

**CONSTRUCTION OF BULK BERTH No. 2 (512 m)
& LOADING BERTH (196m) in Misurata**



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USCO

MISURATA



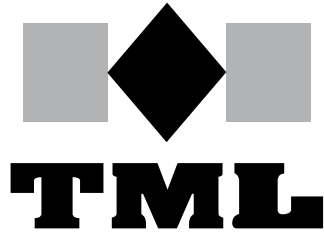
Leptis Magna Port Model © National Maritime Museum , Greenwich London

MISURATA

Misurata City is one of the trade centers that the Phoenicians started building in the tenth century BC on the north western part of the Libyan coast. Thus it is now three thousand years old.

The city was known in the old ages by the name of Cephale Tobactus, which means cape Misurata. It derived its importance from being on the cross roads of vital routes.

Besides its distinguished location, connecting Tripoli to Benghazi which makes it a starting point for the exchange of commodities and materials with the rest of the cities of the country, Misurata enjoys a new infrastructure in the field of services such as roads, electricity and communications and holds industrial facilities like textile, dairy products and steel complex.



About CLIENT

The Libyan Iron and Steel Company is one of the largest companies in the great Jamahiriya with an annual designed capacity of 1,324,000 ton of liquid steel.

The company is situated near the coastal city of Misurata , about 210km east of Tripoli covering an area of 1,200 hectares.



LISCO

PORT

About PROJECT

Within the overall development scenario, the unloading capacity of the LISCO Port was decided to be increased by constructing a 2nd Bulk Berth and a Loading Berth along the North Breakwater of the company Port.

TML was chosen by LIBYAN IRON AND STEEL COMPANY as the Main Contractor to execute Construction of Bulk Berth no. 2 (512 m) & Loading Berth (196m) in 900 days.

The Contract was signed on	11 th October 2007
started on	10 th March 2008
scheduled to	27 th August 2010
completed on	18 th May 2010
Guarantee period	18 th May 2011

The scope of works included execution, supply, erection and detailed design of stated following items:

- | | |
|---------------------------------|-----------------------|
| 1- Slope Protection | 6- Aids to Navigation |
| 2- Berth Structures (Bill No.2) | 7- Land Works |
| 3- Marine Fittings | 8- Mechanical Works |
| 4- Fendering Systems | 9- Electrical Work |
| 5- Corrosion Mitigation | 10- Spare Parts |





Eser Tümen's Method of Construction & Execution

At the planning stage the key activity of piling works was decided to be executed without having been effected by adverse sea conditions. Based on this philosophy the piling over driven piles method was developed. Heavy lifting plans and equipment selections, team locations, piling, stone removal-placement shifts, contract duration based on 800 days was determined and followed during the execution period.

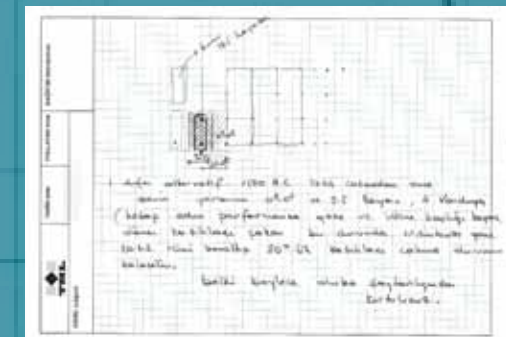
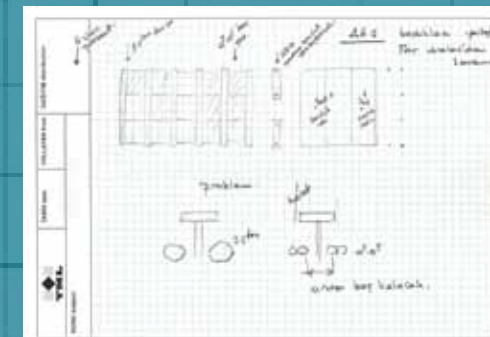


DAĞITIM distribution	
YOLLAYAN from	Handwritten notes: "26 ton. Sınırlılık duca ile yerleşim." and "7 sını".
TARİH date	
KONU subject	<p>Handwritten notes: "4 VİNG başlık reprecast.", "165 Manövürs 25 ton taş yerleştirme.", "180 ton Al-terran neya crawler.", "165/Man 3-5 ton taş Sokum.", "26 ton Sınırlılık duca ile yerleşim.", "7 sını", "Al-terran başlık konmadan qacici başlantılarla taş 16 bitiyek.", "180 ton Al-terran neya crawler.", "165 4 YAR. taş sokum / 3-5 ton", "4 YAR. TAŞ YERLES (3-5 ton)", "100 ton 4 YAR. 0²-0⁵ Sokum.", "4 YAR. 3-5 ton ufak taş top de ist fakaha 3-5 ton yere 16'e yerleştirilme. veya kazığa yardım. (basatma piti)." and "x prekast 4. Vİng".</p>

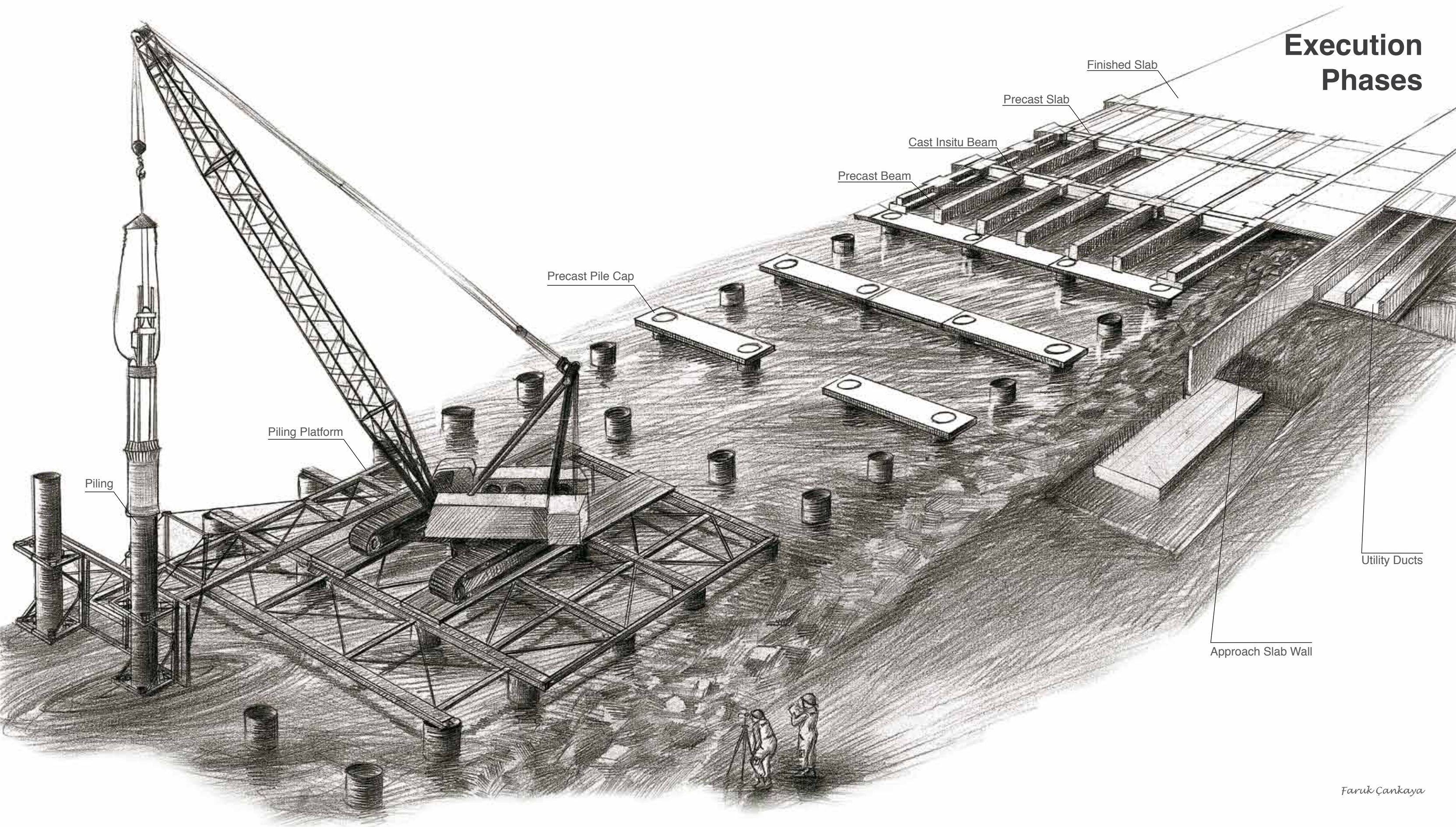


TARİH date	YOLLAYAN from	DAĞITIM distribution
KONU subject		
<p>Handwritten notes: "2 Alternatif deendim (2 buide de kalırcı problem var.", "1. Çakıncı kazık geçem. ve keveci'ye oturan yavuzcasın kabağı bikan. Sistem", "çakıncı kazıklar başlantı.", "2. Templet gibi, fakat 1. nececi çakıncı kazık mevcut ek yapılan kabağı kalırcı.", "1/4'deki piti 2'lik taşıyıcı için 7cm ayırma dağda veya çapraz olarak kırılabilir kısıta başlantı. 1 veya 2".</p>		

Item No	Quantity	Unit	Description
1	4	VAR.	TAŞ KAZIK
2	4	YAR.	0 ² -0 ⁵ KAYIĞI
3	4	YAR.	TAŞ YERLES (3-5 ton)
4	4	YAR.	0 ² -0 ⁵ Sokum
5	4	YAR.	3-5 ton ufak taş top de ist fakaha 3-5 ton yere 16'e yerleştirilme. veya kazığa yardım. (basatma piti).



Execution Phases



Piling

Piling Platform

Precast Pile Cap

Precast Beam

Cast Insitu Beam

Precast Slab

Finished Slab

Utility Ducts

Approach Slab Wall

Execution Details



EXECUTION DETAILS

Precast Facilities



Pile Manufacturing

Quality management system was established at site and was audited by TUV Rheinland Germany according to ISO 9001:2008.



General View

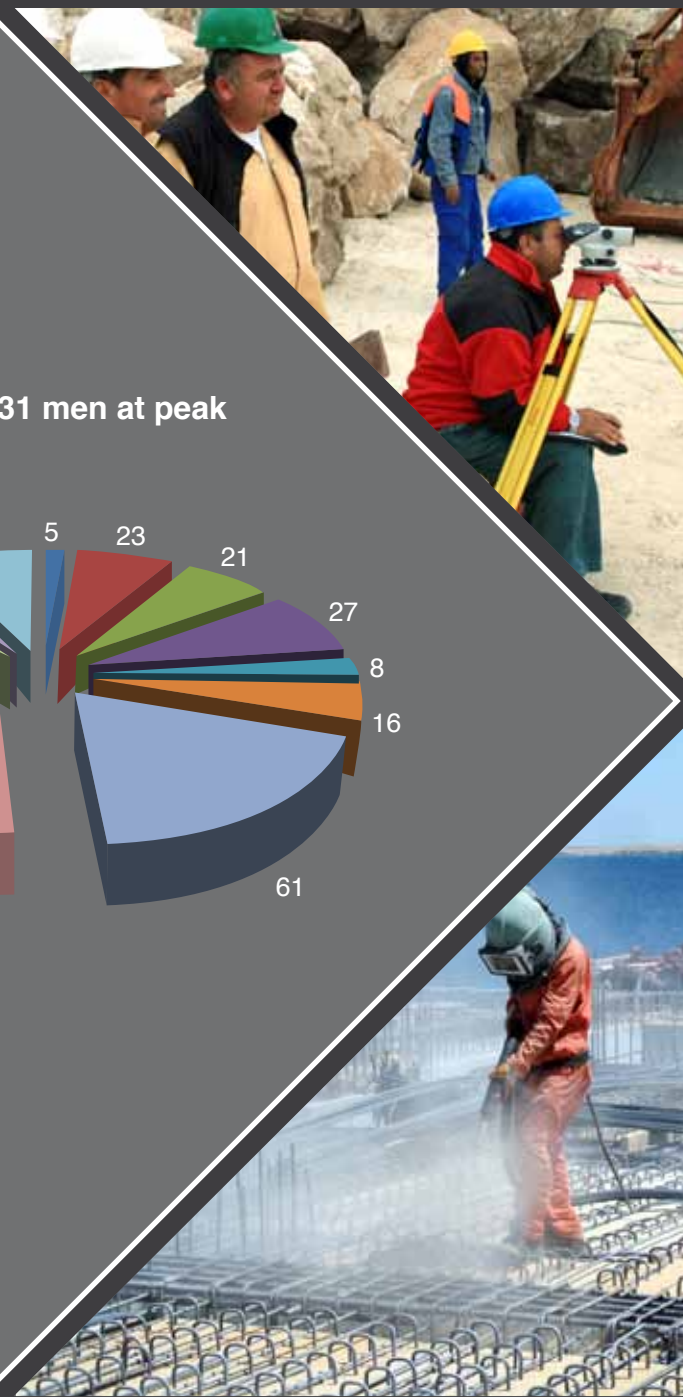
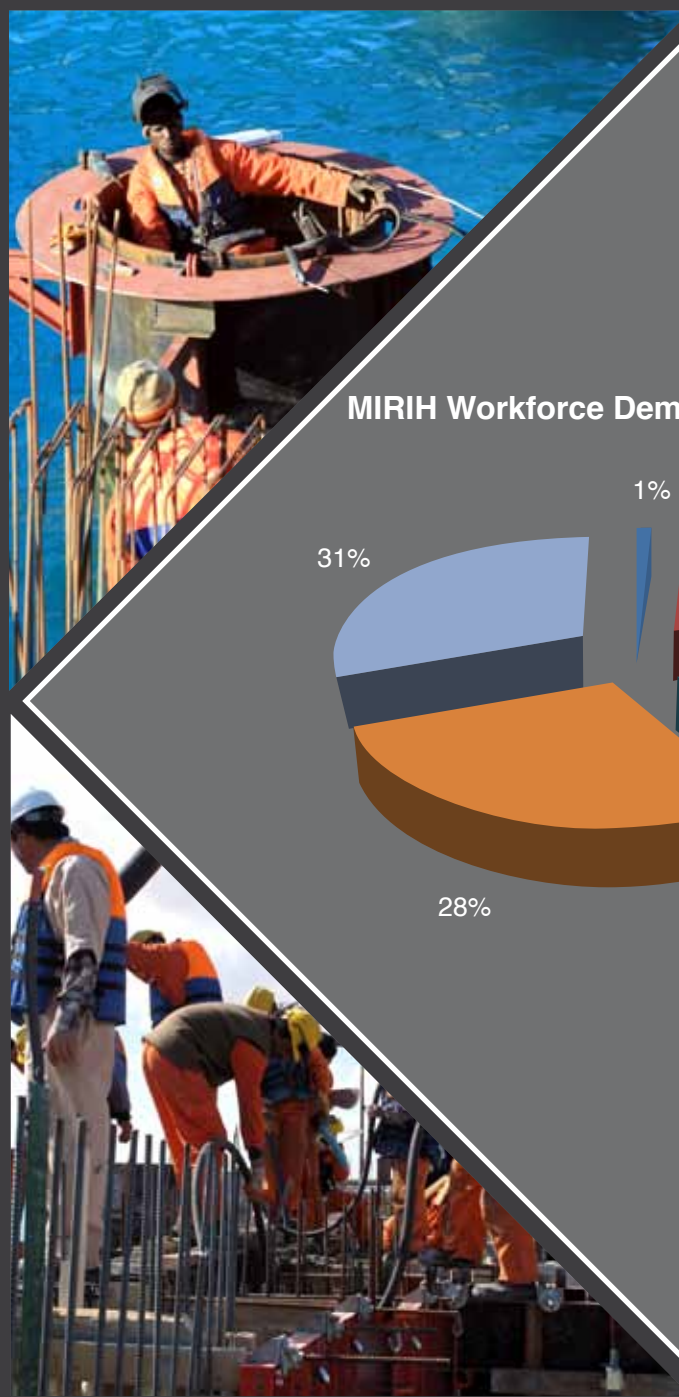


MAJOR QUANTITIES

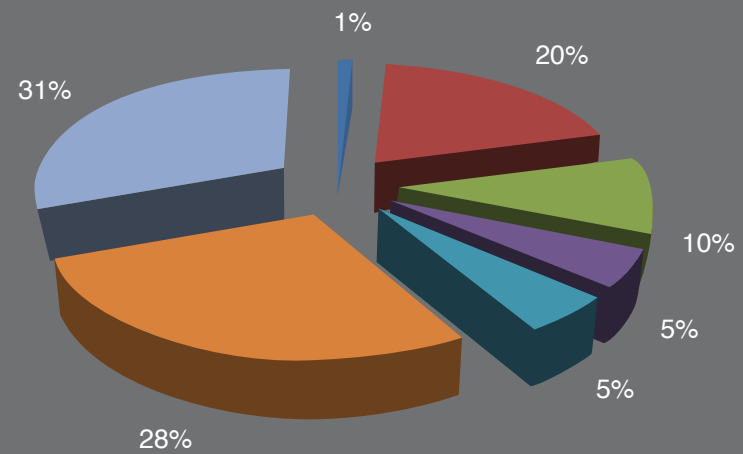
48" OD STEEL PILES-17.000 M TOTAL LENGTH	546	NOS
REINFORCED CONCRETE	24.000	M3
ROCK ARMOR HANDLING	280.000	M3
A120 TYPE CRAIN RAIL	1.650	M
2000 MM CYLINDRICAL FENDERS	52	NOS
1150 MM CYLINDRICAL FENDERS	12	NOS
CAST IRON BOLLARDS	31	NOS
LASER GUIDED VESSEL DOCKING SYSTEM	4	NOS
CATHODIC PROTECTION RECTIFIERS	22	NOS
HIGH MAST FLOOD LIGHTING ELECTRICALLY LOWERING	8	NOS
GRE FIRE WATER LINE	2.700	M
FIRE HYDRANT AND CABINET	22	NOS
FIRE WATER PUMP	3	NOS



GENERAL VIEW

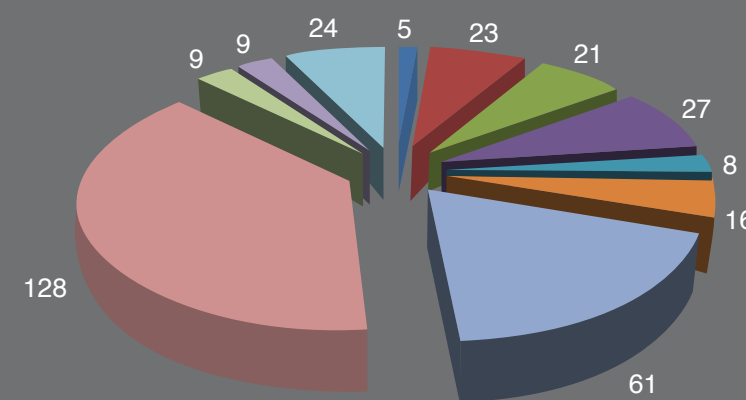


MIRIH Workforce Demographic Distribution



- Libya
- Egypt
- Sudan
- Pakistan
- Turkey
- Vietnam
- Other

MIRIH Workforce 331 men at peak



- Warehouse
- Workshop
- Camp
- Administrative
- Electrical
- Piling
- Mechanical-Welding
- Rebar-FW-Concrete
- HSE-QAQC
- Surveying
- Berth

The Project was Completed 101 Days Ahead of Construction Schedule

Environmental and occupational health safety management systems were utilized.
Site was audited by TUV Rheinland Germany according to ISO 14001: 2004 & BS OSHAS 18001: 2007

Safety Statistics as of Provisional Acceptance Date of 18th May 2010

1,786,229 Manhours Utilized

- 23 incidents, 1 incident with loss time (16.05.2010)
- 78 near misses

Deck Equipment



Misurata Brega Petroleum Jetty

Other Marine Works



Tripoli Commercial Port



Tobruk Agoco Petroleum Jetty 1



Tobruk Agoco Petroleum Jetty 2



Misurata Freezone Container Berth



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