following information is still awaited from PQA:

- PQA Wish List from Mr. Jawad, Dir. (Channel Dredging) as per requirement of Director General (Technical), PQA.
- B) The following data has been requested from PQA to study alternate channel.
- Bathymetric data of Chara / Chhanwaddo Creek to study the prospect of developing navigable channel as alternate passage bay.
 - Met-Ocean data, reports or studies available in Hydrographic Department.

5.3 Port Operation / Marine Consultants Activities:

Reviews, studies, discussions and various visits to Port Qasim are described as under:

- Various visits and meetings with Port Qasim Authority officials for preparing “PORT TARIFF FOR LNG CARRIER AND FSRU”.
- Review and assisted Director OPS-MAINT / PQA in preparing Final Technical evaluation for TENDER DOCUMENTS FOR 4 ASD TUGS , Hire & Purchase.
- Discussion with Capt. Rizwan Ghouri / Harbour Master- PQA, reference BA CHART PAK-20, PQA CHANNEL . Regarding dredging and straightening of Channel at various places for smooth arrival /departure of Conventional LNGC and Q-Flex LNGC.
- Review / Study of “PORT FACILITY SECURITY VULNERABILITY ASSESSMENT REPORT” by EXCELERATE .
- Attended meetings / discussions for “Develop financial structure and work out Port Dues, Charges, Tariff, Royalty related to LNG”. Revision of PORT QASIM Port Tariffs for only LNG Terminal charges.
- Review / Study of report sent by Mohsin Sahib GG, as amendments to evaluation criteria for hiring of 4 ASD Tugs by PQA.
- Review / Study “ OCIMF Mooring Equipment Guidelines for berth /Jetties of LNG”.
- Review / Study of “ Mooring Layout Verification and mathematical Mooring Modeling Study” by ARTELIA for EETPL of LNG Jetty.
- Participated in meetings and discussion with Legal Advisor “Port Operations Rules & Regulations” for LNG Carriers and FSRU berthing, un-berthing, and channel maneuvering.

5.4 Extensive Review of Existing Reports and Various Studies carried out by LNG Consultants (Experts), Granada Group of Companies.

As mentioned in the 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
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 AEAI.

List of additional pertinent drawing and documents has also been submitted by ECIL for obtaining the same from PQA/Engro for review

Still not completely furnished.

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.
- 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 AEAL on December 04, 2014.

After reviewing these documents, Gap study was completed against the SIGTTO codes template and forwarded to AEAL 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 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 Qatar gas 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.

5.5 Activities on Legal Matters

Review study of reports of relevant document and meeting of the legal expert with PQA and other experts of the consultant team continued stated as under:

- Meeting with ECIL to discuss parameters of Port Channel, Harbour.
- Discussed plans pertaining to security, HSE etc.
- Review/Discuss port security vulnerability assessment reports, existing procedures.
- Review/Discuss legal issues on operational codes and security threats to facilities.
- Review/study existing port operational rules 1981;
- Meeting with ECIL.
- Review mooring equipment guide lines for berthing agreements.
- Review/discussed LNG safety and security implementation code in PQ.
- Review/study operation code of LNG entering/berthing with in SIGTTO/OCIMF.
- Review compliance of port activities within existing security rules 1981.
- Review/study PQA operation compliance pertaining to SOLAS, ISPS Code.
- Review security /safety rules 1981 with respect to “The Principles/Regulations governing maritime safety”.
- Meeting with /ECIL/discuss existing coast guarding by Navy and PQA standard operational procedures.
- Draft recommendations for Rules pertaining to LNG Carriers for Port Qasim.
- Draft recommendation for Regulations for LNG Carriers.
- Meeting with ECIL/Discuss parameter for LNG operations.

Initial review confirms the facts that the PQA Rules 1981 are in no contravention with the under drafting recommendation of regulations for LNG Carriers to be finalized after receipt of required information.

6. Material Test Reports of Civil Works.

Reports awaited from EETPL – Refer Annex-7.

7. Consultants Staffing :

Consultants key personnel proposed to be involved in the project, were in the state of readiness from the time of issuance of DO-1 on October 20, 2014. As per requirement they mobilized almost immediately after the DO was received by ECIL + GG. List of Local and Expatriate staff involved/needed for the project work, is attached as Annex-1

8. Contractor's Field Establishment & Staffing.

Yet to be received from the Developers.

9. Main Equipment and Construction Facilities used at the Site.

- | | |
|--|---|
| a) Piling rig. | j) Concrete batching and mixing plant on floating pontoon |
| b) Dredged and Allied equipment move out of site | k) Dump trucks |
| c) Tower Crane | l) Earth Excavator |
| d) Floating Pontoon | m) Equipment for thrust boring |
| e) Transmixer | n) Compactors and Vibrators |
| f) Compressor | o) Standby Gen Sets |
| g) Mobile crane | p) Concrete precasting yard |
| h) Pre-stressing Equipment | q) Welding and painting yard |
| i) Bar Bending Yard / Equipment | |

10. Weather Report.

Monthly Weather Report not received from the Developer.

Date	Weather		Temperature		Remarks
	Rain	Wind	Maximum	Minimum	

11. Tidal Observations:

Data used from PQA's existing facility.

12. Project Progress Photographs

Refer Annex-2

13. Documents Received from the Developers in December, 2014.

13.1 Documents received through PQA (Ref. EETL-PQA-008) dated 11-12-2014.

- i. Project Quality Plan.
- ii. Procedure for Undertaking Project Management Review
- iii. Procedure for Formulating Plans and Procedure.
- iv. Methods Statement for Hydrostatic test.
- v. Procedure for Undertaking Contract Review.
- vi. Procedure for Control of Documents and Communications.
- vii. Procedure for Control of Purchasing including Evaluation of Sub-contractors and Suppliers.
- viii. Procedure for Materials Receiving Inspection, Testing, Identification and Traceability.
- ix. Procedure of Management Resources and Recording of Works Executed, resources utilized and Site records.
- x. Procedure for Control of Inspection, Monitoring, Measuring and Test Equipment (IMMTE).
- xi. Procedure for control of Non-conforming Product.
- xii. Procedure for Implementing Corrective and Preventive Action.
- xiii. Procedure for Handling and Storage of Permanent Materials.
- xiv. Procedure for control of Management Records
- xv. Procedure for Internal Auditing.
- xvi. Procedure for Dealing with Complaints and Enquiries.

13.2 Documents received through PQA Dated 19-12-2014.

- i) Pipeline Drawings:
 - (a) Pipeline Alignment Drawings: 14 Pages
 - (b) Pipeline Construction And Technical Specification (44 Pages)
 - (c) Pipeline BOQ (14 Pages)
 - (d) 42" Pipeline WPA, PQR & WQT (53 Pages)
 - (e) 24" Pipeline WPA, PQR & WQT. (25 Pages)
 - (f) 24" and 42" Pipeline QIP (45 Pages)
 - (g) HDD MSDS (42" and 24") (5 Pages)
 - (h) HDD and Thrust Boring Methods Statements (5 Pages)

- ii) Materials Safety Data Sheet
- iii) Ultrasonic Weld Inspection Report
- iv) 24" and 42" Dia RLNG Pipeline Construction Manual QA QC Manual.
- v) The Horizontal Directions Drilling Process.
- vi) PQR / WQT Inspection Report.
- vii) Bill Of Quantities For Pipeline Fittings.
- viii) Welding Procedure Specification.
- ix) Construction Specifications (RLNG) Re-gasified Liquid Natural (RLNG) Gas Pipeline.

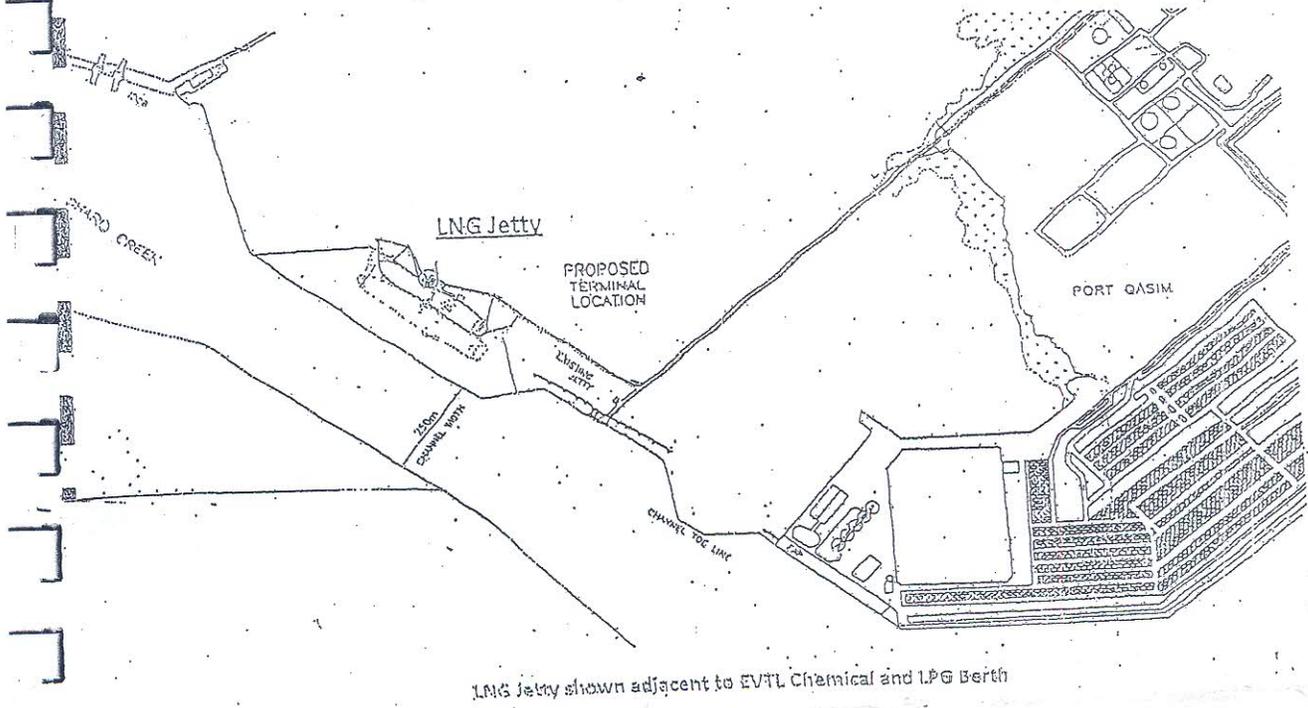
14. Documents yet to be received from EETPL

Refer Annex-4

15. Conclusion

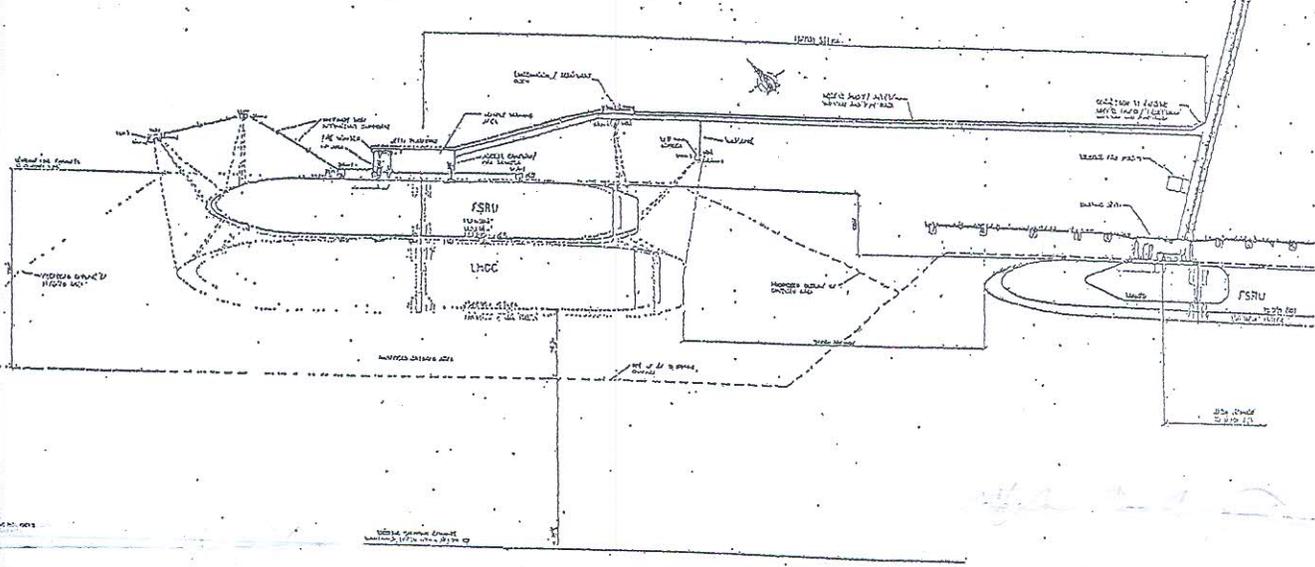
The progress of work in general is as per programme. No major adverse observations regarding quality of the work has so far been received from the Consultants' field staff. However, Civil Engineer's comments and observations stated under items 3.2.1(c), 3.3.2(I)(a), 3.3.2(II) & Annex-4(B)(viii), need attention / necessary action. Since the deployment of the Consultants on the project, was done at much later stage after the actual commencement of work which was even before the formal signing of IA, therefore backlog of the review of various reports and studies, is still outstanding. After having mobilized, various reports and documents have been received by consultants late disjointed and in piecemeal even after the completion of that activity. Quite a number of data / reports are yet to be furnished by EETPL.

Figure "A"



NOTE: The Sketch has been copied from IA of EETPL.

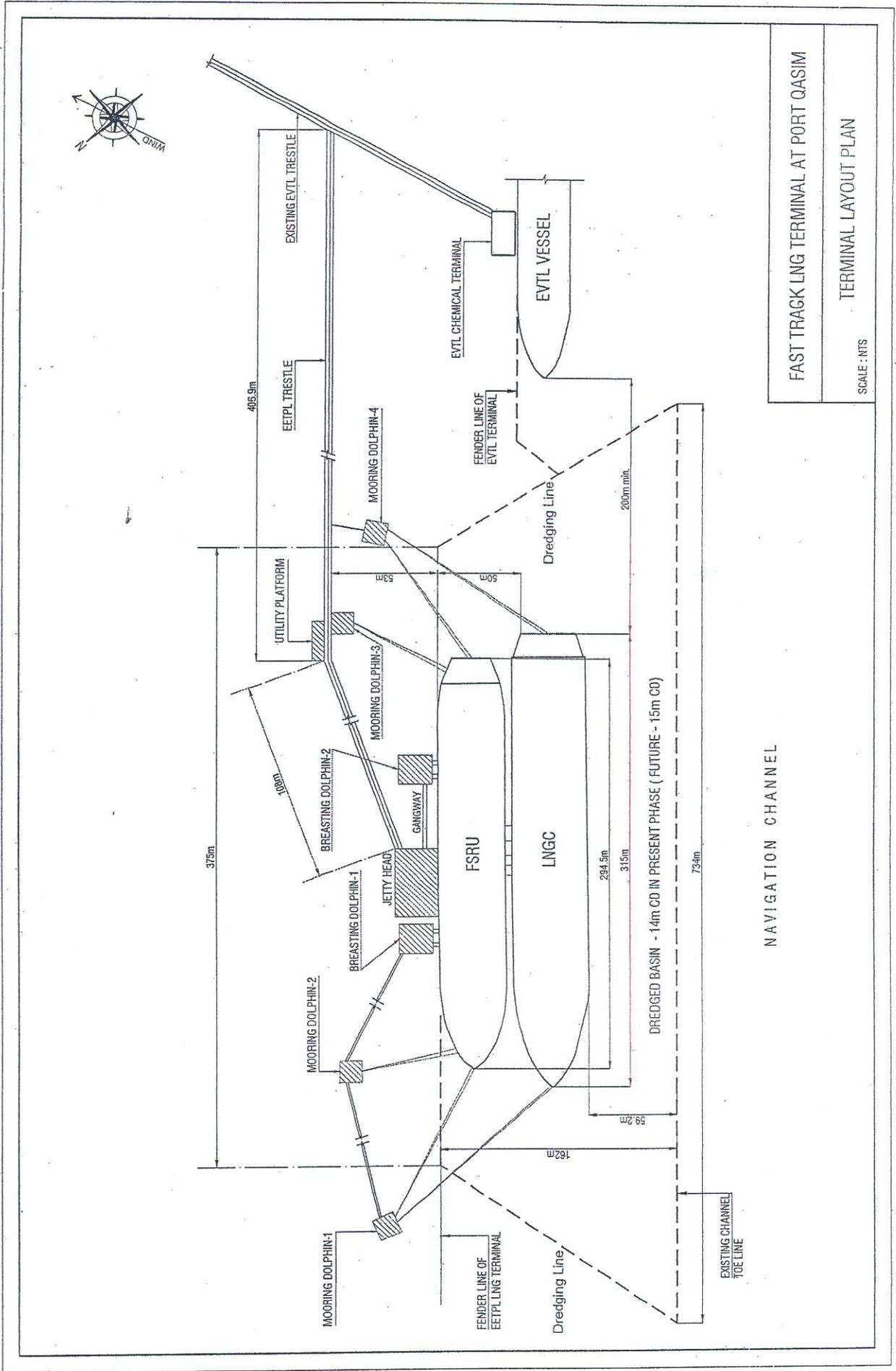
Figure "B"



Layout (Double Bank Arrangement)

NOTE: The Sketch has been copied from IA of EETPL.

Figure "C"



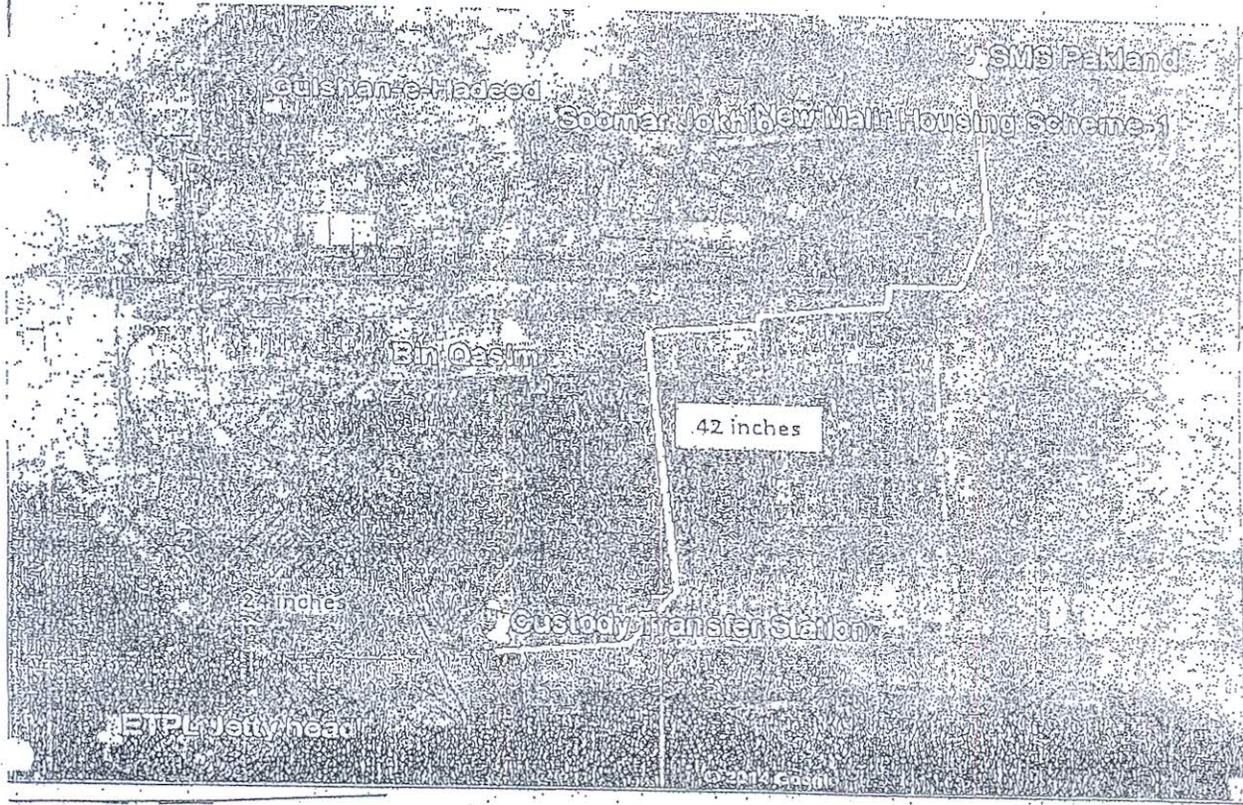
FAST TRACK LNG TERMINAL AT PORT QASIM

TERMINAL LAYOUT PLAN

SCALE : NTS

NAVIGATION CHANNEL

Figure "D"



- R.N.Ki Pipeline Route from ETPL Jetty Head to SMS Pakland

NOTE: The Sketch has been copied from IA of EETPL.

LNG TERMINAL AT PORT QASIM**LIST OF STAFF**

Sr.No.	Name	Nationality	Position
ECIL			
1.	A.N. Qabulio	Pakistani	Project Director
2.	Tanweer A. Khan	Pakistani	Port & Harbour Development Engineer
3.	Capt. Hashmat Ullah Shah	Pakistani	Port Operation Expert
4.	Zafar H. Ismail	Pakistani	Financial Expert
5.	Agha Taimur Khan	Pakistani	Port Charges, Royalty, Tarrif
6.	Tufail Ali Zubedi	Pakistani	Environmental Engineer
7.	Shahid H. Mirza	Pakistani	Civil Engineer
8.	Mohammad Shoaib	Pakistani	Electrical Engineer
9.	Jamiluddin	Pakistani	Mechanical Engineer
10.	Zahid Ali Mahesar	Pakistani	Pipeline expert
11.	Muhammad Bakhtiar Hussain	Pakistani	Hydrographer
12.	M.A.G. Siddiqui	Pakistani	Legal Expert
Sellhorn			
13.	Nobert Peetz	German	Civil & Structure Engineer
14.	Birgirt Brinkmann	German	Civil Engineer
Granada Group (Foreign Consultants)			
15	Mohsin M. Siddiqui	USA	Project Coordinator, LNG and FSRU Specialist
16	Capt. Farooq Hussain	USA	LNG Marine, Navigation & FSRU Terminal Specialist
Support Staff			
1.	Sheikh Shahid Hussain	Pakistani	Coordinating Engineer
2.	Shaikh Abdus Salam	Pakistani	Office Secretary

PROJECT PHOTOGRAPHS

Parapet wall reinforcement is proceeding. Gas Pipe is brought for installation on the sleepers.





View showing the mooring Dolphin 2



View showing the loading plate form Reinforcement bottom



Loading plate Form Top Reinforcement concreting in progress



View showing the loading plate Form during Finishing work



View showing the Mooring Dolphin 4



View showing the Mooring Dolphin 1



View showing the Marine Loading Arm during assembling

Fenders yet to be installed at LNG terminal



**Backpressure Foundation
constructed unit installed**



**Metering Unit Foundation
constructed unit installed at CTS**



**Maritime Civil Engg. Expert witnessing
concrete strength**





24" dia Pipeline crossing at the intake channel of steel mill



Water bath heater placed on foundation at CTS



Metering and Filter Assembly skid placed on foundation at CTS



Pipeline 42" dia placed in Trench and crossing Ghar phattak Bridge



24" dia Pipeline placed Cover Trestle



Pipeline overhead Crossing from old Trestle of EVTL Access Bridge



Back pressure skid placed on foundation at CTS

List of the Drawings received from the office of PQA on November 17, 2014

S. No.	DOCUMENT No.	TITLE	REV	PAGES	REMARKS
1	14S400-DD-DW-ZT-1001	General Layout	1	1	Issu for Construction
2	14S400-DD-DW-ZT-1002	Terminal layout	1	1	Issu for Construction
3	14S400-DD-DW-ZT-1003	Coordinates of Terminal layout	1	1	Issu for Construction
4	14S400-DD-DW-ZT-2001	Dredging Works	1	1	Issu for Construction
5	14S400-DD-DW-SG-1001	Plan and Elevation of Jetty	0	1	Issu for Construction
6	14S400-DD-DW-SG-1002	Hand Rail Arrangement	0	1	Issu for Construction
7	14S400-DD-DW-SG-1003	Structual Drawing for loading Plat form	0	1	Issu for Construction
8	14S400-DD-DW-SG-1004	Structual Drawing for Breasting Dolphin 1&2	0	1	Issu for Construction
9	14S400-DD-DW-SG-1005	Structual Drawing for Mooring Dolphin 1&4	0	1	Issu for Construction
10	14S400-DD-DW-SG-1006	Structual Drawing for Mooring Dolphin 1&3	0	1	Issu for Construction
11	14S400-DD-DW-SG-1007	Structual Drawing for Supporting Dolphin 1&2	0	1	Issu for Construction
12	14S400-DD-DW-SG-1008	Pile Location Of LNG Jetty	0	1	Issu for Construction
13	14S400-DD-DW-SG-1009	Detail of Piles for LNG Jetty	0	1	Issu for Construction
14	14S400-DD-DW-SG-1010	Reinforcement of Loading Platform(1)	0	1	Issu for Construction
15	14S400-DD-DW-SG-1011	Reinforcement of Loading Platform(2)	0	1	Issu for Construction
16	14S400-DD-DW-SG-1012	Reinforcement of Mooring Dolphin(1)	0	1	Issu for Construction
17	14S400-DD-DW-SG-1013	Reinforcement of Mooring Dolphin(2)	0	1	Issu for Construction
18	14S400-DD-DW-SG-1014	Reinforcement of Mooring Dolphin(3)	0	1	Issu for Construction
19	14S400-DD-DW-SG-1015	Reinforcement of Mooring Dolphin(4)	0	1	Issu for Construction
20	14S400-DD-DW-SG-1016	Reinforcement of Supporting Dolphin 1&2	0	1	Issu for Construction
21	14S400-DD-DW-SG-1017	Structure of Pile Head of Tabular Steel Pile 1250	1	1	Issu for Construction
22	14S400-DD-DW-SG-1018	Structure of O 1250 Tabular Steel Piles	0	1	Issu for Construction
23	14S400-DD-DW-SG-1019	Structure of O 1200 Tabular Steel Piles	0	1	Issu for Construction
24	14S400-DD-DW-SG-1020	Reinfocement of Breasting Dolphin 1(1)	0	1	Issu for Construction
25	14S400-DD-DW-SG-1021	Reinforcement of Breasting Dolphin 1(2)	0	1	Issu for Construction
26	14S400-DD-DW-SG-1022	Reinforcement of Breasting Dolphin 1(2)	0	1	Issu for Construction
27	14S400-DD-DW-SG-1023	Reinforcement of Breasting Dolphin 2(2)	0	1	Issu for Construction
28	14S400-DD-DW-SG-1024	Structure of Pile Head of Tabular Steel Piles 1200	1	1	Issu for Construction
29	14S400-DD-DW-SG-1025	Structure Detail For 1500KN Triple Quick Release Hook	0	1	Issu for Construction
30	14S400-DD-DW-SG-1026	Structure Detail For 1500KN Quadruple Quick Release Hook	0	1	Issu for Construction
31	14S400-DD-DW-SG-1027	Cathodic Protections & Anode Installation-Typical	0	1	Issu for Construction
32	14S400-DD-DW-SG-1028	Detail of Bracket of Breasting Dolphin 1	0	1	Issu for Construction

S. No.	DOCUMENT No.	TITLE	REV	PAGES	REMARKS
33	14S400-DD-DW-SG-1031	Reinforcement of Prominence on Mooring Dolphin 1	0	1	Issu for Construction
34	14S400-DD-DW-SG-1032	Reinforcement of Prominence 1 on Mooring Dolphin 2	0	1	Issu for Construction
35	14S400-DD-DW-SG-1033	Reinforcement of Prominence 2 on Mooring Dolphin 2	0	1	Issu for Construction
36	14S400-DD-DW-SG-1034	Reinforcement of Slab on Mooring Dolphin 2	0	1	Issu for Construction
37	14S400-DD-DW-SG-2001	Plan and Elevation of Trestle	0	1	Issu for Construction
38	14S400-DD-DW-SG-2002	Structural Drawing for trestle	0	1	Issu for Construction
39	14S400-DD-DW-SG-2003	Pile Location of Trestle	0	1	Issu for Construction
40	14S400-DD-DW-SG-2004	Detail of Piles of Trestle	0	1	Issu for Construction
41	14S400-DD-DW-SG-2005	Strcture of PHC Pile And PHC Pile Shoes	0	1	Issu for Construction
42	14S400-DD-DW-SG-2006	Strcture of Pile Head PHC Pile	2	1	Issu for Construction
43	14S400-DD-DW-SG-2007	Beam Arrangement of trestle	0	1	Issu for Construction
44	14S400-DD-DW-SG-2008	Reinforcement for Prestress Logitudinal Beam (1)	1	1	Issu for Construction
45	14S400-DD-DW-SG-2009	Reinforcement for Prestress Logitudinal Beam (2)	1	1	Issu for Construction
46	14S400-DD-DW-SG-2035	Reinforcement for Prestress Logitudinal Beam (4)	1	1	Issu for Construction
47	14S400-DD-DW-SG-2034	Reinforcement for Prestress Logitudinal Beam (3)	1	1	Issu for Construction
48	14S400-DD-DW-SG-2010	Reinforcement of Logitudinal Beam (6)	1	1	Issu for Construction
49	14S400-DD-DW-SG-2011	Reinforcement of Logitudinal Beam (7)	1	1	Issu for Construction
50	14S400-DD-DW-SG-2012	Reinforcement of Logitudinal Beam (8)	1	1	Issu for Construction
51	14S400-DD-DW-SG-2013	Reinforcement of Logitudinal Beam (9)	1	1	Issu for Construction
52	14S400-DD-DW-SG-2014	Reinforcement of Logitudinal Beam (10)	1	1	Issu for Construction
53	14S400-DD-DW-SG-2015	Reinforcement of Logitudinal Beam (11)	1	1	Issu for Construction
54	14S400-DD-DW-SG-2016	Reinforcement of Logitudinal Beam (12)	1	1	Issu for Construction
55	14S400-DD-DW-SG-2017	Reinforcement of Logitudinal Beam (13)	1	1	Issu for Construction
56	14S400-DD-DW-SG-2018	Reinforcement of Logitudinal Beam (14)	1	1	Issu for Construction
57	14S400-DD-DW-SG-2019	Reinforcement of Logitudinal Beam (15)	1	1	Issu for Construction
58	14S400-DD-DW-SG-2020	Reinforcement of Transverse Beam TB1	0	1	Issu for Construction
59	14S400-DD-DW-SG-2021	Reinforcement of Transverse Beam TB2(1)	1	1	Issu for Construction
60	14S400-DD-DW-SG-2022	Reinforcement of Transverse Beam TB2(2)	1	1	Issu for Construction
61	14S400-DD-DW-SG-	Structure for Transverse Beam TB3	-	1	Issu for Construction

S. No.	DOCUMENT No.	TITLE	REV	PAGES	REMARKS
62	14S400-DD-DW-SG-2023	Reinforcement of Transverse Beam TB3(1)	0	1	Issu for Construction
63	14S400-DD-DW-SG-2024	Reinforcement of Transverse Beam TB3(2)	1	1	Issu for Construction
64	14S400-DD-DW-SG-	Structure of Transverse Beam TB4	-	1	Issu for Construction
65	14S400-DD-DW-SG-2025	Reinforcement of Transverse Beam TB4(1)	0	1	Issu for Construction
66	14S400-DD-DW-SG-2026	Reinforcement of Transverse Beam TB4(2)	1	1	Issu for Construction
67	14S400-DD-DW-SG-	Structure of Transverse Beam TB5	-	1	Issu for Construction
68	14S400-DD-DW-SG-2027	Reinforcement of Transverse Beam TB5(1)	0	1	Issu for Construction
69	14S400-DD-DW-SG-2028	Reinforcement of Transverse Beam TB5(2)	1	1	Issu for Construction
70	14S400-DD-DW-SG-2029	Reinforcement of Transverse Beam TB6	1	1	Issu for Construction
71	14S400-DD-DW-SG-2030	Reinforcement of Slab 1	0	1	Issu for Construction
72	14S400-DD-DW-SG-2031	Reinforcement of Slab 2(1)	0	1	Issu for Construction
73	14S400-DD-DW-SG-2032	Reinforcement of Slab 2(2)	0	1	Issu for Construction
74	14S400-DD-DW-SG-2033	Reinforcement of Slab 3	0	1	Issu for Construction
75	14S400-DD-DW-SG-2036	Reinforcement for Ribbed Slab (Type-1 & Type-3)	0	1	Issu for Construction
76	14S400-DD-DW-SG-2037	Reinforcement for Ribbed Slab (Type-4)	0	1	Issu for Construction
77	14S400-DD-DW-SG-2038	Plan for Ribbed Slab of LB(6-10)	0	1	Issu for Construction
78	14S400-DD-DW-SG-2039	Plan for Ribbed Slab of LB(11-15)	0	1	Issu for Construction
79	14S400-DD-DW-SG-2040	Reinforcement of Transverse Beam TB7(1)	0	1	Issu for Construction
80	14S400-DD-DW-SG-2041	Reinforcement of Transverse Beam TB7(2)	0	1	Issu for Construction
81	14S400-DD-DW-JG-1001	Layout Plan of Pipe-Rack	0	1	Issu for Construction
82	14S400-DD-DW-JG-1002	Elevation And Reinforcement of Pipe-Rack (Part-1)	0	1	Issu for Construction
83	14S400-DD-DW-JG-1003	Elevation And Reinforcement of Pipe-Rack (Part-2)	0	1	Issu for Construction
84	14S400-DD-DW-QL-1001	General Layout Plan of Steel Walkways	1	1	Issu for Construction
85	14S400-DD-DW-QL-1002	The Structure of #1 and #2 Steel Wakway (1)	1	1	Issu for Construction
86	14S400-DD-DW-QL-1003	The Structure of #1 and #2 Steel Wakway (2)	1	1	Issu for Construction
87	14S400-DD-DW-QL-1004	The Structure of #1 and #2 Steel Wakway (3)	1	1	Issu for Construction
88	14S400-DD-DW-QL-1005	The Structure of #1 and #2 Steel Wakway (4)	1	1	Issu for Construction
89	14S400-DD-DW-QL-1006	The Structure of #1 and #2 Steel Wakway (5)	1	1	Issu for Construction
90	14S400-DD-DW-QL-1007	The Accessory of #1 and #2 Steel Wakway	1	1	Issu for Construction
91	14S400-DD-DW-QL-1008	The Structure of #3 and #4 Steel Wakway (1)	1	1	Issu for Construction

S. No.	DOCUMENT No.	TITLE	REV	PAGES	REMARKS
92	14S400-DD-DW-QL-1009	The Structure of #3 and #4 Steel Wakway (2)	1	1	Issu for Construction
93	14S400-DD-DW-QL-1010	The Structure of #3 and #4 Steel Wakway (3)	1	1	Issu for Construction
94	14S400-DD-DW-QL-1011	The Structure of #3 and #4 Steel Wakway (4)	1	1	Issu for Construction
95	14S400-DD-DW-QL-1012	The Structure of #3 and #4 Steel Wakway (5)	1	1	Issu for Construction
96	14S400-DD-DW-QL-1013	The Accessory of #3 and #4 Steel Wakway	1	1	Issu for Construction
97	14S400-DD-DW-QL-1014	The Structure of #5 Steel Wakway (1)	1	1	Issu for Construction
98	14S400-DD-DW-QL-1015	The Structure of #5 Steel Wakway (2)	1	1	Issu for Construction
99	14S400-DD-DW-QL-1016	The Structure of #5 Steel Wakway (3)	1	1	Issu for Construction
100	14S400-DD-DW-QL-1017	The Structure of #5 Steel Wakway (4)	1	1	Issu for Construction
101	14S400-DD-DW-QL-1018	The Structure of #5 Steel Wakway (5)	1	1	Issu for Construction
102	14S400-DD-DW-QL-1019	The Accessory of #5 Steel Wakway	1	1	Issu for Construction
103	14S400-DD-DW-QL-1020	The Structure of #6 Steel Wakway (1)	1	1	Issu for Construction
104	14S400-DD-DW-QL-1021	The Structure of #6 Steel Wakway (2)	1	1	Issu for Construction
105	14S400-DD-DW-QL-1022	The Accessory of #6 Steel Wakways	1	1	Issu for Construction
106	14S400-DD-DW-QL-1023	Anchor Chain and Anti-Seismic Damping Pad	1	1	Issu for Construction
107	14S400-DD-DW-QL-1024	The Structure of Steel Ladder (1)	1	1	Issu for Construction
108	14S400-DD-DW-QL-1025	The Structure of Steel Ladder (2)	1	1	Issu for Construction

DOCUMENTS YET TO BE RECEIVED:

1. Pipeline Works:

(a) Custody Transfer Station (CTS):

- Design & Drawings (Mechanical, Electrical & Instrumentation)
Technical specification relevant to CTS
- Pipe & Equipment, Filter Assembly, Metering Skids, Water bath heater Third Party inspection report (factory) ETC
- BOQ – (Mechanical, Electrical & Instrumentation)-Supply & Installation of Equipment
- Welding procedure Specification (WPS)
- Procedure Qualification Record PQR-welder
- Welder Qualification Test (WQT)
- Quality Inspection Plan-QIP
- Firefighting system, Fire & Gas detection
- CP System Design, Drawing, Technical specification & BOQ included supply & installation
CP system installation methodology

(b) 24” dia pipeline from Jetty loading Platform to Custody Transfer Station (CTS) Length 6.5 km:

- Design & Drawings must be in A-1Size (Plot Plan, sectional drawings & Detail/ shop drawings), Isometric drawings
- Technical specification for all material & Installation / construction of pipeline
- Line pipe 24”dia (MSDS) and Three Layer P.E coating manufacturer’s inspection report
- Monolithic joints for isolation of underground to above ground pipelines
- Insulator
- Rubber sleeve for isolating Casing pipeline & Carrier pipeline.
- Heat shrink sleeve
- Tape coating on elbows/ bend (MSDS)
- Vent pipe installation on casing pipe on both sides
- CP System Design, Drawing, Technical specification & BOQ included supply & installation methodology

(c) 42” dia pipeline from Custody Transfer Area (CTS) up to SSGC Network.

- Design & Drawings in A-1Size (Plot Plan, sectional drawings & Detail/ shop drawings), Isometric drawings
- Technical specification for all material & Installation /construction of pipeline including:
 - Line pipe 42”dia (MSDS) and Third Party inspection report (factory).
 - BOQ
 - WPS
 - PQR-Welder
 - PQR-Material, WQT and QIP
 - Monolithic joints for isolation of underground pipeline

- Insulator
- End seal for isolating Casing pipeline & Carrier pipeline
- Heat shrink sleeve, tape coating on elbows & bend.
- Vent pipe installation on casing pipe on both sides

(d) Fire Protection & Firefighting system:

- Drawing, Design
- Technical specification & Safety philosophy & Applicable codes /standards
- BOQ included supply of material & Installation of all material/equipment's etc

(e) Installation at Jetty:

- Submission of Design & Drawings must be in A-1 size including (Plot Plan, sectional drawings & Detail/ shop drawings) and Isometric drawings/detail drawing in A-3 size.
- Technical specification of equipment's and Installation details procedures
- Quality Inspection Plan
- Data sheets (manufacturing)
- List of Mechanical equipment to be installed on Jetty along with Technical specification.

(xiv) Methodology & test Procedures:

- Thrust Boring
- Horizontal drilling direction (HDD)
- Tape coating / application wrapping on elbow /Bends/pipeline
- Hydrostatic test Procedure
- Pile coating/painting application procedure
- Holiday test procedure to check the coating integrity of pipelines

Documents partially received.

Following documents were partially received:

(i) Test Report:

Line pipe 24" & 42" dia of Chemical, Mechanical & Metallography steel metal factory reports received, but same were not segregated for different sizes dia & wall thicknesses of line pipes.

Required; number of line pipe with different schedules, length coated & uncoated / bare manufactured at Factory, Quality Inspection Plan, monitoring procedure & three layer coating application procedures, QIP during manufacturing & test reports.

(ii) WPS PQR, WQT Inspection Record:

- Welding procedure specification (WPS) for 24" dia line pipe API-5LX-70 found ok, but for 24" dia sch.100 material A-333 Gr.6 WPS have not been submitted, commenced the welding work without submitting WPS,WQT.
- Procedure qualification record (PQR) of material (Line pipes with different schedule such as (24" dia Sch-100 SMLS Material A-333 Gr.6) have not been submitted.

(iii) Material specification relevant Document:

- a) **24”dia sch.100,SMLS,BE A-333 Gr.6- Length-576m (New Trestle)**
WPS, WQT, PQR are still awaited
- b) **24”dia sch.40 SAW, BE API-5L Gr.X-70- Length-1080m (Old Trestle) & 1284 m inside underground EVTL area.**
WPS reviewed and found ok
WQT record is missing
PRQ for material & welder missing
- c) **24”dia 10.74 mm ,SAW, BE API-5L Gr.X-70- Length-4500m EVTL battery limits to Custody Transfer System(CTS)**
WPS reviewed and found ok
WQT record is missing
PRQ for material & welder missing
- d) **42”dia 16.74 mm wt ,SAW, BE API-5L Gr.X-70- Length-1200m CTS battery limits to D.Factor**
WPS reviewed and found ok
WQT record is missing
PRQ for material & welder missing
- e) **42”dia 13.81 mm wt ,SAW, BE API-5L Gr.X-70- Length- 4104 m D.Factor to SMS Pakland**
WPS reviewed and found ok
WQT received
PRQ reviewed and found ok

(iv) Technical & Construction Specifications:

Technical specification reviewed found following documents missing

- Line pipes material specification
- Valves & fittings
- Three layer Poly ethylene coating
- Heat shrink sleeve specification
- Monolithic Joints/ Isolation joints
- Spacers for carried and casing pipeline
- End seal material casing pipe & carrier pipelines.
- Pig launcher & Pig receiver
- Anchor pipe
- Anchor block
- Pigging material for (Foam, Cleaning wire, Gauging & Testing pigs)
- CP System (Design, drawing, Technical specification BOQ Material supply & Installation)

(v) Pipe Alignment Drawings:

Pipe Alignment drawing have been provided by EETPL in A-3 size from 1 to 14 EVTL Gate to CTS & SMS Pakland , Plant inside layout drawings were missing.Drawings were required in A-1 size. Shop drawings are in A-3 to monitor/check the work on site.

- In the above drawings Plot plan of pipeline was not provided which shows pipeline from LNG Jetty Platform to SMS PakLand.
- All isometric drawings to be provided.

- Layout Plan of Jetty Top side Drawing submitted in A-3 Size but it was required in A-1 size. Also Isometric drawings of Jetty Top required
- Layout plan of custody Transfer Drawing submitted in A-3 Size, but we required in A-1 Size & also was required isometric drawings to monitor the jobs conveniently in depth way.

(vi) Quality Inspection Plan (QIP) :

- Quality Inspection Plan (QIP) for 24”dia pipeline received & reviewed found satisfactory. For 42”dia pipeline QIP have not submitted to us but mentioned in Transmittal #06, dated:09/12/2014 but same to be required accordingly.
- QIP Plan submitted on plain paper, without logo or signature of Developer/Engro. All documents should be submitted in proper way to accomplish the all formalities.

(vii) Bill of Quantity (BOQ):

BOQ submitted after review it was found incomplete i.e. deficient in purchase of material of Line pipes, Fitting, Pig Launcher, Receiver, Pig material, Isolating joints, insulators, end seal, Construction / Installation material, piping, crossing through Thrust boring & HDD to be included.

(viii) Horizontal Drilling Direction (HDD) / Thrust Boring

Horizontal drilling direction/ Thrust Boring methodology document submitted on 09/12/2014 to PQA after all crossing, were completed. Documents were reviewed & noted that it was written on plain paper, without proper stamping or signature. It did not indicate exact crossing road or railway & Canal/Nallah, length of crossing, type of equipment and procedures they have followed/applied to conduct Thrust boring & HDD.

2. Hydrography:

1. PQA Wish List from Mr. Jawad, Dir. (Channel Dredging) as per requirement of Director General (Technical), PQA.
2. Bathymetric data of Chara / Chhanwaddo Creek to study the prospect of developing navigable channel as alternate passage bay.
3. Met-Ocean data, reports or studies available in Hydrographic Department.

3. Environmental Studies:

1. Second Quarterly Environmental Monitoring report (Sep/Oct/Nov-2014), the one submitted to SEPA
2. Monthly Environmental Monitoring report (Dec 2014)
3. Minutes of Meeting dated 7 Jan 2015 & 14 Jan 2015
4. Updated schedule of activities at EETPL

5. Mooring Simulation may kindly be shared
6. Report on 1 UCN responding mangrove replantation.

4. Piling and Concrete Work:

1. Mix design used for different grades of concrete used.
2. Representative cube test result of various elements.
3. Test result of materials used in concrete i.e aggregates & Cement etc.
4. Technical information along with manufacturers' recommendation's for Additive's and curing compound, used in concrete works.
5. Test result of Deformed and plane steel reinforcement.
6. Concrete test result of imported precast concrete piles.
7. Field test result of different coats of painting on steel piles
8. Test results of spiral welding of steel piles.
9. Toe level of driven steel and concrete piles.
10. Test report of galvanization of various elements used in the project

5. Third Party Inspection Report & approved Documents:

- a) Fenders & Accessories.
- b) Prefabricated segments of Walkways.
- c) Imported precast concrete piles.
- d) Imported Mechanical and Electrical items including those at Jetty and STS Sites.
- e) Verified and signed copy of the layout of the Jetty including Breasting & Mooring Dolphins, confirming the coordinates given in Design Drawing.
- f) Verified / signed copy of the post dredging survey (soundings) of the berthing basin.

6. Documents required by Granda Group:

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
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

Annex 5

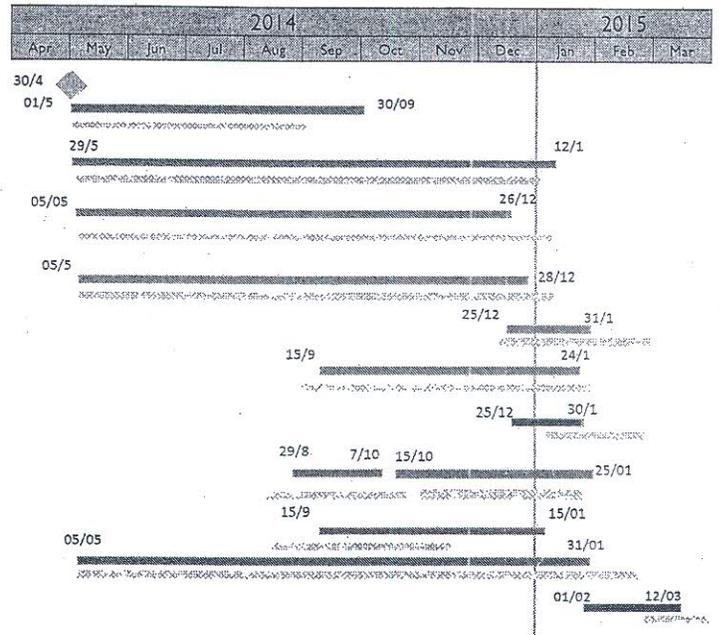
FAST TRACK LNG PROJECT

Project Update Project Schedule

- LSA Signing
- Engineering
- Equipment Procurement & Delivery at Site of (JTS-CTS)
- Marine Works - Jetty Platform
- Marine Works – Trestle
- Marine Works – Other
- CTS Construction Works
- JTS Equipment Erection
- Pipeline 24"
- Pipeline 42"
- Mechanical Completion
- Pre-Commissioning / Commissioning

original terminal

Current Bar
Baseline
Critical Path



Note: FSRU Arrives without Carrier

CTS - Custody Transfer Station

JTS - Jetty Top Side

Environmental Consultant's Observation And Corresponding Response

S.No.	Description	Reply by EMC
1.	Pg 2 states that "Mangrove Removal has been completed in July". Details of area affected is missing and need to be provided.	Please see page #3 of October monitoring report where the details of the reclamation are provided in Fig 1.3 The quantity of dredged material is 1.07 million m ³ .
2.	Work Methodology comprising of data collection, sampling technique and testing methodology is not attached. The report (Annexure 1), contains Monitoring Frequency in the Methodology section.	Sampling of air emissions, wastewater and noise are conducted as per the Sampling Rules. The testing methodology is provided in the testing report. (please see Annex 1)
3.	October Report Annexure I (as Sept 2014 report); details the monitoring frequency of environmental parameters. The monitoring frequency do not coincide with the frequency given in ESIA approved by SEPA. These include Solid waste, Dredged material, Bentic Fauna.	The monitoring frequency is per the revised ESIA report. Solid waste is disposed off as per EETL waste management Plan (Annex II) Dredged material is tested monthly and was tested for Oil & Grease and TPH in Sep and October and tested for Oil & grease, TPH and Heavy metals in November Benthic Fauna was checked in December as it takes some time for the regeneration for the species after dredging. (Report attached in Annex III)
4.	"Occupational Safety" parameter proposed for monitoring in SEPA	Please see page 9 (Heading: Temporary Construction Camp site)

S.No.	Description	Reply by EMC
	approved ESIA is not included in the October Report also.	and 12 (Heading: Health and Safety) of October report in which on photograph of slip trip hazard was identified in the report
5.	"Land Reclamation" parameter proposed for monitoring in SEPA approved ESIA is not included in the October Report also.	Land Reclamation – Reclamation site is present and the dredged material is stored there pending instructions from POA regarding its reuse /disposal/ The dredged material sample is checked monthly. Please see section 2.1.5 for dredged material results.
6.	<p>Test Parameters of different pollution medium as approved in ESIA by SEPA are not followed in October 2014.</p> <p>These include</p> <ul style="list-style-type: none"> Dredged material (Benthic community, erosion and sedimentation, vegetation,) Marine ecology (biodiversity) Solid waste (quantity and quality) Waste water (Primary pollutants: This needs further interpretation) Soil(contamination, erosion, sedimentation,) Occupational Safety (accidents, PPEs, Annoyance) Land Reclamation (soil quality) 	<p>Benthic Community , marine ecology has been checked in December and Report is attached in Annexure III. The reclamation site is lined with geotextile material and the status of the site is checked during monthly visits.</p> <p>Wastewater is generated only at the temporary constructions site and it is collected in the septic tank and disposed off through KMC. The following parameters are checked for wastewater : pH, BOD, COD, TDS, TSS and Oil and grease against NEQS limits. Occupational Health and Safety: It is checked and reported on monthly basis under the heading of Temporary Construction Camp Site and Health & Safety. A safety statistics board is</p>

S.No.	Description	Reply by EMC
		<p>maintained notifying accidents /incidents against hours worked (Photo attached in page 12 of October report. EETL has a comprehensive project management plan and conduct internal audits, toolbox talks and training sessions regularly. (Photos on page 13 of the October report)</p>
7.	<p>Text of observation is the same with minor changes</p> <ul style="list-style-type: none"> a) Temporary construction camp site b) Ambient Air Quality c) Generator Emissions d) Noise e) Waste-water f) Water and drinking water g) Solid waste h) Health & Safety i) Mangroves removal and replantation <p>95% of the text is the same and does not added any value the second time it is repeated. Hence it is better if the same is excluded.</p>	<p>The text of observation remains the same as no major changes have occurred over the past months. The same is included for clarification purposes and summary is included in the quarterly monitoring report to SEPA.</p> <p>It shall be excluded after discussion with EETL.</p>
8.	<p>Ambient Air Quality refers to SEQs pg 14 while Noise refers to NEQS pg 15 while IFC standards proposed for waste water are never referred.</p>	<p>Ambient air quality parameters SEQs were referred in the beginning but after receiving clarification from SEPA regarding the SEQs for ambient air</p>

S.No.	Description	Reply by EMC
		<p>quality, the NEQS for ambient air quality is being followed.</p> <p>IFC standards for wastewater are not being applied here as the wastewater from septic tank is not treated and neither is it being discharged out. The waste water from septic tank is disposed through KMC.</p>
9.	<p>October 2014 report does not have laboratory test reports attached to the main report</p>	<p>The reports are being sent to EETL. The test results are reported and discussed in the report. The reports shall be annexed from December.</p>
10.	<p>Waste water parameters shown in Oct 2014 report do not comply with NEQS. Environmental Monitoring Report states (pg 16) that "waste water is disposed off via PQA".</p> <p>This transfers the responsibility to PQA the disposal of waste water that is not in compliance with NEQS. Further clarification is needed so as to determine the party responsible for disposal of non-compliant waste water. Corrective measures for complying waste water with PK-NEQS, in any case, the responsibility of EETPL.</p> <p>Recommendation as to comply waste water with NEQS need to be provided / included in the report for construction</p>	<p>The mistake is regretted. The wastewater is disposed off via KMC.</p> <p>The wastewater is collected and disposed via KMC and since no treatment is being done, hence mitigation measures are not recommended.</p> <p>For Operation Phase the wastewater treatment and disposal shall conform to the EMP of the revised ESIA Report.</p>

S.No.	Description	Reply by EMC
	as well as operations phase.	
11.	Solid waste has generated in the October and its disposal mechanism is stated (pg 10) to be through contractors. Solid waste inventory is required in line with SEPA NOC dated 07-07-2011 section (xv).	Please see Annex II for Solid Waste Management Plan and inventory
12.	SEPA Approved ESIA stated that baseline monitoring will be done for a) Air emissions and b) noise. The report does not refer to any such activity and discussion of incremental effects on environment due to this project is missing in October report also	Baseline monitoring of air emissions and noise was conducted during the ESIA study of the project. (ESIA Report dated January 2014) The incremental effects on environment from baseline shall be provided in the December Report.
13.	Because the objective of October report also, stated (Page 4), "IMC will monitor implementation of EMP" SEPA NOC section (vi) " <u>EETPL will strictly adhere to minimize negative environmental impacts on marine ecosystem</u> "; hence the responsibility of implementation of Environmental Management and Monitoring Plan lies on EETPL. Mitigation efforts on EETPL's part in	EETL has a comprehensive Project Management Plan and their contractors M/s China Harbour also have their own Project management plans which have been shared with EMC. As reported earlier, please see reply of #10

S.No.	Description	Reply by EMC
	light of Environmental Monitoring Report October 2014, is missing for non-complying items such as waste water.	
14.	Some typo / formatting issues found (e.g. page number missing after pg 13, etc) in Oct Report	Typo error is regretted and shall be rectified.
15.	[Carried forward partially from Sept Report] September Report Executive Summary states that dredging commenced in August, however no further discussion is found regarding its quantity, commentary of test results, mode of disposal and approval from SEPA for disposal of the same	The amount of dredged material is 1.07million m ³ The dredged material is collected in the cofferdam constructed for the purpose and the testing of dredged material commenced from September. The dredged material shall be disposed off as per advice from PQA.
16.	[Carried forward partially from Sept Report] Engro and its IMC need to see what parameters for <u>Waste Water and Air Emission</u> , it ought to test in light of National Environmental Quality Standards (Self-Monitoring and Reporting by Industries) Rules in line with SEPA NOC dated 07-07-2011 section (xiv)	Wastewater is generated only at the Temporary construction camp and air emissions are generated from the generator at the temporary construction camp and from pipeline laying activity at the jetty The wastewater is collected in septic tank and it is not discharged out but is disposed off through KMC. The primary parameters that are checked are: pH, BOD, COD, TDS, TSS and Oil and Grease.

S.No.	Description	Reply by EMC
		As per the SMART Rules 2001, the wastewater that is discharged out of site are to be checked and ECTL is a zero discharge facility
17.	[Carried forward from Sept Report] Copy of quarterly report submitted to SEPA is required in line with SEPA NOC dated 07-07-2011 section (xiii)	Has been sent and copy provided to ECTL with SEPA receipt
18.	[Carried forward from Sept Report] Copy of submission to SEPA of lab analysis of dredged material along with approval of mode and area for disposal of the same is required in line with SEPA NOC dated 07-07-2011 section (viii)	Quarterly monitoring report is submitted to SEPA. Two reports have so far been submitted June-August 2014 and September to November 2014.
19.	[Carried forward from Sept Report] SEPA approval through NOC dated 07-07-2014 states that IUCN / WWF and Forest Department of Govt. of Sindh will be consulted for mangrove replantation. Engro is only going ahead (as per meeting held on site on 24 dec 2014) with IUCN's proposal; to be shared after August 15, 2014	ECTL has signed MOU with IUCN. ECTL shall be consulting with WWF and Forest Department as per conditions of SEPA NOC for the project.
20.	[Carried forward from Sept Report] September and October report:	Typo error is regretted. It is <i>ten times</i> <u>the amount removed</u>

S.No.	Description	Reply by EMC
	<p>mangrove section Pg 19 and Pg 13 respectively states that "mangrove atleast 5 times will be replanted" but SEPA NOC states that it will be ten times the area destroyed.</p>	
21.	<p>[Carried forward from Sept Report] Sept / Oct Report : The concept of testing dredged material is to check the underlying minerals in the sea bed that will be re-suspended due to dredging. Mineral testing is missing in September / October 2014 report.</p>	<p>Heavy metals as well as Oil and Grease and TPH have been tested and reported in November report.</p>

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