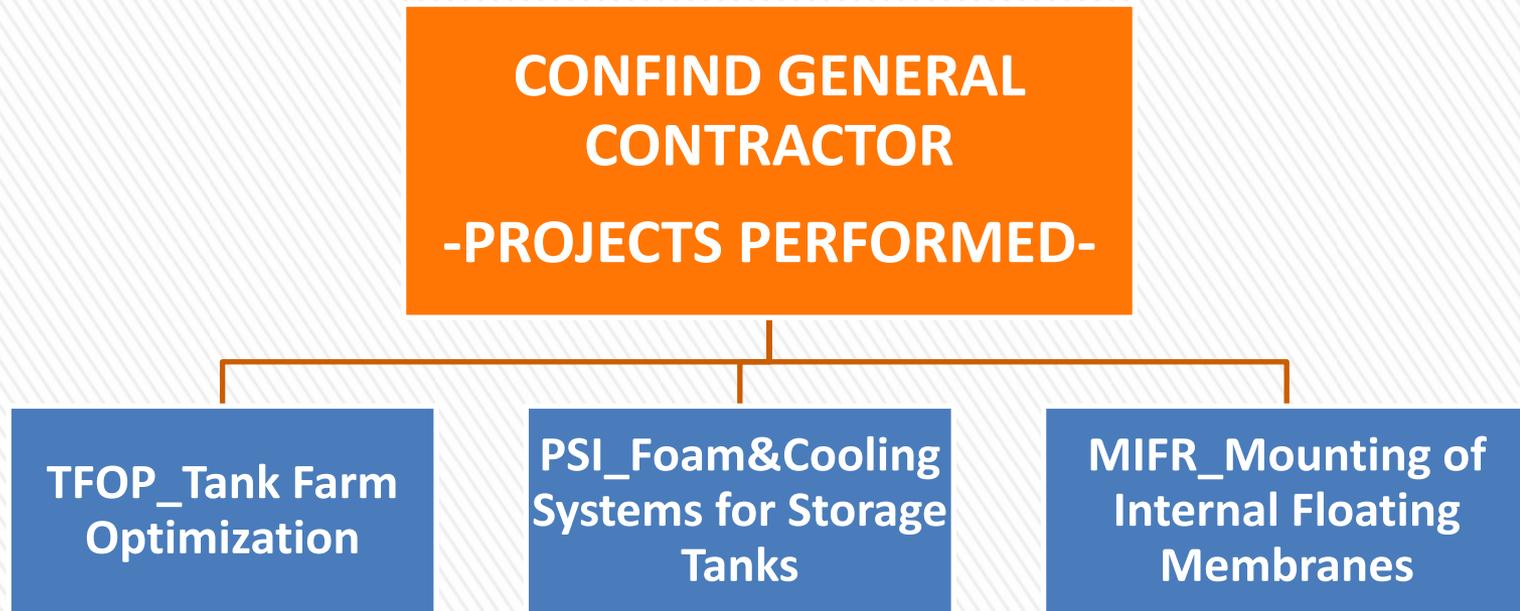


TANKS REVAMPING



Location : Brazi , Prahova County, Petrobrazi Refinery
Beneficiary : OMV Petrom , Petrobrazi Refinery

TANKS REVAMPING

SUMMARY

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TANKS REVAMPING

1 INTRODUCTION

For the above-mentioned projects, Confind is the frame Contractor, with the main scope to repair the high capacity oil storage tanks within Petrobrazi Refinery.

The main projects objectives are the followings:

- Improve reliability through an economically efficient process
- Safe operation
- Compliance with the environmental legal requirements
- Reduce operational costs and maintenance
- Improve monitoring and control systems
- Compliance with OMV PETROM HSE policy and the 8 Golden Rules
- Continuous assessment of the performances / progress with the contract



TANKS REVAMPING

1 INTRODUCTION

The following works are mainly performed within the projects:

Mechanical works

- Partial or total replacement of tank's steel metal parts - bottom, shell, supporting steel structure of the roof, roof cover, fittings and ladders/access bridges
- Repair/replacement of the firefighting system – Replacement of chemical foam system by aeromechanical foam system + related piping
- Repair/replacement of the firefighting system - Repair/replacement of the tank cooling system + related piping
- Purchase / installation of emergence and overpressure valves / vacuum
- Installation of products mixing units
- Installation of mechanical sealing to the floating roof tanks
- Installation of storm water system
- Installation of floating membrane and tank inner mixing units
- Installation of sampling system
- Procurement/installation/fabrication of steam heating coil
- Tank hydrotest and pressure testing according to API 560, API 653 and SR EN14015
- Tank calibration



TANKS REVAMPING

1 INTRODUCTION

Electrical and automation works

- Procurement / fabrication / installation of switchboards
- Procurement / installation of level magnetic indicators
- Installation of temperature sensors, radars
- Procurement / installation of radar antenna
- Procurement / installation of heat tracing systems

Civil works

- Retention dam inner systematization
- Repair of foundation ring and tank base
- Repair of retention dam cracks
- Tank ring foundation bitumen layer
- Repair tank foundation elastic tray

TANKS REVAMPING

1 INTRODUCTION

Insulation and corrosion protection works

- Insulation of tanks and their systems by galvanized plates and mineral wool
- Paint works for tank outer sides + retention dam
- Tank inside corrosion protection by epoxy resin
- Ring foundation protection and 300mm from the tank shell height by epoxy resin.

TANKS REVAMPING

2 PROJECTS PRESENTATION

Repair works within project started at the beginning of May 2012. Until now have been repaired / revamped a total of 20 tanks, as follows:

2.1 General

- Tank 78 – 2000cbm _ project TFOP
- Tank 105 – 3500cbm_project TFOP
- Tank 305 – 5000cbm_project TFOP
- Tank T1IZ – 5000cbm_project TFOP
- Tank T16A – 3500cbm_project TFOP
- Tank R7 – 15000cbm_project TFOP
- Tank T16 – 3500cbm_project TFOP
- Tank 81 – 5000cbm_project TFOP
- Tank 83 – 5000cbm_project TFOP
- Tank 63 – 5000cbm_project TFOP
- Tank 606 – 1000cbm_project PSI
- Tank T2IZ – 5000cbm_project PSI
- Tank V1B – 500cbm_project PSI
- Tank T15 – 3500cbm_project PSI
- Tank TK22A – 1000cbm_project PSI
- Tank R4 – 10000cbm_project PSI
- Tank R27A – 1000cbm_project PSI
- Tank 84 – 5000cbm_project PSI+MIFR
- Tank 79 – 2000cbm_project PSI+MIFR
- Tank M1 – 800cbm_project PSI+MIFR



TANKS REVAMPING

2 PROJECTS PRESENTATION

2.1 General

At present (October 2014) the following tanks are in ongoing works

- Tank 85 – 5000cbm_project PSI+MIFR
- Tank 306 – 5000cbm_project PSI+MIFR
- Tank 115 – 10000cbm_project MIFR
- Tank T90 – 20000cbm_project TFOP
- Tank V1A – 5000cbm_project PSI
- Tank 114 – 10000cbm_project PSI

Main Confind subcontractors within this project are:

- Civil works – Comrep Ploiesti
- Insulation works – Carpati COM Pitesti
- Design works – Premium Brazi
- Paint works – SKI Avril
- Scaffolding works - Rohrer
- Tanks calibration - Timarom
- Cranes - Felbermayr

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.1 General

Steps to be taken in order to perform the repair works

- Based on surveys / measurements reports, the static calculation and thus, the repair design are drawn up
- The repair design is forwarded to beneficiary for approval
- After the repair design approval, the necessary actions for the required materials and parts procurement/fabrication works are taken
- Site installation performance
- Site works completion
- Final acceptance certificates
- Technical Book according to STD 130 OMV Petrom norm.



Coordination of site teams is performed by a project team consisting of Confind specialists



TANKS REVAMPING

2 PROJECTS PRESENTATION

2.2 Projects Value

The total tank repair activities performed / completed by Confind is of **12,150,000 Euro**

- Project TFOP - 9,800,000 Euro
- Project PSI - 1,400,000 Euro
- Project MIFR - 950,000 Euro

2 PROJECTS PRESENTATION

2.3 Completion Stages

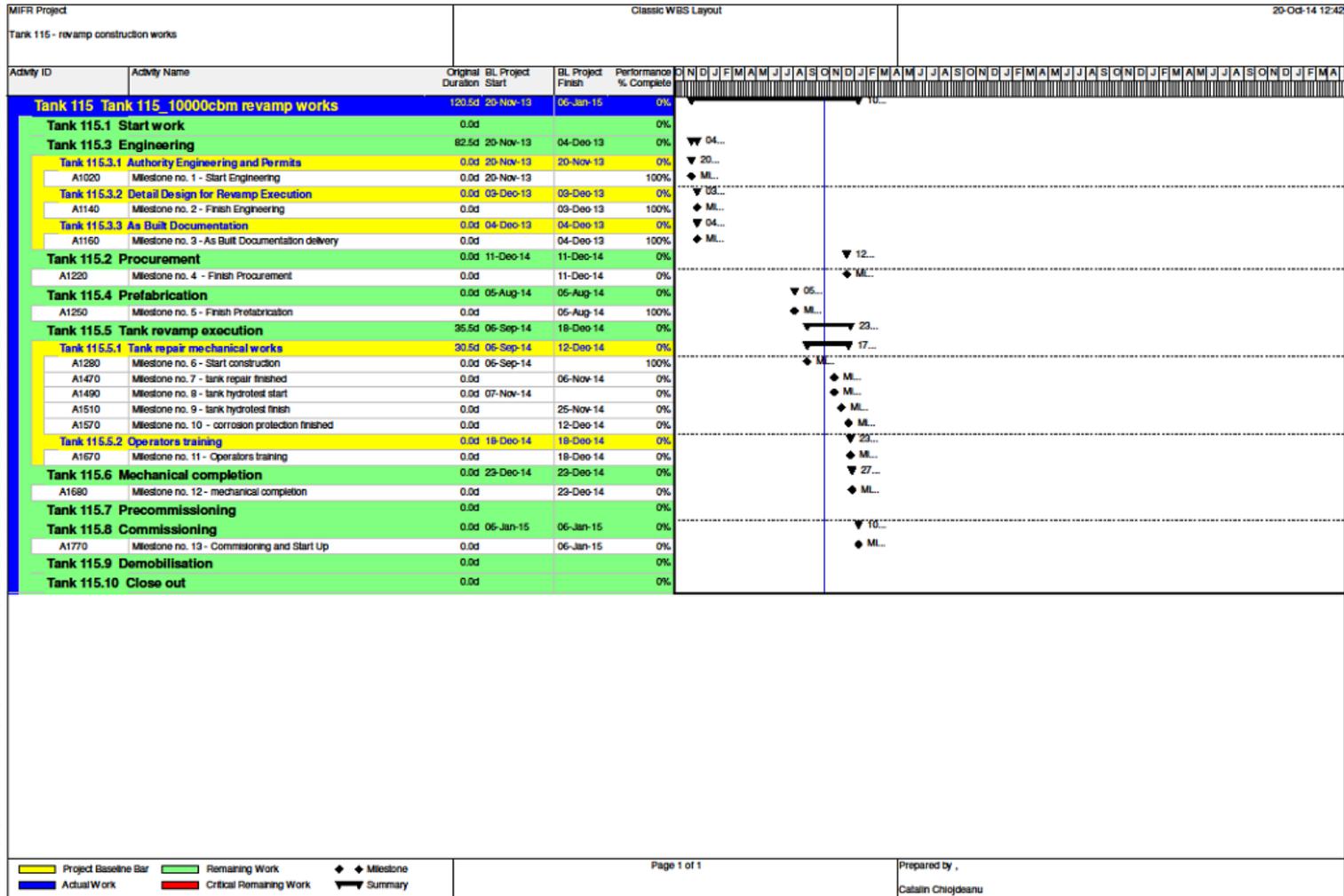
For each tank to be repaired, a works schedule is drawn up by using Primavera P6 software, containing the following steps:

- Start Engineering
- Finish Engineering
- As Built Documentation delivery
- Finish Procurement
- Finish Prefabrication
- Start Construction
- Tank Repair finished
- Tank Hydrotest start
- Tank Hydrotest finish
- Corrosion Protection finish
- Operators training
- Mechanical completion
- Commissioning and Start Up

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.3 Completion Stages

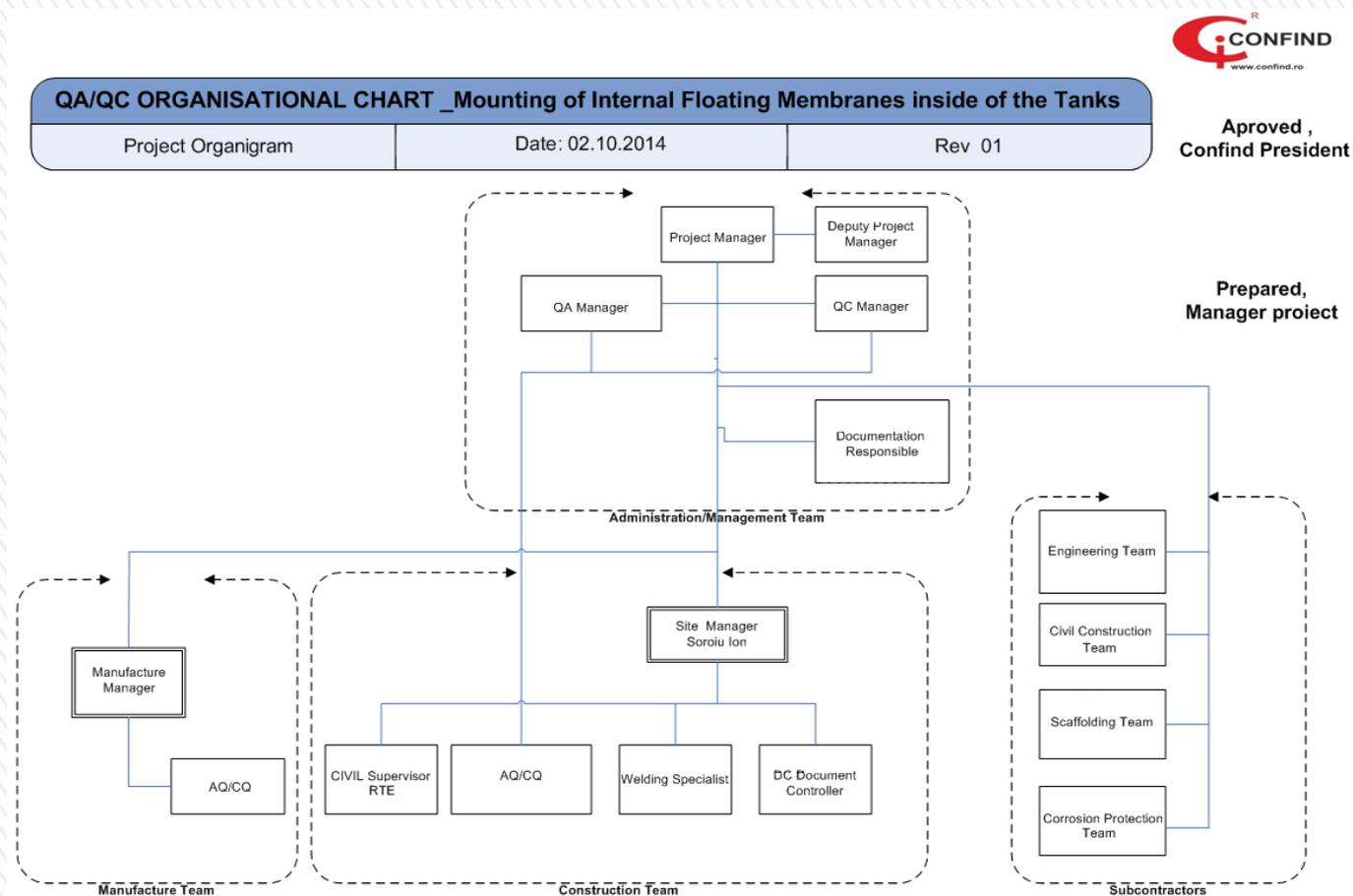


TANKS REVAMPING

2 PROJECTS PRESENTATION

2.4 Organizational Chart

Projects within Petrobrazi Refinery are coordinated by a project team formed of specialists with experience in the area, distributed according to the organizational chart below:



TANKS REVAMPING

2 PROJECTS PRESENTATION

2.5 Progress Reporting

Progress reporting follows two directions:

Physical progress reporting is made according to the execution schedule approved by the beneficiary and quantified by daily reports, weekly reports, monthly reports.

All weekly and monthly progress reports are completed by weekly and monthly progress meetings where issues at the time are debated from the site.

The actual tracking of the physical progress is achieved with the help of *Primavera P6*, the main activities (Engineering, Procurement, Prefabrication, Site Execution) being summarized in a document that is part of a weekly report.

Monitoring and control using *Primavera P6* application, permit review and adapting of all activities, identifying areas where changes are needed. This is a dynamic and systematic process, to identify variations from the basic plan in terms of duration, scope, cost, quality, risks, procurement.

Explanation (terms used)

BL (Baseline) – Basic plan, it is a complete copy of a project that you can compare the current schedule to assess progress

Original duration – the number of days initially planned required by project execution

BL Project Start – the start date of the project according to the initial planning

BL Project Finish – finish date of the project according to the initial planning

Start – actual date for project start (the execution chart is weekly updated depending on works progress)

Finish – actual date for project completion

Performance % complete – physical progress achieved to a certain stage of execution

Schedule % complete – progress as initially planned

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.5 Progress Reporting

MIFR Project		Classic WBS Layout					20-Oct-14 13:47	
Tank 115 - revamp construction works								
Activity ID	Activity Name	Original Duration	BL Project Start	BL Project Finish	Start	Finish	Performance % Complete	Schedule % Complete
Tank 115	Tank 115_10000cbm revamp works	120.5d	20-Nov-13	06-Jan-15	20-Nov-13 A	10-Jan-15	0%	0%
Tank 115.1	Start work	0.0d					0%	0%
Tank 115.3	Engineering	82.5d	20-Nov-13	04-Dec-13	20-Nov-13 A	04-Dec-13 A	0%	0%
Tank 115.3.1	Authority Engineering and Permits	0.0d	20-Nov-13	20-Nov-13	20-Nov-13 A	20-Nov-13 A	0%	0%
A1020	Milestone no. 1 - Start Engineering	0.0d	20-Nov-13		20-Nov-13 A		100%	100%
Tank 115.3.2	Detail Design for Revamp Execution	0.0d	03-Dec-13	03-Dec-13	03-Dec-13 A	03-Dec-13 A	0%	0%
A1140	Milestone no. 2 - Finish Engineering	0.0d	03-Dec-13		03-Dec-13 A		100%	100%
Tank 115.3.3	As Built Documentation	0.0d	04-Dec-13	04-Dec-13	04-Dec-13 A	04-Dec-13 A	0%	0%
A1150	Milestone no. 3 - As Built Documentation delivery	0.0d	04-Dec-13		04-Dec-13 A		100%	100%
Tank 115.2	Procurement	0.0d	11-Dec-14	11-Dec-14	12-Dec-14	12-Dec-14	0%	0%
A1220	Milestone no. 4 - Finish Procurement	0.0d	11-Dec-14		12-Dec-14		0%	0%
Tank 115.4	Prefabrication	0.0d	05-Aug-14	05-Aug-14	05-Aug-14 A	05-Aug-14 A	0%	0%
A1250	Milestone no. 5 - Finish Prefabrication	0.0d	05-Aug-14		05-Aug-14 A		100%	100%
Tank 115.5	Tank revamp execution	35.5d	05-Sep-14	18-Dec-14	05-Sep-14 A	23-Dec-14	0%	0%
Tank 115.5.1	Tank repair mechanical works	30.5d	05-Sep-14	12-Dec-14	05-Sep-14 A	17-Dec-14	0%	0%
A1280	Milestone no. 6 - Start construction	0.0d	05-Sep-14		05-Sep-14 A		100%	100%
A1470	Milestone no. 7 - tank repair finished	0.0d	06-Nov-14		06-Nov-14	11-Nov-14	0%	0%
A1490	Milestone no. 8 - tank hydrotest start	0.0d	07-Nov-14		12-Nov-14		0%	0%
A1510	Milestone no. 9 - tank hydrotest finish	0.0d	25-Nov-14		12-Dec-14	29-Nov-14	0%	0%
A1570	Milestone no. 10 - corrosion protection finished	0.0d	12-Dec-14		12-Dec-14	17-Dec-14	0%	0%
Tank 115.5.2	Operators training	0.0d	18-Dec-14	18-Dec-14	23-Dec-14	23-Dec-14	0%	0%
A1670	Milestone no. 11 - Operators training	0.0d	18-Dec-14		18-Dec-14	23-Dec-14	0%	0%
Tank 115.6	Mechanical completion	0.0d	23-Dec-14	23-Dec-14	27-Dec-14	27-Dec-14	0%	0%
A1680	Milestone no. 12 - mechanical completion	0.0d	23-Dec-14		27-Dec-14		0%	0%
Tank 115.7	Precommissioning	0.0d					0%	0%
Tank 115.8	Commissioning	0.0d	06-Jan-15	06-Jan-15	10-Jan-15	10-Jan-15	0%	0%
A1770	Milestone no. 13 - Commissioning and Start up	0.0d	06-Jan-15		10-Jan-15		0%	0%
Tank 115.9	Demobilisation	0.0d					0%	0%
Tank 115.10	Close out	0.0d					0%	0%

■ Project Baseline Bar
 ■ Remaining Work
 ◆ Milestone
 ◆ Milestone
■ Actual Work
 ■ Critical Remaining Work
 ▼ Summary

Page 1 of 1

Prepared by :
Catalin Chiojeanu

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.5 Progress Reporting

The value progress reporting is made according to the execution schedule approved by the beneficiary and quantified by monthly payment statements prepared on the basis of daily activity sheets (FAZ) issued on site.

2 PROJECTS PRESENTATION

2.6 QA/QC

The three reference projects, are monitored in terms of quality in the manufacturing phase and site erection phase for compliance with quality standards implemented by Confind, and with specific standards SR EN 14015 , API 650 and API 653.

In the manufacturing/fabrication works of the parts, monitoring in terms of quality control was performed by the representatives of Confind manufacturing plant where the components were machined, based on the “ITP-Inspection and Testing Plans” prepared by the Quality Control Department and approved the Employer. In parallel with the delivery of parts on site were conducted qualitative receptions with representatives of the Employer.

In stage on site assembly of parts, monitoring in terms of quality control was performed by the representatives of Confind on site, based on the “ITP-Inspection and test Plans” prepared by the Quality Control Department and approved the Employer. Each phase of the “ITP-Inspection and Testing Plans” was materialized with a quality document prepared and signed by Confind and by the Employer.

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.6 QA/QC

Before starting the activities of design / fabrication / installation on site, the following documents are submitted for approval to the Employer:

- PQP – Project Quality Plan
- PEP – Project Execution Plan
- ITP – Inspection Test Plan

Annexes of the above-mentioned documents

- Project Team Organization Chart
- Project specific HSE Organization Chart
- Project specific QA / QC Organization Chart
- Internal Audit Plan
- Subcontractors Audit Plan
- Quality objectives

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

In terms of HSE, these projects represent for CONFIND a stage on the way to obtain a Safety CULTURE, the Employer's overriding requirements being: zero incidents/accidents at work. Through a well integrated HSE Management in the Company's Management, with an efficient FEEDBACK, the project works are based on the safety and security of all operations performed, social responsibility and sustainability.

Each stage of the works carried out by CONFIND within tanks and piping construction works, took into consideration, before the production issues, the Law 319/2006 (Health and Security at work), OMV PETROM HSEQ standards that are aligned with the 12 elements of OMV PETROM HSEQ Policy, specific works and operational procedures, the 8 OMV PETROM GOLDEN RULES and not least the latest edition of HSSE SUSTAINABILITY POLICY OF OMV PETROM. Any works performed within the tanks repairing (including the Subcontractors works) are based on a long-term risk assessment, an evaluation / selection of human resources, whose efficiency in terms of workers awareness was followed through planned and unplanned TOOLBOX MEETINGS.

Throughout the works performed by CONFIND, the first was the human resource, that must be managed with maximum care through preventive program whereby to render the job ergonomics, health and safety of workers.

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

Working together with the works Employer - OMV PETROM, CONFIND ensured at any time by the actions that were undertaken, that risks for people, community and environment were decreased to a level as low as possible, for which involvement and competence from entire project team was expected, because any deviation from the competence INVOLVES RISK TO THE BUSINESS.

CONFIND –Key performance Indicator –Schedule for TOOLBOX MEETINGS- Luna Octombrie 2014																
Week	Tank 115						Tank 306			Tank 85						
	Activity	Date	Status	Activity	Date	Status	Activity	Date	Status	Activity	Date	Status	Activity	Date	Status	
CW 41	Mentinerea libera cai de acces pe schele													07.10.2014		
	Pozitionarea cablurilor electrice													10.10.2014		
CW 42	Informare sedinta subcontractorilor Petrom													15.10.2014		
	Circulatia auto si pietonala													17.10.2014		
CW 43	Lucrari simultane si suprapuse													20.10.2014		
	Ridicarea sarcinii													24.10.2014		
CW 44	Lucru in spatiu inchis													28.10.2014		
	Mentenanata echipamentelor													31.10.2014		

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

Key Performance Indicator	Target	Current month	Total to Date
LWDCs / LTIs	0/0	0/0	0/0
TRIs/TRI Frequency rate	0/0	0/0	0/0
LWC / LTI Total hours worked / hours worked since last			
Contractor's HSEQ Audits		0	0
Environmental incidents	0	0	0
Security incidents	0	0	0
Toolbox meetings	90	4	78
Unsafe condition	-	3	39
Unsafe acts	-	1	34
Near misses	0	0	0
LWDC = Lost Work Day Case			
LTI = Lost Time Incidents			
TRI = Total Reportable Incidents			

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

Key Performance Indicator	Target	Current month	Total to Date
LWDCs / LTIs	0/0	0/0	0/0
TRIs/TRI Frequency rate	0/0	0/0	0/0
LWC / LTI Total hours worked / hours worked since last			
Contractor's HSEQ Audits		0	0
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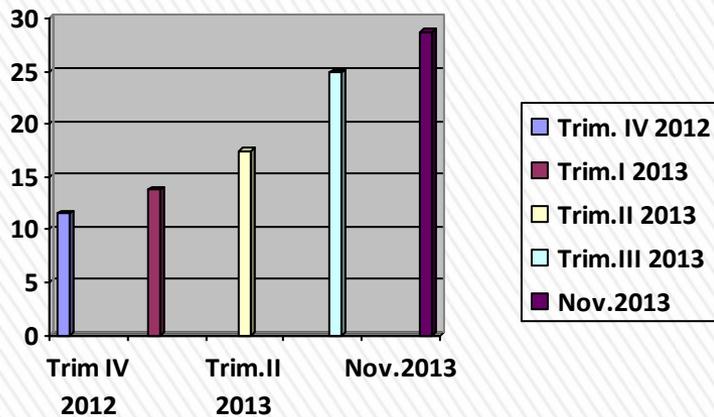
TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

HSE PERFORMANCES

TFOP / PSI -2012-2013



Evolution of the number of project hours (sept. 2012- nov.2013)

Zero accidents , injuries

LTIR = ZERO

TANKS REVAMPING

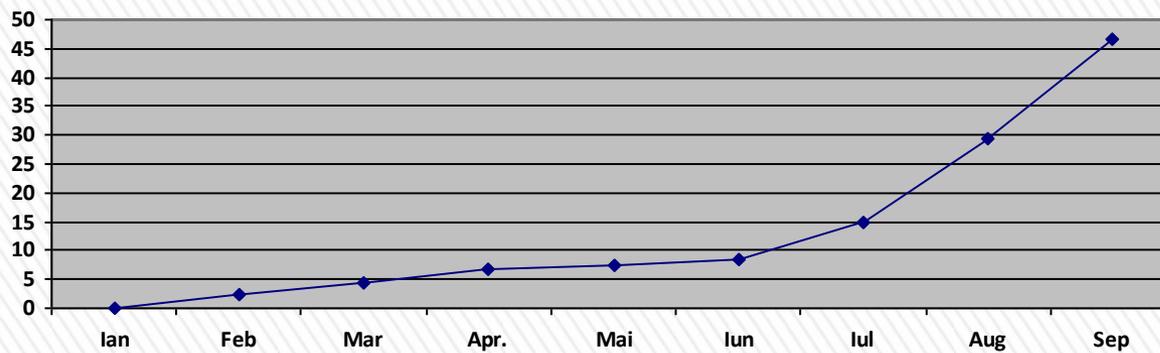
2 PROJECTS PRESENTATION

2.7 HSE

HSE PERFORMANCES

MIFR_2014

From a review of HSE nonconformities, respectively unsafe acts and unsafe conditions) recorded within the 3 quarters of 2014, according to control notes made by the HSE Coordinator of EMPLOYER, on MIFR project, there is a statistical distribution of them, grouped by specific items to see which were the weaknesses of the system, resulting in 69 HSE nonconformities, broken into 33 unsafe acts, 36 unsafe conditions to a total of 46,510 hours worked in the period 01.02.2014- 31.09.2014.



Presentation of the monthly evolution of the number of hours worked in the first 3 quarters of 2014 on MIFR Project

TANKS REVAMPING

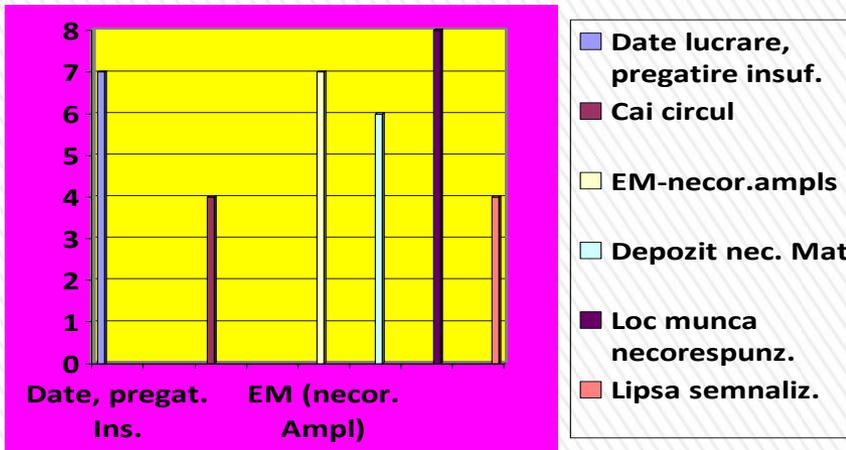
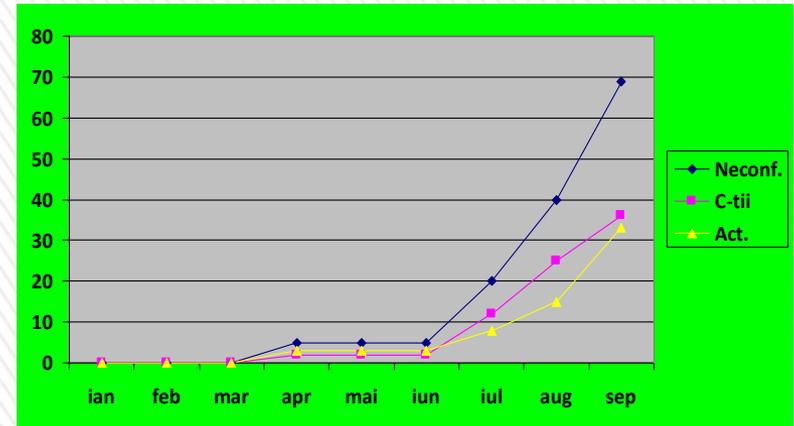
2 PROJECTS PRESENTATION

2.7 HSE

HSE PERFORMANCES

MIFR_2014

Presentation of the monthly evolution of the number of nonconformities (unsafe actions / situations) in the first 3 quarters of 2014



Percentage Review of Unsafe Conditions with high share

Work place conditions	22%
Work equipment, work tools	19%
Works data, works preparation	19%
Access routes	13%
Hazards signaling	11%

Statistical analysis of the nonconformities share (Quarters I-III 2014)

Unsafe conditions

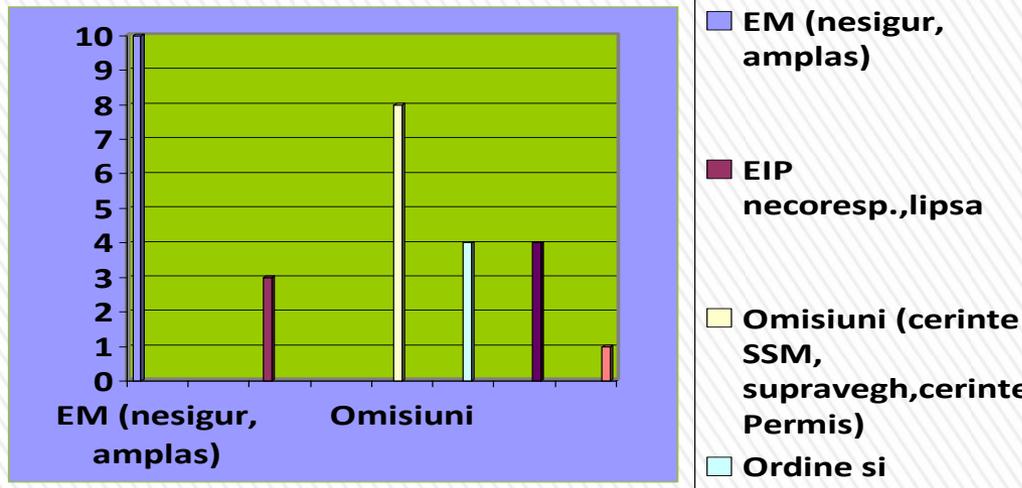
TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

HSE PERFORMANCES

MIFR_2014



Percentage Review of Unsafe Acts with high share	
Omissions (HSE requirements, Surveillance, deviations from Permit requirements etc.)	33%
Work equipment	30%
Order and cleanliness	12%
Improper positions	12%
PPE	9%
Lifting operations	1%

Statistical analysis of the nonconformities share (Quarters I-III 2014)

Unsafe conditions

TANKS REVAMPING

2 PROJECTS PRESENTATION

2.7 HSE

HSE PERFORMANCES

Terms used

FAI – incident followed by first aid - minor injury not requiring first aid, or requiring first aid such as bandaging etc.

FAR – death rate - the number of deaths among the own and / or contractors employees;

FAT – fatality - a death resulting from an accident that is related to work (death in less than 12 months from the date of the accident, as a result thereof)

Hours worked - total hours performed by employees (own + subcontractors)

Lost working days - Number of days lost due to an accident, including legal holidays (include LWDI and LTI)

LWDI – accident involving the ITM – accident, not including, resulting in work disability (ITM)

LTI – lost time accident (lost time injury) - the amount of accidents resulting in death, disability, plus those involving ITM ITM (LWDI); (LTI=FAT+LWDI)

LTIR – lost-time accident rate - a figure that help to assess the frequency of accidents involving ITM; (LTIR=LTI/hours worked) x200.000)

LTIS – severity of accidents with lost time - a figure that describes the average severity of an LTI, in relation to working time performed; (LTIS=lost work days / hours worked) x 200.000)

MTI – medical treatment incidents - accidents in connection with work, less severe than those with ITM or death, but more severe than requiring simple first aid treatment (FAI)

Incident without consequences (Near Miss) - incident that had no consequences on people or goods, but that could lead to a work accident or loss.

RWI – work accident followed by activity restricting – when an employee can resume work after a work accident, but with restrictions (especially medical recommendations)

TRI – total number of reportable accidents – TRI=FAT+LTI+RWI+MTI (number)

TRIR – reportable accident frequency – figure to help to assess the average frequency of incidents in relation to the time worked; (TRIR=TRI/hours worked)x200.000

Unsafe Act – unsafe behavior in different conditions which could lead to an incident

TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION



TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION



TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION



TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION



TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION



TANKS REVAMPING

3 PHOTOGRAPHIC DOCUMENTATION

