Environmental Monitoring Report

Project Number: 38919
March 2007

INDONESIA: Tangguh Liquefied Natural Gas Project

Prepared by BP Berau Limited
Tangguh LNG Project Operator

Asian Development Bank

ENVIRONMENTAL, HEALTH AND SAFETY REPORT

TANGGUH LNG PROJECT INDONESIA

(Reporting Period: April-October 2006)

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EXECUTIVE SUMMARY

There were no significant environmental, health or safety issues during the six month reporting period ended 31st October 2006. Construction activities continued throughout the period both onshore and offshore with good progress achieved on all fronts. At the end of the period the LNG project progress stood at 60% complete which is slightly ahead of plan

The onshore works included completion of all the major earthworks, installation of foundations for major equipment, erection of concrete pipe racks for Train 1 and utilities, installation of LNG and condensate tank foundations, commencement of the erection of LNG tanks 1 and 2, installation of main construction camp, substantial completion of the Shore Base and commencement of erection of dormitories and administration building complex.

The offshore works included the completion of the Combo Dock structure and the installation of over 90% of the piles for the LNG jetty. By the end of October, the Combo Dock was ready to receive major equipment shipments that will commence to arrive in November.

The next six months will see the installation of two platforms and two pipelines. Drilling will commence in May/June 2007. Most of the major equipment for the LNG plant is scheduled to arrive in the next three to six months. The workforce will continue to build to an expected peak of 7,500 in this period.

The Project continues to assign competent resources to manage environmental, health and safety oversight of contractor activities. The Ministry of Environment conducted its annual AMDAL compliance audit in November 2006 commencing with a site visit on 20th November. Their report is expected in January 2007 ahead of the first review of Tangguh by the Lender's Expert Panel.

The Ministry of Environment has agreed to issue an approval to allow for drilling mud and cuttings re-injection as The Project planned in the AMDAL, following extensive study and discussions with both BP and BPMIGAS.

The Project team worked well with the contractors to handle all the normal environmental, health and safety issues that are expected in a project of the scale of Tangguh. All incidents were properly investigated, recorded, and resolved in compliance with AMDAL, the government laws and regulations and the environmental covenants in the loan agreements.

1. TANGGUH E&S PROJECT IMPLEMENTATION OF THE ENVIRONMENTAL AND HEALTH AND SAFETY ASPECTS OF THE E&S REQUIREMENT

This six-monthly report covers the period of April to October 2006 which is consistent with the Project AMDAL reporting period to the Indonesian Ministry of Environment.

This report has been prepared to fulfill the Contractor obligation under: Section 1.12 (Certain Environmental, Involuntary Resettlement and Indigenous Peoples Matters), Paragraph (B) (Regular Reports), sub-paragraph (a)(Environmental and Health and Safety Report) of the ADB Tranche PSC Parties Agreement dated as of 31 July 2006 and Section 1.18 (Certain Environmental, Involuntary Resettlement and Indigenous Peoples Matters), Paragraph (B) (Regular Reports), sub-paragraph (a)(Environmental and Health and Safety Report) of the Japanese Tranche PSC Parties Agreement" dated as of 31 July 2006.

The Social Report, consisting of two sections; (a) Land Acquisition Resettlement Action Plan ("LARAP") and (b) Social Report on the integrated social programme ("ISP") required under Environmental and Social Requirement Section 1.12 on ADB Tranche (or Section 1.18 on Japanese Tranche), point (B) Regular Report, items (b) and (c) will be submitted separately.

The report format follows the agreed template outlined in the PSC Parties Agreement.

1.1 UPDATE ON THE STATUS OF THE CONSTRUCTION ACTIVITIES OF TANGGUH E&S PROJECT

Tangguh E&S project construction activities during the 6 month period from **April - October 2006** include the following:

1.1.1 Gas Production Facilities – Platforms:

The fabrication of two platforms, Vorwata A (VR-A) and Vorwata B (VR-B), is at an advanced stage of completion. The contractor for this work is PT. Saipem Indonesia. The work is being performed by the fabrication subcontractor, PT Gunanusa, at Grenyang, Banten. The mobilization and site preparation for platforms installation has begun with personnel, vessels and construction equipment mobilization. The first of the platform jackets was shipped to site as scheduled in October for installation in November 2006. The second jacket will sail to site in early November and will be installed immediately after the first jacket.

Gunanusa Yard –Deck Fabrication

Gunanusa Yard –Technical Building Lifted

VR-A Jacket Load Out

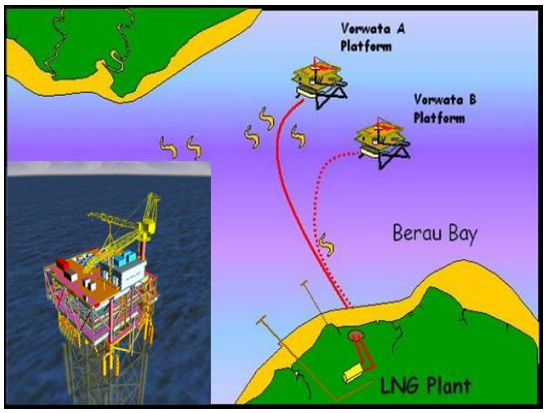
VR-A Jacket Being Shipped to Tangguh Site

VR-A Piling Installation

VR-B Jacket Being Shipped to Tangguh Site

1.1.2 Gas Transmission – Pipelines

Two sub sea pipelines, one from each platform, will be installed to transport the gas from the VR-A and VR-B platform respectively to the LNG plant onshore.



Platform and Gas Transmission Pipeline

The main activities to date include completing the detailed engineering and line pipe spools production with the coating and double jointing activities completed in Batam. Assessment of the two alternatives for pipeline shore approach, Horizontal Directional Drilling (HDD) and open trenching, have been completed. HDD was selected as the installation method for the Project.

HDD Pad

Platform and Pipeline Barge - Castoro-8

Mobilization for the onshore portion of the work has begun with the transfer of personnel, vessel and equipment to site. Preparation for HDD work is in progress to prepare the drilling unit work pad.

1.1.3 Drilling

The major portion of the drilling contracts have now been awarded including contracts for both drilling rigs. Based upon the presently predicted availability of the two rigs, the most likely date for commencement of drilling operations is late May or early June 2007.

A contract to manage and operate the Shore Base facility has been awarded to Eka Nuri Consortium (ENC). Initial mobilization of personnel to site has begun. Major mobilization activities are planned to commence in October 2006 with the arrival of cargo vessels. A 150-man camp will be constructed at the Shore Base site to accomodate personnel working to support the drilling program. Camp construction commenced in October 2006.

With design engineering and tendering work nearing completion, the focus of the Tangguh Drilling & Completions Team has moved to preparation for drilling operations. These activities include obtaining required permits and developing and finalizing drilling procedures well-by-well and hole-section-by-hole-section.

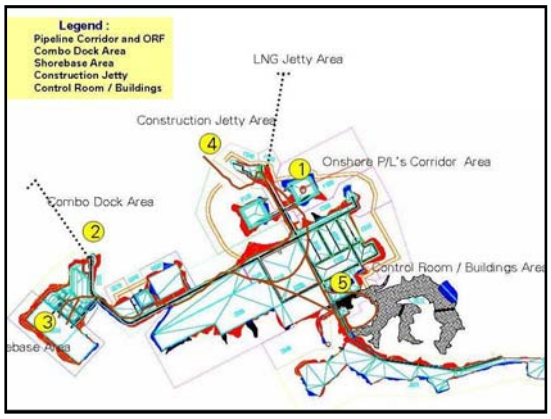
A key area of delivery of AMDAL commitments for the drilling program is in the management of drilling mud wastes and cuttings. Drill Cuttings Re-Injection (DCRI) was the option recommended and approved in the AMDAL for use at Tangguh. The Project has been working with BPMIGAS and the MoE (Ministry of Environment) to obtain an approval for the use of DCRI for all but the first wells on each platform and the uphole sections of subsequent wells. Drilling mud and cuttings from these drilling operations will be discharged overboard in compliance with AMDAL, industry guidelines, and Indonesian law and regulations.

At the direction of BPMIGAS, technical meetings have been held with MoE to review in depth Tangguh's proposal and plan for DCRI. The outcome of these meetings has been agreement by the MoE to work with Tangguh Project to issue the required approval. At the time of this writing, work continues to secure the approval for DCRI. In addition, BPMIGAS has recently given contract award approval for Cuttings Handling Management Services which includes DCRI as an option that can be implemented once a permit is in place.

1.1.4 Tangguh LNG Plant and its Associated Facilities

The EPC contractor for the engineering, procurement and construction of the Tangguh LNG Plant and its supporting facilities is a consortium of Kellogg Brown & Root, JGC, and Pertafinikki. The consortium is referred to as "KJP". The facilities being built by KJP include:

- LNG processing plant and storage;
- Marine facilities (Temporary Construction Jetty, Combo Dock and LNG Jetty);
- Living accommodation;
- Administration offices;
- Shore Base for drilling and LNG production operations;
- Supporting facilities such as roads, communications, power generation, and waste management facilities.



LNG Plant and its Supporting Facilities

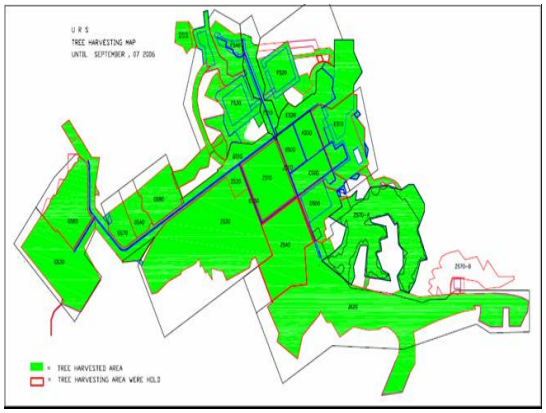
Work on permanent facilities commenced in February 2005, and as of October 2006 the LNG Project is currently on schedule with an overall progress of 60%.

LNG Site Overall View

Workforce numbers at site currently are just under 6,000, In order to maintain the Project delivery schedule, peak workforce numbers are expected to reach up to 7500 in 2007.

Currently, Tangguh Project has achieved significant progress in constructing the LNG facilities. Major activities and achievements for the April to October 2006 time period include:

- **Site Clearing:** As of September 2006, the site clearing activities at the LNG site has been completed. The area cleared includes 365 hectares for the LNG plant and 39 ha for the perimeter fence compared with the initial plan in AMDAL of 530 hectares for the physical footprint for this scope.
- **Site Preparation:** The site preparation activity is in its final stages. Tree cutting and land clearing activities are complete. There are only minor cut and fill activities on some parts of the site. The remaining site preparation is soil cutting and hauling for the permanent access road to the LNG tank, permanent roads within the LNG site and some other works to construct the banks and slope protection with grass and cover crops (legume).
- **Site Rehabilitation:** Work is also ongoing to restore and stabilize borrow and fill areas which will be re-vegetated later with native species as per the AMDAL requirement.



Area Cleared for Tangguh Construction

The Shore Base facility is essentially complete and all of the buildings at this facility have been handed over to the Project. The remaining works ongoing are paving with concrete slabs and asphalt. The completion of the facility is targeted for November 2006 when it will be fully turned over to the Project. This facility will initially be used to support the drilling programme which is scheduled to begin in 2Q 2007.

Shore Base Facilities

Foundation work for LNG Tank-1 has been completed and now the installation and welding work for the metal shell plate of the tank is ongoing. The LNG Tank-2 foundation was also completed in October and installation of the base plate has commenced.

LNG Storage Tanks

Tank – 1 as of end of October

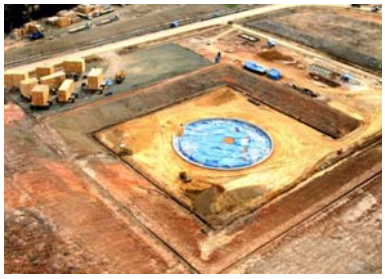
Tank – 2 as of end of October

Civil and structural work is progressing well on the train and utilities area with rebar form work setting, and concrete pouring for footings and pipe rack slabs, columns, etc. Other activities include steel structure erection for substation and pipe racks. Fuel tank and desalinated water tank

installation is in progress. Concrete pouring for footings and pipe racks is also in progress for the Onshore Receiving Facilities. Work progress in other areas is ongoing for the Main Control Building, Boil Off Gas (BOG) compressor area and Condensate tank. Work on the permanent roads is also ongoing with asphalt paving within the processing facilities area.

LNG Train 1 and 2

Plant Utility Area



Condensate Tank

Main Control Room

ORF

The main construction camp (referred to as the Step 3 Camp) has also been completed, and is occupied by the construction personnel. The camp capacity will be increased to 7,500 in the next few months to meet additional workforce requirements.

The work on Dormitory and Administration buildings was started in May 2006. Currently foundation work for the buildings is in progress with rebar setting and concrete pouring as well as preparation for column erection of the buildings.

The manpower level at the Site is currently close to 6,000 personnel. These personnel are housed at the Step 3 Camp with some personnel still housed at the pioneer expansion camp (the Step 2 Camp) and also at a sub-contractor's camp. The original pioneer camp (the Step 1 Camp) and some parts of the Step 2 Camp have been moved to the Step 3 Camp. The camps include facilities such as potable water and waste water utilities, catering, laundry and recreational facilities.

The Step 3 Camp

Site activities for the construction of the LNG Plant for the next several months will focus on:

- Completion of remaining soil cutting, hauling and sloping work
- Completion and full hand over of the Shore Base facilities
- Construction of the two LNG Tanks and the Condensate Tank
- Continued civil and structural work on trains, utilities and onshore receiving facilities areas
- Ramp up of piping work and installation of piping into Train 1
- Delivery and installation of heavy equipment (i.e. Acid Gas Absorber vessels, gas turbines and compressors, steam powered electrical turbines, boilers, and various vessels and bulk materials)
- Completion of permanent roads within the LNG site except for the final coating prior to take over
- Erection of Administration and Dormitory facilities
- Completion of expansion of the main construction camp to accommodate up to 7500 people

1.1.5 Marine Facilities

Major civil and structural work has been completed for the Combo Dock. The facility is now ready to receive cargo with first shipments due in November 2006. Remaining works ongoing include installation of permanent firewater, diesel fuel and condensate piping. Piling work on the LNG jetty is more than 90% complete.

Combo Dock

Energizing First Lighting at the Combo Dock

LNG Jetty

LNG Jetty Piling

Two dredging hopper barges are still operating in the port. These hopper barges transport materials dredged for the Construction Dock to designated disposal sites in Bintuni Bay to a spoils area with water depth >50 m as designated in the AMDAL.

Site activities for the next several months will focus on:

- Completion of the LNG jetty
- Completion of the Combo Dock final fit out and helipad installation as a spur off the Combo-Dock trestle.

1.1.6 Resettlement-Related Construction Activities

Construction of the Saengga village was completed in early May 2006 and is now occupied by the local community. Buildings within the village include 97 houses, public buildings, health post, PKK gallery, village office, church, elementary school, community hall ("Balai Desa"), jetty and sporting facilities. The contractor has demobilized all its staff and equipment from Saengga.

Traditional Ceremony

Saengga Village

1.1.7 Tangguh Plant Property Perimeter Fence

The Project purchased a land area of approximately 3,266 ha but the plan was to utilize only about 404 ha, which is 365 ha for construction of the LNG plant and supporting facilities and 39 ha for the perimeter fence. As per the commitment in the AMDAL, the remaining unused area will be retained as a buffer zone and a security fence was installed along the perimeter of the property area. The Project installed 24 km of fence which was completed in May 2006. With the completion of the fence, security patrols have commenced on a regular basis using the local guard force employed by KJP.

Perimeter Fence

The fencing contractor personnel have been demobilized from the site, however, the construction camp is still utilized by KJP's subcontractor to house additional personnel required to complete the Combo Dock construction. The plan is to demobilize the camp by year end.

1.1.8 Seismic Activities

There is no seismic activity during this reporting period

1.1.9 Status of Key Permits

The Project has no outstanding permits which could delay the construction activities at this time.

LNG Plant and Its Supporting Facilities

KJP is responsible for obtaining permits for the construction of the LNG Plant and has successfully secured all permits required to support the construction. The key permits that have been secured during this reporting period include the following:

- The Minister of Environment Permit on Centralized Temporary Storage Facility for Hazardous Waste (B3)
- Bupati of Bintuni Bay Regency permit for the Slim Hole Drilling as part of the Groundwater Pilot Program

Key permits currently being pursued by KJP includes:

- Safety Exclusion Zone around the Marine Facilities (LNG Jetty, Combo Dock and Construction Jetty)
- Minister of Environment permit for the Centralized Hazardous Waste Incinerator

Gas Production Facilities and Gas Transmission Pipelines

PT Saipem Indonesia ("Saipem") is responsible for obtaining permits for the construction of the two platforms and two pipelines.

Key permits that have been successfully secured during this reporting period include:

- MIGAS Pipeline Laydown Permit
- No Objection Letter from the Ministry of Environment on brine discharge from the seawater desalination plant

The following permits are currently under process or to be applied to the Ministry of Environment:

- Treated fresh water discharge from hydro test activity
- Gel discharge from hydro test activity

Drilling

Tangguh Drilling team continues to work with Ministry of Environment to secure an approval for Drilling Mud and Cuttings Re-Injection ("DCRI"). The Ministry of Environment approval letter was secured on 20 November 2006.

1.2 PROGRESS ON THE IMPLEMENTATION OR FULFILLMENT OF THE AMDAL COMMITMENTS

The main environmental programs for Tangguh at this stage of project development focus on providing day-to-day assurance on AMDAL and environmental compliance for all construction activities at site. A solid environmental field team has been deployed to monitor and support the contractors with their environmental performance at site.

In general the environmental management and monitoring programs have been implemented in line with the approved AMDAL and improvement is evident in many areas. A tracking system to monitor the compliance to AMDAL and relevant environmental regulations has been developed and is being implemented. The system is updated and discussed on a weekly basis with the EPC Contractors. This facilitates identification of gaps as early as possible and implementation of the necessary measures to correct these. Environmental training and socialization are conducted routinely for contractor personnel to improve the working level awareness on environmental commitments for the Project.

Below is summary result of the environmental management and monitoring programs for each of the Tangguh Project E&S activities.

1.2.1 Gas Production Facilities - Platforms

The site activity for the Gas Production Facilities has just begun with personnel mobilization and preparation for the platform jacket shipment and installation. The VR-A platform jacket was shipped to site at the end of October and VR-B Jacket is scheduled to be shipped in early November. Both platform jackets will be installed in November 2006. The focus of the environmental management for the platform construction activities during this reporting period has been on the development of the contractors' environmental procedures, and socialization of the AMDAL requirements and the results of the recent marine mammals study to Saipem personnel.

1.2.2 Gas Transmission - Pipelines

The site activity for the pipelines has just begun with personnel mobilization for Horizontal Directional Drilling (HDD) work. The focus of environmental management is currently on waste management for this activity. KJP is responsible for managing all waste generated from GPF activities (except for steel scrap waste which will be managed by Saipem). Saipem is the EPCI Contractor for both platform and pipeline installation for the Tangguh project and therefore most of the environmental management programs for platforms and pipeline activities including the waste management programs will be integrated.

The decision to apply HDD instead of open-cut trenching as the construction method for the pipeline shoreline crossing has eliminated the need to clear a mangrove area for the pipeline corridor. The drilling entry point for the HDD lays approximately 100meters from the boundary of the mangrove area. The drilling activities are therefore not expected to have any significant impacts on the mangrove. As required under the AMDAL, Saipem conducted a mangrove survey in August/September 2006 to record the baseline mangrove condition around the pipeline shoreline corridor before commencing the construction activities. A mangrove inventory, together with photographic and video records was produced as the result of the survey.

1.2.3 Drilling

Drilling activity at site has just begun with the hand over of the Shore Base buildings and some of the yard space to the Drilling/ENC team. Mobilization of personnel and equipment commenced in Q3, 2006 and will continue until early Q2 2007 prior to the arrival of the drilling rigs next year. Initial activities include construction of a 150-man camp at the Shore Base, receipt of drilling tubular materials and some drilling equipment. The installation of the drilling mud processing facility on the Combo Dock will commence in Q4, 2006. The Drilling programme will commence in the Vorwata field in Q2, 2007. The focus of current environmental management is on waste management and socialization of the AMDAL requirements to drilling contractors. KJP is responsible for managing the waste generated from the Drilling activity except for drilling mud and cutting which will be managed by Drilling/ENC.

1.2.4 Tangguh LNG Plant

The environmental management and monitoring for the LNG Plant during this reporting period focused on the completion of land clearing, waste management for all construction activities at the LNG site, erosion control, top soil management, fuel and chemical storage and handling and emission and ambient air monitoring.

A. Management of Land Clearing

Land clearing activities on the LNG site were completed in early September 2006. With reference to the initial plan in the AMDAL, the total area to be cleared for the Tangguh physical foot print was 800 ha. Deferral of the Tangguh airfield and the associated access road reduced the Project footprint. In addition, design optimizations resulting in the relocation of the accommodation and administrative building complex to an area nearby the Shore Base has resulted in a significant reduction on the actual area cleared for the overall Tangguh Project physical footprint. The total area cleared is now 454 ha which includes 365 ha for the LNG Plant, 39 ha for The Project property perimeter fence and 50 ha for the resettlement activities (38 ha for Tanah Merah Baru village, 6 ha for Onar Baru, and 6 ha for Saengga).

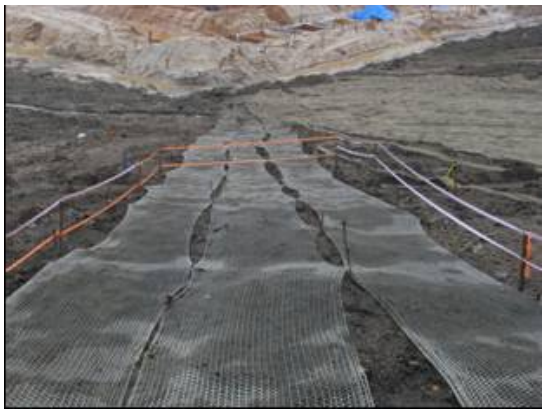
The IPK permit was closed out in November 2006. As part of the IPK close out process, officials from the forestry agency of Bintuni Bay Regency and West Irian Jaya Province visited the site in early November. The forestry agency confirmed that it is satisfied with the Project's compliance to the IPK and forestry regulations and Minutes of Site Inspection were signed as an official record confirming that the IPK is formally closed.

The AMDAL limits clearance of mangrove forest to a maximum 1 ha for Tangguh project construction activities. This limitation was reflected in the Tangguh project design and in the land clearing plan. The total mangrove cleared was 0.61ha.

B. Erosion Control

The Project has generally adopted a low slope gradient of 4:1 for all soil cut activity to reduce the speed of run-off flow and soil erosion. Some unstable slopes were treated with geo-textile and geo-grid to ensure stability. Temporary drainage systems were installed in certain areas to direct the stormwater to its natural path. Sediment ponds completed with brush barriers constructed from leaves, tree branches and waste timber (biomass) were installed at drainage outlets to prevent sediment flow into the rivers or creeks. Soil stabilization programs include planting cover

crops on some slope areas. Visual monitoring on the effectiveness of the erosion control measures has been conducted. For this reporting period there were no significant erosion problems at site. Total slope area within the LNG construction site is 43 ha, 72% of this area has been covered with top soil and 55% area has been planted with cover crops.



Ecomesh installation for slope protection

Replanted slope

The AMDAL requires that areas cleared to support the construction of the Tangguh project but which are not to be used for permanent facilities, such as construction access roads and reject soil disposal areas, must be re-vegetated with native species. A detailed plan for this re-vegetation program is currently being developed by KJP and is expected to be implemented in 2007.

C. Top Soil Management

Top soil is stored in temporary topsoil stockpile areas for later use in revegetation programs. This area is clearly marked. Visual monitoring is conducted to ensure that it is properly protected from potential erosion. Some top soil has been spread over the slopes within the site for planting of cover crops (grass and legume) for slope protection programs. The estimated volume of remaining topsoil is about 5,600m^3 which will be used later for the re-vegetation program.

Top Soil Spread on the slope

D. Waste Management

The waste management program at the LNG Plant site covers both organic and inorganic waste as well as hazardous waste, for example, used oil and used batteries. Wastes are segregated into

organic waste (food waste), inorganic (glass bottles, cans, plastic bottles), construction waste (scrap timber, scrap metal, etc), combustible waste (paper, cartons, wood chips, etc) and hazardous waste (used oil, oil filters, oil rags, used batteries, etc).

The organic waste is deposited into a clay based waste pit. KJP has purchased two food processing machines which are being installed in the kitchens. These machines will significantly reduce the quantity of solid food waste to about 35% of the current volume of 2-3 m^3/day generated at site. The mulch will be incinerated or composted and used for soil improvement programs. KJP has ordered a composting mixer and this is expected to be installed on site before end of the year.

The inorganic waste removed from the camp and construction site is sorted and stored temporarily at a central waste accumulation area (CWAA) onsite and transported later to a waste collector in Sorong. The combustible waste of about 10-12 m^3 per day is stored at the CWAA and later burnt in the non hazardous waste incinerator. There are two non hazardous waste incinerators with 2 tonnes capacity each. One incinerator is utilized for the day shift and the other is for night shift work.

Non Hazardous Solid Waste Landfill


Non Hazardous Waste Incinerator

Inert solid waste generated from construction activities such as concrete rubble, fibre boards etc is disposed off into site inert landfill which has been constructed on clay based soil and operated since mid October 2006.

Instances of rubbish accumulation were observed at the CWAA which created an odour problem; however, immediate actions were taken to remedy the problem. A night shift was activated to improve waste handling. Waste is immediately segregated at source and incinerated or stored at the CWAA for later disposal to landfill. Clear signs for waste segregation have been placed at the CWAA. Waste collection points are regularly monitored to verify that collection and disposal is performed. Documentation for waste transfers offsite is maintained.

The used oil is stored temporarily onsite and then transported to a certified waste collector in Surabaya via Sorong. Medical waste is sent to a certified medical waste incinerator at a hospital in Timika for disposal. This facility has a certified medical waste incinerator. Other solid hazardous waste material, such as oily rags, oil filters, empty paint and solvent cans, etc are stored temporarily onsite. KJP has signed a contract with PT PPLI (the licensed hazardous waste treatment facility in Bogor) for handling and disposal of all type of hazardous waste (except for medical waste) generated from construction activities at the LNG site.

Two temporary hazardous waste storage facilities have been built at the LNG site. A Minister of Environment Decree has been secured in early November 2006 which replaces the No Objection Letter which was issued initially as a temporary permit for the operation of these facilities.

Used oil storage facilities

KJP has obtained a No Objection Letter from the Ministry of the Environment for the hazardous waste incinerator which they plan to use mainly for burning used oil on site to reduce/avoid transfers of used oil to Surabaya. This incinerator has not been put into operation yet as it is still being tested, in particular to ensure that the burning temperature and efficiency meets the MOE requirement for hazardous waste incineration. Ash generated from the operation of this incinerator will be sent to PPLI.

There are 3 construction camps accommodating the current construction workforce at the LNG site. The pioneer camp or the Step 1 Camp accommodates 200 people, the Step 2 Camp accommodates 530 people, and the Step 3 Camp currently accommodates 5,000 people (and will be expanded to 7500 people). Each of these camps is supported by independent sewage treatment units. There are also field toilets with holding chambers which are regularly pumped out and transferred to the sewage treatment plant.

Sewage treatment plant

The treated effluent from these sewage treatment plants (STP) is monitored prior to discharge. The treated effluent from the Step 2 Camp is currently discharged into the seawater while treated effluent from the Step 3 Camp is discharged to a natural water course flowing into the forest

nearby the camp area. The pipeline to discharge the treated effluent from the Step 3 Camp to the sea at -13 LAT as required by the AMDAL is under construction. The pipeline will be installed in 2 phases, Phase 1 to bring the discharge to sea near the Construction Jetty and Phase 2 to take the piping to – 13 LAT at the LNG Jetty. Progress of the Phase 1 construction at 31st October is at about 80% complete.

The effluent discharge and receiving ambient sea water are assessed weekly and measured against the prevailing Indonesian regulations KEP-112/MENLH/2003 for the effluent and KEP 51/2004 respectively as stipulated in AMDAL.

The BOD levels for treated effluent fluctuated in the range of 32 to 234 mg/l as against the required standard of 100mg/l. The effluent of the Step 2 STP ranged from 100-234 mg/l exceeding the maximum limit during the reporting period. Investigations revealed that the cause was sludge in the STP chamber which was cleaned out. Regular cleaning of the chambers and grease traps has resulted in BOD levels below the maximum limit since end of August 2006.

The Step 3 Camp has been occupied since April 2006. The camp has two STPs (1000 m^3 and 250 m^3 capacity). Initially, the BOD value of both STPs met the standard; however during the period July to August 2006 the 1000 m^3 capacity STP ranging from 126-176 mg/l exceeding the maximum limit. Similar increases were noticed on the 250 m^3 STP. Immediate action was taken to clean the grease trap and as a result the BOD level dropped below 100 mg/l standard. The 250 m^3 capacity STP has just recently begun to show a trend of increasing BOD value. Investigation is ongoing and preliminary results show that the efficiency of BOD reduction is lower (54%) than the normal efficiency of about 90%. The sludge in the solid chamber was cleaned. Regular monitoring is ongoing to ensure that further actions can be immediately taken to reduce the BOD value, if required. The third STP (1000 m^3) is being installed at the Step 3 Camp to anticipate the increased camp capacity to up to 7,500 people through 2007.

The BOD level on the Step 1 Camp generally meets the 100mg/l standards.

E. Water Supply

Water supply required for project activities is sourced from barged freshwater from Fak Fak, temporary desalination units installed onboard an LCT offshore from the LNG site, and bottled drinking water. The LCT operates the desalination plant (Reverse Osmosis or RO) at specified times and stores the desalinated water in the tanks onboard the LCT. The LCT comes to shore regularly to transfer the water into the water truck which transfers the water to supply the construction needs. Currently, KJP is constructing an onshore desalination plant to replace the offshore LCT plant as well as to reduce the freshwater supply from Fak Fak. The offshore plant will be removed and installed onshore. The removal of the plant will be performed in stages. This is to ensure that continuity of water supply to construction activities can be maintained while the removal of offshore plant to onshore is ongoing. Necessary requirements to operate the plant including regular sampling of brine water and permitting will be applied.

Salinity of the effluent from offshore RO units ranges from 42.7 to 46.5 ppt. The requirement under MoE Decree No 51 of 2004 is that the salinity of seawater at the compliance point (which based on the AMDAL is at 30m radius from the discharge point) shall be within 5% variation from the average seawater baseline salinity. The average seawater salinity of the Bintuni Bay water around the RO discharge area is 30.9 ppt. Monitoring of seawater has been conducted within 30m radius of the RO discharge points. The results indicate that as soon as the effluent

mixes with the seawater the salinity level rapidly reduces for example from 38.8 ppt at 5m distance to 31.4 ppt at 30m distance from discharge point. The monitoring results indicate that the RO discharge meets the salinity standards of <5% variation from the average seawater baseline salinity of the Bay area.

Rain and runoff water are used for dust suppression and minor cement works. Treated sewage effluent is also used for dust suppression. All water used on site for human use is shipped to the site from Fak Fak by LCT. This raw water is processed into drinking water through reverse osmosis and chlorination units. Water used for sanitary purposes is only chlorinated. Water quality is periodically assessed by the onsite laboratory and an external laboratory. Summary of water consumption within this reporting period is outlined in the following table.

Month	Personnel on board (POB)	Quantity of water consumed for construction related activities (m^3)	Quantity of water consumed for camp operations (m^3)
April	3,244	302	36,498
May	3,799	399	38,821
June	4,658	417	43,103
July	4,653	287	54,538
August	4,880	495	44,750
September	4,622	269	57,251
October	5,719	210	69,960
Total		**2,379**	**344,921**

F. Management of Surface Water Run off

During the initial stages of the earthwork activities, a low pH of surface water run off ranging from 3 to 5 was observed in the Shore Base area. Corrective measure was taken to adjust the pH values. The application of limestone/lime powder improved the pH values above the baseline condition of pH 5 even though it is still slightly lower than the common Indonesian standard minimal value of pH 6. Regular pH monitoring is undertaken in areas where there are indications of low pH in surface water. In September 2006, an independent external laboratory was hired by KJP to do monitoring activities at nine surface water locations. The external monitoring results for pH ranged from 6.46 to 7.8 which are well within the standard. The current pH level is consistently within the range of baseline pH in the area.

Neutralization pond on GS-30 to
Neutralize low pH water

Low pH impacts from this surface run off is temporary in nature. The pH is expected to increase as soon as the earthwork activities are completed. Seawater has high neutralizing capacity therefore the environmental impacts from the low pH surface water flowing from the construction site into the sea is considered not significant.

G. Fuel and Chemical Storage and Handling

The fuel/chemical storage and handling is an important element of the Project's environmental programme. Secondary containment procedures are required and these have been socialized to all contractors working at site. Proper labelling and symbols on chemical/waste/fuel storage are applied. Training for fuel-man and personnel responsible for fuel handling has been conducted. Regular inspections as well as discussions with the sub-contractors are conducted to ensure adherence to the procedures.

A number of minor oil spill incidents of less than one barrel (ranging from 0.002 to 0.125 barrels) were experienced during the fuel handling activities during this reporting period. Immediate actions were taken to recover the spills. For onshore spills, the contaminated soils were collected and temporarily stored in an allocated area at the LNG site to be treated with bioremediation technique until oil content in the soil reaches less than 1% as required under the applicable Indonesian bioremediation regulation. If the bioremediation process cannot be applied, the contaminated soil will be sent to the certified hazardous waste landfill facility.

H. Emission and Ambient Air Monitoring

In September 2006, KJP hired an external laboratory to conduct monitoring of the air emissions from generators and incinerators and ambient air at several locations within the LNG site. The results demonstrate that all air emission and air ambient parameters meet the applicable standards except for the carbon monoxide (CO) emissions from both incinerators. The CO monitoring results from these incinerators were 574 mg/m^3 compared to the standard of 100 mg/ m^3 (Kep-03/Bapedal/09/1995). This high CO value was assumed to result from an incomplete process of burning the waste due to technical problems with the burner. Immediate action was taken to fix the burner. The incinerator operator received instruction on procedures to ensure a proper burning process. The next monitoring is scheduled for December 2006.

1.2.5 Marine Facilities

The environmental management for the marine facilities during this reporting period focused on the preventive actions to avoid oil spills for all marine construction activities, management of dredging and dredged material disposal and management of waste disposal from offshore vessel operations.

A. Oil Spill Mitigations

The mitigation efforts to prevent oil spills for marine facilities are similar to those discussed in section 1.2.4 G above regarding secondary containment for all fuel storage facilities and applying strict fuel handling procedures. A comprehensive Oil Spill Contingency Plan has been developed and socialized to all Tangguh staff and contractors on site. Basic OSCP training has been provided to the Tangguh field team and contractors organizations. The OSCP topic is also covered in the routine environmental awareness programs provided to the construction workers

through class sessions or the daily tool box meeting. Further comprehensive OSCP training and drills are planned for early 2007.

B. Management of Dredging and Dredged Materials Disposal

Dredging was required to deepen the approach to the Temporary Construction Jetty. This activity was performed during the dry season by utilizing a dredger barge and the dredged material was loaded into a hopper barge and transported to a disposal location as indicated in the AMDAL. The disposal location was marked to facilitate disposal at the correct location. In total 200,620 m^3 of dredged materials was deposited into the two disposal areas. Dredging was performed at low speed to minimize the turbidity impact to the seawater within the area. Turbidity levels of the sea water around the dredged area and disposal area were monitored. The measurement indicated that turbidity levels at the dredged area before dredging was 20.3 NTU and after dredging was 30.4 NTU. As indicated in the AMDAL, the baseline turbidity in the near shore Bintuni Bay area where the dredging activities were performed is naturally high averaging from 26-83 NTU in the dry season and 40-423 in the wet season. Baseline turbidity at the dredged disposal area ranged from 2.57 to 3.25 NTU. Turbidity monitoring conducted shortly after the dredged material disposal indicated slightly raised levels ranging from 3.55 to 3.72 NTU but this was still well within the applicable standards of 5 NTU based on the MOE Decree No 51 of 2004. Considering the natural characteristics of seawater in the Bintuni Bay area the impacts of a temporary increase in turbidity level during the dredging and disposal activities had no significant environmental impact. Dredging activities have been completed.

C. Waste Management for Vessels Operations

Waste management for marine vessels/barges covers liquid and solid domestic waste as well as hazardous waste, if any. The liquid domestic waste is treated according to the applicable regulation. For the vessel/barges equipped with a sewage treatment plant (STP), sewage is treated in the STP prior to discharging to the sea. The sewage on the vessel/barges that do not have a STP facility is pumped regularly with vacuum truck onboard an LCT and then discharged to the sea at a distance of 8 nautical miles from the nearest bay according to MARPOL requirements for untreated sewage discharge.

The contractor, PSJO, has installed field toilets with a central holding tank located on a barge. The barge anchors along side the LNG Jetty head for easy access to the workers. Raw sewage is regularly pumped and transferred by vacuum truck to the onshore STP located in PSJO camp.

The solid non hazardous waste is transferred to shore for disposal to landfill, incineration or further disposal to a waste recycle company. The used oil which is considered as hazardous waste is transferred to an onshore hazardous waste temporary storage facility prior to shipment to the certified collector for disposal.

1.2.6 Resettlement-Related Construction Activities

The Saengga village renovation has been completed and the community have moved to their new houses. The environmental management during this period focused on waste management activities to clean and remove waste from the ex-construction site and camp. The Saengga camp has been closed and waste has been removed from the site. The organic waste was disposed of to landfill, the inorganic waste was delivered to a waste recycling facility in Sorong and a few drums of used oil were shipped to the certified collector in Surabaya.

1.2.7 Tangguh Plant Property Perimeter Fence

The perimeter fence contractor, Adhi Wamesa Joint Operation ("AWJO") completed the Project in May 2006 and the fence has been handed over to the Project. Environmental management programmes for this period focused on waste management at the ex-construction site and camp as well as the revegetation of several slope areas along the fence corridor. The initial plan was to demolish the AWJO camp after completion of the fence; however, this has been delayed due to pressure for camp space at the LNG site until the Step-3 Camp is fully completed The AWJO camp is currently rented by one of KJP's subcontractors and still be operated under the management of AWJO.

A. Waste Management

The organic waste generated from camp activities is deposited into the waste pit and the inorganic waste is stored temporarily prior to shipment to Sorong for recycling. The used oil is also stored temporarily onsite and then sent to Babo for later shipment to the used oil certified collector in Surabaya.

A Rabic Pro waste treatment plant is installed at the camp to treat the sewage generated from the camp activities. The effluent is treated to meet the applicable standards prior to discharge.

B. Revegetation Program

Several areas along the fence were revegetated with native species taken from the nearby forest. The revegetated areas include the four dismantled fly camps used for the fence construction as well as some slopes along the fence route. Regular visual inspection is conducted to monitor the growth of vegetation and to ensure that no erosion occurs on slope areas while the trees and other vegetation get established to protect the slope surfaces. The re-vegetation programs on exposed slopes along the fence corridor will be continued by the Project.

Revegetation on slope along perimeter fence

Seedlings for the re-vegetation program

C. Drainage System

Crossings of the fence road by streams have been completed with steel culverts. Steel grating was installed on both the inlet and the outlet of the crossings to prevent unauthorized persons entering LNG site property but these do allow small animals to pass under the fence. Lower sections of the

grating were made slightly wider to enable small animals to pass under the fence from the LNG site to nearby forest areas.

D. Water Supply

A small Reverse Osmosis (RO/desalination) facility with a capacity of 25 m^3 /day was constructed to provide water supply for fence project operations. As per the letter from Ministry of Environment no B-4408/Dep II/LH/09/2005 the Project is allowed to process the brine water rejected from the RO unit through dilution with fresh seawater providing the salinity of the brine water at the compliance point (which is 30m radius from the discharge point) is a maximum 5% from the average natural salinity of the seawater in the area. A dilution pond was constructed and the dilution process is performed by discharging sea water from the RO plant during the back wash process into the pond. Sampling is also regularly performed to determine the salinity of the brine water in the pond. Once the salinity level meets the standard requirements the brine water is discharged to the sea.

E. Fuel and Chemical Storage and Handling

Fuel storage and handling has been implemented in accordance with the approved procedures. Regular inspections were performed and discussions were held with AWJO to ensure consistent performance.

1.2.8 Seismic Activities

There is no seismic activity in this reporting period

1.3 TANGGUH E&S PROJECT'S PERFORMANCE ON ENVIRONMENTAL AND HEALTH AND SAFETY ASPECTS OF THE E&S REQUIREMENT

1.3.1 Environmental Performance

In general the Tangguh E&S Project environmental management and monitoring programs have been implemented in line with the approved AMDAL and Lenders E&S requirements. Improvement in environmental performance is evident in many areas. A compliance tracking system to check compliance to the AMDAL and relevant regulations was developed, discussed with respective contractors and is updated on a weekly basis. This process facilitates identification of gaps as early as possible and leads to prompt implementation of the necessary corrective measures.

Environmental training and socialization have been conducted for contractors' personnel on a regular basis to improve the working level awareness of the environmental commitments of the Project and get their support for continuous improvement of the Project's environmental performance. Environmental posters, pamphlets and brochures relating to waste management, flora and fauna protection, and marine mammals protection are provided as part of the environmental awareness campaign.

1.3.2 Health and Safety Performance

The Tangguh Project continues to deliver good safety performance, with no major incidents during year 2006. The Project has achieved over 20 million man-hours without any days away

from work case since the Project started construction in March 2005. Key indicators on safety performance are presented in the table below.

HSE Performance	2006 Plan	October 2006	YTD 2006	Project YTD (since Mar'05)
Major HiPO Frequency ([Number of cases x 200,000]/Total man-hours)	Monitored	—	—	0.01 (1)
DAFWF ([Number of cases x 200,000]/Total man-hours)	0.076	—	—	—
RIF ([Number of cases x 200,000]/Total man-hours); (number of cases)	0.26 (21)	0.11(1)	0.34(25)	0.43(32)
STOP: cards/employee/month	5	1.67	1.56	1.59
ASA: cards/employee/month	5	14.28	12.71	11.71
% **HSE Training Hours** from total man-hours	1.0%	4.3%	2.8%	2.6%
% **Action Closure** (Total action items closed due on time/total action items in the reported month)	92%	96.3%	90%	88%
Tangguh Project man-hrs-worked	***5,900,000***	***1,888,531***	***14,869,934***	***20,025,408***

Note:

- HiPO = High Potential
- DAFWF = Day Away from Work Frequency
- RIF = Recordable Injury Frequency
- ASA = Advance Safety Audit

The most common safety risk has been injury to hands and fingers at the Project site accounting for 47% of all injuries in the period from April – October 2006. These incidents have been investigated and causes have been identified. Analyses indicate that awareness of the hazards and risks remains low and needs to be improved. A plan is being developed to reward groups of workers who manage to achieve zero hand and finger injuries within a certain period of time. The site leadership team will continue to refocus and reinforce safety leadership practices, including field safety observations, improving risk management and incident investigations.

The Project and KJP continue to strengthen compliance with site rules with regard to working at heights, lifting and rigging operations. These three activities have significantly increased at the Trains and Utilities area, including the LNG tank construction area. Several findings on unsafe work practices in relation to lifting and rigging activities have been raised and discussed; a series of training and coaching sessions have been conducted for supervisors and workers on safe scaffolding. Crane safety discussions have also been held with subcontractor management.

The Project has initiated a Contractor HSE Committee to increase the contractors' HSE awareness and commitment. As the LNG site construction progresses KJP has also initiated a separate monthly HSE committee forum that includes key subcontractor managers.

The platform fabrication in Gunanusa and pipeline fabrication in Batam continues to improve its safety performance without any major incidents during this reporting period. VR-A and VR-B Jackets Roll-up, sea fastening and sailing to the Tangguh Site in Bintuni Bay have been successfully completed. Complete risk assessment was conducted prior to departure to Bintuni. The jackets have arrived in Bintuni Bay with no incident during the voyage.

The Papua Field Emergency Team duty roster has been established, with the center based at the LNG site. Familiarization sessions and a refreshing of roles were conducted for individuals on the roster list. A comprehensive training program is being set up with advice being provided by the BP Indonesia Crisis Management Advisor. This will be particularly critical during the transition period toward the Papua Incident Management Team (IMT).

1.4 PROGRESS ON THE APPLICABLE ENVIRONMENTAL STUDIES DURING THE REPORTING PERIOD

1.4.1 Marine Mammals

A Rapid Ecological Assessment (REA) of marine mammals and reptiles was conducted in Berau/Bintuni Bay in late 2005. The study was supported by five experts from three organizations, namely APEX, UNIPA and BKSDA Bintuni, with APEX as the team leader. The results of the 2005 survey indicate that the dominant dolphin in the bay waters is the Indo-Pacific Humpbacked dolphin *(Sousa chinensis)* species. Other species of dolphin found on the area are Spinner dolphin (*Stenella longirostris*), Indo-Pacific bottlenose dolphin (*Tursiops aduncus*) and common bottlenose dolphin (*Tursiops truncatus*). One Bride's whale was observed in shallow waters around 40 km southwest of Saengga. The information obtained from the community also confirmed the existence of whales from the Baleen species in the Berau/Bintuni Bay waters even though there is no indication of whether its existence is seasonal.

The 2005 survey identified the existence of 4 species of turtle, namely; Green turtle, Hawksbill turtle, Olive-ridley turtle, and the Leatherback turtle which mainly exist on the Pisang and Ogar island waters (about 80 km west of Tangguh LNG project location). The saltwater crocodile is mainly located in the central and east side of the Bay waters.

As the 2005 REA Survey was a preliminary survey, a follow up survey was carried out in September 2006 by the same three organizations together with a researcher from the Bintuni Marine and Fishery Office, supported by the Tangguh site environmental team. Sousa dolphins were the most common marine mammal species encountered during the 2005 survey, and this was confirmed by the 2006 survey. The survey indicates that Bintuni Bay is a stronghold or "hotspot" for the Sousa dolphin, and they are seen regularly in the vicinity of the LNG Site.

The 2006 survey confirms that Sousa dolphins continue to be found in the sea in the vicinity of the LNG Site, and appear to have adapted to the conditions connected with construction activities. Tangguh is currently working with the marine mammal's experts to develop mitigation measures to minimize the potential impacts from Tangguh marine construction and future operations activities on marine mammals and their habitat in Berau Bintuni Bay.

The mitigation measures recommended and currently being applied at the site include but are not limited to:

a. Enforcement of AMDAL waste disposal management for all vessels operations and offshore construction activities;
b. Regular monitoring of all marine related activities, particularly in terms of waste management;
c. Noise reduction measures for all near-shore LNG construction and offshore activities; and
d. Assessing the technical and safety feasibility of adjusting the speedboat route to a minimum depth of 12 meters at low tide.

As a follow up to the recommendations, the following activities have been conducted:

- Presentation of the Marine Mammal REA survey result and recommendations to the LNG site construction team in December 2005;
- Presentation and socialization to KJP and the subcontractors' HSE representatives in December 2005;
- Presentation and distribution of materials to marine subcontractors for socialization to their respective workers in December 2005;
- Regular socialization to increase awareness of marine mammals during visits by marine vessels and barges;
- Distribution of posters and pamphlets on marine mammal protection to vessels and subcontractors, particularly those working in marine areas. Posters have also been erected at the Babo jetty and other areas within the Babo camp;
- Regular socialization during daily toolbox meetings with the marine subcontractors;
- Socialization of the marine mammals study results to new contractors coming to site including GPF and Drilling contractors;
- Assessment of the technical and safety aspects of adjusting the speedboat route was completed in 20 October 2006. The new speedboat route policy following recommendations from the marine mammals study results has been developed, and was implemented in November 2006.

So far there are no recorded incidents or any known disturbances in relation to the mammals as a consequence of actions by project personnel or project activities.

1.4.2 Oil Spill Contingency Plan ("OSCP")

A comprehensive OSCP covering all Tangguh construction sites has been developed with support from EARL, an oil spill expert. The OSCP manual is available in two versions, a full report, "Tangguh Project Integrated Oil Spill Contingency Plan (OSCP) – 1st Edition May 2006" and the summary form "Oil Spill Contingency Plan (OSCP) Summary – 1st Edition – May 2006". This plan has been widely socialized with all relevant Tangguh staff and contractors at the Jakarta offices and field locations. The recommended oil spill equipment has been ordered and a comprehensive training and drill plan have been developed for key personnel that may be involved in a spill incident.

1.5 SUMMARY OF CORRECTIVE ACTION PLANS CLOSED OUT DURING THE REPORTING PERIOD

The philosophy of continuous improvement is the key element of the Tangguh Environmental Program. The Environmental field team is tasked with day-to-day monitoring of contractors environmental performance. The team uses a system to track issues as soon as they are identified. The system facilitates discussion and development of corrective measures. The team also conducts a site walk through with Contractors on weekly basis.

1.6 SUMMARY OF PROGRESS ON THE IMPLEMENTATION OF OUTSTANDING RECOMMENDATIONS MADE BY THE EXTERNAL PANEL UNDER THE EP TOR

The External Panel has not been established. The first audit is planned for February 2007. Commentary on the Expert Panel's findings and The Project's response will be included in the next report to the extent that the information is available at the time.

1.7 OTHER RELEVANT INFORMATION

The Project intends to assess the possibility of using groundwater to supply water needs for long term operations at Tangguh. A groundwater pilot program has been approved by MoE as a first step to assessing the viability of this option. The 18-month pilot program will commence with a slim-hole well that will be drilled within the next six month period to map aquifers at the LNG plant site. If aquifers are identified a series of water production and monitoring wells will be drilled and produced over an 18-month period to test the sustainability of these aquifers. If sustainable quantities are proven and if it can be established that use of such aquifers will not create impacts on the community water supply, seawater intrusions and potential subsidence, The Project will work with MOE to obtain the approvals required to authorize the use of groundwater. The benefits of being able to use groundwater would be lower energy consumption and a significant reduction in the brine discharges that are derived from using the planned desalination scheme

2. LEVEL 2 NON COMPLIANCE

There were no environmental incidents categorized as Level 2 Non Compliance during this reporting period.