

PUNJ LLOYD

update

On June 2, 2005,
pipeline history was made
when 21 km of 48" dia
API X70 pipes weighing
10,891 MT was lowered
in a continuous operation

**Lowering 21 km in a day
Punj Lloyd Oman Creates History**



This was a result of detailed planning and a survey carried out by the support departments of Q&HSE, Plant & Equipment, Administration in coordination with PDO.

For the execution team the day started early. Tool Box Talks were conducted before dawn and lowering started while the weather was still cool at 18° C. However the temperature soared up to 50° C by the afternoon. Sand storms were also encountered, compounding our troubles. 15 km of pipe string was lowered by lunch time. Arrangements were made for the crew to take frequent breaks at site in airconditioned comfort, with water intake

to prevent dehydration. To eliminate fatigue related health hazards, after every shift of two sections of lowering, sideboom operators were rotated. 58 nos. of equipment were mobilised for this massive operation. Seven sidebooms were used for the main lowering with a maintenance crew on stand-by. In line with post padding requirements of a lowered trench particularly in inhabited areas, 32 tippers were put in place to haul sand, along with seven excavators, six dozers and six shovels. The whole operation was smoothly coordinated. By evening the smiles on the faces of our pipeliners at their achievement, said it all. Once again a new milestone had been achieved at Punj Lloyd.

◆ Amit Kaura



update
temperature soared upto 50° C by the afternoon



PECIKO Phase-IV Onshore Facility

Phase IV onshore facility in Senipah is constructed to receive, treat and compress gas for export of Medium Pressure (MP) production flows from PECIKO Phase IV offshore fields.

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plant design software
HYSIS, PDMS, INTOOLS
were used for detail
engineering

Peciko is one of the top ranking gasfields worldwide, discovered in the last 10 years. The fields are located south of the Mahakam river delta, 25 km from Senipah. With a certified gas reserve of 6.2 trillion ft³, Peciko supplies are linked to major long term LNG sales contracts between Pertamina, the Indonesian state owned oil giant and East Asian buyers.

The process of bidding was a detailed one as separate technical and commercial bids were sought by the client TOTAL E&P Indonesia. Based on our vast experience, technical expertise and impressive HSE record the project was awarded to PT Punj Lloyd Indonesia, Punj Lloyd - Joint Venture.

Terrain

The project site comprises sea shore and onshore of varying elevations upto 12 m. This required back filling of 1,20,000 m³ using soil from nearby borrow pits. The site is located in a dense jungle. Senipah enjoys equatorial weather with rain from September to April.

Procurement, Inspection and Delivery

Over 400 imported consignments of 20,000 m³ were successfully handled in a

short period of 15 months. This included management of shipments from all over the globe. Our equipment was sourced worldwide. In keeping with the company philosophy, local resources were utilised, contributing 40% of procurement. Our



update 
work was carried out
with precision, meeting
stringent quality and
safety standards

PECIKO IV

- Receiving facilities for either medium pressure or existing high pressure facilities
- MP Slug Catcher
- Two MP Gas Compressors
- Oily Water Treatment Facility
- Utility Generation and Distribution System
- Electrical power distribution and control system
- Process Control System, Safety Shutdown System, Data Management and Condition Monitoring System
- Telecommunication System
- Tie-in to existing facilities





Major scope of work

Site grading	114,000 m ²
Piling	1,300 nos.
Concreting	6,000 m ³
Structural Steel and Pipe supports	2,200 MT
Piping	138,000 inch dia
Mechanical equipment	60 nos.
Electrical & Instrumentation cabling	380 km

technically competent manpower handled shop-floor supervision, inspection and testing at vendor works, thereby successfully maintaining stringent quality standards.

Construction, Pre-commissioning and Start-up assistance

Site grading and piling work commenced within four months of the contract being awarded. Civil work, structural and mechanical erection, carbon steel piping, insulation and painting were executed in-house, supported by our modern workshop facilities on Kalimantan island. Work subcontracted to reputed

local contractors were carried out under the watchful eyes of our QC team.

Challenges overcome


The biggest challenge was of inaccessibility. Complete infrastructure of site and housing facilities had to be constructed amid dense tropical forest. An effective communication system was set up and logistical difficulties overcome by reinforcing the jetty for river transportation. The challenge of language was overcome by classroom training imparted at site. We trained and deployed local workforce for all disciplines in the plant.

Structures of 220 ton were fabricated steel plates of A-36 grade source locally, as extruded sections were not

available in Indonesia. The fabrication was monitored and controlled by our QA/QC team for fit up and welding activities.

The fabrication of 48" dia and 51.4 mm wall thickness carbon steel pipe proved to be a challenge. Due to paucity of time and the quantum of work involved, piping was prefabricated by us at two locations. Prefabricated spools for low temperature carbon steel and stainless steel piping, totalling 70,000 inch dia was done for utilities, process and oily water. We built a new workshop at Sungaipurun to carry out the heavy wall CS, LTCS and normal thickness piping work. The stainless steel piping work was subcontracted to a local vendor who had workshops equipped with modern lathes and machining tools capable



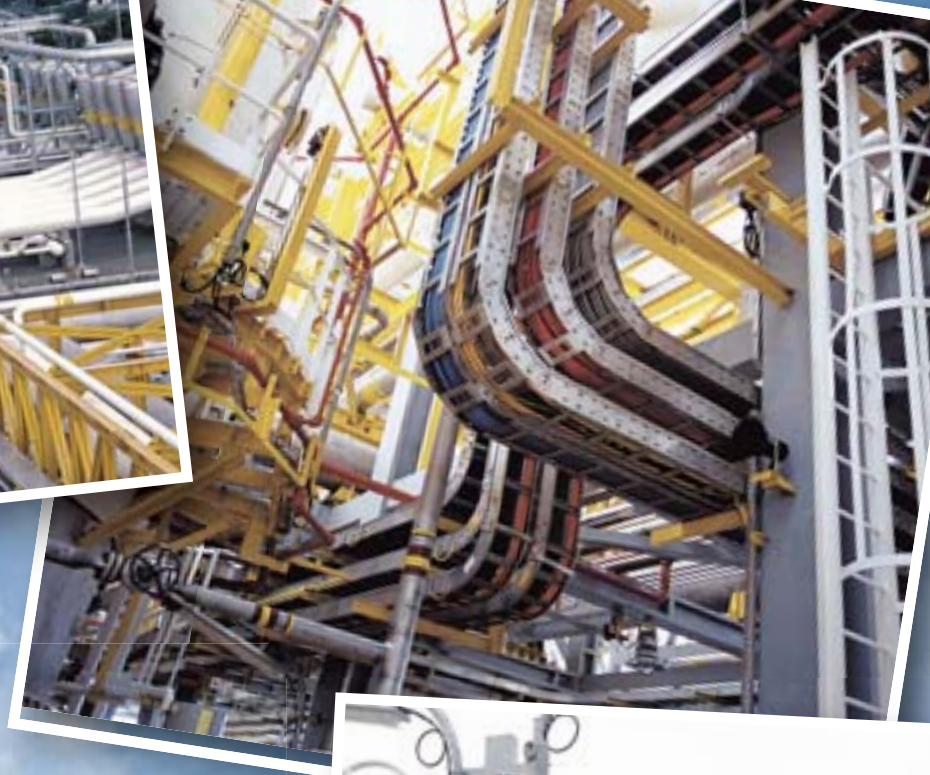
update 
achieved HSE rating of 85% in the audit conducted by TOTAL for PECIKO-IV

PECIKO Phase-IV Onshore



Facility





update

update



based on our experience,
technical expertise and
impressive HSE record the
PECIKO project was awarded
to Punj Lloyd

of handling large diameter and heavy wall thickness pipes. Prefabricated spools were transported using trailers and barges for erection at site.

The work was carried out with precision, meeting stringent quality and safety standards of the client TOTAL.

Transported by sea and land with self propelled modular trailers two oversized Turbo Compressors

weighing 300 MT each were erected.

One oversized Turbo Generator weighing 90 MT was erected by sliding method. Two 80 MT suction scrubbers were erected using rails for sliding and hydraulic jacks. Large and heavyweight valves were successfully erected on pipe racks and technological structures. Design software such as HYSIS, PDMS, INTOOLS was used for detailed engineering.

Impressive Milestones

Shutdown of the main plant was completed within the 15 day window. During the shutdown our team worked in shifts over 24 hours for 15 days to meet the deadline. Tie-ins of piping, electrical and instrumentation were simultaneously carried out during this critical period. Piping tie-ins varied from 3" to 30" dia.

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maximum number
of appreciation
letters received
from TOTAL

Two flare tips weighing 4.5 MT each were installed at a height of 66 m, using light weight assembled derricks and pneumatic winches. Retrofit work was carried out on the existing turbo generators. Electrical tie-ins included the installation of high voltage switchgear, 5.5 kv, their interconnection with the existing system and

successful commissioning.

Process control system panels and a fire and gas safety shutdown system were installed and integrated with the existing unit. A large amount of piping and instrumentation work was also done for the additional 4th Metering Train including accessories and field instruments.



Logistics and Equipment

The heavy lifting of pipe spools, weighing 25 MT each, within a confined space called for innovative planning. The use of long boom 200 MT capacity cranes enabled the spools to be erected at a height of 16 m.

Low carriage transport and barges were used to carry pipes from our Sungaipurun workshop to the jetty at Senipah.

Local Resources

Successes in international projects depend to a considerable extent on proper and sufficient utilisation of

local resources. One such key element being local manpower. Our expertise in executing large global EPC projects enabled us to understand this requirement, leading to early identification, recruitment and training of competent local manpower as discipline engineers and supervisors. As a result almost 99% of the workforce in Peciko comprised local recruits. This resource of trained manpower can be relied on for future projects in the region.

Pre-commissioning of the project was carried out and handed over to TOTAL in phases, commencing May 2004. The last phase was completed by April 2005.

HSE achievements

We achieved an HSE rating of 85% in the audit conducted by TOTAL for PECIKO-IV work site. This rating is the highest ever achieved by any company executing EPC projects for TOTAL in Indonesia. Our success was due to :



- 4.2 million safe man-hours
- Highest number of workforce deployed
- Work permit compliance done simultaneously
- Maximum number of safe critical lifts
- Maximum number of appreciation letters received from TOTAL during the last 26 months
- Maximum number of client audits undergone on any project (six times)
- TOTAL received accolades from their insurance company after an inspection of our safety standards



- Successfully undergone the first Project Technical Audit for HSE
- Receiving outstanding remarks in the Environmental Audit Report from the client
- Undergoing an audit for high risk factors SIMPOS (Simultaneous operations) in a running plant
- No fatalities and no environmental damage recorded at site

The audits covered 16 main elements.

◆ A K Gupta



Celebration of the Safety Greentech Gold Award

The winning of the silver award from Greentech Foundation last year was improved upon when Punj Lloyd won the gold award this year, in recognition of safe working at all our sites. The award ceremony was followed by the OHSAS India 2004 seminar.



Greentech Foundation promotes good practices for a safe working environment. Over the last five years they have built a reputation in safety standards which results in the coveted annual awards for excellence in safety.

Punj Lloyd won the gold award from among 300 participants and participated in the exhibition at Hyderabad, where our safety performance at our various sites was highlighted.

The glittering award ceremony was attended by Kishwer Jawed, HSE department.

Our presentation comprised a description of world class safety practices followed at each of our sites. Starting with our management commitment to HSE we highlighted planning, HSE measures and best practices followed by us to minimise and eliminate risks. ♦

Our focus on HSE

Risk Assessment terminates, treats or reduces risk to tolerable levels.

Training at regular intervals to refresh HSE knowledge of site employees

Tool Box Talks and Job Safety Analysis used as a means to spread awareness among employees.

Regular mock drills conducted to reduce response time. Shortcomings evaluated and corrective action taken.

Occupational health monitoring at site by certified health experts.

Latest technology adopted to eliminate/minimise risk levels and human error.

Automatic welding eliminates exposure to toxic smoke, radiation and high heat.

Plan for a Better Planet World Environment Day

Every year on June 5, World Environment Day is celebrated. We are committed to conserve nature and help build a better world.

At Punj Lloyd it was celebrated with greenery and foliage. SNP Punj Chairman Emeritus,

Mrs Indu Punj and VK Kaushik COO and Jt Managing Director visited the upcoming Punj Lloyd office premises at Gurgaon and planted saplings to commemorate World Environment Day.

A quiz contest was organised by our HSE team. The topic was environmental awareness and was a touchstone to reiterate the corporate focus on environmental practices. There were first and second prizes to be won for the Indian and International sites respectively. This was a great effort which elicited the enthusiastic participation of the entire organisation. ♦



Founder's Day Celebration

June 26 is one occasion when the chairman addresses the organisation, highlights past achievements and plans for the future. On this occasion long service awards were

presented to those who have been with the company for 10, 15 and 20 years. This year 81 awardees received certificates and silver salvers from Mrs Indu Punj. We are proud to belong to a company on the fast track and are willing to stretch at each level to fulfill the great vision of our management. ♦



Kazakhstan - Two Million Safe Man Hours



Accolades for good HSE were recently received at Punj Lloyd Kazakhstan Large Bore Small Bore project site. At a function in May this year, Julian Archer, *Parsons Fluor Daniel Project Director*, presented safety excellence and milestone awards to Punj Lloyd.

Tengizchevroil Asset Development Project was awarded to Punj Lloyd in Jun 2004. This is a multi-disciplinary contract, including pipeline, civil, structural work, mechanical installation, piping, in-line instrumentation

installation, valves, sampling systems, skid mounted multiphase flow meters and pre commissioning.

The site is located on the North-East of the Caspian Sea and is called a Sea Desert. Our challenge is compounded by its remoteness, being 350 km from the nearest habitation.

To ensure that isolation does not affect the morale of our workforce, accommodation is provided in a huge camp, segregated into five domes. Each dome houses 1500 people. 24 Hr ambulances and doctors are available to cater to any medical emergency.



Punj Lloyd employs local communities from the countries where it operates. At Kazakhstan the local population is hired in rotation. Along with Kazakhs and Indians, Americans, British and Turkish manpower are also employed at this site.

◆ Ashok Mohanty and Hemant Shrivastava

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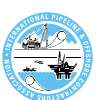
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ISO 9001 : 2000 QMS
 ISO 14001 : 1996 EMS
 OHSAS 18001 : 1999 OHSMS