Second Round of
Responses to DGAA Observations
Submitted by 4/23/04

MINISTRY OF ENERGY AND MINES
GENERAL BUREAU OF ENVIRONMENTAL AFFAIRS

REPORT NO. 011-2004/EM-DGAA/OC/FD/RM/OA

TO	:	Director General of Environmental Affairs
SUBJECT	:	Evaluation of the Answer to the Observations to the Environmental Impact Assessment of the "LNG Exportation Project, Pampa Melchorita, Peru".
REFERENCE:		Writ No. 1421938 Writ No. 1454846
DATE	:	San Borja, March 22, 2004

PERU LNG S.R.L. filed the Environmental Impact Assessment for the project "LNG Exportation, Pampa Melchorita, Peru". After reviewing it, the following information has been obtained:

BACKGROUND

- On July 30, 2003, under cover of Writ No. 1421938, the company PERU LNG S.R.L. filed the Environmental Impact Assessment for the LNG Exportation Project, Pampa Melchorita, Peru.
- On August 14, 2003, under cover of Writ No. 1424064, the company PERU LNG S.R.L. filed the Affidavit of two professionals confirming their participation in the preparation of the EIA for the Liquefied Natural Gas Exportation Project to be carried out at Pampa Melchorita, in accordance with the letter from the consulting firm Golder Associates dated July 25th, which forms part of the documents attached to letter PLNG-0003-03.
- On August 19, 2003, through Official Letter No. 1379-2003/MEM-AAM the company was notified to publish the summons for the Public Hearing that was held on October 2, 2003, at Hotel El Sausal, Panamericana Sur Km 197, Sunampe, Chincha, Ica, in the Official Gazette "El Peruano" and in a local newspaper of heavy circulation, as established in the Regulations for Citizens' Participation, Ministerial Resolution No. 596-2002-EM/DM.
- On August 19, 2003, through Official Letter No. 1381-2003/MEM-AAM, the company was notified to publish the summons for the Public Hearing that was held on October 3, 2003, in the Auditorium of the Municipality of Cañete, Lima, in the Official Gazette "El Peruano" and in a local newspaper of heavy circulation, as established in the Regulations for Citizens' Participation, Ministerial Resolution No. 596-2002-EM/DM.
- On August 28, 2003, under cover of Writ No. 1426073, the company PERU LNG S.R.L. submitted the following in respect of the Public Hearing for the "LNG Exportation Project":
  - ❑ Full page of the notices published in the newspaper "Al Dia con Matices" for the province of Cañete and in the newspaper "La Voz de Ica", for the province of Chincha.
  - ❑ A copy of the radio broadcasts contracted, indicating the number of times and the dates on which the summons must be broadcast. In Cañete, broadcasting was entrusted to "Radio Imperial" and, in Chincha, to "Radio

Super Satelite", both considered as radios with the greatest audience in their respective provinces.

- ❑ A copy of the DHL waybill of the letter addressed to the Regional President sent to the Lima Region Headquarters in Huacho.

- On August 26, 2003, under cover of Writ No. 1425668, INRENA submitted Official Letter No. 521-03-INRENA-OGATEIRN where it stated that it would forward the corresponding Technical Report no later than September 11th.
- On August 26, 2003, under cover of Writ No. 1425549, the company PERU LNG S.R.L. submitted two original lists of the attendees to the Technical Meeting of the LNG Exportation Project, Pampa Melchorita – Cañete.
- On September 12, 2003, under cover of Writ No. 1428152, the Regional Government of Ica forwarded the Minutes of the Participative Workshop held before the Public Hearing of the EIA – Project for the Exportation of Liquefied Natural Gas (LNG) "Pampa Melchorita" – Cañete, which was held on September 10 at Hotel El Sausal, located at Panamericana Sur Km 197 – Sunampe – Cincha.
- On September 15, 2003, under cover of Writ No. 1428424, the company PERU LNG S.R.L. submitted the following:
  - o Return receipt of the Regional President of Lima, informing of the activities to be carried out as part of the consulting and citizens' participation process.
  - o The publications made in the newspapers "Al Dia con Matices" and "La Voz de Ica" on September 6 and 8, 2003.
  - o A copy of the radio broadcasts made in the radios with the highest audience in each of the provinces.
  - o Printed presentation used in the consultation and participation workshops held in Cañete and Chincha.
  - o A digital copy of the presentation used in the consultation and participation workshops held in Cañete and Chincha.
- On October 2, 2003 the Public Hearing of the Environmental Impact Assessment for the LNG Exportation Project, Pampa Melchorita, Peru, was held at Hotel El Sausal, located at Panamericana Sur, km. 197.5, Sunampe – Chincha Alta.
- On October 3, 2002, under cover of Writ No. 1431401, the Director of Water Safety and Surveillance, Captain SGC Carlos Lema Osores, submitted Official Letter G-500-597 to the DGAA-MEM, indicating that in Official Letter No. G-500-505 dated August 18, 2003, this Bureau informed of the arrangements made with Captain SGC Javier Gaviola Tejada, Environment Director of the General Bureau of Harbor Masters and Coastguards, requesting a technical opinion on the said projects.
- On October 9, 2003, under cover of Writ No. 1431894, the company PERU LNG S.R.L. submitted the following documents:
  - ◆ Letter from the Cerro Azul District Mayor requesting a digital copy of the EIA.
  - ◆ Reply to the District Mayor attaching the requested copy.
  - ◆ Letter sent to the Regional Bureau of Energy and Mines of Ica.
  - ◆ Letter to the Regional president of Lima (includes letter of reply)
  - ◆ Letter to the Regional President of Ica.
  - ◆ Letter to the Mayor of the Province of Cañete (2 letters)
  - ◆ Letter to the Provincial Mayor of Chincha.
  - ◆ Letter to the Chairman of the Energy and Mines Commission of Congress
- On October 20, 2003, through Official Letter No. 15163-2003-OSINERG-GFH/CGC, OSINERG submitted to the DGAA-MEM its comments on the Environmental Impact Assessment for the Project "Installation of LNG Plant" Planta Melchorita, Cañete, Lima.

- On October 29, 2003, through Memorandum No. 418-2003-MEM/DGH, the DGH-MEM forwarded its comments on the Environmental Impact Assessment for the Project "Installation of LNG Plant".
- On November 6, 2003, under cover of Writ No. 1437391 the "General Bureau of Environmental Health DIGESA" submitted Official Letter No. 7518-2003/DG/DIGESA, forwarding its observations and recommendations contained in Report No. 8502-2003/DEEPA.
- On November 14, 2003, under cover of Writ No. 1439629 the Peruvian Institute of the Sea filed Official Letter No. 300-389-2003-PRODUCE/IMP with the DGAA-MEM, submitting its Opinion on the Environmental Impact Assessment for the Project "Installation of LNG Plant".
- On February 25, 2004, through Writ No. 1454846, the company PERU LNG S.R.L. submitted the Answers to the Observations to Report No. 029-2003-EM-DGAA/0C/RM/FD/ML.

OBSERVATIONS

- Observation No. 01 item "a" has been partially answered; the company must undertake to submit the title deed to the land, before starting the construction stage.

Response: PERU LNG commits to file with DGAA, before the commencement of the construction stage, documents that prove that it is the owner of the plot of land where the Natural Gas Liquefaction Plant will be built.

- Observation No. 01 item "b" has been partially answered; the company must undertake to submit the Zoning Certificate issued by the Provincial Municipality of Cañete before starting the construction stage.

Response 01b: PERU LNG commits to file with DGAA the Zoning Certificate of the area where the Natural Gas Liquefaction Plant will be built issued by the competent Municipality, before the commencement of the construction stage,

- Observation No. 04 has been partially answered; the company must undertake to submit the Certificate of approval of the Oceanographic study issued by the Hydrography and Navigation Bureau of the Peruvian Navy, before starting the construction stage.

Response: On April 14th, 2004, PERU LNG received Official Letter N° V200-1274 from the General Bureau of Harbor Master's Offices and Coast Guards (DICAPI), whereby PERU LNG was informed that the Bureau of Hydrographic and Navigation had approved the Hydro Oceanographic Study. PERU LNG has given notice to the General Bureau of Environmental Affairs of the Ministry of Energy and Mines on April 15th, 2004 (letter PLNG 0080-04). Copies of the Official Letter from DICAPI and the letter sent by PERU LNG to DGAA are attached hereto. (See Attachment 4).

- Observation No. 06 has been partially answered; the company must submit the Form of the General Employment Contract that the company will sign with the workers.

Response: The general model of Employment Contract is included hereto as Attachment 6. This model contract can be modified in keeping with the specific requirements set forth in the Law for each case, and according to the employment needs of PERU LNG, the contractor and/or sub-contractors.

- Observation No. 07 has been partially answered; the company must indicate the mitigation measures it will adopt to minimize the appearance of intermediaries during the hiring of personnel.

Response: Workers will be hired by PERU LNG, the contractor and/or sub-contractors in compliance with the commitments assumed by PERU LNG.
Only in those special cases for the contract of serviceswhere highly qualified or complementary services are required, said services will be rendered in keeping with the labor intermediation mechanisms contemplated in the Law.

The company believes that avoiding the involvement of intermediaries or middlemen is of utmost importance. Accordingly, it will take the necessary measures during the hiring process, as follows:

The selection process will abide by the principles of transparency and equity.
An office will be opened in the city of San Vicente de Cañete, department of Lima, and another office will be opened in the city of Chincha, department of Ica, as both areas are considered to be included within the direct area of influence of the project.
The offices will be installed in areas that are easily accessible to the local population, and the exact location of the offices will be timely disclosed to the local population for its knowledge through the media.
The local population will be informed through the media (local dailies and the most listened-to local radio station) about the need to hire workers and the place where they should go to obtain additional information, also we will work an information methodology in national level, telling people that we are going to give preference to the local citizens of the area of influence for the non skill works .

The information on the requirements to be met by potential workers to be eligible for a job will be provided at these offices. This information will be available and easily accessible to interested parties. Data sheets (resumes) will also be received at these offices, which will also provide information of the selected workers and the steps they should take after being selected.
The contract to be entered into with the contractor which will be in charge of the Plant construction stage, will provide that the contractor will comply with the commitments assumed by PERU LNG in the Environmental Impact Assessment.
There will be a plan in place to oversee and control the activities carried out in relation to the hiring of personnel by the contractor or sub-contractors in order for both contractors and sub-contractors to abide by the standards applied and commitments assumed by the company. PERU LNG will directly oversee these activities.
As part of the Conflict Management and Resolution Plan to be managed by the Community Relations Management Office of PERU LNG, there will be a suggestion and grievance procedure in place for hiring issues.

PERU LNG, before starting the hiring process, has clearly expressed its position on intermediaries (middlemen) and other people who may want to take the population by surprise when they apply for a job. Therefore, during the various meetings it has held with the local population, it has clearly explained its personnel hiring parameters. This information has been disclosed to the population through the media in Cañete and Chincha.

Accordingly, the population has been informed that recruitment needs will be publicly disclosed, and the company has categorically rejected the possibility of unscrupulous people taking advantage of recruitment issues.

- Observation No., 9 has been partially answered, taking into account the limited information available it is important that there is a commitment in place to establish a baseline on employment, specifying the number of workers, date of admission, origin, age, qualification and salary. It is also important to have general economic information of the company on investment, lines of business, in order to later analyze its incidence in the regional and national framework.

Response: PERU LNG commits itself to provide the DGAA with information on the workers hired for the project. In this sense, as regards employment generation, it will report, through the Table of Social, Economic and Cultural Change Indicators, the following information: hiring date, term of hiring, number of workers, sex, age, whether they are skilled or unskilled, place of residence, general labor costs paid by the company, taxes, and other information, which will be consolidated on a monthly basis and delivered to the DGAA in a document that will be attached to the Indicators' Table.

Furthermore, PERU LNG will inform the DGAA about the investment made and the sectors covered by said investment, including number of companies that benefited from the investment within the area of influence of the project, and types of goods and services required.

Finally, PERU LNG commits itself to deliver, at the end of the construction stage, a consolidated statement containing all the information described above and any other information on any payment made in connection with permits, etc.

- Observation No. 13 has been partially answered; the company indicates that it has identified the artisan fishermen that will be affected by the project. In this regard, the strategies and programs to be developed with them should be submitted.

Response: PERU LNG has identified the fishermen who walk by and in some cases fish in the beach area. As mentioned earlier, said fishermen may continue carrying out the activities they are currently performing. Transit is only going to be restricted for safety reasons, and these reasons have already been explained to fishermen and have also been explained in the Environmental Impact Assessment.

The company is holding meetings to inform community leaders and fishermen about the environmental aspects of the project and the manner in which the LNG shipping

terminal is going to be constructed. In said meetings, they have been encouraged to make proposals that can be incorporated into the company's Community Relations Plan.

The Community Relations Plan is being coordinated with the authorities and the population (including fishermen) in order to work together for the purpose of achieving a common objective: support the development of the area of influence. This Plan incorporates the following programs:

- Communication and consultation program;
- Environmental assessment program;
- Employment program (based on the labor needs of PLNG, the people of Cañete and Chincha being on an equal footing).
- Personnel training program (in order for local people to efficiently join the workforce, training will be provided with the support of a well-known technical training center);
- Health and safety programs;
- Conflict management and resolution programs;
- Plans and programs to manage local impacts on the community.

Strategies:

1. Timely, efficient, and transparent communication:
   Talks are being directly and transparently held with fishermen and their leaders to inform them about the Project. Informative meetings are being carried out to clarify any doubt about the project. These meetings are expected to continue, for which purpose they will be called by the company, the authorities or fishermen themselves.

2. Information sources available to fishermen:
   A telephone line (611 5115) and an e-mail address (gnlconsultas@huntoil.com) are available so that interested parties may contact PERU LNG (PLNG) and clarify any doubt or make any suggestion or comment.
   Additionally, on our website interested parties can find information about the Project and its status. The website address (www.perulng.com) has been provided to the leaders of the Cañete and Chincha fishermen, to journalists, and to the authorities.

3. A Management Office in charge of dealing with queries, suggestions and/or grievances: PERU LNG has decided to have its Community Relations Management Office handle any request made by the local population or the authorities.

4. Honoring its commitments: One of the basic premises of PERU LNG is to honor its commitments. Accordingly, the company will honor its commitments, to the extent duly authorized officers assume said commitments. The Contract to be signed with the contractor that will be in charge of building the Plant provides that, before assuming any commitment, the contractor must obtain the authorization of PERU LNG.

5. Participation in the preparation of PLNG's Community Relations Plan: The participation of the people who live within the direct area of influence of the Project is very important to us. Fishermen utilizing poles and lines are included

in this group (shoreline surfing). They have been asked to submit their proposals so that they may be incorporated into the company's Community Relations Plan. They have been asked to prepare sustainable proposals that are in line with the work or contribution that can be made by the company with the support of both fishermen and authorities.
The proposals will be evaluated and incorporated into PLNG's Community Relations Plan if they comply with the above requirements; otherwise, the proponent will be informed thereof and of the reasons why his proposal was not included in the plan.

6. No expectations will be created: The company will continue working and keeping the population informed, with the intention of not create without creating expectations among the population. Information will be give in a timely manner.

7. Participation in monitoring activities while work is performed in the marine environment: PLNG will invite a representative of the Cañete fishermen and a representative of the Chincha fishermen to participate in the environmental monitoring activities to be carried out during the Project construction stage. Fishermen representing the Cañete and Chincha fishermen should act as their lawful representatives (elected by them) and will be trained by the company to serve as "environmental monitors".

- Observation No. 14 has been partially answered, the company has not clearly specified whether the company, at its own initiative and taking into account both the baseline study and the dialogue process with authorities and inhabitants, it is already developing some proposed that could be discussed now with the local governments of Cañete and Chincha. The answer focuses on pointing out that both municipalities are preparing or revising their strategic Development Plans, but nothing is said on more specific initiatives by Peru LNG that could be included in the provincial plans.

Response: PERU LNG is preparing, at its own initiative and as part of the Community Relations Management program, the Community Relations Plan to be implemented by the company within the areas of influence of the Project.

This Plan will incorporate important proposals that are being made during the meetings the company is constantly holding with authorities and the population. In this way, through this participative approach, it is possible to directly incorporate the concerns of stakeholders.

For this reason, PERU LNG is coordinating with the corresponding Provincial Municipalities in order for the Community Relations Plan to be in line with the Strategic Development Plan they are currently preparing.

As part of these coordinations, the company has held meetings with the authorities and officers in charge of the planning and budget area of the Provincial Municipality of Chincha and with the General Management of the Provincial Municipality of Cañete.

In addition, the company is coming closer to the community, informing the local population about the activities it will carry out and encouraging community members to submit their proposals so that they may be incorporated into the Community Relations Plan, through the representation channels of the population (local governments).

As of this date, the company, although it has not yet completed its Community Relations Plan, has carried out, as part of said plan, a coaching and planning workshop (in March) for the management officers of the Provincial Municipality of Cañete. It has also carried out "Motivation Workshops on Team Work, Customer Service and Ethics", with the participation of authorities and workers of the Provincial Municipalities, the Prefect's Office, and the National Police in and for the provinces of Cañete and Chincha. 267 people attended these workshops.

PERU LNG understands that this effort is going to benefit users at a provincial level, and expects to continue cooperating with regional and local governments in this effort.

- Observation No. 15 has not been answered; the company must submit the General Guidelines of the Community Relations Program and undertake to submit them before starting the construction stage.

Response: The General Guidelines of PERU LNG's Community Relations Program are attached hereto as Attachment 15. Moreover, we commit to file the Final Plan of the Community Relations Program before the commencement of construction activities.

- Observation No. 16 has not been answered, the matrix attached in Annex 16 is an important progress with regard to the matrix submitted under cover of Report No. 029-2003-DGAA/OC/RM/FD/ML. However, in the change indicators with codes S3 and S4, in the column entitled "Value of the Baseline of one or more relevant indicators to measure effects", the language does not help in identifying what are the indicators to be measured. This column should only contain the text that directly refers to the indicator to be measured and not other comments or observations. The wording of the other indicators should be used as an example. On the other hand, the title of the last column of the matrix, Evolution of the indicators used in the baseline, could be changed to conform more to the contents of the texts corresponding to each indicator, since it may be seen that their purpose is to specify the periodicity to obtain information, as well as the scope of application and/or the method of gathering the information. The column Evolution of the Indicator could be added at the end or, otherwise, open a specific matrix containing only the values of the indicators that will be registered throughout time.

Response: The modified matrix, as per the instructions given by the DGAA as part of observation 16, is included as Attachment 16.

- Observation No. 19 item "2" has been partially answered; taking into account that the total volume of rock required for the breakwater is 1,200,000 m^3, the company must undertake to submit the authorizations to use the quarries issued by the competent authority, before starting the breakwater construction stage.

Response: PERU LNG commits to submit to DGAA copies of all required authorizations for utilization of any quarry prior to starting construction.

- Observation No. 19 item "4" has been partially answered; the company must define the final disposal of treated grey and black water effluents during the construction and operations stage. Also, the final disposal of sludges should be defined.

Response: Black Water effluents are liquid and solid human body waste and the carriage water generated through toilet usage. Gray water effluent is domestic wastewater composed of wash water from kitchen, bathroom, and laundry sinks, tubs, and washers other than black water. Gray water does not include industrial effluents. Final disposal of treated gray water and black water discharges including the sludge of treatment plants during construction and operation stages will be as follows:

During construction stage all liquid discharges (gray effluents produced by showers or dish washing and black effluents produced by toilets) management are summarized in module MR-2 "Management of Liquid Effluents" and recent responses provided to DGAA).

During operation stage all liquid discharges management are summarized in Table RO-1.1 of Module RO-1. During construction, the primary means of treating sanitary wastewater will be with packaged sewage treatment units. The waste will undergo biological oxidation, clarification and aeration. The treated effluent will be used for irrigation purposes on site. These treatment units will receive wastewater from the construction camp, construction offices and dining facilities. Wastewater treated in these units will include all toilets, showers, floor drains and dishwashing. Any sludge removed from the treatment system will be stabilized by one of several methods to comply with US EPA and Peruvian standards for wastewater systems. The sludge will be utilized on site as a soil amendment (fertilizer).

In addition to the packaged wastewater system, chemical toilets will be utilized in work areas that are not connected to the sewage system described above. The chemical toilets will be collected and disposed by a licensed disposal contractor.

During operations phase, all sewage wastewater will be treated by a permanently installed wastewater treatment system. The system will collect all housing, office and dining facility wastewater streams. This will include toilets, showers, floor drains and dishwashing. Any sludge removed will be stabilized per US EPA and Peruvian standards and used on site as a soil amendment.

Chemical toilets may be required during operations phase on a very limited basis, for example at the front gate guard post and dock area. The chemical toilets will be collected and disposed by a licensed disposal contractor.

Industrial wastewater is covered under Responses 20.5, 126 and 188 in the first round observations.

During both Construction and Operations phases, the proper operation of the sewage treatment systems will be monitored daily and inspected regularly by the onsite environmental inspector.

- Observation No. 20 item "2" has been partially answered; the company must undertake to submit a detailed study of the roads that will be used, attaching photos of the main structures and their current condition, before starting the construction stage.

Response: PERU LNG commits to provide the DGAA, before the commencement of the construction stage, with a copy of the "Route Sheet" and "Bridge Study" filed to the Ministry of Transport and Communications for it´s approval. This includes a study of the roads to be used, structures along roads (mainly bridges), and photographic material.

- Observation No. 20 item "6" has been partially answered; the company must undertake to submit a copy of the permit and of the docket approved by the Ministry of Transport and Communications for the circulation of its units, before starting construction stage.

Response: PERU LNG commits to file, before the commencement of the construction stage, a copy of the permit and file (docket) approved by the Ministry of Transport and Communications, for the operation of its transport units.

- Observation No. 20 item "8" has been partially answered; the company must undertake to submit a Road Management Plan.

Response: PERU LNG commits to file, before the commencement of the construction stage, a Road Management Plan to be implemented by the transportation company.

- Observation No. 21 has been partially answered; the company must undertake to withdraw all the equipment and structures found within the processing plant facilities, which shall not be subject to the approval of the locality.

Response: PERU LNG commits to submit a closure plan that will include the removal of equipment and structures as required by the governmental agencies having jurisdiction. Under no circumstances will any equipment, machinery, tanks, etc. containing any lubricants or other hydrocarbon products, industrial fluids or wastes be abandoned by PERU LNG on the site.

- Observation No. 30 item “4” has been partially answered, the sand jet cleaning method significantly increases the dust impact and if it is associated to oxide it is even more harmful. The company must submit the design and procedure of the proposed method; as well as the treatment and final disposal of the solid wastes containing iron and sand.

Response: A generalized procedure is provided in Attachment 30.4c. Sandblasting contractor procedures will be reviewed and amended as necessary to meet the requirements outlined in Attachment 30.4c as well as more detailed procedures that may be provided by the prime contractor. Although hazardous sandblasting waste is not expected, precautions as outlined in the referenced attachment for testing, to ensure proper disposal, and to minimize personnel exposure to dust will be taken.

- Observation No. 30 item “8” has been partially answered; the company must undertake to submit a Specific Management Plan identifying the design of the structures of the site where hazardous chemicals will be stored and training of personnel on personal protection and handling of hazardous chemicals, before starting the construction phase.

Response: PERU LNG commits to submit a site specific Management Plan for the storage, handling, and personnel protection for hazardous chemicals and hazardous wastes prior to their use in the construction phase.

- Observation No. 31 has been partially answered; the company must indicate and attach the standard for the Maximum Permissible Limits of soil quality in Hydrocarbons to be used by the company.

Response: The maximum permissible limits of hydrocarbon in soil will be 5.0% by weight. The standard is included as Attachment 31. PERU LNG commits to follow the standard that is attached.

- Observation No. 32 has not been answered; the company must undertake to take Terminol 55 outside Peru and submit the contract or agreement signed with the company in charge of final disposal.

Response: PERU LNG commits to take the waste Therminol 55 product out of Peru. To this end, the product will be stored in sealed drums or other containers to prevent leaks and spills and transported according to the recommendations contained in the product’s Material Safety Data Sheet (MSDS) and in the Peruvian regulations in force. It is estimated that Therminol 55 will not degrade until after 15 or more years in service.

A copy of the contract or agreement for disposal of this product will be delivered to the General Bureau of Environmental Matters (Ministry of Energy and Mines), prior to disposal of the product.

- Observation No. 34 has been partially answered, the company must mention the annex World Bank guidelines that it will utilize for the safe transportation of chemical products.

Response: PERU LNG would follow "Hazardous Materials Management Guidelines" of December 2001 set by The International Finance Corporation as part of the World Bank Group. A copy of the IFC guidelines along with United Nations Transport of Dangerous Goods Model Regulations of 2003(13th revised edition) is provided as an Attachment 34 to this response.

- Observation No. 36 has been partially answered, the company must undertake to submit a georeferenced drawing indicating each of the civil works and non-industrial drainages, before starting the construction stage.

Response: Peru LNG commits to submit to DGAA a georeferenced drawing indicating each of the civil works and non-industrial drainages, before starting the construction stage.

- Observation No. 37 has been partially answered; the company must submit the design of the water-proofing system of the liquid fuel storage tank, in the form of a graph and at an adequate scale.

Response: The detailed drawing is provided as Attachment 37. This drawing is a standard containment design used for storage of hydrocarbons that is used in other plant facilities operated by Hunt Oil Company. For completeness, the description that was provided in the original response to Observation No. 37 is repeated below so it can be read with drawing to provide a complete description.

The water-proofing system for containment areas will be lined with a compacted sand-bentonite seal installed over a compacted sand layer stabilized by adding 5% cement for good support. The sand-bentonite seal will then be capped with a 150 mm layer of sand-cement to protect the seal layer; areas that will subjected to vehicle traffic such as the maintenance area or refueling pad will be capped with reinforced concrete designed to sustain the axle loads

This design includes a bund wall sized to contain 110% of all liquid stored with a separate interior bund for the small gasoline storage tank. Note that a low point sump is provided in each spill containment area to facilitate any cleanup activity. The seal is made up of a sand-bentonite seal as discussed above throughout the base of the containment area and the interior sides of the bund walls. The seal is capped with sand-cement protective layer to provide permanent protection of the water-proofing system. Steps are provided for easy and safe personnel traffic."

- Observation No. 39, item "4" has not been answered; the company must clearly define the final disposal of industrial and domestic and solid wastes and their environmental management during the operations stage, which shall be submitted starting on the second year of the construction stage.

Response: The environmental management and final disposal of solid wastes industrial and domestic during operation stage will be conducted as follows as indicated at the Environmental Management Plan in the EIA report Volume 1 Chapter V (See Attachment 39.4 module RO-2 Management of Solid Waste); information on solid wastes to be produced during operation stage will be updated as requested by DGAA at second year of plant construction.

Table RO-2.1 of Module RO-2 is included as Attachment 39.4.

- Observation No. 39 item "6" has been partially answered; the company must undertake to submit supporting documents of the company authorized by DIGESA that will be in charge of treating the grease and oil trap, before starting the construction stage.

Response: PERU LNG commits to submit to DGAA a copy of all supporting documents and any required permits from DIGESA for the company authorized by DIGESA for the treatment, storage and disposal of oil and grease from traps prior to their construction and use.

- Observation No. 40 item "4" has not been answered; in respect of the domestic and industrial solid wastes produced in the temporary camp, the company must undertake to:
  - Indicate the sanitary and industrial landfill it will use for final disposal.
  - Undertake to submit supporting documents of the company authorized by DIGESA that will be in charge of gathering, transportation and final disposal, before starting the construction stage.

Response: Prior to their use, PERU LNG commits to submit to DGAA any supporting documents and DIGESA authorizations for any sanitary and industrial solid waste landfills that will be used and for any companies hired to collect, transport, and dispose of the solid wastes.

- Observation No. 43 has been partially answered; the company must submit a copy of the studies conducted to determine the best location of the Project.

Response: The search and analysis for selecting potential export terminal locations started in mid 2001 as part of the prefeasibility study to assess the potential for liquefying natural gas from the Camisea pipeline system and loading the LNG onto ships. The search evaluated sites over the entire coast of Peru between Lima and Pisco, excluding the Paracas National Park, for potential terminal locations that would have access the Camisea natural gas pipeline system. Attachment 43a shows the summary of a marine assessment of potential options for selecting a ship loading terminal along with field observations of land conditions and considerations that was made at this early study stage.

These alternative locations were then inspected and compared further by a multi-disciplined technical and environmental team. Decisions were undertaken during the field work based on site meetings, telephone conferences and team technical discussions to refine the list by optimizing the marine and land use requirements to

produce a short list of potential sites of interest that would be examined in greater detail. This refined list and short list was provided in our Attachment 23a included in the PERU LNG responses to the set of DGAA observations dated November 14, 2003. The summary sheet from this earlier Attachment 23a is provided as part of Attachment 43b along with observations from the reconnaissance report on the geotechnical and seismological considerations for the various plant locations.

- Observation No. 47.2 has been partially answered; the company must undertake to strictly comply with Resolution A.868 (20) of the International Maritime Organization (IMO) related to the California Ballast Water Management Plan.

Response: PERU LNG commits that the rules of the California Ballast Water Management Program will be followed that do not allow the change of ballast water within 200 nautical miles from the coast and unless the minimum depth is 2000 meters. This criterion complies with both the IMO Resolution A.868 (20) and the California Ballast Water Management Plan. See Attachment 47.2 IMO Ballast Water Resolution.

- Observation No. 50 has been partially answered; the supporting documents related to research in similar Desalination Plants should be submitted.

Response: Attachments 50a and 50b contain articles describing research on the effects of discharges from seawater reverse osmosis plants. In general, dilution of the concentrated discharge through dispersion is the critical mechanism to avoid harm to marine biota. Placement of the effluent discharge point from above sea level into water that is 10 m deep was determined to maximize the dilution effect in the modeled scenarios and, therefore, to minimize any impacts to marine organisms. The CORMIX model utilized indicates that the seawater salinity will be increased by a maximum of 100 ppm (0.10 ppt) at a distance of 100 meters away from the discharge point along the trajectory predicted in the model. Effects on marine biota of the salinity increase would be expected to be limited to the zone that the plume impacts prior to being diluted to levels that approach natural fluctuations in salinity.

State and federal government authorities in the United States as well as many international government authorities accept the CORMIX model as valid. The CORMIX website, <http://www.cormix.info/applications.php> lists some of the states that apply the model in regulating discharges. Additional validation studies are provided on the website at <http://www.cormix.info/validations.php>. Generalized examples of CORMIX's acceptance by regulatory authorities are provided in Attachment 50c and 50d, which are copies of introductory WebPages from the CORMIX and United States EPA websites. Attachment 50e is an article on the validity of the Cormix Model.

- Observation No. 54 has been partially answered, the company must submit a georeferenced map of the direct of the direct area of influence for the construction and operation stage of the Project.

Response: A map on the scale of 1:20,000 has been prepared to show the direct area of influence and monitoring stations selected to monitor project activities and potential impacts during construction stage (see Attachment 54.1 map 4217A). Also, a map on

the scale of 1:20,000 has been prepared to show the direct area of influence and monitoring stations selected to monitor project activities and potential impacts during operation stage (see Attachment 54.2 map 4217A).

- Observation No. 58 has not been answered; the company must submit the methodology to be used to drive the piles.

Response: Pile driving will be performed by a crane of approximately 200 tons of lift capacity, starting work from the beach bulkhead and installing the piles, pile caps and temporary work decking before moving ahead. The decking can be fabricated in large panels from steel or precast concrete and set in place in one piece for each span. The photograph below shows the same method being used to build the export terminal for the Huarmey Port Project to serve the Antimina mine.

In the photograph the following steps of the construction sequence can be seen:

- Work starts from the land area and does not use a temporary rock causeway in the sea. Also, barges or other equipment are needed to work in the breaking waves.
- A truss structure is located below the permanent deck area that can be moved ahead to hold a steel pipe pile in place for pile driving into the seabed to the depth needed to withstand the various combinations of compression, tension and torsional loadings relating to construction loads, dead loads, live loads and extreme environmental loads including earthquakes. After adjacent piles are driven to the required depth, a temporary horizontal support (bent) is installed between a pair of piles to permit a temporary decking to be installed between this new bent and the previous bent. The crane now moves ahead onto the temporary decking to move the truss structure ahead to position and drive new piles to continue the sequence.
- At approximately five bents behind the crane, the installed piles are cut off at the correct elevation and permanent pile caps and bents are set in place. The temporary bents can them be removed and used again.
- The permanent concrete deck can be seen in the photograph installed from the landfall to the location where the permanent pile caps and bents are installed.

Steel pipe used for piling will be new and unused material only with the yield strength, toughness values and wall thickness selected to suit the detailed final design for the structural system. The chemical and physical properties of each pipe will be recorded and maintained in the as-built record.

The construction contractor will select a diesel pile driving hammer to provide the calculated striking energy per blow and speed needed for the seabed material and depth of penetration needed for the final pile design. Preliminary pile driving analysis indicates that a large pile-driving hammer with a striking weight of around 10,000 kgs would be suitable for this application with a maximum rated energy of around 330 kilo joules and capable of approximately 40 blows per minute. This pile driving hammer assembly has a total weight of 20 tonnes and can be supported by the 200 ton capacity swing crane.

At the beginning of the site work, field tests will be conducted to verify the pile driving effeciency and the soil response and hammer performance will be monitored. The pile driver will have a means of measuring and recording hammer energy pressure and a Pile Driving Analyzer (PDA) will be used during the field test to measure the energy transferred from the hammer to the pile and the compressive and tension forces developed in the pile during driving. A load test will then applied to the test pile array to determine the ultimate failure load of the pile in compression and tension (uplift) and safety factor that will be inherent in the design in accordance with API recommended practice 2P “Load Resistance Factor Design”. The data gathered from the field test will show the ultimate pile capacity over embedment length in that soil type to establish a minimum requirement for establishing the piling depth. The PDA and other methods will then be used to check work in progress to ensure the design capacity, safety factor and pile stress levels are within the acceptance criteria.

- Observation No. 64 has been partially answered; the company must indicate the final disposal of hazardous wastes and undertake to submit a copy of the agreements or contracts entered into with the company that will be in charge of the final disposal of the hazardous wastes, prior to the construction stage.

Response: PERU LNG commits to submit copies of the agreements, as well as supporting documentation and approvals by the appropriate authority, for the management and disposal of hazardous wastes prior to their disposal.

- Observation No. 66 has been partially answered; the company must undertake to submit the Contingency Plan and the Risk Analysis Study before staring the operations stage as part of the EIA submitted. Take into account the operational and maintenance measures in the event of the occurrence of propane and LNG leaks in the 07 hypothetical failure scenarios mentioned.

Response: PERU LNG commits to provide a Contingency Plan and the Risk Analysis Study prior to commencing operations.

- Observation No. 68 has been partially answered; the company must undertake to submit the water supply source for the hydrostatic tests and the Specific Management Plan, before starting the construction stage of the project.

Response: PERU LNG commits to submit this information prior to the hydrostatic testing being performed.

- Observation No. 76 has been partially answered; the company must undertake to:
  - Submit to the DGAA of the MEM the periodic environmental evaluation to dredge the canal, which must include the physical and chemical characterization of the marine soil for purposes of making the respective evaluation.

Response: PERU LNG will sample marine sediment that accumulates in the dredged channel and identify its size distribution, test for hydrocarbon content, chemical characterization including metals (arsenic, cadmium, copper, chromium, mercury, lead, zinc, nickel). PERU LNG will provide this information to DGAA.

- Observation No. 77 has been partially answered; the company must submit the general guidelines of the closure plan together with its post-closure monitoring program related to the final disposal area. It must be submitted before starting the project's operations stage.

Response: PERU LNG commits to submit the general guidelines for closure and post closure monitoring of the disposal area as approved by DICAPI prior to the commencing operations.

- Observation No. 78 has been partially answered; the company must undertake to submit an Environmental Impact Assessment for the exploitation of the quarry, also, include a quarry Selection Study before starting the project's construction phase.

Response: PERU LNG commits to submit to DGAA an Environmental Impact Assessment including a Quarry Selection Study to DGAA on any new quarry to be developed to supply material for the breakwater prior to commencing construction of the breakwater. If an existing quarry is selected to supply material for the breakwater, that site will already have been approved by DGAA. Also, see response to Observation 19.2.

- Observation No. 82 has been partially answered; the company must include complete the marine monitoring points in the breakwater area.

Response: Module SO-4 of Chapter V "Monitoring of the Marine Ecosystem" is designed to monitor inter-tidal and sub-tidal communities during PLNG operations; biological monitoring of the breakwater will be included to determine species colonization and ecosystem formation within and around the breakwater.

The following methodology for biological monitoring at the breakwater is proposed:

- Epi-benthic communities will be monitored by placing three transect lines at each structure face (landward, seaward, south face and north face). Transect lines on each face will be located at center and towards each of the corners of the breakwater. See attachment 82. All levels from top to bottom of the breakwater (supra-tidal, inter-tidal and sub-tidal) will be covered by the transect survey. The transect survey will consist of a reconnaissance conducted by a biologist over a 10 m wide strip centered on the transect line. Quadrant sampling will be undertaken based on a 1 x 1 m quadrant where all organisms will be collected for further laboratory identification; these quadrants will be placed randomly at four locations on each zone: Supra-tidal, inter-tidal and sub-tidal on each of the twelve transect strip.

- Plankton communities will be surveyed using phytoplanckton and zooplanckton nets throughout the water column. Samples will be collected adjacent to epi-benthic transect locations.

- A survey of fish will be conducted by a knowledgeable marine biologist diver to determine species and number of individuals. The survey will be undertaken adjacent to the transect lines for a period of around 30 minutes per transect.

- A survey of birds will be made to determine species and number of individuals on top of the breakwater. The survey will be conducted by a bird specialist positioned on a boat during a complete day at the same time the marine transect surveys are conducted.

- During breakwater transect surveys the following oceanographic and physico-chemical parameters and samples will be taken:

    - Temperature, salinity and current direction and velocity;
    - DO, pH, TSS, Transparency (Sechi Disk), Total and Organic Nitrogen, Total Phosphorus and Sulfates.

- All biological data will be analyzed according to the following indices: Species Richness, Relative Density and Abundance, Relative Biomass, Shannon and Wiener Diversity and Pielou Evenness.

- Monitoring campaigns will be conducted during Autumn (June) and Spring (October) for baseline data continuity.

- Observation No. 84 item "2" has been partially answered; the company must undertake to submit the personnel Training Program to identify garbage cans or deposits by colors to systematically select the different wastes, before the start of the project's construction stage.

Response: PERU LNG commits to file, before the commencement of the construction stage, a Personnel Training Program on the identification of waste drums or containers by color, to systematically select the different wastes generated by the Project. This training will form part of the workers' induction process.

- Observation No. 84 item "3" has been partially answered; the company must undertake to submit copies of the agreements entered into with the companies that will be in charge of the collection, transportation and final disposal of the different wastes that will be produced during the project's construction and operations stage, before starting the project's construction stage.

Response: PERU LNG commits to submit the agreements entered into with companies that are contracted to perform these services. These agreements will be submitted to DGAA prior to any specified work being performed.

- Observation No. 85 has been partially answered; the company must explain how the construction contractor will provide a potable water system with sufficient water for the highest peak of the construction stage.

Response: The construction contractor will be benefit during second year of construction by Desalinization Plant built during the first year of construction. This plant would provide desalinized water to a rate of 30 cubic meters per hour and construction contractor would provide a potability system to guaranty drinkable water to World Health Organization standards (WHO 2003, Domestic Water Quantity, Service Level and Health, a copy of this document is attached for reference as attachment 85). As per World Health Organization Standards it is estimated that 100 Liters per day will be sufficient to cover all needs for a person. It is estimated that the peak of construction would require around 3000 people at second half of the second year; this peak of construction as per WHO standard would require 12,5 cubic meters per hour; this volume represents 41 % of design estimated for desalinize water from projected Desalinization Plant.

- Observation No. 116 has been partially answered; the company must indicate the final disposal of solid wastes from the Hydrocarbon Storage Tank.

Response: The inlet separator will not receive any solid wastes. It is designed to receive and separate liquid hydrocarbons from natural gas (methane). The liquid hydrocarbons will be collected for disposal or recycling. Other tanks such as gasoline,

diesel, lubricating oil, heating oil and liquid natural gas are refined products and do not receive solid wastes from the process or distributor. Recycling or reclamation of any hydrocarbon-bearing solids from tanks will be given preference over disposal, unless the material cannot be safely recycled or reclaimed on-site or by an approved facility. Disposal methods and facilities will depend on the properties of the waste

- Observation No. 118 has been partially answered; the company must undertake to take this type of waste outside Peru; furthermore, it must submit the agreement or contract entered into with the company in charge of final disposal.

Response: Peru LNG commits to send spent carbon from the heavy metal guard bed out of Peru to Pryor, Oklahoma, USA for regeneration or disposal. Attached is information on the proposed company to provide this service, Norit Americas Inc. Also attached is a typical form required to initiate the process of regeneration. Peru LNG commits to submit a copy of the contract with this company prior to beginning operations. A contract for regeneration is not possible until the material is actually purchased.

- Observation No. 120, item "a" has been partially answered; the company must submit an estimated summary of the equipment for the operations stage.

Response: Attachment 120a is an estimated summary list of equipment for the operations stage.

- Observation No. 123 has been partially answered; the company must indicate which species of benthos identified could be most susceptible to the effect or accumulation of metals (mainly arsenic, cadmium and lead).

Response: According to baseline studies conducted during this EIA, the predominant habitat conditions found at Playa Melchorita is of a sandy beach where large populations of "filter bivalves" is predominant. These species are available at the area all year around and have the ability of filtering, the following species identified during EIA studies are recommended to monitor the effect or accumulation of metals:

Donax marincovichi (Mollusca) known also as Concha Mariposa;

Emerita analoga (Crustacea) known also as "muy muy"; and

Excirolana braziliensis (Crustacea)

Other species utilized in Peru for monitoring of metal accumulation or effects on benthonic species are *Thais chocolate* (Caracol Negro) and *Argopecten purpuratus* (Concha de Abanico); these species have the same characteristics of the above mentioned (availability all year around and filtering ability), but they are simply not available at habitat conditions encountered in Playa Melchorita. Some studies on these species where conducted between 1997 and 2000 at Ferrol, Callao and Pisco bays.

- Observation No. 128 has been partially answered; the company must undertake to submit the Landscape Study to allow reducing the visibility of the Plan, before the operations stage.

Response: PERU LNG will perform a Landscape Study and commits to submit it to the DGAA prior to beginning the operations stage.

- Observation No. 131 has been partially answered; the company must submit the mechanism of the cathodic protection system to be used, also attaching the design drawings of the system, before the construction stage.

Response: The Cathodic Protection system will protect steel structures that are in contact with the seawater in the event that there are any scratches or other damage to the anti-corrosion coating that is applied on the steel. Corrosion of any bare uncoated steel will normally occur by mechanism of galvanic action whereby a very small electric current flows from the steel through the seawater to another area with lower galvanic potential. This small electric current that leaves the steel surface carries iron ions with it that can cause pitting (metal loss) of the exposed steel surface over time. A Cathodic Protection system will stop this normal galvanic action that causes iron ions to flow from the steel structure through the water as the electrolyte by reversing the direction of this natural current flow and preventing metal loss on areas of exposed steel. An anode with a galvanic potential higher than the steel is used to protect the steel (the cathode). In seawater, an alloy of Aluminum and Zinc is used as the anode to protect steel similar to the way zinc anodes are attached to ships rudders and undersides to protect the ships propeller.

Blocks of this aluminum-zinc alloy will be supported by clamps or brackets on the underwater steel structures and grounded to the steel structure by an insulated connecting cable complete the circuit and impress an electric current from the seawater or seabed to the steel through any gaps in the corrosion coating to prevent metal loss. The anodes are selected for a design life of 30 years and can be replaced if needed. PERU LNG commits to provide details of the design with sizes, locations and other details of the Cathodic Protection system prior to the construction of these cathodic protections facilities.

- Observation No. 132 has been partially answered; the company must indicate what type of lining the steel piles will have and also submit the physical and chemical properties of the lining to be used

Response: The exterior of the steel piles will be coated with a durable system that will be both abrasion and corrosion resistant for long-term use. The coating system will have physical strength and toughness to withstand the transportation and handling of the pipes to the site, the installation in the seabottom during pile driving and the abrasion in the “splash zone” during the long-term operating phase of the project. The corrosion resistant feature requires an excellent bond to the steel surface, chemical resistance to the seawater and long-term integrity from aging or deterioration of the physical properties. Cathodic protection is also applied as described in the response to Observation No. 131.

The product typically used for this application with well-proven performance is a twopart coal tar epoxy. It is applied to the pipe in a land based shop under controlled conditions with at least two relatively thick layers of 250 microns (250 x E6 m.) each and is cured to a hard finish before use.

These two-part epoxy coating systems are environmentally friendly and contain no biocides and are nontoxic. The typical system as planned for use by Peru LNG is described in the International Paint product sheet for Intertuf 548 Coal Tar Epoxy provided as Attachment No. 132. The system is recommended for many applications including the lining of ballast tanks and also certified for use in applications that are in contact with food such as transportation of grain cargo by NOHA (Newcastle Occupational Health Association).

- Observation No. 142 has been partially answered; the company must characterize the oceanic cell of the site in order to rule out the resuspension of sediments resulting from the dredging, increasing the total suspended solids index or turbidity.

Response: As presented in Section 2.6.3 of Chapter III, the sediments of the study area have been characterized to contain 15% to 30% of fine materials. This fine material has the ability to be eroded from the sea bottom if water velocity reaches more than 20 cm/s. Current speed measurements conducted during the EIA baseline study indicate that water currents with such speed occur naturally in the project area. Information provided in Section 3.2.2.2 of Chapter III, indicates that during the spring sampling event, bottom currents reached 21.5 cm/s from the southeast. During the autumn sampling event, bottom current velocities ranged from 4.19 cm/s to 15.69 cm/s from the northwest direction. Surface water currents were observed with a speed of 22.3 cm/s during the spring and 20.42 cm/s during autumn. Considering the sediment characteristics, sea bottom and surface water current speeds and directions and the proposed dredging method to be implemented during construction of the navigation channel, a dispersed plume of sediment is anticipated to travel approximately 500m from disturbed areas in a northwesterly direction for most of the project period. Although a change in current direction to the Southeast is expected during short periods of the year, similar dispersion distances are anticipated. The distribution of sediment particles in the water column are expected to remain predominantly between mid to bottom water levels and are not likely to reach the water surface due to the characteristics of sediment particles encountered in the study area.

Calculation of distance potentially traveled by the turbidity plume has been obtained by utilizing Stokes Law where the velocity of a traveling silt particle is obtained by using the following constant: $v = 8771\ d^2$. Where the size of a particle is estimated to be 0.003 cm then velocity is equal to 0.078 cm/s. If the current speed in any direction increases to 30 cm/s at the bottom water level, then the distance traveled by the particles in suspension (turbidity) is around 586 m.

To characterize the oceanic cell, as graphically represented on EIA report Volume 1, Chapter III section 3.2.2 (see figures 3-19 and 3-23) the meridional component V and the zonal component U where calculated according to the following formula:

V= -ff*cos (dd)
U= -ff* sin (dd

Where ff is the current speed and dd is the direction of the current registered during the baseline sampling periods (June and September of 2002). A table with this calculation is provided below, where the speed of the transport current can be calculated by using the following formula: $ff = \sqrt{U^2 + V^2}$. For calculation of transport current only the U and V components of the bottom is considered, since sediment particles would not be able to climb the water column to reach the surface due to the nature of characterized sediments as explained before.

The time for a sediment particle to drop approximately 1.5 m is calculated by using Stokes Law where velocity of a traveling particle is estimated as 0.078 cm/s. Then combining time of sediment particle to drop and the speed of the transport current a calculation of the distance traveled by the particles in suspension is: 200 m (current direction south to north) and 220 m (current direction north to south), which is a lesser distance to the one provided by the first method described above.

As described in Section 3.2.2 of Chapter III, the species and habitat encountered and evaluated during baseline surveys were found to be tolerant of high turbidity levels. Although, there are no referential values defined in Peru for marine species turbidity tolerance, the World Bank indicates that turbidity should be monitored and maintained below 200 mg/L, particularly during critical spawning and other set periods for shellfish (See Environmental, Health and Safety Guidelines for Port and Harbor Facilities by IFC, 1998). Turbidity levels similar to those suggested by the World Bank have been observed at the Port of Callao, where fishing activities are regularly conducted without any relationship observed between high turbidity level and the harvest of fishing species.

However, as indicated in module SM-2 of Chapter V, daily turbidity monitoring will be conducted in the water column on 3 different stations located at 600 m distance from the work area on the north and south boundaries (location of stations on Figure SM-2.1) to help reduce the extent of the sediment plume from the work area. This monitoring program is designed to provide an early warning of increasing turbidity levels above background conditions. If turbidity values are recorded at the monitoring stations above 200 mg/L limit, measures will be taken to impede migration of the sediment plume and to reduce turbidity levels, (e.g., reduction on dredging speed or work stoppage) and avoid migration of the turbidity plume outside the immediate impact area of the project.

Table for calculation of U and V components of Oceanic Cell

Month	Stations	Current Speed cm/s (ff)	Current Direction DEG (dd)	U	V
June	T1-17S	15.83	302	-13.425	8.389
June	T1-17F	10.63	303	-8.915	5.790
June	T2-10S	22.3	297	-19.869	10.124
June	T2-10F	14.3	300	-12.384	7.150
June	T2-17S	4.9	283	-4.774	1.102
June	T2-17F	5.33	288	-5.069	1.647
June	T4-16S	4.86	302	-4.122	2.575

Month	Stations	Current Speed cm/s (ff)	Current Direction DEG (dd)	U	V
June	T4-16F	8.78	260	-8.647	-1.525
June	T5-10S	19.75	274	-19.702	1.378
June	T5-10F	15.69	319	-10.294	11.841
June	T7-6S	20.42	273	-20.392	1.069
June	T7-6F	9.94	291	-9.280	3.562
			Average F	-9.098	4.744
			Avg Speed F (cm/s)	10.2607	
			Distance (m)	200.495	
September	T1-6S	13.69	121	11.735	-7.051
September	T1-6F	6.19	119	5.414	-3.001
September	T1-17S	13.23	175	1.153	-13.180
September	T1-17F	18.27	158	6.844	-16.940
September	T3-12S	23.51	131	17.743	-15.424
September	T3-12F	47.23	273	-47.165	2.472
September	T4-6S	12.47	176	0.870	-12.440
September	T4-6F	18.34	131	13.841	-12.032
September	T4-17S	30.19	122	25.603	-15.998
September	T4-17F	16.21	150	8.105	-14.038
September	T5-12S	36	137	24.552	-26.329
September	T5-12F	31	130	23.747	-19.926
September	T6-16S	28	126	22.652	-16.458
September	T6-16F	21	158	7.867	-19.471
September	T8-6S	9	93	8.988	-0.471
September	T8-6F	10	106	9.613	-2.756
			Average F	3.533	-10.712
			Avg Speed F (cm/s)	11.2793	
			Distance (m)	220.397	

Note: S= Water Surface and F= Water Bottom

- Observation No. 147 has been partially answered; the company must provide the physical and chemical properties of biocide paint.

Response: Peru LNG has committed LNG carriers that are loaded at the export terminal will not use organotin (TBT) based products in accordance with the International Maritime Organization (IMO) Convention of 2001 (IMO document AFS/CONF/26).

Peru LNG has made a tentative selection of a product that will provide optimum overall environmental performance from the Hempel Company. The product data sheet for Hempel's Antifouling Globic 81900 tin-free product is provided as attachment 147.
This antifouling paint system does not contain organotin compounds acting as biocides, but uses cuprous oxide as a bioactive mixture that controls hard fouling with barnacles, etc and has a half-life of one hour (degrades by more than 50% in one hour).
This product does not contain tin and is considered optimum because the coating system:

- has a high solids ratio meaning that the VOC's released at the shipyard during coating installation is less than other products,
- is a very good antifouling system that maintains a low flow resistance that reduced ship's fuel consumption thus reducing C02 and SO2 emissions,
- has a controlled polishing and rate of releasing the antifouling agent and
- the antifouling agent is not expected to have a measurable impact on water quality and marine organisms.
- has a five-year service life.

- Observation No. 149 has been partially answered; the company must have an HSE responsible person to oversee compliance with the commitments undertaken in the EIA, and to coordinate with the contractor, keeling a daily report of all activities performed.

Response: Peru LNG will have an HSE person to oversee compliance with commitments and to co-ordinate all HSE functions for construction and operations.

- Observation No. 156 has been partially answered; the company must submit the authorization for the transportation and storage of hazardous wastes issued by DIGESA.

Response: PERU LNG will obtain authorization from DIGESA for the transportation and/or storage of hazardous wastes and commits to submit a copy of the authorization to DGAA prior to any storage or transportation activities.

- Observation No. 159 has been partially answered; the company must undertake to submit the environmental insurance for the closure of its operations.

Response: PERU LNG commits to establish a fund to provide for the closure of operations as indicated in the original response to Observation No. 48.

- Observation No. 167 has been partially answered; the company must undertake to submit the Water Area Concessions before starting the project's construction stage.

Response: PERU LNG commits to file a copy of the Resolution that authorized the Aquatic Concession before starting the Project construction stage in the marine environment.

- Observation No. 169 has been partially answered; the company must undertake to submit supporting documents issued by the General Hydrography and Navigation Bureau of the Navy, to consider in the national cartographic plan the inclusion of a portulane for said area, before starting the construction stage.

Response: PERU LNG commits to file, before the commencement of the Project construction stage in the marine environment, a copy of the documents that support the inclusion of a "portolan" (in Spanish = special map in the sea) of the zone by the Bureau of Hydrography and Navigation.

- Observation No. 175 has been partially answered; the company must undertake to submit the program to monitor turbidity, water quality, marine sediments and marine ecosystem of the nine monitoring points located in the dredging canal, before starting the project's operations stage. Furthermore, the two additional monitoring points should be included in a georeferenced map.

Response: PERU LNG commits to submit the monitoring program prior to starting operations. The revised map is provided in Attachment 175a.

As indicated in our previous response Peru LNG S.R.L. agrees to add two new seawater sampling points to be located in the navigation channel to monitor results of tug and tanker activity. Location of this sampling points and UTM coordinates are provided in the attached map.

According to the monitoring program provided at the Environmental Management Plan in the EIA report Volume 1, Chapter V, PERU LNG S.R.L would conduct the following monitoring tasks during operation stage of the project:

1. During dredging maintenance activities turbidity monitoring will be conducted to guaranty control of increasing turbidity during this activity as specify also for the construction of the navigation channel (See module AO-2 "Maintenance Activities"). Total Suspended Solids (TSS) and Total Dissolved Solids (TDS) will be also monitor during monitoring of the water quality described below.

2. Water quality monitoring on this 2 new located sampling points at the navigation channel will be conducted on the water column every 3 months and samples taken will be analyzed according to the parameters listed at Table SO-2.4 (See module SO-2 "Water Quality Monitoring")

3. Marine sediment monitoring on this 2 new located sampling points at the navigation channel will be conducted two times during a year (at spring and autumn seasons as conducted during baseline studies) and samples taken will be analyzed according to the parameters listed at Table SO-3.1 (See module SO-3 "Marine Sediment Monitoring").

Before maintenance activities of the navigation channel (every 4 to 5 years as per previous response to observation No xxx) all material to be remove from this channel will be characterize (physical and chemical) to evaluate contamination on the material and methods for final disposal (See module SO-2 "Maintenance Activities").

4. Marine ecosystem monitoring on this 2 new located sampling points at the navigation channel will be conducted two times during a year (at spring and autumn seasons as conducted during baseline studies) and samples taken will be analyzed according to the parameters analyzed during baseline and construction stage listed at module SM-6 “Marine Ecosystem Monitoring – Construction Stage” (See module SO-4 “Marine Ecosystem Monitoring”).

Modules AO-2, SO-2, SO-3 and SO-4 (including module SM-6 for construction stage) as provided in EIA report Volume 1, Chapter V are provided as Attachment 175b to this response.

CONCLUSIONS

The undersigned, after evaluating the Answer to the Observations to the Environmental Impact Assessment of the “LNG Exportation Project, Pampa Melchorita, Peru” and in compliance with the environmental rules currently in force, deem it necessary to notify the petitioner to answer the observations contained herein within a term of 30 calendar days, under warning of declaring its docket abandoned.

Sincerely,

Lic. Oscar Cervantes
CSP No. 0956

Lic. Federico Dejo Soto
CSP No. 0718

Eng. Roberto Muñoz Ruiz
CIP 46164

Eng. Otilia Aguirre
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