
PERU LNG

**Independent Environmental and Social Monitoring – IESM
March 04 to 05/2010 Monitoring Mission**

PERU LNG Plant and Marine Facilities Final Report

March 2010



JGP

**Consultoria e
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1.0 Introduction

This report refers to the IESM Mission conducted at the LNG Plant and the Marine Facilities at Melchorita, on March 04 and 05, 2010. Description of ongoing activities refers to the situation observed at that time. Description of progress on Environmental and Social Programs as well as on supervision activities by government entities is based on information contained in PERU LNG's Q4 2009 Environmental and Social Report, with cut-off date on December 31, 2009.

Facilities inspected during the Mission included selected process and support areas of the LNG Plant, and all of the Marine Facilities, as detailed in **Section 4.0** herein. As in previous Missions, focus was placed on areas where most intense construction activity was ongoing, based on recent construction progress reported, and on the analysis of action taken upon recommendations issued the previous IESM Mission.

Lender representatives' participation in the Mission included:

Leyla Day	Social Specialist – IFC
Rosa Orellana	Environmental Specialist – IFC
Ximena Herbas	Environmental Specialist - IDB
Maria da Cunha	Social Specialist - IDB

JGP's monitoring team included:

Juan Piazza	Main Environmental and Social Specialist
Alejandro Dorado	Ecologist – Environmental and Biodiversity Specialist
Humberto Vera	Local Environmental and Health and Safety Specialist
Guillermo Salas	Local Social Specialist

During the March 2010 Mission, the IESM Team had access to several other complementary environmental and social documents and met with representatives of the Plant and Marine Facilities main contractors (CB&I and CDB). The complete list of documents analyzed during preparation of this report is included in **Annex 01**.

2.0 List of Monitoring Activities

Monitoring activities during the Q1 2010 IESM Mission included:



Thursday – March 04, 2010

Morning

All participants:

- Presentation on the general structure of the ESHS Management System for the Operation Phase of the Project.
- Travel to Melchorita and Chincha.

Environmental and H&S Group (Ximena Herbas, Rosa Orellana, Juan Piazza, Humberto Vera and Alejandro Dorado):

- Health and Safety induction
- Meeting on the coastline Monitoring Program
- Inspection of coastline sedimentation and erosion points.

Afternoon

- Inspection of Marine Facilities
- Inspection of spoil and construction debris deposition areas

Social Group (Maria da Cunha, Leyla Day and Guillermo Salas):

Morning

- Fishermen Compensation Plan implementation review (meeting with SwissContact - Recursos).

Afternoon

- Meeting with the last Fishermen Association to sign the Fishermen Compensation Agreement (APARCHP).
- Visit to ongoing businesses being implemented as part of the Fishermen's Compensation Plan.

Friday – March 05, 2010:

Morning

Environmental and H&S Group:

- Presentation by PERU LNG, of construction status and of ongoing commissioning activities – Marine Facilities and LNG Plant.
- Document review meeting.
- LNG Plant utilities, GTG thermal and main train areas - Commissioning Area Inspection.
- LNG tank inspection.
- Inspection of permanent community.

Afternoon

- Review of Biodiversity Monitoring Program – meeting with Smithsonian Institution.
- Review of Marine Monitoring Program.
- Desk review of monitoring results for coastline.

Social Group:

- Meeting with ForPyme (Supply Chain Program) implementing partner in Chincha.
- Visit to Small and Medium Enterprises of the ForPyme Program in Chincha.

Afternoon

All participants:

- JGP / Lender meeting.
- Closing meeting with PERU LNG.

3.0

Construction Summary

3.1 LNG Plant

PERU LNG's Q4 2009 Report informs that construction had attained 92% progress at quarter end. On the occasion of the March Mission, it was reported that works had reached more than 95% of completion.

During Q4 2009, CB&I completed secondary steel structure assembly and the cover and lining works of the boil-off gas (BOG) compressor. Most process equipment was installed and all civil works in the process areas were completed. Electrical and Instrumentation works progressed intensely, with almost 90% of the cable and 72% of the electrical and instrumentation installations in place. Insulation of the Main Cryogenic Heat Exchanger and of the propane suction drums was completed.

Perlite insulation and nitrogen purge of the LNG tanks, as well as the liner for the tanks' run-off collection pond was in place.

Also during Q4 2009, gas was introduced to the Plant and began supplying two of the three gas turbine generators (GTGs) that were successfully fired.

Extraction of water from the Cañete River was discontinued during December. PERU LNG also reported that domestic treated effluent discharge to sea was interrupted due to delays by DIGESA in evaluating the permit renewal request. While this situation persisted, treated effluents were used for irrigation and dust control purposes. The renewed permit was issued by mid December.

During the March IESM Mission, CB&I had slightly under 4,000 workers on site, about 50% of which from subcontractors. Main ongoing tasks were electrical and instrumentation, painting and insulation.

The permanent community was complete as well as all other buildings, with the only exception of punch-list items requested by PERU LNG during decommissioning inspections. Work was proceeding on finalization of the internal road system. The permanent effluent treatment plant was in final installation stage.

Plant commissioning was in progress and twelve (12) equipment vendors were reported to have commissioning teams on site. PERU LNG had slightly over 200 employees on the Project, where about 30 were involved with construction supervision and the rest with commissioning procedures.

By early March, main areas of pending work included the compressors, the MR turbine and the PR turbine. After that, demobilization will be the biggest work item and the one requiring most personnel.

With regards to labor retrenchment, it was reported that the total CB&I workforce was being reduced at the rate of about 250 workers per week. No material unrest as a result of this process was reported.

At the time of the March Mission, both concrete batch plants had been removed from the site, as well as CDB's camp. About 80 employees were living in the permanent community, with effluents being treated at the CB&I treatment plant while the permanent effluent treatment station is not operational. The reverse osmosis plant had been relocated to its permanent location and while this process was ongoing, CB&I was supplying water from the wells on site.

It was reported that some provisional CB&I infrastructure will be claimed by PERU LNG, and this will include part of the CB&I camp (with capacity for about 600 workers), as well as the Marine Terminal support area, the paint and fabrication shops and the non-destructive testing area.

PERU LNG informed that Plant construction activities are expected to be concluded by May 28, 2010, that is the scheduled date for the first gas loading operation.

3.2 Marine Facilities

In relation to Marine Facilities, PERU LNG reported in its Q4 2009 report that construction was 99% at quarter's end. During the quarter, CDB completed placement of 2,277,000 tons of rock at the main breakwater and the rock load-out facility (RLOF). Placement of only about 60 out of a total of 13,361 precast concrete (BCR) blocks was pending at the end of December. All four loading arms and breasting dolphins were also installed and electrical installations were advanced during the period.

The Temporary Bridge was removed following DGAAE's approval of the Temporary Bridge Abandonment Plan. Re-surveying of the dredged channel was conducted. Complementary dredging needed at the Temporary Bridge area was still pending during the March Mission.

Demobilization of support work areas, maintenance and office modules, gas station, warehouses, workshops, among others, was still ongoing.

Other pending works in the Marine Facility at the time of the March Mission included mainly final painting of steel structures and electrical installations, as well as completion of the firewater system. CDB had about 300 workers on site and those from outside the region were being housed mainly in Chinchá.

Two service vessels and the pilot/patrol boat were launched in December to support marine operations to take place during the Commissioning phase and were already operational during the March Mission.

PERU LNG further reported that ISPS Certification for the Marine Terminal is under way.

3.3 Quarry and Access Road

The Quarry and Access Road decommissioning process was concluded and reported to be adequate in the previous IESM Mission's report. At the time of the March Mission, the Closure Plan (already implemented) was still being analyzed by OSINERGMIN.

4.0

Construction Related Performance

Scope of the IESM Team's Review

Inspection of LNG Plant during the March 2010 IESM Mission included Plant utilities, GTG thermal and Main Train areas, most of which were undergoing commissioning. BOG (boil-off gas) facilities and the LNG tanks were also inspected, as was the permanent community area. Additionally, the construction spoils and debris deposition areas were inspected.

At the Marine Facility, trestle, breakwaters, mooring dolphins, gangways and LNG loading arms were inspected. Sedimentation and beach erosion processes along the coastline were also inspected.

Due to the fact that all inspected facilities and/or construction fronts are either decommissioned or in finalization stages, the Inspection Protocols (checklists) were not used, since only a very limited portion of the checklist was found to be applicable.

4.1 Environmental Compliance

No environmental observations were raised during inspection of CB&I construction fronts and auxiliary work areas at the LNG Plant.

At the construction spoils and debris deposition areas, several types of wastes are stocked in piles. Adequate segregation by types of wastes was observed. PERU LNG reported that the waste management contractor (CENTURY) will be crushing construction debris and other piled materials that may create a habitat for rodents and will be transporting them to appropriate (and permitted) off-site locations.

At the Marine Facilities, though the standard of environmental care was generally adequate, some minor housekeeping and pollution prevention issues were raised. These refer to a Terex lighting equipment lacking a secondary containment tray, paints and chemicals stored with insufficient (and inclined) secondary containment, and a waste bin labeled for used paint and chemical packages (previous IESM Mission recommendations required that such bins be labeled as hazardous waste and be installed with secondary containment, since most of the time used packages placed within them are not empty).

4.2 Health and Safety Compliance

Health and safety practices were found to be compliant with Project requirements at both the LNG Plant and the Marine Facilities. Only one minor observation, regarding sub-standard provisional electrical connections, was raised at the trestle.

With regards to working conditions, the security posts installed at the beach at the limits of the beach exclusion area were deemed to require improvement and a specific recommendation in this regard is being issued in this report.

Two security guards per shift work 12 hour shifts at each one of the two posts. Only one chemical bath has been installed (to be shared), and this is about 200 m distant from both posts. Besides the security cabin (that is too small for both guards and is not designed for thermal comfort), no shaded area is available.

4.3 Social and Community Relations

There were no specific social and community relations issues affecting construction of the LNG Plant during Q4 2009 and none were observed or mentioned during the March Mission.

At the Marine Facilities, the beach exclusion area became operational, and two security posts were installed (one at each side of the trestle). However, fishermen were still being allowed access after identifying themselves and no conflicts resulting from this were reported.

5.0

Internal E&S Assurance

5.1 PERU LNG E&S Supervision and Audits

During Q4 2009, PERU LNG did not perform internal EHS Audits of CB&I and CDB. The joint weekly PERU LNG / Contractor environmental inspections continued to take place with the exception of those weeks when OSINERGMIN was executing onsite audits. Joint EHS Management inspections were also conducted at selected locations on site.

5.2 Construction Related Monitoring and Performance Assessment

During Q4 2009, PERU LNG continued monitoring environmental parameters previously established in the EIA. The results obtained during October, November and December 2009 were duly presented to OSINERGMIN in the respective Monthly Monitoring Reports and are summarized below.

Flora

As mentioned in the December 2009 IESM Report, the last *Tillandsias* monitoring campaign was performed in November 2009. The effort to transplant this species proved unsuccessful, in spite of the various approaches tried by PERU LNG and described in detail in previous reports.

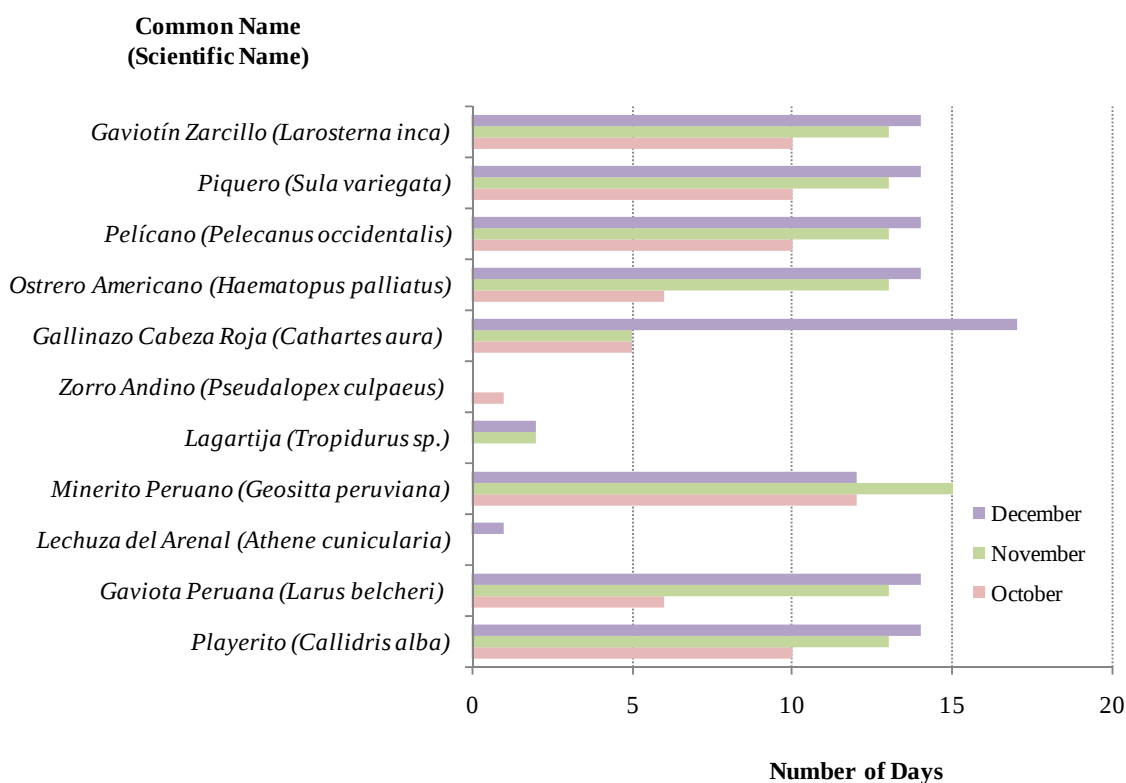
In the area dedicated to *Tillandsias* conservation within the Plant's site, the percentage of dead individuals in November varied from 65% to 82% in the four sampling points. At the off-site *Tillandsias* conservation sites, actual death rate in the last monitoring campaign varied from 9% to 20% in the four sampling points.

It is important to mention that in both areas, groups of collected individuals were chosen by chance and their densities differ. Thus, the results are not necessarily comparable.

Fauna

Wild fauna sightings in the Project's areas were carried out as pre-determined in the EIA. The number of days and the names of species observed from October to December 2009 are shown in **Figure 5.2-1**. During this period, body parts of dead animals were continuously observed in the surrounding areas. This is, however, a common fact in the region and it does not occur due to the Project.

Figure 5.2-1
Number of Observances of Wild Fauna - from October 1st to December 31st



Air Quality / Atmospheric Emissions

During Q4 2009, dust and vehicles emissions control was managed according to EIA standards. Both CB&I and CDB controlled new and existing vehicle emission certificates. Results presented in the monthly reports sent to OSINERGMIN showed compliance with applicable emission standards.

Dust control during construction was based on spraying of treated effluents over unpaved roads and accesses. In October 2009, CDB used 1,554 m³ of treated effluent for dust control and CB&I utilized approximately 11,558 m³ for the same purpose and for site compaction works. During November and December 2009, CDB applied 1,726 m³ and 1,398 m³ of treated effluent respectively, and CB&I used 19,659 m³ and 17,912 m³ respectively.

Water Quality - Cañete River

The use of water from Cañete River was granted to CDB by *Resolución Administrativa 188-2007-GRL-DRA.L/ ATDR MOC* dated August 4, 2007, valid until July 30, 2010.

The volume of water extracted from Cañete River by CDB during October 2009 was 2,052 m³, and, in November, 1,802 m³. Both volumes are compliant with the applicable standards established by the *Resolución Administrativa 188-2007-GRL-DRA.L/ ATDR MOC*.

In December 2009, water extraction from Cañete River was discontinued and CDB's pumping unit was demobilized.

Water monitoring of Cañete River was carried out as planned in the EIA. Thus, only when water was extracted from the river was sampling and analysis performed.

Cañete River water quality was monitored monthly by the CORPLAB laboratory team on October 21 and November 19, 2009. The sampling point was located on the river's right margin, downstream of the abstraction point and beneath Clarita bridge. Results of the two-month monitoring period are presented in **Table 5.2-1**.

Table 5.2-1
Cañete River Water Quality Monitoring Results - October / November 2009

Parameter	Limits (Table SM-2.4 - EIA)	Water Use Classification*	Results (October)	Results (November)
Selenium (mg/L)	0.05	Use III	0.0008	<0.0006
Mercury (mg/L)	0.01		<0.0001	<0.0001
Cadmium (mg/L)	0.05		<0.0001	<0.0003
Chromium (mg/L)	1		<0.0001	<0.0008
Nickel (mg/L)	0.002		<0.0001	<0.002
Copper (mg/L)	0.5		<0.0002	<0.002
Lead (mg/L)	0.1		<0.0001	<0.001
Zinc (mg/L)	25		<0.0001	0.0128
Cyanides (mg/L)	0.005		<0.001	<0.001
Sulfur Compounds (mg/L)	0.002		<0.001	<0.001
Arsenium (mg/L)	0.2		0.004	<0.004
Nitrates (mg/L)	0.1		0.831	0.129
PCP (mg/L)	0.002		<0.0009	<0.0009
TPH (mg/L)	-		<0.04	<0.04
Phenols (mg/L)	0.001		<0.001	<0.001
HEM (mg/L)	0.2	Use IV	<1	<1
Detergents (mg/L)	0.5		<0.01	<0.01
CAE (mg/L)	5		<0.1	<0.1
CCE (mg/L)	1		<0.1	<0.1
BOD ₅ (mg/L)	10		<2	<2
OD (mg/L) (minimum)	3		8.58	9.44
Total Coliforms (NMP/100ml)	5,000	Uses III and IV	16,000	1,700
Faecal Coliforms (NMP/100ml)	1,000	Uses III and IV	9,200	790
Dimethyl Phthalate (mg/L)	0.0003	Use III	<0.0014	<0.0014
Diethyl Phthalate (mg/L)	0.0003		<0.0004	<0.0004
Di-n-Butyl Phthalate (mg/L)	0.0003		<0.0004	<0.0004
Benzyl Butyl Phthalate (mg/L)	0.0003		<0.0002	<0.0002
Bi-2-Ethyl Phthalate	0.0003		<0.0003	0.0032
Di-n-Octyl Phthalate (mg/L)	0.0003		<0.0005	<0.0005

(*) Use III: irrigation water for vegetables of crude consumption and drinking water for animals.

Use IV: water for human recreation of primary contact (full body contact) - Stricter than Use III.

The **highlighted values** are those which surpass the applicable standards.

Results indicate that, during the monitoring dates, water quality is compliant with the reference standard (Table SM-2.4 – EIA), with exception of the following parameters: Nitrates in both months, Total and Faecal Coliforms in October and Bi-2-Ethyl Phthalate in November 2009.

It is important to highlight that no effluent is released to the river by CDB and that extraction of water does not affect any of the exceeded parameters. Thus, water quality problems at the sampling point are the result of other activities upstream and are completely independent from the Project.

Water Quality – Campsites

During Q4 2009, water quality for human consumption continued to be constantly monitored, following procedures established in the EIA. CB&I utilized two water sources: one from Falcone water well in Chinchá, and another directly from the sea. During October and November 2009, CDB extracted water from the Cañete River and, in December, from the Falcone water well. Prior to human consumption, water was always submitted to treatment. In the case of CB&I's treatment plant, there is a reverse osmosis system installed for seawater desalination.

Water sampling and analyses, in the case of CB&I, were performed by the SGS del Perú laboratory, while CDB used CORPLAB's services. Results were sent to OSINERGMIN during Q4 2009 and are shown in two tables below. **Table 5.2-2** refers to the CB&I camp, where the water samples were collected in the kitchen (ORUS camp) and office washroom taps (MSM camp).

Table 5.2-3 refers to samples collected in CDB's water treatment plant. Monitoring results for bottled water destined for direct human consumption are also presented in both tables. All results are compared to standards referred to in the EIA, i.e., Peruvian Regulations, EPA and WHO. Results are commented subsequently to the tables presented below.

Table 5.2-2
Results of Water Analyses for Human Consumption in CB&I Camps

Parameter	Quality Standards			Results								
	Peruvian Regulation	EPA	WHO	Kitchen			Office Washrooms			Bottled Water		
				Out.	Nov.	Dec.	Out.	Nov.	Dec.	Out.	Nov.	Dec.
Free Chlorine (mg/L)	-	4a,b	5	0.74	0.38	0.78	0.68	0.44	0.75	<0.1	<0.1	<0.1
pH	-	6.5-8.5	<8	7.32	7.4	7.87	7.15	7.8	7.37	7.15	7.7	7.57
Total Hardness (mg/L)	-	-	300	214	361	285	149	321	339	12	13	16
Total Dissolved Solids (mg/L)	-	500	1000	408	576	571	357	517	637	38	33	42
Sulphates (mg/L)	-	250	250	74	77	100	57	70	121	12	9	12
Iron (mg/L)	-	0.3	0.3	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Chloride (mg/L)	-	250	250	77	59	78	77	51	79	5	4	5
Colour (UC)	-	15	15	2	<1	<1	<1	<1	<1	2	<1	<1
Turbidity (UNT)	-	1	5	0.6	0.3	0.3	<0.1	0.2	0.3	0.7	0.2	0.1
Total Coliforms (NMP/100ml)	8.8	0b	0	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1
Faecal Coliforms (NMP/100ml)	0	0	0	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1	<1.1

The **highlighted values** surpass the applicable standards.

Table 5.2-3
Results of Water Analyses for Human Consumption in CDB Camps

Parameter	Quality Standards			Results					
	Peruvian Regulation	EPA	WHO	Water Treatment Plant			Bottled Water		
				Out.	Nov.	Dec.	Out.	Nov.	Dec.
Free Chlorine (mg/L)	-	4a,b	5	3	1	1.5	0	1	0
pH	-	6.5-8.5	<8	7.8	7.6	7	6.8	7.4	7.2
Total Hardness (mg/L)	-	-	300	201.4	218.1	365.8	12.97	97.47	11.58
Total Dissolved Solids (mg/L)	-	500	1000	257	313	553	30	200	35
Sulphates (mg/L)	-	250	250	101	125	148.1	12.1	106.6	12.4
Iron (mg/L)	-	0.3	0.3	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Chloride (mg/L)	-	250	250	22.88	24.32	78.96	5.82	22.24	5.41
Colour (UC)	-	15	15	<1	<1	<1	<1	<1	<1
Turbidity (UNT)	-	1	5	1.13	0.27	0.11	<0.08	0.13	0.15
Total Coliforms (NMP/100ml)	8.8	0b	0	Absent	Absent	Absent	Absent	Absent	Absent
Faecal Coliforms (NMP/100ml)	0	0	0	Absent	Absent	Absent	Absent	Absent	Absent

The **highlighted values** surpass the applicable standards.

Results obtained in October 2009 are compliant with the applicable standards, except for Turbidity in the sample from CDB's water treatment plant, which is slightly higher than the EPA recommended value, although under the WHO standard. This Turbidity value is related to an increase in the Cañete River flow.

The analysis carried out in November 2009, showed that, in terms of Total Hardness, concentrations found in the kitchen and office washroom samples at CB&I camp (361 mg/L and 321 mg/L respectively) are above concentration rates recommended by WHO (300 mg/L). Moreover, concentration values for Total Dissolved Solids (TDS) in the kitchen and in the office washroom samples (576 mg/L and 517 mg/L, respectively) do not comply with the corresponding EPA standard (500 mg/L), but are compliant with the WHO standard (1000 mg/L).

The reason for an increase in Total Hardness and TDS values in November is that the reverse osmosis system underwent maintenance stoppage for filter cleaning. During that period, water was supplied only from the Falcone water well. This water does not pass through the reverse osmosis system and contains a high amount of minerals, which raises the Total Hardness and TDS. However, it is important to mention that these values do not represent a risk to health. According to EPA and WHO, the standards established for these two parameters (Total Hardness and TDS) are based on organoleptic criteria associated to flavor.

CB&I total Hardness and TDS results in December were similar to those in November and were also the result of the maintenance stoppage of the reverse osmosis plant.

Total Hardness and TDS results (365.8 mg/L and 553 mg/L) found in the sample from CDB's water treatment plant also exceed standard values, as shown in Table 5.2-3. These results occur because of the water source (Falcone water well). As explained before in the case of CB&I, this water is rich in minerals, which results in high concentrations of TDS and Total Hardness levels.

Monitoring results presented herein confirm that both treated potable water and bottled water consumed in the two campsites were adequate for human consumption during Q4 2009. Even though some values surpass reference standards established in the EIA, this does not imply in health risks.

Treated Effluents

During Q4 2009, at both campsites, treated domestic effluents were monitored monthly, according to EIA requirements. The samples were analyzed as per *Observación 36 del Informe N° 12-2006-MEM-AAE/MHT*.

Sampling at CB&I's camp took place on October 28, November 30 and December 28, 2009, while at CDB's camp, sampling dates were October 22, November 19 and December 22, 2009.

It is important to point out that, in October 2009, treated effluent generated at the CB&I camp was continuously released into the sea until October 16, the expiration date of the authorization for discharge, as per *R.D. N° 4273/2008/DIGESA/SA*. As from October 17, treated effluent was stored and totally reused in the campsite, as usually practiced in the CDB camp.

Treated effluents were reused mainly for dust control, irrigation, compaction works and road maintenance. Volumes reused have already been presented, with reference to dust control activities.

During Q4 2009, the discharge to sea permission renewal was requested to the *Autoridad Nacional del Agua* (ANA). The new authorization was given by ANA through *R.D. N° 0036-2009-ANA-DCPRH* of December 10, 2009. In spite of this permission, PERU LNG reported that priority is always for effluent reuse for dust control and irrigation, as long as the limits established by the *Resolución Jefatural N° 0291-2009-ANA* and *Resolución Jefatural N° 0351-2009-ANA para Uso III* are accomplished.

Treated effluent analysis results were sent to OSINERGMIN during the quarter and are shown in **Table 5.2-4** (CB&I) and **Table 5.2-5** (CDB). In the CB&I camp the samples were collected at the outlet of the wastewater treatment plant (WWTP) and in the storage tank of treated effluent for posterior reuse. In the CDB camp the samples were taken only at the outlet of the WWTP.

Both tables below also include World Bank limits recommended for treated effluents discharged into a water body, though only as a reference since they are not applicable to the present case, as all sampling of treated effluents during the quarter took place when the discharge to sea was not operational and the treated effluent was totally reused. The applicable legal standard in the case of effluent reuse is contained in the recently issued *Resolución Jefatural N° 0291-2009-ANA* and *Resolución Jefatural N° 0351-2009-ANA para Uso III*.

During the period in which the effluent was released to the sea, monitoring of the receiving body (500 m to the North and 500 m to the South of the discharging point) was carried out, as indicated in the *Ley General de Aguas (Decreto Ley N° 17752)*. Results of seawater sample analysis are presented in **Table 5.2-6**.

Table 5.2-4**Results of Treated Effluents Analysis of CB&I Campsite.**

Parameter	R.J. 0291-2009-ANA (Uso III)	World Bank	WWTP Effluent			Reuse Tank		
			Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
pH	-	6 to 9	7.7	7.24	7.58	7.8	7.25	7.88
BOD ₅ (mg/L)	15	50	6	3	3	4	<2	3
COD (mg/L)	-	250	12	16	19	36	20	<6
Total Suspended Solids (mg/L)	-	50	6	2	<1	7	11	2
Oil and Grease (mg/L)	-	10	<1.4	3.1	<1.4	<1.4	<1.4	<1.4
Ammonia Nitrogen (mg/L)	-	10	1.7	2	<0.1	1.6	0.9	0.1
Phosphorous (mg/L)	-	2	3.92	2.82	3.1	2.65	1.63	1.36
Phenols (mg/L)	-	0.5	0.009	0.004	0.002	<0.001	0.002	<0.001
Total Coliforms (NMP/100ml)	5,000	<400	2	<1.8	<1.8	<1.8	<1.8	<1.8
Faecal Coliforms (NMP/100ml)	1,000	<400	2	<1.8	<1.8	<1.8	<1.8	<1.8

Table 5.2-5**Results of Treated Effluents Analysis of CDB Campsite.**

Parameter	R.J. N° 0291-2009-ANA (Uso III)	World Bank	WWTP Effluent		
			Oct.	Nov.	Dec.
pH	-	6 to 9	7.8	6.8	6.8
BOD ₅ (mg/L)	15	50	25	12	17
COD (mg/L)	-	250	66	35	18
Total Suspended Solids (mg/L)	-	50	9	11	<2
Oil and Grease (mg/L)	-	10	<1.0	<1.0	2.8
Ammonia Nitrogen (mg/L)	-	10	33.91	5.06	7.15
Phosphorous (mg/L)	-	2	1.85	0.98	0.52
Phenols (mg/L)	-	0.5	<0.001	<0.001	<0.001
Total Coliforms (NMP/100ml)	5,000	<400	610	<1.8	61

Table 5.2-6
Results of Seawater Analysis in October.

Parameter	R.J. N° 0291-2009-ANA (Uso VI)	Results	
		October	
		500m North of discharging point	500m South of discharging point
BOD ₅ (mg/L)	10	<2	<2
Phenols (mg/L)	0.1	<0.001	<0.001
Total Coliforms (NMP/100ml)	20000	4	<1.8
Faecal Coliforms (NMP/100ml)	4000	<1.8	<1.8
Dissolved Oxygen (mg/L)	4	5.76	6.01
Mercury (mg/L)	0.0002	<0.0001	<0.0001
Arsenium (mg/L)	0.05	<0.027	<0.027
Cadmium (mg/L)	0.004	<0.003	<0.003
Chromium (mg/L)	0.05	<0.006	<0.006
Lead (mg/L)	0.03	<0.012	<0.012
Nickel (mg/L)	-	<0.006	<0.006
Copper (mg/L)	-	<0.006	<0.006
Zinc (mg/L)	-	<0.03	<0.03
Selenium (mg/L)	0.01	<0.047	<0.047
PCB (mg/L)	0.002	<0.0009	<0.0009
Organotin Esters (mg/L)	0.0003	<D.L.	<D.L.
Cyanides (mg/L)	0.005	<0.001	<0.001
Sulfur Compounds(mg/L)	0.002	<0.001	<0.001

The results presented in **Table 5.2-4** show that, in general, CB&I's wastewater treatment plant (WWTP) is working well. Analysis indicate that the parameters are in accordance with limits established by *Resolución Jefatural N° 0291-2009-ANA* and *Resolución Jefatural N° 0351-2009-ANA para Uso III*. The same is the case with regards to CDB's WWTP (**Table 5.2-5**).

It is important to mention that the WWTP of San Martín camp was no longer in operation during Q4 2009 and the effluent generated at this location was sent to the CB&I WWTP. Similarly, the effluent produced in the K2 platform was redirected to the WWTP at the CDB camp.

Also, it is important to note that at the time of the March Mission, effluent from the permanent community (currently housing 80 residents) were being treated at the CB&I WWTP.

Seawater monitoring results sent to OSINERGMIN demonstrated that no material impacts or alterations are generated by the discharge.

Water Discharge from the Reverse Osmosis System

As mentioned before, at the CB&I camp water during Q4 2009 was supplied from two sources: the Falcone well and directly from the sea. This second source is ready for use after passing through a reverse osmosis (R.O.) desalinization and treatment system installed in the water treatment plant at the CB&I camp. Besides water for consumption, this R.O. system also generates brine, which is released to the sea.

Monitoring of the reverse osmosis brine was done according to the following authorizations: *Resolución Directoral N° 2990/2007/DIGESA/SA* (December 27, 2007), *R.D. N° 4273/2007/DIGESA/SA* (October 23, 2008), and *R.D. N° 0038-2009-ANA-DCPRH* (December 15, 2009). Samples were analyzed according to methods proposed in the response to the *Observación 36 del Informe N° 12-2006-MEM-AAE/MHT*. Sampling took place in October 28, November 20 and December 23, by the CORPLAB team, that was also responsible for the analysis.

The results, shown in **Table 5.2-7**, were compared to the standards established in the EIA. In December and November the results were also compared to the *Decreto Supremo N° 037-2008-PCM* that sets maximum allowed limits for liquid effluents in the Hydrocarbons Subsector (legally applicable in Peru since November, 2009).

Together with the sampling of the reverse osmosis brine, samples of the receiving body (seawater) were also taken (as required by *Ley General de Aguas - Decreto Ley N° 17752*), in November 20 and December 23. The recommended procedure is to collect the samples 500m North and 500m South of the discharging point. **Table 5.2-8** shows the results of these analysis. Results corresponding to October were already presented in **Table 5.2-6**.

Table 5.2-7
Results of the Reverse Osmosis Brine Analyses.

Parameter	World Bank	R.J. N° 0291-2009-ANA (Uso VI)	D.S. N° 037-2008-PCM	Results		
				Oct	Nov	Dec
pH	6 to 9	-	6 to 9	7.95	7.78	8.51
BOD ₅ (mg/L)	50	10	50	3	<2	4
COD (mg/L)	250	-	-	8	<2	-
TSS (mg/L)	50	-	-	40	75	30
Oil and Grease (mg/L)	10	-	-	<1.4	<1	<1
Ammonia Nitrogen (mg/L)	10	-	40	<0.1	0.014	0.568
Phosphorous (mg/L)	2	-	2	0.3	0.380	1.083
Phenols (mg/L)	0.5	0.1	-	<0.001	<0.001	<0.001
Total Coliforms (NMP/100ml)	<400	20,000	<1,000	9,200	2	340
Faecal Coliforms (NMP/100ml)	<400	4,000	<400	<1.8	<1.8	20
Residual Chlorine (mg/L)	-	-	0.2	-	<0.02	<0.02
Chlorine compounds (mg/L)	-	-	500	-	27,949	2,701
Conductivity (uS/cm)	-	-	-	-	72,200	11,290
Dissolved Oxygen (mg/L)	-	4	-	-	3.78	6.98
TPH (mg/L)	-	-	20	-	<0.04	<0.04
Mercury (mg/L)	-	0.0002	0.02	-	<0.0001	<0.0001
Arsenium (mg/L)	-	0.05	0.2	-	<0.004	<0.004
Barium (mg/L)	-	-	5	-	0.0103	0.0474
Cadmium (mg/L)	-	0.004	0.1	-	<0.0003	<0.0003
Chromium (mg/L)	-	0.05	-	-	<0.0008	<0.0008
Hexavalent Chromium (mg/L)	-	-	0.1	-	<0.002	<0.002
Lead (mg/L)	-	0.03	0.1	-	<0.001	<0.001

The **highlighted values** are those which surpass the Standard limits.

Table 5.2-8
Results of Seawater Analysis in November and December.

	R.J. N° 0291-2009-ANA (Uso VI)	Results			
		November		December	
		500m North	500m South	500m North	500m South
BOD ₅ (mg/L)	10	<2	2	5	9
Phenols (mg/L)	0.1	<0.001	<0.001	<0.001	<0.001
Total Coliforms (NMP/100ml)	20,000	4.5	6.8	<1.8	<1.8
Faecal Coliforms (NMP/100ml)	4,000	<1.8	<1.8	<1.8	<1.8
Dissolved Oxygen (mg/L)	>4	5.45	5.28	5.12	5.86
Mercury (mg/L)	0.0002	<0.0001	<0.0001	<0.0001	<0.0001
Arsenium (mg/L)	0.05	<0.027	<0.027	<0.004	<0.004
Cadmium (mg/L)	0.004	<0.003	<0.003	<0.003	<0.003
Chromium (mg/L)	0.05	<0.006	<0.006	<0.008	<0.008
Lead (mg/L)	0.03	<0.012	<0.012	<0.001	<0.001
Nickel (mg/L)	-	<0.006	<0.006	<0.002	<0.002
Copper (mg/L)	-	<0.006	<0.006	<0.002	<0.002
Zinc (mg/L)	-	<0.03	<0.03	0.0186	0.0063
Selenium (mg/L)	0.01	<0.047	<0.047	<0.006	<0.006
PCB (mg/L)	0.002	<0.0009	<0.0009	<0.0009	<0.0009
Organotin Esters (mg/L)	0.0003	<D.L.	<D.L.	<D.L.	<D.L.
Cyanides (mg/L)	0.005	<0.001	<0.001	<0.001	<0.001
Sulfur Compounds (mg/L)	0.002	-	-	<0.001	<0.001

The results of **Table 5.2-7** show that in the case of the reverse osmosis (R.O.) effluent, all parameters were compliant with applicable legal limits, except for Chlorine compounds in both November and December. However the presence and high concentration of this parameter should be considered normal, since the RO unit processes sea water,

Also, though there is no legal standard for Total Suspended Solids, in November the results for this parameter exceeded the World Bank's recommended limit.

Regarding the receiving body analysis, results show, in some cases, a fluctuation in the values from one station to the other. This can be attributed to the natural conditions of the seawater, marine currents, seasonality, salt reactions, and other factors not dependent on the Project. In general, **Table 5.2-8** shows that all parameters comply with applicable limits at both sampling locations (500m North and 500m South of the discharge). This demonstrates that seawater characteristics are not materially affected by the brine discharge.

Noise Monitoring

During Q4 2009, noise monitoring in the surroundings and in the influence area of the Project was carried out according to the methodology proposed in the EIA. The measurements were conducted from October through December during daytime and nighttime. Monthly results were sent to OSINERGMIN and are presented in **Table 5.2-9** below in comparison to the Standards proposed in the Table SM-4 of the EIA.

Table 5.2-9
Results of the Noise Monitoring.

Date	Station	Time	LeqA (h)	Reading (dB)		Remark
				Max.	Min.	
October 15	NM1	11:25	52.0	75.6	25.3	Sporadic traffic of heavy vehicles around the point.
October 15	NM1	22:00	37.7	64.6	28.3	Soft noise coming from the water treatment plant of CDB.
October 14	NM2	10:00	74.0	94.8	46.6	Vehicles entrance and departure. Proximity to the Panamericana Sur highway.
October 14	NM2	22:00	73.7	98.2	33.6	
October 15	NM3	14:25	48.7	64.9	38.7	No activities detected in the surroundings.
October 15	NM3	22:15	43.7	60.3	37.1	Nocturnal irrigation.
October 14	NM4	14:10	52.2	69.3	32.3	Vehicular traffic in the Panamericana Sur.
October 14	NM4	22:10	52.7	66.3	27.2	
October 13	NM5	14:55	52.6	65.2	48.4	Noise coming from the sea waves and wind. People working in the outskirts.
October 13	NM5	22:15	52.6	55.7	46.8	
November 19	NM1	07:55	61.1	77.6	35.9	Sporadic traffic of heavy vehicles around the point.
November 19	NM1	22:15	38.0	78.0	26.3	Soft noise coming from the water treatment plant of CDB.
November 18	NM2	08:10	75.2	96.8	41.6	Vehicles entrance and departure. Proximity to the Panamericana Sur highway.
November 18	NM2	22:00	73.5	96.3	35.9	
November 19	NM3	09:10	43.7	62.2	38.8	Sporadic traffic of heavy vehicles around the point.
November 19	NM3	22:00	40.1	58.3	36.5	No activities detected in the surroundings.
November 18	NM4	14:00	52.1	68.9	30.6	Vehicular traffic in the Panamericana Sur.
November 18	NM4	22:15	51.0	64.3	29.4	
November 17	NM5	14:15	49.6	77.4	41.6	Noise coming from the sea waves and wind. People

Date	Station	Time	LeqA (h)	Reading (dB)		Remark
				Max.	Min.	
November 17	NM5	22:30	51.2	56.8	44.9	working in the outskirts.
December 17	NM1	12:05	62.4	84.5	25.6	Sporadic traffic of heavy vehicles around the point.
December 17	NM1	22:15	32.8	61.8	25.2	No activities detected in the surroundings.
December 16	NM2	07:20	74.4	100.0	41.7	Vehicles entrance and departure. Proximity to the Panamericana Sur highway.
December 16	NM2	22:00	74.9	96.4	38.2	
December 17	NM3	15:10	51.2	75.3	37.3	Sporadic traffic of heavy vehicles around the point.
December 17	NM3	22:05	36.9	56.5	33.4	No activities detected in the surroundings.
December 16	NM4	14:10	48.8	68.1	30.4	Vehicular traffic in the Panamericana Sur.
December 16	NM4	22:10	53.7	76.5	25.6	
December 15	NM5	14:54	53.6	74.8	46.9	Noise coming from the sea waves and wind. People working in the outskirts.
December 15	NM5	22:05	54.9	61.0	50.2	Noise coming from the sea waves and wind.

The **highlighted values** are those which surpass the Standard limits.

Results obtained during the quarter show that the Standard noise value was exceeded at station NM2 during daytime and nighttime. The same happened at stations NM4 and NM5 during nighttime. It is important to note that both stations are located near the Panamerican highway, where noise levels are high due to intense traffic, and not because of Project construction activities. Furthermore, noise levels at station NM5 (distant from the Project area) are due to sea waves and wind.

Noise levels detected at stations NM1 and NM3 (inside the Project area) during daytime and nighttime are under the applicable limits. In addition, noise levels measured during nighttime are lower in comparison to those found in daytime.

Thus, it may be concluded that the results obtained during the quarter show that Project related activities do not generate noise levels that exceed the applicable Standard.

Waste Management and Monitoring

During Q4 2009, waste was managed by means of daily reports informing the generation, transportation and final destination of all waste produced in the different camps, offices, warehouses and other operational areas located inside the Project site.

In general, during Q4 2009, waste management was carried out adequately, except for minor problems affecting segregation at the source. Once waste was collected, it was taken to a temporary storage area where further segregation occurred, when necessary. Solid and liquid waste amounts (hazardous and non hazardous, used oil, effluents from toilet and bathrooms, etc.) generated at both CB&I and CDB camps are summarized in **Table 5.2-10**

and **Table 5.2-11**, respectively. Complete data is available in the archives of both companies. The total waste produced in CB&I and CDB campsites that was sent to final off-site destinations is shown in **Figure 5.2-2**.

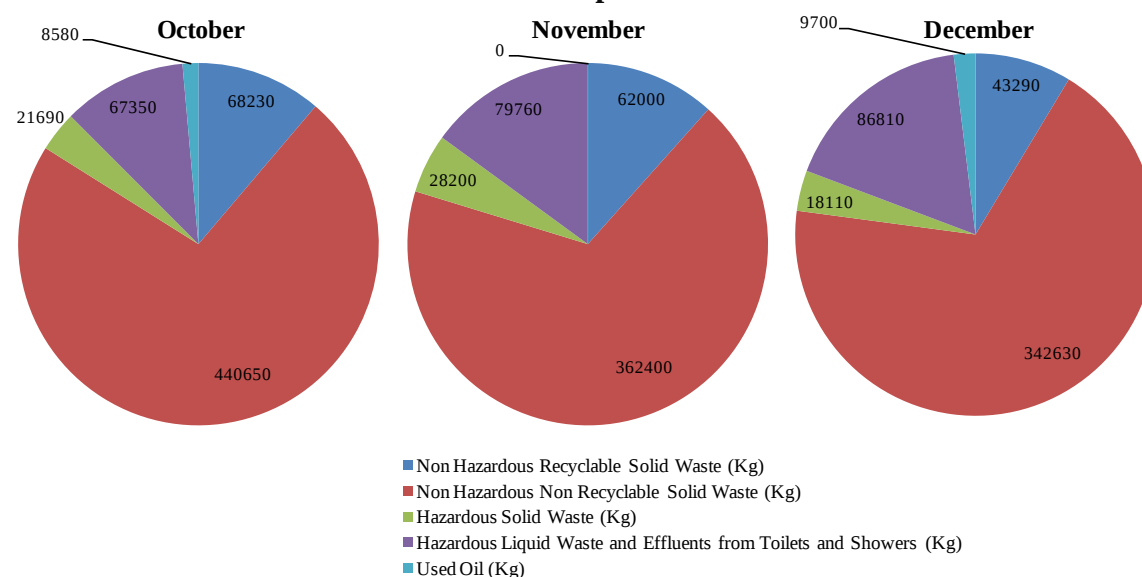
Table 5.2-10
Wastes Generated at the CB&I Campsite.

Month	Non Hazardous Solid Wastes			Hazardous Solid Wastes		Hazardous Liquid Wastes
	Total	Recyclable Wastes	Non Recyclable Wastes	Contaminated Wastes	Printer cartridges, fluorescent lamps, filters and batteries	Used oil, chemical liquids
	m ³	m ³	m ³	m ³	(unit)	(gal)
October	2473	318	2155	55.1	395	778
November	2156	297	1859	71.5	1807	1240
December	2000	273	1727	53.1	521	1028

Table 5.2-11
Wastes Generated in the CDB Campsite.

Month	Non Hazardous Solid Wastes			Hazardous Solid Wastes		Hazardous Liquid Wastes
	Total	Recyclable Wastes	Non Recyclable Wastes	Contaminated Wastes	Fluorescent lamps and filters	Used oil
	m ³	m ³	m ³	m ³	(unit)	(gal)
October	24,693	9421	15,218	3154	235	300
November	15,640	4136	11,504	3705	50	800
December	8405	2460	5945	970	40	0

Figure 5.2-2
Wastes Generated in CB&I and CDB Campsites Sent to Final Destination



In October, wastes generated by CB&I were similar to those reported in past periods. On the other hand, at the CDB campsite waste volumes increased due to the demobilization process.

In November, the CB&I campsite generated waste volumes comparable to those observed in October. In contrast, at the CDB camp volumes diminished as a result of the decrease in the construction workforce.

The amount of waste produced at both campsites in December was reduced, possibly due to personnel number reduction in November. Transportation of hazardous waste was also lower than in November.

6.0

External E&S Assurance

6.1 OSINERGMIN Inspections and Observations

During Q4 2009, OSINERGMIN performed three audits at the Plant, Quarry and Marine Facilities (two environmental audits and one social audit that included the Plant and the Project's direct area of influence).

OSINERGMIN raised only two field observations regarding the lack of permits for the re-use of wastewater, during the December 2009 Audit. PERU LNG informed that contractors were required to closely follow up the permit application process with the competent authority.

Table 6.1 summarizes OSINERGMIN's findings for Q4 2009.

Table 6.1
Summary of OSINERGMIN Inspections during Q4 2009

MONTH	DESCRIPTION OF FIELD OBSERVATIONS
October	1 - ENVIRONMENTAL INSPECTION TO THE PLANT AND MARINE FACILITIES <u>Area Inspected:</u> Two-day inspection to open works fronts in the Plant and Marine Facilities. <u>Observations:</u> No field observations requiring follow-up were raised.
November	2 - SOCIAL INSPECTION TO THE PLANT, QUARRY AND MARINE FACILITIES <u>Area Inspected:</u> Three-day inspection to the Plant and Quarry direct influence area. <u>Observations:</u> No field observations requiring follow-up were raised.
December	3 - ENVIRONMENTAL INSPECTION TO THE PLANT AND MARINE FACILITIES <u>Area Inspected:</u> Nine-day inspection to different construction fronts at the Plant and Marine Facilities. <u>Observations:</u> Two field observations were raised regarding the lack of permits for the reuse of wastewater.

Source: PERU LNG's Q4 2009 ESHS Quarterly Report

OSINERGMIN's observation regarding the temporary bridge extension that was reported in the Q3 2009 report, resulted in three fines imposed on PERU LNG. This has been informed to the Intercreditor Agent. PERU LNG has issued a recourse questioning the fines.

During the March Mission, it was reported that OSINERGMIN will verify proper technical completion of all facilities through an independent consultant to issue the Favorable Technical Report (*Informe Técnico Favorable* - ITF) containing information on design conformity with local norms. Issuance of the ITF is dependent upon successful conclusion of the first LNG shipment and is expected to be issued within two weeks after it leaves port. The ITF is a requirement for issuance of the authorization for Project operation.

6.2 IESM Missions

In the IESM Report on the December 2009 Mission, eight (08) recommendations remained open (Recommendation Tracking Table in Annex 02), three of which issued during the December 2009 IESM Mission and the others still pending from previous Missions.

Based on PERU LNG's responses in the Q4 2009 Report, one of those recommendations has been closed, relative to timeliness of technical assistance to fishermen business projects. The others were not included in the quarterly report, because PERU LNG's Q4 2009 Report was closed before the December 2009 IESM Report could be issued.

Eight (08) new recommendations are being issued as a result of the March 2010 IESM Mission and have been consolidated with previous pending recommendations in the Recommendation Tracking Table in **Annex 02**.

7.0

Environmental and Social Program Implementation and Performance

7.1 Marine Monitoring

Progress Reported by PERU LNG

As informed in the IESM December 2009 Report, the Marine Monitoring Program was integrated with the Seabirds and Marine Mammals Monitoring Program and the Smithsonian Institute will be responsible for the Program's management during the operation phase. At the time of the March Mission, new monitoring protocols were still being prepared. It was reported the Program will focus on monitoring benthos, algae, fish and seabirds.

Scope of the IESM Team's Review

During the March Mission, the IESM Team held a meeting with PERU LNG's team responsible for the Marine Monitoring Program and with the Smithsonian Institution's (SI) coordinator. No field inspections took place. However, during inspection of the trestle a significant increase in the number of birds, dolphins, sea lions and fish occupying the new habitat was noticed.

Compliance Assessment

During the first year of operation, the program will be continued unaltered, based on semi-annual surveys. After the end of this year, the marine monitoring program will be evaluated to determine its scope for the following years.

Results Assessment

PERU LNG reported that no significant changes were observed during Marine Facility construction. Seasonal variations in the abundance of dominant fish species was also studied, as well as shore fishing activities through interviews with fishermen. Significant changes in macrobenthic communities were not observed during the entire monitoring program.

Suggestions and Recommendations

It will be useful to adjust the monitoring protocols as possible with view to identifying any marine fauna impacts resulting from the coastline sedimentation and erosion processes that are ongoing (i.e. new habitat provided by wider beach areas, loss of sand cover at eroded sections, etc.).

Program Assessment

To date the Marine Monitoring Program focused on impacts due to construction-related activities and demonstrated that no material negative impacts occurred.

On the other hand, a significant number of species are being attracted to the new habitat created by the trestle and breakwaters (sea birds, mammals, fish, algae and invertebrates). This impact is considered positive in terms of biodiversity.

There is no evidence of any material negative impact on water quality. Coastline modification is the most significant impact to date (see Coastline Monitoring Program – Section 7.2).

7.1.1 Ecological Monitoring

Birds and Mammals Monitoring

All fauna monitoring is currently being integrated into the BMAP under the coordination of the Smithsonian Institution.

7.2 Coastline Monitoring

Progress Reported by PERU LNG

PERU LNG informed that in October 2009 an expert report on coastline monitoring was issued analyzing results of survey work conducted in August 2009 (Interim Coastal Survey Report – August 2009). The coastline survey included along-shore visual observations and detailed topographic mapping of 56 transects perpendicular to the coastline, covering a 7 km strip. As per this report, the beach sedimentation observed at the trestle location appears

to be related to the construction of the breakwater and RLOF and the corresponding reduction in wave energy in the sheltered waters landward of these structures. This effect is a common phenomena related to offshore breakwaters.

The erosion observed approximately 1 km north of the trestle location also appears to be related to the construction of the breakwater and RLOF. This effect is a well-documented response typical of down-drift accretion areas behind offshore breakwaters.

The likely maximum extent of shoreline sedimentation and recession is unknown at present due to limited data, but it may be expected to cease once the accumulation of material has reached a new equilibrium with the reduced wave climate behind the breakwater.

Further monitoring (at an increased frequency) is being executed by PERU LNG to better understand the erosion and accretion rates. PERU LNG performed additional monthly monitoring at seven transects distant 500 m from each other to the North and South of the trestle.

It was reported that results of the December monitoring would be available about three weeks after the March Mission through the Annual Coastline Monitoring Report and will be reviewed during the next IESM Mission.

Scope of the IESM Team's Review

The IESM Team held meetings with PERU LNG's team responsible for the Program and inspected the beach area surrounding the trestle and the erosion points on the coastline. Furthermore, the October 2009 report was analyzed.

Compliance Assessment

The Program is being correctly implemented and is compliant with EIA and other Project commitments. PERU LNG has developed the execution of additional monitoring in order to obtain a more precise understanding of changes in the coastline.

PERU LNG is conducting additional monthly monitoring to closely follow evolution of the process. Though such monitoring is not in the original scope of the Coastline Monitoring Program, it is certain that it must be executed, since changes to the coastline are occurring. Hence, continuity of monthly monitoring campaigns (or other additional follow up methods) is recommended.

Results Assessment

Though it is true (as reported) that coastline changes were expected and are typical of marine facilities with breakwaters, the speed at which the process is taking place is not typical and is reason for concern. Furthermore, the extent of the sedimentation process (affecting about 1,400 m of coastline) is already larger than previously modeled.

During the March Mission, the IESM Team verified that changes along the coastline have not stabilized yet. Beach sedimentation has resulted in waves breaking further into the sea. In days with larger waves, this may be resulting in wave movement within the service dock loading area at the RLOF.

Furthermore, if the sedimentation process continues, it may affect conditions at the location of the reverse osmosis brine and effluent discharge.

The beach erosion segment to the North of the trestle is not stabilized. Currently, beach erosion is taking place over a strip at least 300 m long. At critical points the sand strip has given way to a pebbled coastline and waves are striking the base of the coastal cliff.

Suggestions and Recommendations

The IESM Team recommends the continuation of monthly monitoring according to PERU LNG's planning. At the transects that coincide with the beach strip subject to erosion, topographic transects should be extended inland, to include at least the lower 3 meter section of the coastal cliff in order to verify if any profile changes are occurring there. If erosion is extending beyond the beach segment covered by monthly monitoring (7 transects), then this monitoring should be extended accordingly.

At the service dock at the RLOF, a wave monitoring protocol should be established and monitoring should begin as soon as possible. Wave movement at the loading and unloading area would represent a health and safety hazard and some form of corrective action would become necessary in that event.

PERU LNG's EHS staff should interact more closely with the Project's engineering team in order to jointly discuss any engineering solutions if and when they become an option. During the March Mission, no such interaction was evident as the Company's EHS staff reported to be unaware of any engineering discussions, and it seems clear that environmental considerations should be one of the main drivers for corrective action planning.

The Marine Monitoring Program's monitoring protocols currently being developed by the Smithsonian Institution should be adapted as possible, in order to verify any effects of the sedimentation and erosion processes on marine life, particularly macrobenthic communities.

Program Assessment

This program is being properly managed and implemented by PERU LNG.

7.3 Groundwater Monitoring

Progress Reported by PERU LNG

PERU LNG reported that the 3rd survey of Year 3 of the Program took place in November and included monitoring of water levels and field parameters only. Results continued to show no impact resulting from the Quarry's operation.

It was also reported that a community workshop was held to inform on monitoring results.

The final monitoring survey was executed in February 2010, several months after ceasing activities at the Quarry.

Scope of the IESM Team's Review

The IESM team met with PERU LNG's environmental team and reviewed the quarterly monitoring report corresponding to the November 2009 survey, which was published in January 2010.

Compliance Assessment

Monitoring activities performed during the period are compatible with requirements established in the corresponding program.

Results Assessment

According to results of the November 2009 survey, and other data collected since the beginning of the Monitoring Program in 2007, PERU LNG informed the following:

- In contrast with the historical data between 2000 / 2006, results from January 2007 to November 2009 did not show a declining trend in groundwater levels in Topará.
- According to field observations and results obtained, levels are mostly influenced by seasonal variations (dry and wet seasons) and by the intensity of pumping for irrigation purposes.

- There are frequent significant water level variations in GWT-6 and GWT-8. The GWT-6 well registered two water level declines in May, 2007 (more than 6 m) and October, 2007 (about 7 m). Well GWT-8 also registered water level declines, the first in September 2007 (6 m), the second and third in March and April 2008 (approximately 14 m each) and more recently in August and November 2009 (12 m and 13 m, respectively). These last reductions occurred after the Quarry's decommissioning.
- These declines are influenced primarily by pumping for irrigation purposes and also pumping executed to purge and sample water from wells.

Suggestions and Recommendations

None at this time.

Program Evaluation

This program was very useful for providing documented evidence to prove there were no impacts attributable to Quarry activities in relation to groundwater at Topará.

7.4 Cultural Heritage Management Plan

This program has been completed. No chance finds were encountered during Q4 2009 or during January and February 2010.

7.5 Local Hiring and Purchasing Plan

Progress Reported by Peru LNG

According to PERU LNG's Q4 2009 Report, during Q4 2009, the local workforce comprised almost 50% of the total Peruvian workforce on the LNG Plant and Marine Facilities.

Local hiring	October	November	December	Monthly Average	% Monthly Average
Chincha	1,420	1,113	1,106	1,213	48
Cañete	1,137	1,372	1,378	1,296	52
Total	2,557	2,487	2,484	2,509	100

The difference in the proportion of local workers between Chincha and Cañete has been reduced when compared with Q3 2009. During Q4 2009, Chincha's and Cañete's monthly local hiring average (48% and 52%, respectively) became closer to the equal hiring commitment established for both communities.

Only 4 non-local workers, on average, were housed in the Project's direct area of influence (DAI) communities (Chincha and Cañete). An additional 52 were housed at Cerro Azul or Asia (outside the DAI).

Q4 2009	Non-local labor housed at Campsites	Non-local labor housed at Cañete	Non-local labor housed at Chincha	Non-local labor housed at Cerro Azul or Asia
Monthly average	3,266	1	3	52

During the March Mission, the IESM Team was further informed that the number of local workers in January 2010 reached 2,271 (969 from Chincha and 1,302 from Cañete). PERU LNG informed that the number of local workers will decrease in the following months as the construction process approaches its final stage. The rate of decrease is expected to be about 250 workers per month.

The Community Affairs Team stressed that the communities are not reacting in a negative way to decreasing working opportunities. However, it should be noted that the number of jobs has not yet decreased in a significant way. The negative impact which could arise from the retrenchment process is being ameliorated by the economic growth currently taking place in the region, including the construction of large projects in the area such as the expansion of the Panamerican Highway.

According to PERU LNG, during Q4 2009, local procurement totaled US\$ 528,043 in October; US\$ 34,647 in November; and, US\$ 569,189 in December 2009, adding up to US\$ 1,131,879 for the quarter. Procurement from Chincha and Cañete was primarily by contractors, as shown below:

Contractor	Procurement Chincha (US\$)	Procurement Cañete (US\$)	Total (US\$)
Plant EPC Contractor	445,861	570,310	1,016,171
Marine EPC Contractor	52,639	63,069	115,708
Total (US\$)	498,500	633,379	1,131,879
%	44	56	100

The following table classifies local procurement during Q4 2009 by types of goods and services:

Item	%
Services in general	42
Lodging	30
Supplies	16
Fuel	6
Others	5
Food	1

During the March Mission, the IESM Team was informed that local procurement for January 2010 totaled US\$ 344,840. Peru LNG is participating in some opportunity fairs to promote local providers primarily as part of ForPyme.

Scope of the IESM Team's Review

During the March Mission, the IESM Team attended a brief presentation by PERU LNG's Community Affairs team regarding local hiring and purchasing.

Compliance Assessment

The program is generally compliant with applicable commitments. The difference in the proportion of local workers between Chinchá (48%) and Cañete (52%) has decreased compared to previous quarters.

Results Assessment

The program is employing a significant number of local workers and local businesses. One of the main contributions of the construction phase refers to the training received by local workers. This is likely to increase their future employment opportunities.

Suggestions and Recommendations

The IESM Team suggests that PERU LNG should coordinate with the contractors in order to have quantitative and qualitative documentation regarding the training given to the local workforce.

As evidenced in the Stakeholder Engagement Plan (Section 7.6), the main reason for consultation to the offices of Chinchá and Cañete is to seek job opportunities. Given that the number of local workers will decrease in the following months it is important to develop a communication strategy that ensures the local community is aware of this process.

Program Evaluation

The Local Hiring and Purchasing Plan is in compliance with applicable social commitments.

7.6 Stakeholder Engagement Plan

Progress reported by Peru LNG

According to PERU LNG's Q4 2009 Report, during the reporting period the following activities were carried out:

- Seventy-three (73) informative meetings with 32 schools and educational institutions, with participation of 1,885 senior high-school students.
- Informative meetings about Project activities with directors and teachers from 18 local schools. At these events, several materials were distributed: 788 posters and 144 leaflets (about the LNG Plant), and 90 leaflets and newsletters (about the Project).
- Two informative workshops were carried out in December 2009, regarding the Quarry Closure Plan in order to provide stakeholders with information about Quarry decommissioning activities. These workshops were carried out in Cañete and Topará with the participation of 85 people.

During Q4 2009, PERU LNG offices received 635 visitors for the Plant, Quarry and Marine Facilities, with 256 consultations in Cañete, and 379 in Chincha. These visits were related to inquiries about job opportunities, fishermen's compensation plan and general consultations about the Project (requests for information on the Project, updates on construction and benefits for the community).

During the March Mission, the IESM Team received the following accumulated data for December 2009, January and February 2010:

Chincha and Cañete offices received a total of 512 visits. As shown in the following table, inquiries regarding local hiring opportunities were, by far, the most important reason for the visits. This should be taken into account when implementing the communication strategy regarding the commencement of plant operations.

Type of inquiry	Visits received in Dec 2009, Jan and Feb 2010			
	Office of Chíncha	Office of Cañete	Total	%
Local hiring	252	184	436	85
Fishermen compensation plan	14	42	56	11
Social aid	3	1	4	1
Local purchasing	3	4	7	1
Others	3	6	9	2
Total	275	237	512	100

According to PERU LNG's Q4 2009 Report, in the case of Plant, Quarry and Marine Facilities, only one grievance was received. This grievance is related to alleged damages to a river defense structure in the Cañapay temporary river crossing resulting from equipment transportation activities. During the Mission, the IESM Team was informed the grievance was under investigation by the Plant's EPC Contractor.

Regarding the Influx Management Plan, PERU LNG reported that during Q4 2009 there were no informal settlement invasions within the LNG Plant buffer zone. Community Affairs personnel continues with the weekly monitoring of the buffer zone and nearby areas to verify growth of informal settlements in the area, to verify that no encroachment takes place and to ensure that the perimeter fence of the buffer zone is kept in good condition.

During the March Mission, the IESM Team was also informed that the fence at the buffer zone's south section will be replaced and a local company will execute this work.

Scope of the IESM Team's Review

During the March Mission, the IESM Team held a meeting on the Stakeholder Engagement Plan with PERU LNG's Community Affairs staff.

Compliance Assessment

The Stakeholder Engagement Management Plan was found to be in compliance with the Project's social commitments.

Results Assessment

The program is striving to strengthen the Project's image, especially during the transition process from the construction to the operation phase.

Suggestions and Recommendations

The IESM Team encourages PERU LNG to further document the Project's contribution to local workforce training and to implement a communication strategy regarding operations start-up in order to prevent unnecessary job expectations.

Program Evaluation

The Stakeholder Engagement Plan is properly managing and documenting the Project's interaction with local communities.

7.7 Fishermen's Compensation Management Plan

Progress Reported by Peru LNG

During Q4 2009, PERU LNG reported reaching an agreement with the fishermen association *Asociación de Pescadores Artesanales de las Riberas de Chincha y Pampa Cañete* (APARCHP). All other associations recognized in the Fishermen's Compensation Plan had already reached agreements with PERU LNG.

PERU LNG reported that at end of Q4 it had reached agreements with 246 out of 283 independent fishermen (86%) identified in the Compensation Plan. PERU LNG informed that negotiations with the remaining independent fishermen continue with participation of representatives of the Ministry of Energy and Mines' Department of Social Affairs.

It is important to notice that agreements reached with independent fishermen have largely remained the same since Q2. The IESM Team was informed that a considerable group of the remaining independent fishermen requested to be recognized as an association as they believe they will thus obtain higher compensation and presented their documentation in order to be recognized as such. This documentation is being analyzed by PERU LNG in order to decide the appropriate path forward. This explains the low rate with which the remaining independent fishermen have been reaching individual agreements with PERU LNG.

PERU LNG reported that there are no material compensation differences between independent fishermen and those organized in associations.

At the end of Q4 2009, the status of the Fishermen's Compensation Plan's implementation process could be summarized as follows:

- 799 fishermen out of 848 had signed compensation agreements (94%).
- 543 fishermen were involved in 382 business ideas jointly identified.

- 519 fishermen were involved in 367 businesses profiles approved by the Trust Management Committee.
- 240 businesses under implementation (involving 371 fishermen).
- 192 businesses with the implementation process finished (involving 232 fishermen).
- 134 businesses in operation (involving 175 fishermen).

Approved businesses are related to secondary economic activities that fishermen were already carrying out; or to the main economic activities being carried out by the fishermen's direct relatives, and are distributed as follows:

Economic activity	%
Transportation	37
Commerce	23
Livestock	16
Services	11
Agriculture	7
Fishing	5
Manufacture	1

According to PERU LNG's Q4 2009 Report, fishermen are receiving training sessions and technical assistance in commercialization and production processes, accounting, taxes, and legal requirements. During Q4 2009, 189 fishermen participated in these training sessions.

Scope of the IESM Team's Review

The IESM Team held a meeting with representatives of the *Asociación de Pescadores Artesanales de las Riberas de Chincha y Pampa Cañete* (APARCHP) and visited 5 business projects under implementation. These meetings were held with representatives of PERU LNG and SWISS CONTACT-RECURSOS SAC.

During the meeting with the representatives of APARCHP, they summarized the long negotiation process between this association and PERU LNG. This delay was due, among other factors, to the association desire to receive 100% cash compensation versus PERU LNG's position of giving the compensation in productive activities.

The representatives of the association indicated that the presence of representatives of the Ministry of Energy and Mines and the Ministry of Production was positive in the outcome of the negotiations.

The association representatives expressed their satisfaction with the final agreement with PERU LNG and indicated that they looked forward to implementing the agreements, particularly those regarding businesses with each member of the association. All 63 associates were in the process of providing and developing their business ideas. Of the

business projects, 80% were already approved and the rest was expected to be approved by the end of March 2010.

Following the trend of the other fishermen involved in the program, APARCHP associates are mainly investing in businesses related to transportation. Other projects are related to small stores, restaurants, and livestock. As APARCHP members explained, most associates are investing in each family's secondary economic activities, where they already have some expertise.

The agreement states that 70% of each associate's compensation will be invested in the businesses and 30% in goods related to their selected business.

The IESM Team visited five different businesses implemented with the compensations.

Business	Investment (S/.)
1. Seafood restaurant at Totoritas beach	20,000
2. Small convenience store	1,500
3. Video games rental	5,000
4. Production of ice / vending of beer and ice cream	3,500
5. Transportation of construction material (truck)	10,000

The first case refers to a family business that was already functioning. The investment was mainly in the improvement of the infrastructure, the construction of a second floor, and on general supplies for the restaurant. The restaurant is intended to work mainly during summer time. The family has invested their own savings beyond the compensation. Expected time of investment recovery is 26 months.

The second family invested its small compensation in a very simple convenience store functioning in the house they already own. The store is managed by the fisherman's wife. It is calculated that the investment will be recovered in 10 months.

The third family invested in a TV and videogame rental and clients are composed by the neighborhood children. The establishment is supervised by a senior family member. Expected time of investment recovery is 14 months.

The fourth family is fully dedicated to fishing activities and purchased two refrigerators. Producing their own ice, the wife transports catch from port to market to sell household production while ice surplus is sold to other fishermen. Improvements resulted in a S/.35 daily saving for the family business, which is complemented by selling beer and ice-cream to the neighborhood. Expected time of investment recovery is *circa* 24 months.

The fifth business involved the purchase of a second-hand truck by a fisherman who already provided transportation services of construction material. In association with a group of colleagues, expansion plans include the purchase of a second truck. Expected time of investment recovery is 12 months.

Compliance Assessment

The majority of fishermen included in the program have reached a satisfactory agreement with PERU LNG. There is a small group of independent fishermen who did not yet reach an agreement. PERU LNG continues conversations with these fishermen in order to reach agreements with all fishermen involved in the program.

While the high number of small businesses to be implemented has delayed implementation of the compensation, the program is in compliance with the relevant social commitments of the Project.

Results Assessment

The negotiation process has thus far been successful, though there is a small group of independent fishermen that have not yet reach agreements with PERU LNG.

The businesses are being implemented and in these initial stages they show an acceptable performance.

Suggestions and Recommendations

It is important to ensure continuity of technical assistance to the fishermen that are already running their businesses. Additionally, it is crucial to ensure that the fishermen who only recently have reached an agreement with PERU LNG or who do so at a later date receive adequate assistance in the implementation of their businesses.

Program Evaluation

The negotiation process has almost ended. All associations have reached an agreement and only 37 individual fishermen have not signed agreements. Implementation of businesses and projects is making adequate progress.

8.0

Additionality Programs

8.1 Contractors' Investment in Community Development

As briefly described below, both CB&I and CDB are carrying out a wide variety of social initiatives in the communities of Cañete and Chíncha. These are described in PERU LNG's Q4 2009 Report.

Social Development

Support to Health Campaigns (CB&I and CDB)

During Q4 2009, 5 health campaigns were carried out by the Marine EPC Contractor (427 beneficiaries); and 21 health campaigns by the Plant EPC Contractor (4,679 beneficiaries). These campaigns are coordinated by with Cañete's Public Health Network and Chíncha's centers of the Ministry of Health. The contribution of the CB&I and CDB is through support in logistics, transport and funding for informative material to the health centers in Chíncha and Cañete.

Health and Safety Campaigns (CB&I and CDB)

During Q4 2009, training sessions/workshops have been organized in 10 schools at Chíncha and Cañete, with 260 students participating. The main objective of this program is to increase awareness among children in road safety, environmental care and health. The program also includes the implementation of road safety elements and traffic signs near the schools and the installation of waste bins.

Other Social Programs / Initiatives (CDB)

The contractor provides assistance to workshops on Family and Sexual Violence Prevention. During Q4, 445 children from Chíncha and Cañete benefitted from this initiative.

Economic Development

Strengthening Local Textiles Workshops (CB&I)

During Q4, the Plant EPC Contractors has commissioned the production of 329 shirts, and 260 vests.

Skills and entrepreneurship training (CB&I and CDB)

This training project seeks to foster productive activity development in Chincha and Cañete. The Marine EPC Contractor developed 7 productive workshops on cooking, confectionery, dressmaking, and balloon decoration, with 400 direct beneficiaries in Cañete. The Plant EPC Contractor conducted training workshops on industrial painting and concrete works. In total, 126 people participated in these events.

Cultural Development

Dance school (CDB)

Approximately 80 children participate in the program and have continued to take classes at the dance school with an average of 96 hours of classes carried out. The dance school participated in the Chincha Anniversary.

Reading Plan (CDB)

During Q4 CDB, in coordination with the Cañete Municipality and the “Mujeres Imperialinas Association” supported a Literacy Program that benefited 1,135 people in Cañete. The Contractor also supported the PRONAMA Literacy Program in Chincha, with 50 beneficiaries.

Supporting Volleyball (CB&I)

In the reporting period, training was conducted by two qualified and recognized sportswomen. It is expected that as a result of this process, a number of the 240 active participants will significantly increase their volleyball skills.

Environmental Protection

Healthy School Program (CB&I)

The objective of the Healthy School Program is to support and improve safety, health and protection of the environment in schools, in coordination with local institutions (Health Centers, Municipalities and the National Police of Peru). During Q4, 15 new schools with 281 students joined the program, forming healthy school brigades.

Environmental care (CB&I)

In coordination with the Chincha local government, a reforestation program has been implemented. The program includes the provision of 500 trees and training on environmental care to 530 participants.

8.2 PERU LNG Social Projects

PERU LNG is undertaking investment in community development through targeted programs in agricultural promotion and supply chain management.

Agroprogreso

The objective of this program is to improve the profitability and competitiveness of the agricultural plots of 300 families selected in the districts of San Vicente (Cañete), Grocio Prado and Sunampe (Chincha). Two target groups have been identified:

- Grape farmers (72% of beneficiaries) - A grapevine production supply chain is being implemented with the following components: training program; technical assistance, access to financial credit to purchase agricultural supplies; and support in commercialization.
- Other crop farmers (avocado, apple, asparagus, tangerine and *pallar* bean). Due to the small quantities of products, it was not possible to implement a production supply chain similar to the one implemented to the grape farmers. However, technical assistance is ongoing.

PERU LNG's Q4 2009 Report informs about the project's following progress:

- The training and technical assistance plans were prepared for each of the crops. These plans were adjusted according to the growing stage of each crop.
- 338 farmers received technical assistance in their agricultural plots, with an average of two monthly visits per farmer.
- 282 farmers participated in workshops and training sessions which included topics such as accounting principles for agriculture business, legal advice on land property rights, and good agricultural practices.
- 12 guided visits to model farms have been carried out as part of the training plan.
- As part of the access to financial credit to purchase agricultural supplies component, 138 grape farmers have been evaluated and 113 have been selected to participate in the financial credit program.
- 52 farmers have signed credit line contracts to access fertilizers and pesticides for a total amount of US\$ 55,026.
- An apple commercialization contract has been reached during this quarter for six farmers from Cañete who participate in AgroProgreso. Farmers are selling apples to *Supermercados Peruanos* through a trading company from Cañete.

Local Supplier Development Project - Supply Chain Management Project (ForPyme Project supported by IFC)

PERU LNG's Q4 2009 Report informs that the implementing partner, SwissContact - Recursos SAC, has carried out the following activities:

- 241 Small and Medium Enterprises (SMEs) were registered and 116 of them were diagnosed (the initial target was 100 SME).
- 116 SME have received a Business Improvement Plan.
- 43 are addressing the issues identified in the Business Improvement Plan, with the support of the technical assistance team.
- 39 are participating in Business Development Services.
- 14 achieved sales for a total amount of US\$ 530,571 with the technical support of the project. Sales were mainly related to garments, agro-industry related products and construction services.

Regarding the identification of potential demand of products, 48 large corporations from Chinchá, Cañete, and other areas have been contacted. Activities carried out as part of the Institutional Strengthening component implementation included:

- 3 conferences organized in close coordination with Chinchá's Chamber of Commerce. Topics addressed were: business plan elaboration, Law on Competitiveness Promotion, Micro and Small Enterprise Development and Formalization, Access to decent employment, and Costs and budgets for SMEs.
- The Institutional Diagnosis and Strategic Plan were developed and finalized together with Chinchá's Chamber of Commerce.
- 2 ForPyme bulletins with key commercial information for SMEs were developed.
- The project's web page has been launched (www.forpyme.org).

During the March Mission, the IESM Team visited 3 businesses that are participating in the program.

The first business is dedicated to the production of pallets for agricultural product exports. This company has achieved considerable improvements when working within the project's guidelines, and has increased productivity, standardized production and improved labor conditions and facilities. It is also working with certified wood from Amazon forests (green seal) and will soon be certified by ISO 9000.

The second business visited is a small construction company. Thanks to the program, the manager was able to start delegating tasks and now is more focused in expanding the company's client base. The company has formalized its activities and recognized all legal rights of its workers. Currently, it has a contract with PERU LNG to replace the fence of the southern side of the Plant's buffer zone.

The third is a small business dedicated to the production of cloths, particularly uniforms and industrial cloth. With the assistance of the program, they have changed their mechanical machines to electronic ones, increasing productivity. Currently they are providers of PERU LNG.

All the representatives of these companies expressed their satisfaction and thanks to the program for the assistance provided which was crucial for the improvement and growth they are experiencing.

9.0

Project KPI Analysis

9.1 Environmental Indicators

Environmental KPIs during Q4 2009 were generally within the Project's targeted performance, with only minor shortcomings affecting EPT 10 - Potable Water (coliform presence) and EPT 14 – Repeat Spills. Both shortcomings occurred during the month of October.

9.2 Social Indicators

All performance targets established in the Project's Social KPI's were met during Q4 2009. Nevertheless, delay in attainment of the 100% negotiation target with independent fishermen (as per SPT2 - % Agreements with Independent Fishermen), deserves mention.

9.3 Health and Safety Indicators

In relation to health and safety performance at the Plant, Marine Facilities and Quarry s, Recordable Incidents and Lost Time Incident Rate were well below the corresponding KPI. The inception-to-date Recordable Incident Rate for the Plant stood at 0.26 against a KPI of 1.25 at end of Q4 2009. Similarly, the Lost Time Incident Rate stood at 0.03, versus a KPI of 0.25.

During Q4 2009, there was 1 Lost Time Incident (in December), and seven non-reportable Medical Attentions recorded. The Lost Time Incident refers to a worker at the LNG Plant that suffered a 4 m fall and fractured a vertebrae.

10.0

Consolidated Suggestions and Recommendations

Recommendations set forth herein are classified into six main categories as follows:

Recommendation Type	Subject
Type 1	Recommendations affecting PERU LNG's E&S Assurance Procedures relative to construction
Type 2	Recommendations requiring PERU LNG to request corrective action from TECHINT
Type 3	Recommendations relative to ongoing E&S Programs
Type 4	Suggestions relative to Additionality Projects
Type 5	Requests for inclusion of complementary information in PERU LNG's Environmental, Social and Health and Safety Quarterly Reports
Type 6	Recommendations for future action in view of perceived environmental and social upcoming risks

New recommendations resulting from the March Mission are presented below, organized according to the six categories specified above. A **Recommendation Tracking Table** is presented in **Annex 02**.

Type 1 - Recommendations affecting PERU LNG's E&S assurance procedures relative to construction

- PERU LNG has effectively implemented the beach exclusion area by the trestle and two security posts, one north and one south of the trestle, are operational. These are on the beach about 200 m from the trestle access, and each one consists of a security cabin manned by two guards, that work twelve-hour shifts. Sanitary facilities for these guards are shared and consist of a chemical bath by the trestle, approximately 200 m away from each guard station. This is not appropriate and it is recommended that chemical baths be placed by each one of the two security stations. It is also recommended that some form of tent structure be provided to allow the security guards to remain in the shade during day shifts.

Type 2 - Recommendations Requiring PERU LNG to Request Corrective Action from Contractors

- Some minor pollution prevention and housekeeping issues were observed at the trestle, as pointed out in this report. It is important to ensure that CBD's standard of environmental care be sustained throughout the end of the Project and corrective action should be requested in this case. Similarly, PERU LNG's supervision should maintain the same level of rigor to date on such issues.

Type 3 - Recommendations Relative to Ongoing E&S Programs

- Beach erosion problems occurring to the north of the trestle are probably attributable to the breakwater and cannot be considered a minor problem. Currently, this is affecting a segment of over 300 m of beach front. Monitoring under the coastline monitoring program as currently in place should continue. However, the topographic transects that correspond to sectors subject to beach erosion should be extended inland, at least 3 m up the coastal cliff which seems to be suffering some erosion as well. This will allow verification of the extent to which cliff stability may come to be affected.
- It is recommendable to implement a wave monitoring program at the service pier by the RLOF. This is a health and safety concern, because due to the beach sedimentation problem by the trestle, waves are breaking further into the sea, and it seems likely that on days with rougher seas, the area protected for embarkment and disembarkment of service vessels may not be wave free.
- It is important that the team responsible for coastline monitoring interact more closely with PERU LNG's engineering teams to verify any needs for corrective action as a result of coastline change. In particular, it is essential that any engineering decisions fully take into account all the results of the coastline monitoring program and any predictable environmental consequences of such modifications.
- The monitoring protocols currently being developed for the Marine Monitoring Program should take into account results to date of the Coastline Monitoring Program. Beach sedimentation and beach erosion processes could have consequences on the marine and coastline fauna, and it will be useful to monitor these effects through the Marine Monitoring Program.

Type 6 - Recommendations for Future Action in View of Perceived Environmental and Social Upcoming Risks

- As evidenced in the Stakeholder Engagement Plan section, the main reason to visit the offices of Chinchá and Cañete is job opportunity search. Given that the number of local workers will decrease in the following months, it is important to develop a communication strategy that ensures that local communities are aware of this reduction. Furthermore, some monitoring should be conducted to verify absorption of the project's workforce and, if necessary, some form of outplacement assistance should be contemplated.

- It is important to ensure the continuity of the assistance to the fishermen who are already running their businesses. Additionally, it is crucial to ensure that the fishermen that only recently have reached agreement with PERU LNG receive adequate assistance in the implementation of their businesses and during initial operations.



ANNEXES

ANNEX 01
List of Documents Reviewed



ANNEX 01

List of Documents Reviewed – PERU LNG - PLANT

Agroprogreso Plan Status
Common Terms Agreement – CTA – Marine Vessels and Service Contract – Feb 2010
Community Relations Plant - Feb 2010
Fishermen Compensation Plan Status
Interim Coastal Survey Report - October 2009
Latest Topara Ground Water Monitoring report
LNG Plant Action Tracking Register
Monthly EHS Progress Report - Oct 09
2009 4th Quarter EHS Progress Report - Jan 10
Presentation on Biodiversity Monitoring Program
Monthly Report OSINERGMIN - Oct 09 Plant
Monthly Report OSINERGMIN - Nov 09 Plant
Monthly Report OSINERGMIN - Dec 09 Plant
Monthly Report OSINERGMIN - Jan 10 Plant
Status of NCR-CAR-WIN LNG Plant
Topara Social Investment (Additionality)

ANNEX 02

**Recommendations Tracking Table - PERU LNG Plant & Marine
Facilities**

ANNEX 02

Recommendation Tracking Table - PERU LNG Plant & Marine Facilities MARCH 2010

Type 1 - Recommendations Affecting PERU LNG's E&S Assurance Procedures Relative to Construction					
Date	Recommendations	Subject	Risks	Corrective Action Reported	Current Status
05.09	It is recommended that there be an exchange of information and experiences between the community members participating in participatory monitoring activities on the pipeline's coastal spread and on the Marine Monitoring Program. Among local community members, the Project is viewed as only one and the division of monitoring activities may seem unclear.	Marine Monitoring Program and Pipeline's Coastal Spread	Loss of information Risk of image	No action reported in the Q4 2009 Report.	
03.10	Sanitary facilities for guard posts at beach are shared and consist of a chemical bath by the trestle, approximately 200 m away from each guard station. This is not appropriate and it is recommended that chemical baths be placed by each one of the two security stations. It is also recommended that some form of tent structure be provided to allow the security guards to remain in the shade during day shifts.	Health and Safety Compliance Working conditions	Worker health	None yet	Pending

Type 2 - Recommendations requiring PERU LNG to request corrective action from CBI and CBD					
Date	Suggestion	Subject	Risks	Corrective Action Reported	Current Status
03.10	Some minor pollution prevention and housekeeping issues were observed at the trestle. It is important to ensure that CBD's standard of environmental care be sustained throughout the end of the Project and corrective action should be requested in this case. Similarly, PERU LNG's supervision should maintain the same level of rigor to date on such issues.	Environmental compliance Pollution prevention	Environmental hazard Seawater contamination	None yet	Pending

Type 3 – Recommendations Relative to E&S Ongoing Programs

Date	Suggestion	Subject	Risks	Corrective Action Reported	Current Status
03.10	Beach erosion problems occurring to the north of the trestle are probably attributable to the breakwater and cannot be considered a minor problem. Currently, this is affecting a segment of over 300 m of beach front. Monitoring under the coastline monitoring program as currently in place should continue. However, the topographic transects that correspond to sectors subject to beach erosion should be extended inland, at least 3 m up the coastline cliff which seems to be suffering some erosion as well. This will allow verification of the extent to which cliff stability may come to be affected.	Coastline Monitoring	Ecological Impact, Reputational risk	None yet	Pending
03.10	It is recommendable to implement a wave monitoring program at the service pier by the RLOF. This is a health and safety concern, because due to the beach sedimentation problem by the trestle, waves are breaking further into the sea, and it seems likely that on days with rougher seas, the area protected for embarkment and disembarkment of service vessels may not be wave free.	Coastline Monitoring	Health&Safety Issue Engineering hazard	None yet	Pending
03.10	It is important that the team responsible for coastline monitoring interact more closely with PERU LNG's engineering teams to verify any needs for corrective action as a result of coastline change. In particular, it is essential that any engineering decisions fully take into account all the results of the coastline monitoring program and any predictable environmental consequences of such modifications.	Coastline Monitoring	Engineering hazard Environmental Management	None yet	Pending

Type 3 – Recommendations Relative to E&S Ongoing Programs

Date	Suggestion	Subject	Risks	Corrective Action Reported	Current Status
03.10	The monitoring protocols currently being developed for the Marine Monitoring Program, should take into account results to date on the Coastline Monitoring Program. Beach sedimentation and beach erosion processes could have consequences on the marine and coastline fauna, and it will be useful to monitor these effects through the marine monitoring program.	Coastline Monitoring	Marine Monitoring Environmental Management	None yet	Pending

Type 4 - Suggestions Relative to Additionality Programs

Date	Suggestion	Subject	Risks	Corrective Action Reported	Current Status
05.09	There is a good opportunity to develop synergies between the two additionality social projects (AgroProgreso and Local Suppliers) and the Fishermen's Compensation Management Plan.	AgroProgreso, Local Suppliers Programs and Fishermen's Compensation Plan	Deterioration of relations with local communities. Risk of image	In evaluation, not yet defined	To be followed in the next IESM Mission
07.09	Start new survey of Seabirds and Marine Mammals Monitoring Program.	Marine Monitoring Plan	Risk of biotic integrity decrease	In process. Hiring of consultancy was in course.	To be followed in the next IESM Mission

Type 6 - Recommendations for Future Action in View of Perceived Environmental and Social Upcoming Risks

Date	Recommendations	Subject	Risks	Corrective Action Reported	Current Status
05.09	It is necessary to evaluate the future of CB&I and CDB social initiatives in the transition from the construction to the operation phase. As they are not sustainable in themselves, it is necessary to start defining what will be PERU LNG's policy in terms of continuity of these projects in the future.	Community relations Social responsibility	Deterioration of relations with local communities	Pending. In evaluation by General Management	Pending

Type 6 - Recommendations for Future Action in View of Perceived Environmental and Social Upcoming Risks

Date	Recommendations	Subject	Risks	Corrective Action Reported	Current Status
05.09	PERU LNG should develop a Strategic Social Responsibility Plan in the near future. It will be important for PERU LNG to establish and disclose which kind of projects it wishes to support and develop. In this context, it is also recommended that the overall project strategy for the operation phase be integrated to the extent possible.	Social responsibility	Deterioration of relations with local communities	None yet	Pending
12.09	Communities' safety and communication issues should be included in the EHS plans for the operation phase of the LNG Plant that have already been developed.	Influx management Community relations	Loss of means livelihood Deterioration of relations with local communities	Peru LNG has submitted ESHS-MS for Operational Phase, including Contingency Plans	Compliance with requirements to be determined after review of the Contingency Plans by the IESM Team and Lenders
12.09	The IESM team encourages to keep complete updated documentation of the project's contribution to local purchasing as well as extensive hiring and training of local workers.	Community relations	Future risk of image Social impact monitoring	None yet	Pending
03.10	As evidenced in the Stakeholder Engagement Plan section, the main reason to visit the offices of Chinchá and Cañete is job opportunity search. Given that the number of local workers will decrease in the following months it is important to develop a communication strategy that ensures local communities are aware of this reduction.	Local Hiring and Purchasing Plan	Reputational risk Social impact monitoring	None yet	Pending
03.10	It is important to ensure the continuity of assistance to fishermen who are already running their businesses. Additionally, it is important to ensure that fishermen only recently have reached an agreement with PERU LNG receive adequate assistance in business implementation.	Fishermen's Compensation Management Plan	Risk of Image	None yet	Pending



ANNEX 03
Photographic Records of Mission Observations

PHOTOGRAPHIC RECORD OF AUDITS

	Local: Sea-shore in Plant exclusion area Comment: Note increased sediment contribution on the beach
	Local: Beach in the Plant exclusion area Comment: Erosion area 1,5 km from trestle
	Local: Trestle area Comment: The temporary bridge was withdrawn and the channel between the Permanent Trestle and the Breakwater channel will be dredged to finish the work
	Local: Dolphins area Comment: Note algae great grow, seabirds presence and "guano"

PHOTOGRAPHIC RECORD OF AUDITS

	Local: Permanent Community area in the Plant Comment: Bedrooms in finishing phase
	Local: Tanks area Comment: Works and testing of tanks were completed
	Local: Trestle area Comment: Several seabirds use works as places of rest
	Local: Dolphins area Comment: Note the increase of algae and mollusks in the pillars of the structure