



IPIP PRESENTATION

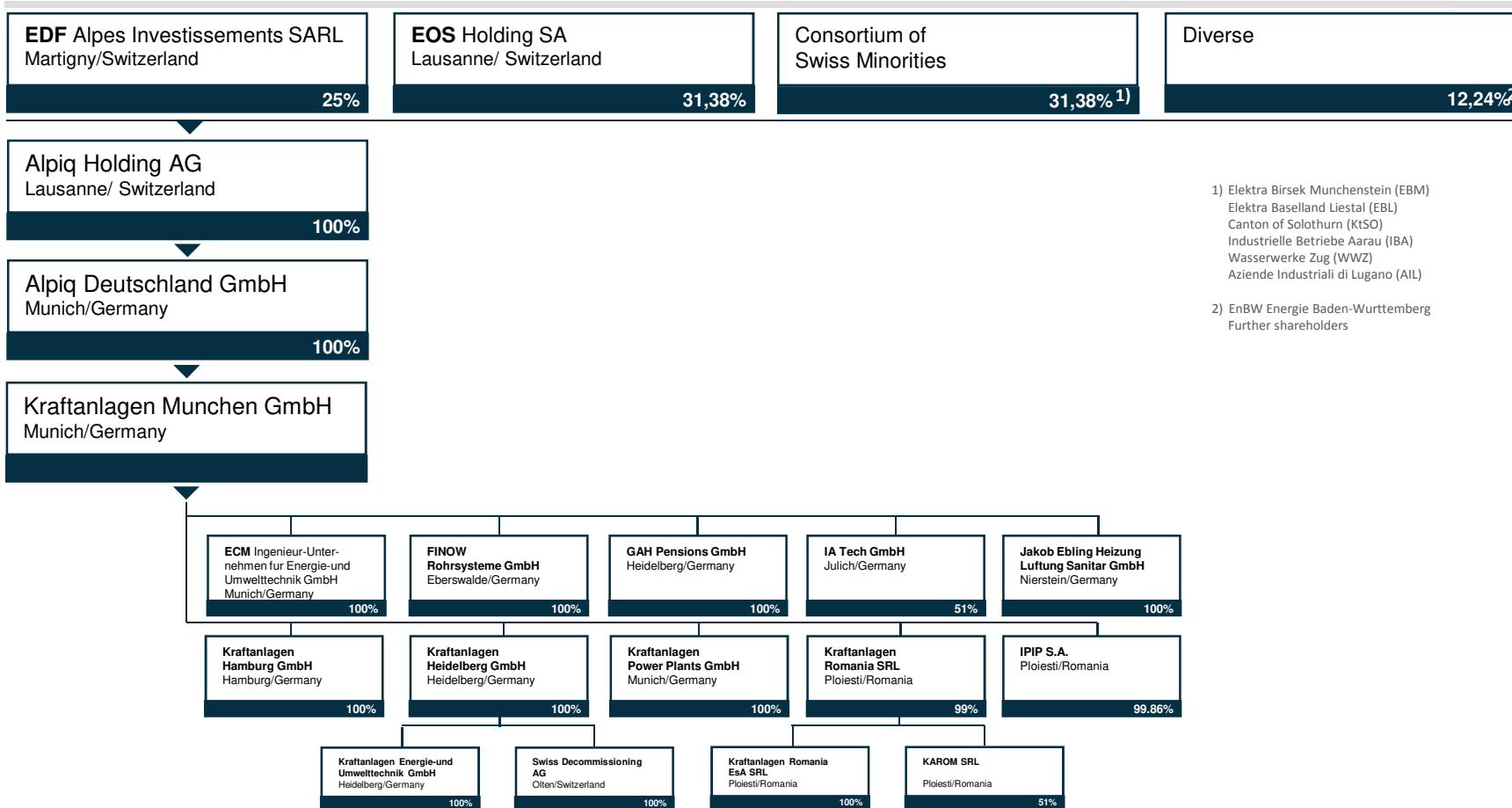
“BUSINESS FOR A BETTER TOMORROW”



IPIP - Engineering and Design Institute for Oil Refineries and Petrochemical Plants

Company Ownership Structure

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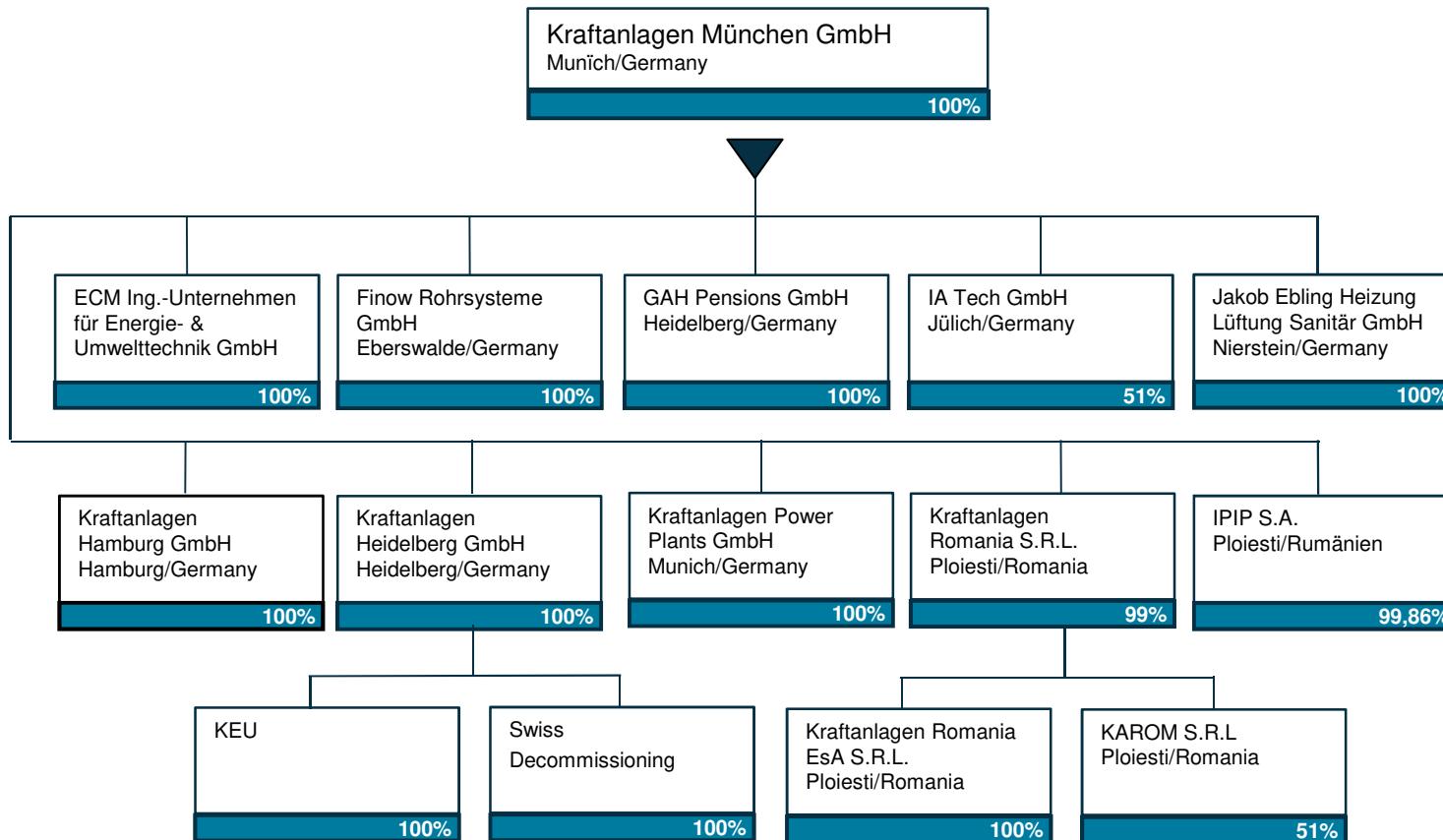


1) Elektra Birsek Munchenstein (EBM)
Elektra Baselland Liestal (EBL)
Canton of Solothurn (KTSO)
Industrielle Betriebe Aarau (IBA)
Wasserwerke Zug (WWZ)
Aziende Industriali di Lugano (AIL)

2) EnBW Energie Baden-Württemberg
Further shareholders

Company

Entities of the Kraftanlagen Gruppe

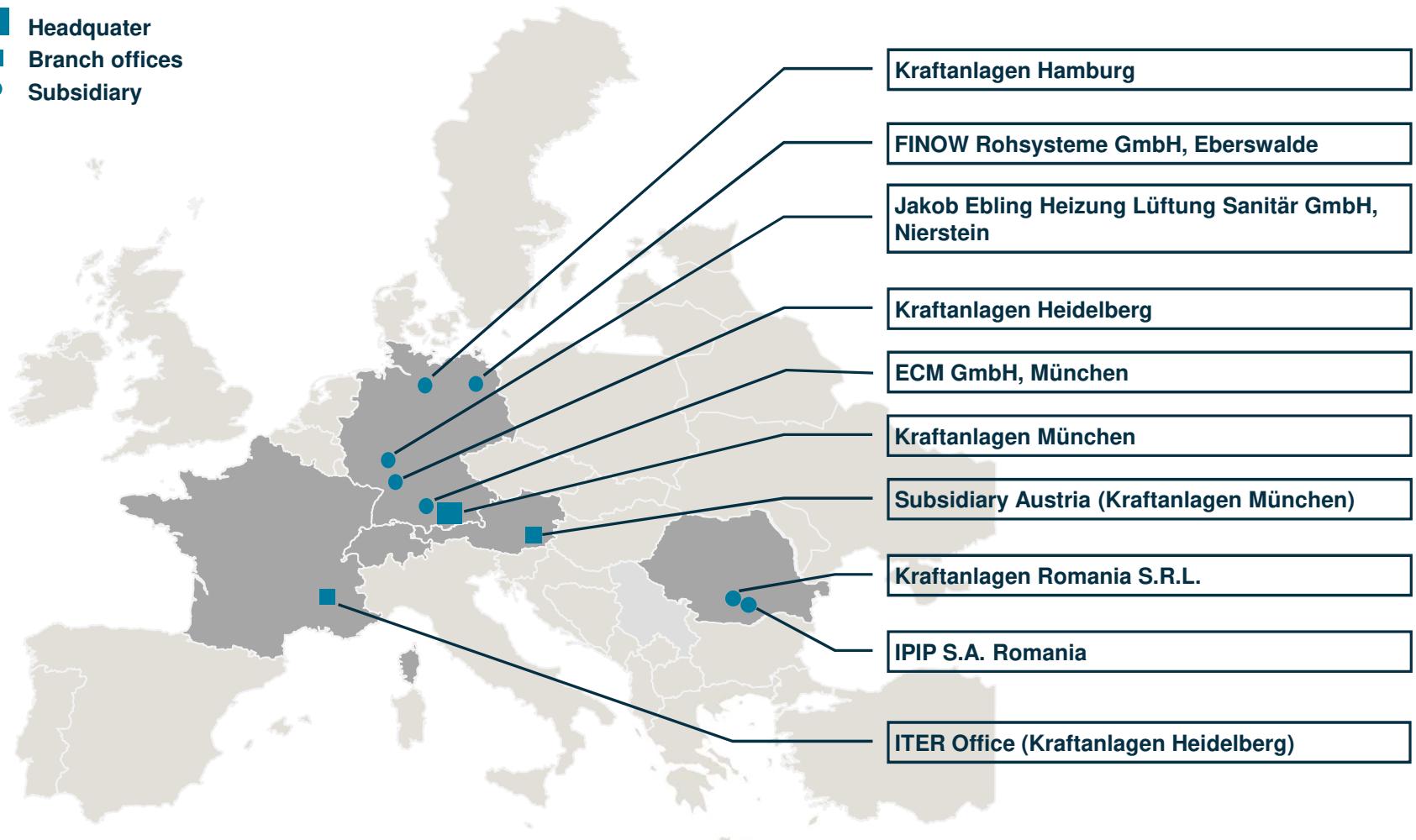


Company

Sites of the Kraftanlagen Gruppe in Central Europe*



- Headquarter
- Branch offices
- Subsidiary



*Listed is only a selection of sites of the Kraftanlagen Group

IPIP's OVERVIEW



IPIP is a Romanian Engineering and Design Company recognized for over 60 years of excellence in Processing Refineries, Petrochemical Plants, Gas Processing and Infrastructure projects.



IPIP has established a worldwide reputation for quality engineering, design, project management and construction management services for oil and gas; refining and chemical plants; pipelines; automation and control and others related industries.



With an impressive track record in Romania, Europe, Middle East, and Asia, IPIP dedicated to delivery projects on-time, while seeking engineering innovations to maximize value for clients.

IPIP's Overview

Certificates

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H EALTH

We create conditions which maintain and protect the health of our employees. We provide opportunities for health care and promote maintaining the health of all our employees.

S AFETY

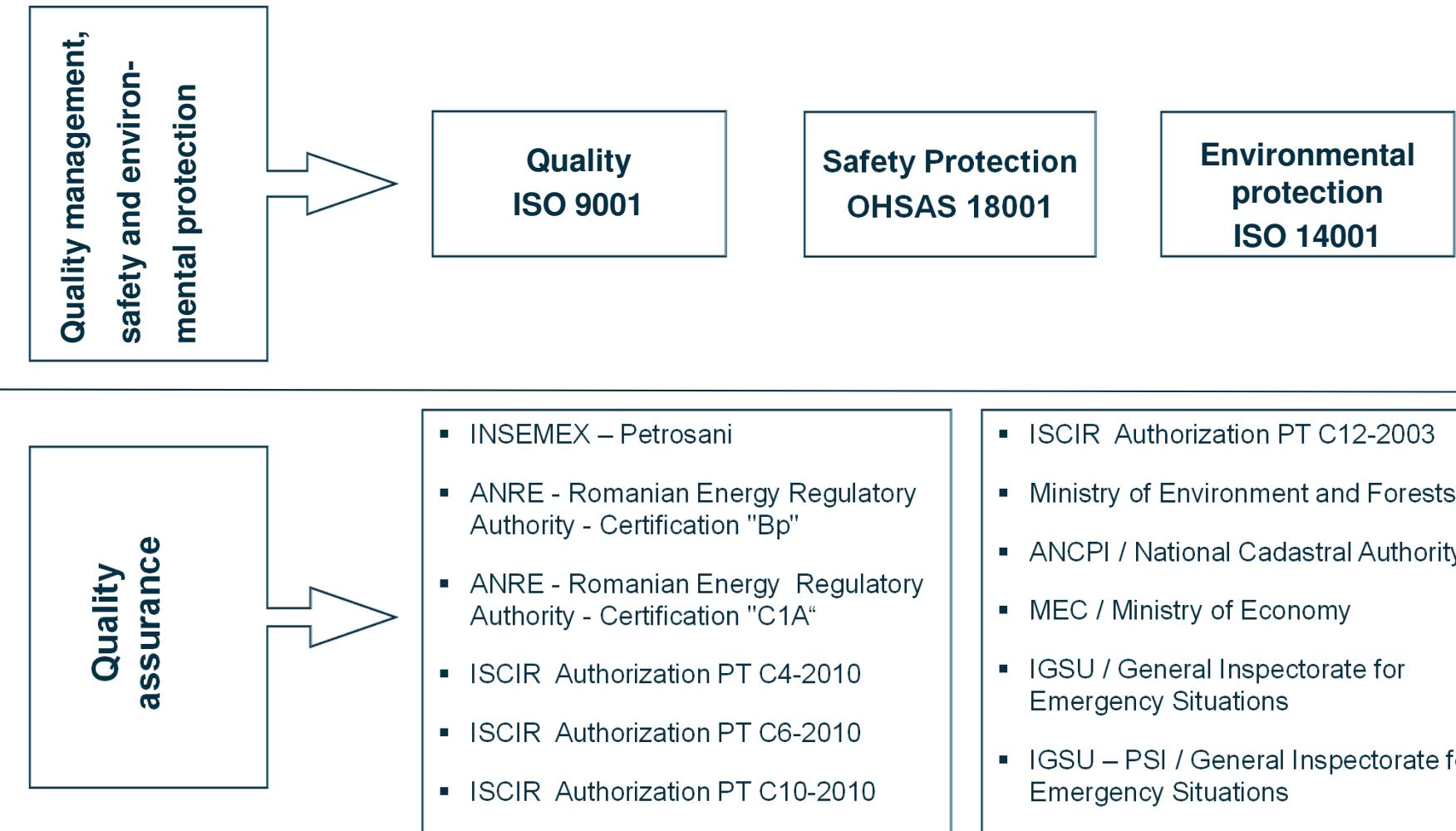
Our foremost goal is the complete prevention of accidents. The permanent adherence to safety provisions by the employees, the responsibility for oneself and the community, serving as an example, are key components of our safety culture.

E NVIROUNMENT

We endeavour to ensure that all our activities are handled in a sustainable and environmentally-responsible manner. Careful use of resources and further development of sustainable technologies are our contribution for active protection of the environment.

Q UALITY

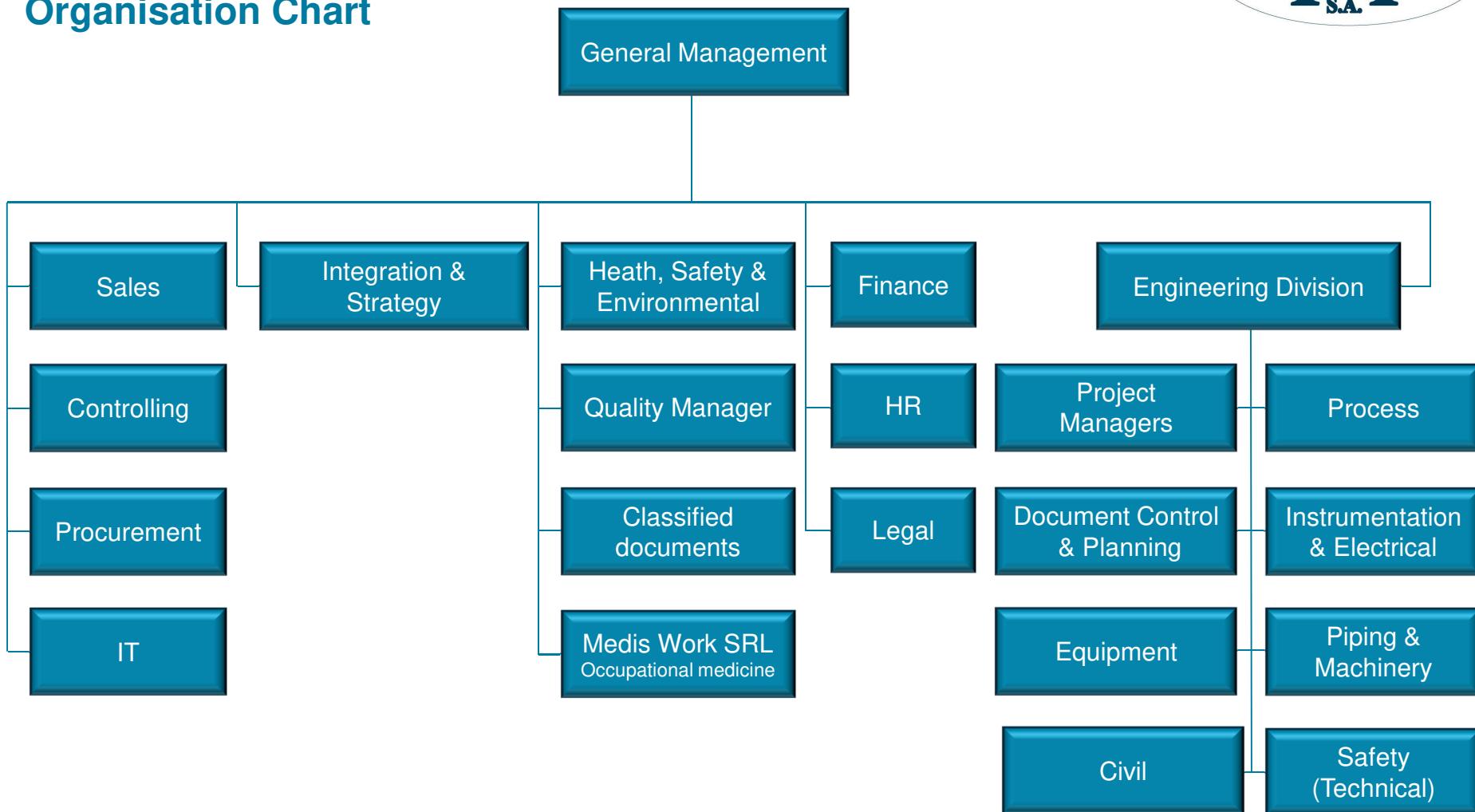
Customer satisfaction is our highest priority. The assurance of highest quality is guaranteed through continuous further development of processes and methods, and their communication to all employees.



*The companies of the Kraftanlagen Group hold various company qualifications.

IPIP's Overview

Organisation Chart



IPIP's Overview

IPIP's Software (page 1/2)



Process Department		Electrical & Instrument	
PID drafting	AutoCAD, SmartPlant P&ID (SPPID)	Electrical Engineering	ETAP
Process Simulation	CHEMCAD, AspenONE Engineering	Lighting calculation	DIALUX
Flare system / relief valves	Aspen Flare System Analyzer, Aspen HYSYS, CONVAL	Plant Engineering	COMOS, SmartPlant Instrumentation
Heat exchangers thermal sizing / rating	AspenONE Engineering, HTRI Xchanger Suite, In-House Software	Wire and conduit sizing	KABEL
Vessel sizing / rating	AspenONE Engineering, In-House Software	Loop Design	COMOS, SmartPlant Instrumentation, AutoCAD (using in-house software)
Line hydraulics	AspenONE Engineering, In-House Software	DCS/ESD/PLC configuration	Emerson/Honeywell/Yokogawa/ABB
2D drafting	AutoCAD, BricsCad	Valve and field device calculation	CONVAL, SmartPlant Instrumentation, In-house software
Cost Estimation			
Cost Evaluation	DocLib, Deviz Profesional		
	Aspen Process Economic Analyzer		

IPIP's Overview

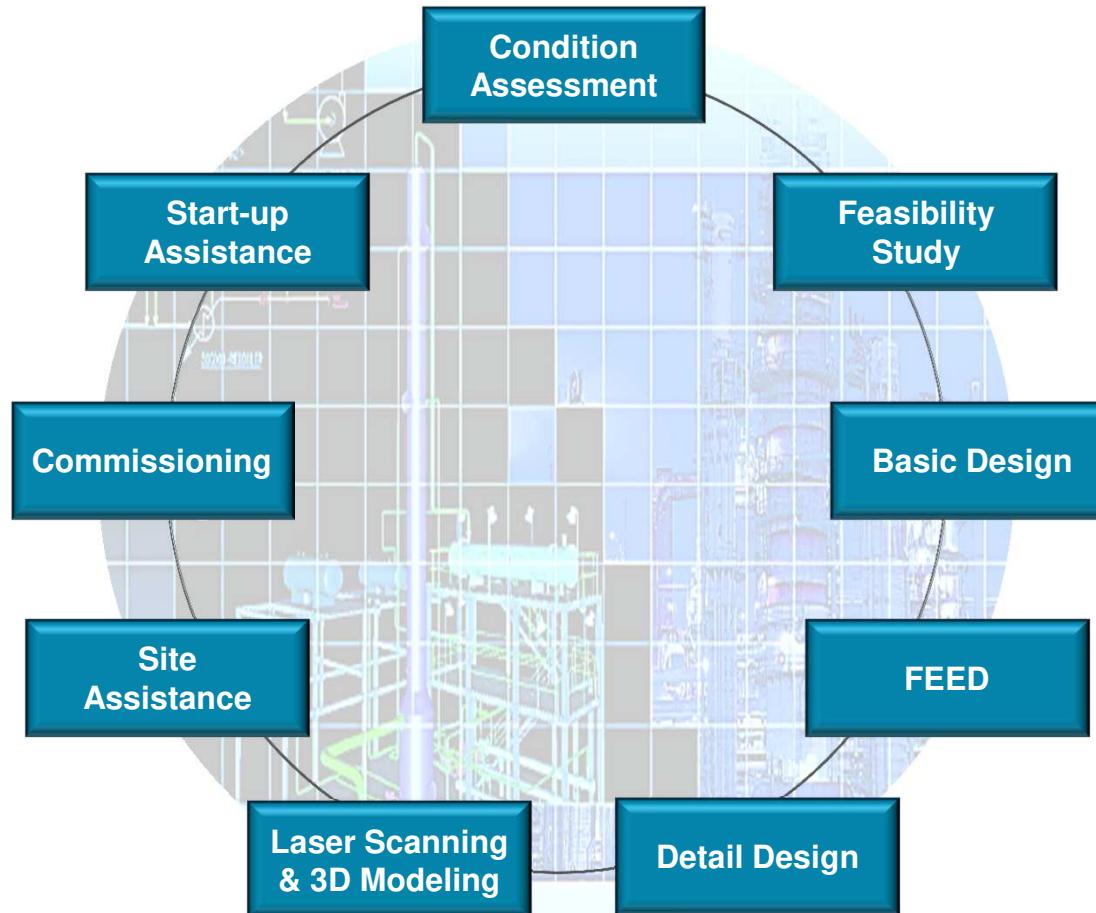
IPIP's Software (page 2/2)



Civil	
3D plant modeling	PDMS, PDMS, ACE FrameWorks
2D drafting	AutoCAD, BricsCAD, ACE Frameworks, Cads-RC
Design Review	SmartPlant Review, NavisWork
Static and dynamic calculation	Staad Pro Advanced Connect Edition, Staad Foundation Advanced Connect Edition, RAM Connection, Limcon, MathCAD

Equipment Department	
Heat exchanger design	PV Elite
Reactor & Column design	PV Elite
Pressure vessel design	PV Elite
Adsorber design	PV Elite
Tank design	TANK
Finite element analysis	NozzlePRO

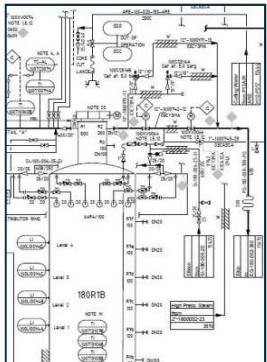
Piping & Machinery	
3D plant modeling	PDS, PDMS, LFM Server, Orthogen, Axiom
Conceptual plant layout	Autocad, BricsCad
Design Review	SMART PLANT REVIEW, Naviswork Manage, Naviswork Freedom
Pipe stress analysis	CAESAR II
2D drafting	MICROSTATION, AutoCAD, BricsCad
Isometrics	ISOGEN, Smart Plant Isometrics
Piping MTO management	PDS REPORT, PDMS REPORT
Piping and instrumentation design	SmartPlan P&ID (SPPID)



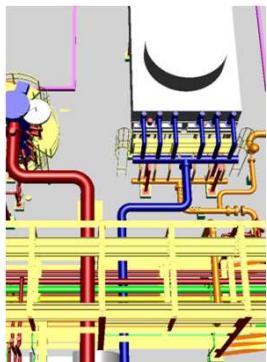
IPIP's Services

Engineering

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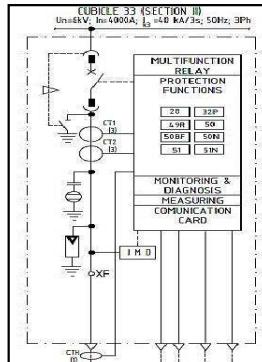
PROCESS



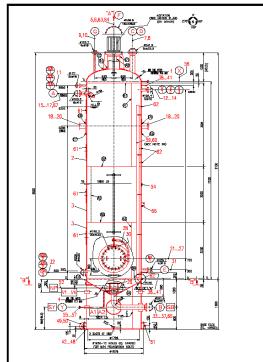
PIPING &
MACHINERY



CIVIL &
STRUCTURAL



ELECTRICAL &
INSTRUMENTATION



EQUIPMENT



SAFETY

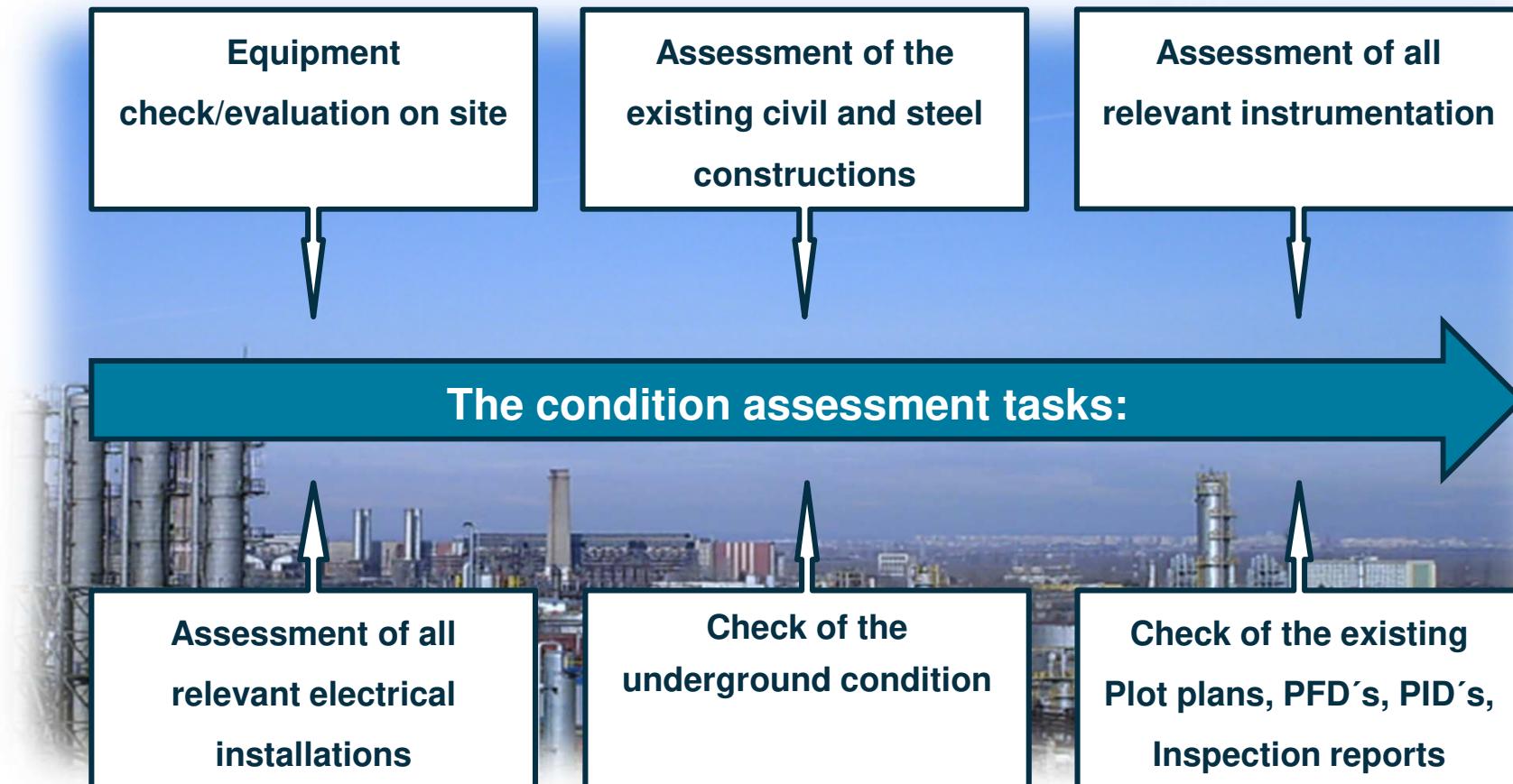
ENGINEERING

Team of highly qualified & multi-disciplines engineers

Factors involving the construction, maintenance & operations are taken into consideration at every design phase

Cost effective solutions to any technical challenges

Use of engineering design software for every discipline

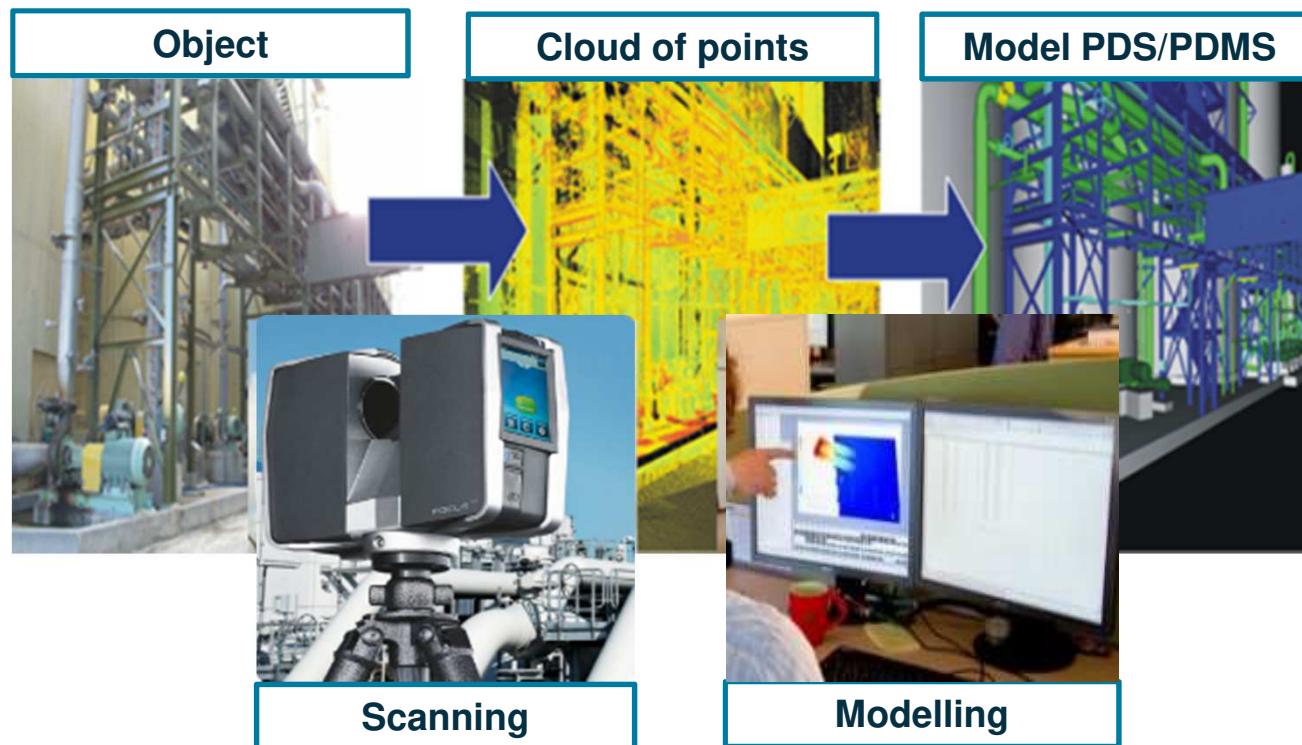


IPIP's Services

Laserscanning & 3D Modelling



IPIP has wide expertise in creation of As-Built 3D models using a variety of latest As-Built Data Capturing techniques.



IPIP's Services

Laserscanning & 3D Modelling



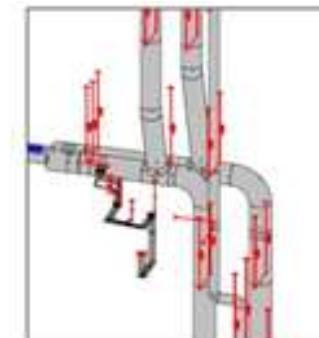
IPIP has wide expertise in creation of As-Built 3D models using a variety of latest As-Built Data Capturing techniques.



3D Planning - Method



3D Model - Database



Calculation Software

Construction of entire plants



Technical calculations of individual systems

Laserscanning & 3D Modelling

Recent key projects

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**“As built“ documentation for Key Plans in
Petrobrazi Refinery**

Customer: OMV Petrom S.A

Location: Ploiesti/Romania

Scope of Work:

- The main objective of this project is to get as built key plans according to last modifications on site, performed after 2012-2014, including TAR 2017, for all units.

Year: 2017 – On going

IPIP's Business Area

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REFINING

- Bottom of Barrel
- Clean Fuels
- Off-site facilities
- Network Utilities

PETROCHEMICALS

- Ethylene
- Polyethylene
- Aromatics

GAS PROCESSING

- Gas Treatment
- Gas Recovery
- LPG

OTHER INDUSTRY

- Industrial Conveyor Systems
- Civil / Structural Constructions



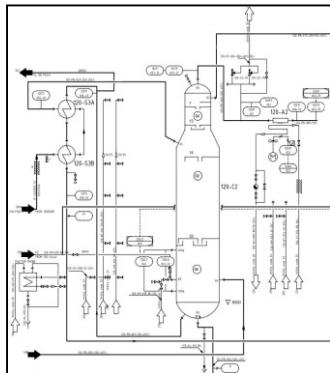
IPIP provides a comprehensive range of refinery services backed by over 60 years of experience in grassroots, revamp and expansion projects.

In order to meet customer requirements in today's competitive world, IPIP supplies innovative, cost-effective and safe solutions.

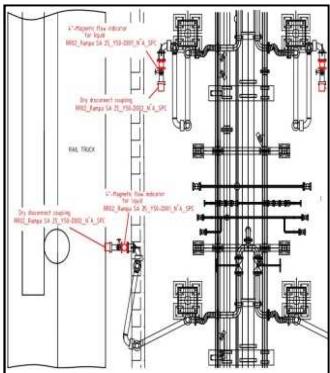
IPIP highlight includes experience in many different refineries and our personnel have extensive knowledge of the overall process as it involves each of their individual disciplines.

IPIP has completed 11 grassroots refineries in Romania and many abroad, including supporting utility systems, product terminals and off-site facilities.

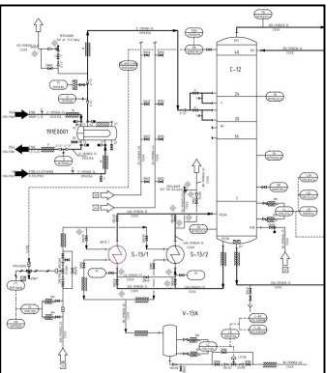
The projects accomplished by IPIP have allowed the refineries to:



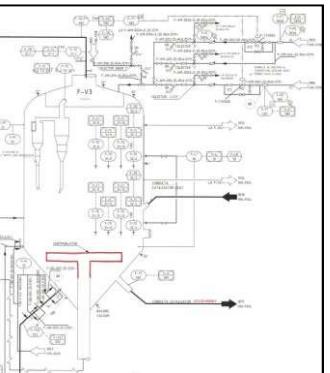
PASS FROM PRODUCTION OF EURO 3 / EURO 4 FUELS TO EURO 5



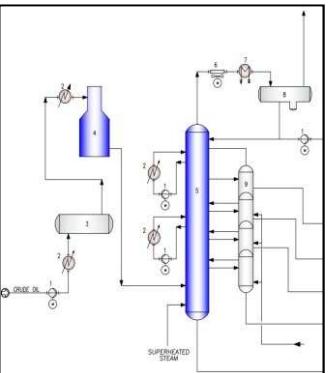
REDUCE THE LOSSES & IMPACT ON THE ENVIRONMENT



IMPROVE THE PRODUCTION & ENERGY EFFICIENCY

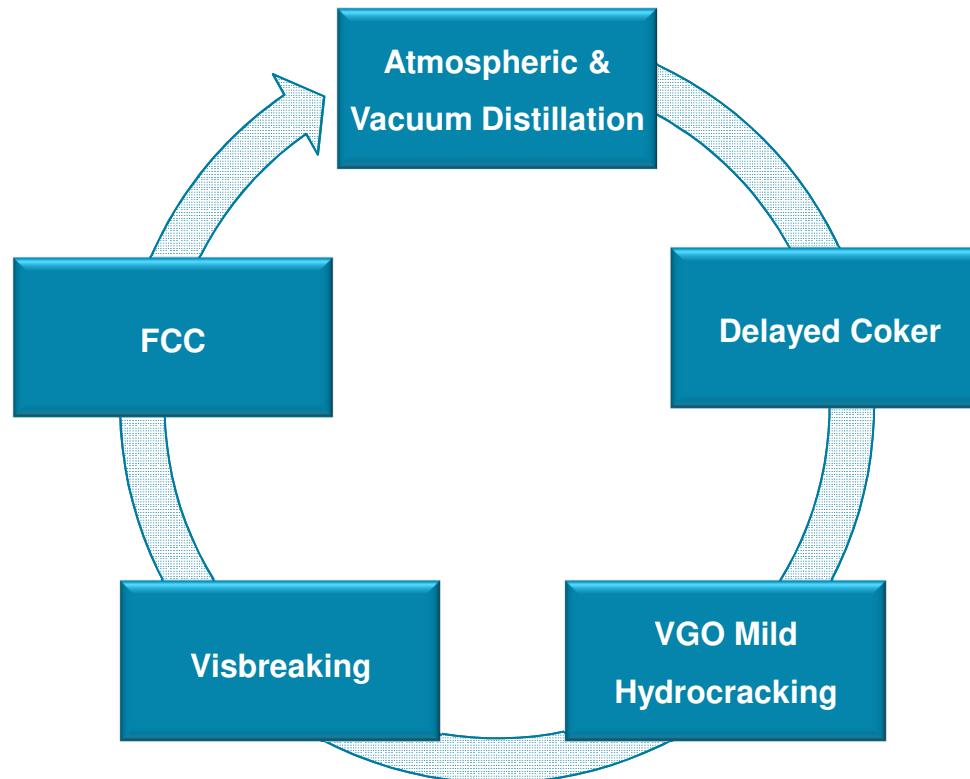


INCREASE DEGREE OF SAFETY IN INSTALLATION EXPLOITA



INCREASE THE REFINING CAPABILITIES FOR HIGH-SULPHUR CRUDE OIL.

In response to the market shift during the last years, IPIP has focused on designing “bottom-of-the-barrel” & heavy oil upgrading processes added to traditional or new oil refineries.



Refineries - Bottom of barrel processes

Recent key projects



VGO Mild Hydrocracking New Unit

Customer: Rompetrol Petromidia Refinery

Location: Navodari/Romania

Capacity: 1,700,000 t/yr

Licensor: AXENS

Scope of Work:

- Detail engineering
- Technical assistance

Year: 2012

Refineries - Bottom of barrel processes

Recent key projects



Atmospheric & Vacuum Distillation Unit Revamping

Customer: OMV - PETROM PETROBRAZI

Contractor: FOSTER WHEELER ITALIANA S.R.L.

Location: Ploiesti/Romania

Capacity: 4,500,000 t/yr.

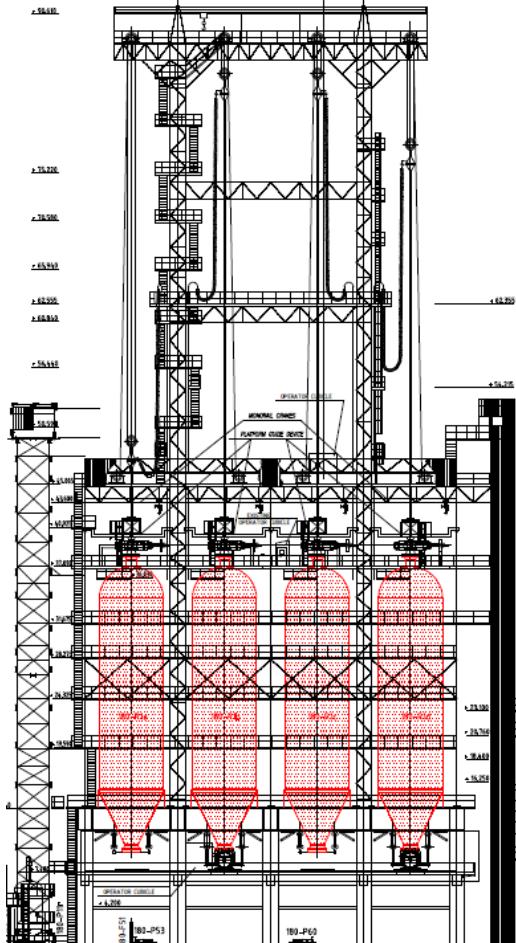
Scope of Work:

- Know How & Basic Design IPIP
- FEED - IPIP as Subcontractor of FWI
- DDE - IPIP as Subcontractor of FWI

Year: 2012

Refineries - Bottom of barrel processes

Recent key projects



FINAL CONCEPT for Coke Drums Structure Reinforcement and for New Coke Drums Structure in Coker Unit 3 (CX3)

Customer: OMV - PETROM PETROBRAZI

Location: Ploiesti/Romania

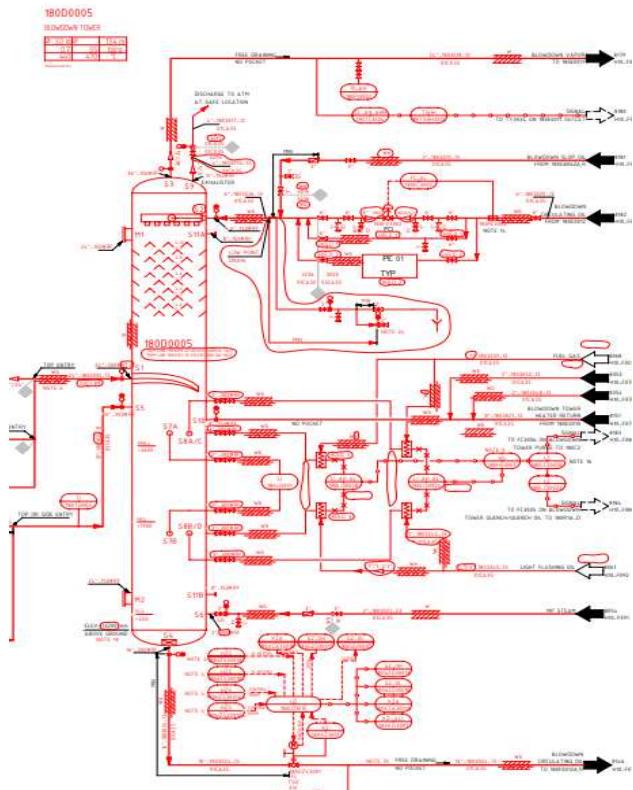
Scope of Work:

- Final Concept

Year: 2016

Refineries - Bottom of barrel processes

Recent key projects



Closed Blowdown System (CBD) in Petrobrazi Refinery

Customer: Amec Foster Wheeler Italiana SRL

Location: Ploiesti/Romania

Scope of Work:

- Front End Engineering Design Package

Year: 2017 – On going

Refineries - Bottom of barrel processes

Recent key projects

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Blowdown system in Coke Unit, Petrotel Lukoil Refinery

Customer: PETROTEL–LUKOIL S.A

Location: Ploiesti/Romania

Scope of Work:

- Detailed Engineering Design Package

Year: 2017 – On going

Refineries

Clean fuels processes



IPIP designed new & revamped clean fuel units and used their experience to help clients in producing of clean fuels in accordance with the latest imposed regulations



Catalytic Reforming



Isomerization



**FCC Naphta
Hydrodesulphurisation**



Gas Oil Hydrotreating



**Vacuum Distillates
Hydrotreating**



VGO Hydrosulphurisation



**MTBE/ETBE
TAME/TAEE**



Kerosene Hydrotreating

Refineries – Clean fuels processes

Recent key projects



Isomerization Unit Revamping

Customer: ADEN REFINERY COMPANY
YEMEN

Location: YEMEN

Capacity: 187,000 t/yr

License and Basic Design: UOP

Scope of Work:

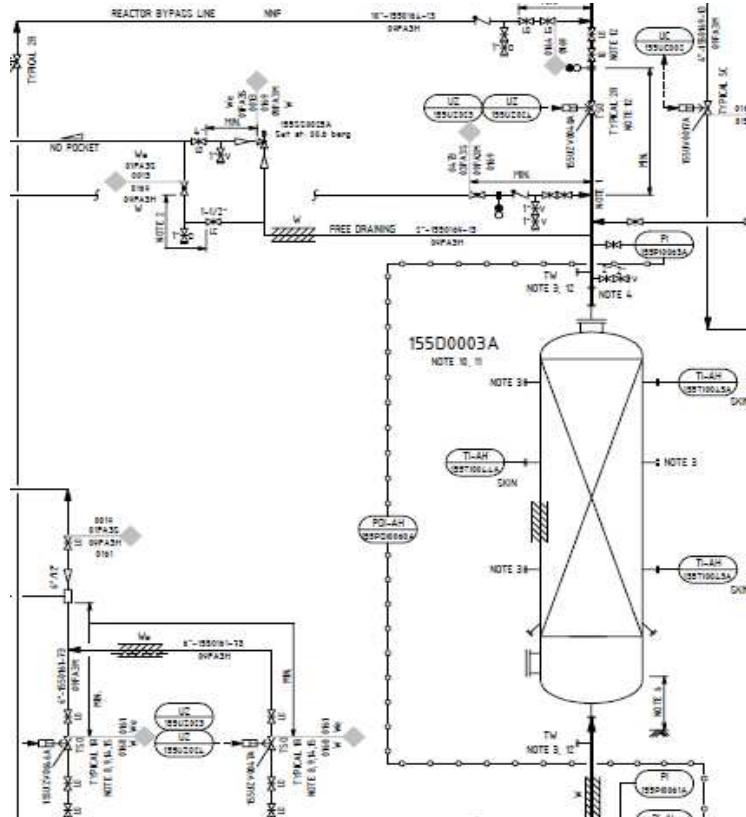
- Front End Engineering Design (FEED)

Year: 2013

Refineries – Clean fuels processes

Recent key projects

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New Polyfuel Unit

Customer: OMV - PETROM PETROBRAZI

Contractor: AMEC FOSTER WHEELER

Location: Ploiesti/Romania

License and Basic Design: AXENS

Scope of Work:

- Front End Engineering Design (FEED)

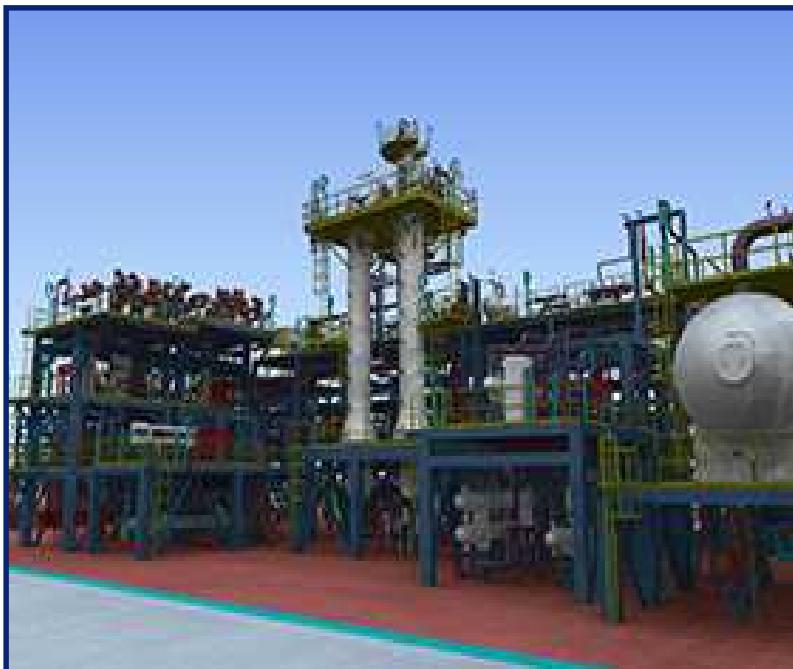
Year: 2016

Refineries – Clean fuels processes

Recent key projects



Detail Engineering for PARCO Pakistan PENEX Unit



Customer: UOP LLC, Honeywell Company, USA

Location: Pakistan

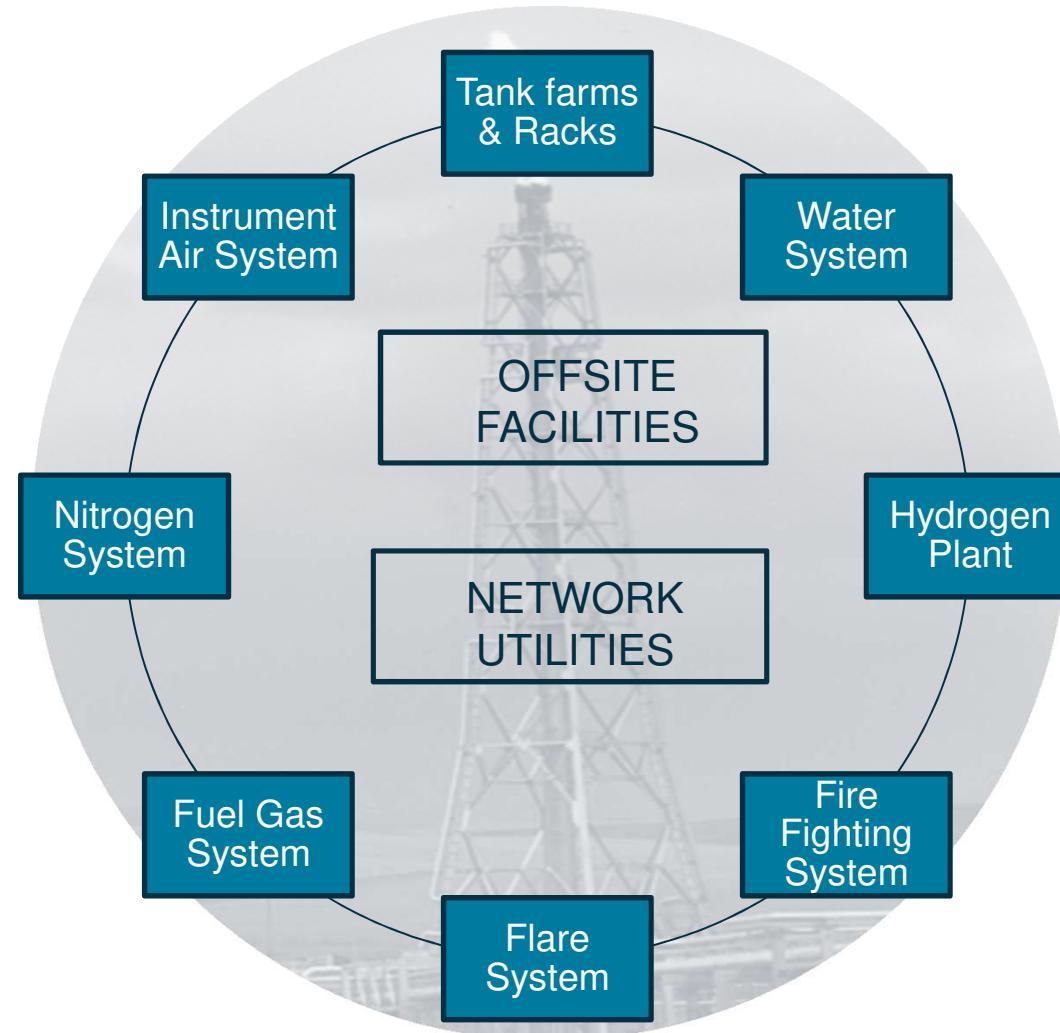
Scope of Work:

- Detailed Design Engineering Package for PENEX Unit (543 KMTA capacity) based on Basic Design complete Package and technical documentation of purchased equipment, electrical and instruments from Vendor, supplied by UOP

Main activities:

- ✓ Hydraulic calculations
- ✓ Sizing of sixteen (16) Pressure Relief Valves (PRVs) identified as "By Others" in P&ID's set
- ✓ Flare System Design
- ✓ P&ID's (Process and Utilities)
- ✓ 3D Units Model
- ✓ Piping Design and Equipment Layout
- ✓ Instrumentation Design Package
- ✓ Electrical Design Package
- ✓ Structural Steel and Foundation/Civil Design Package
- ✓ Review of Vendor documentation for Equipment, Instrumentation and Electrical
- ✓ Time schedule for project realization, including milestones

Year: 2016 - 2017



Refineries – offsite facilities & network utilities

Recent key projects

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Hydrogen Plant New

Customer: Rompetrol Petromidia Refinery

Location: Navodari/Romania

Capacity: 40,000 t/yr hydrogen

Licence & Basic Design: TECHNIP

Scope of Work:

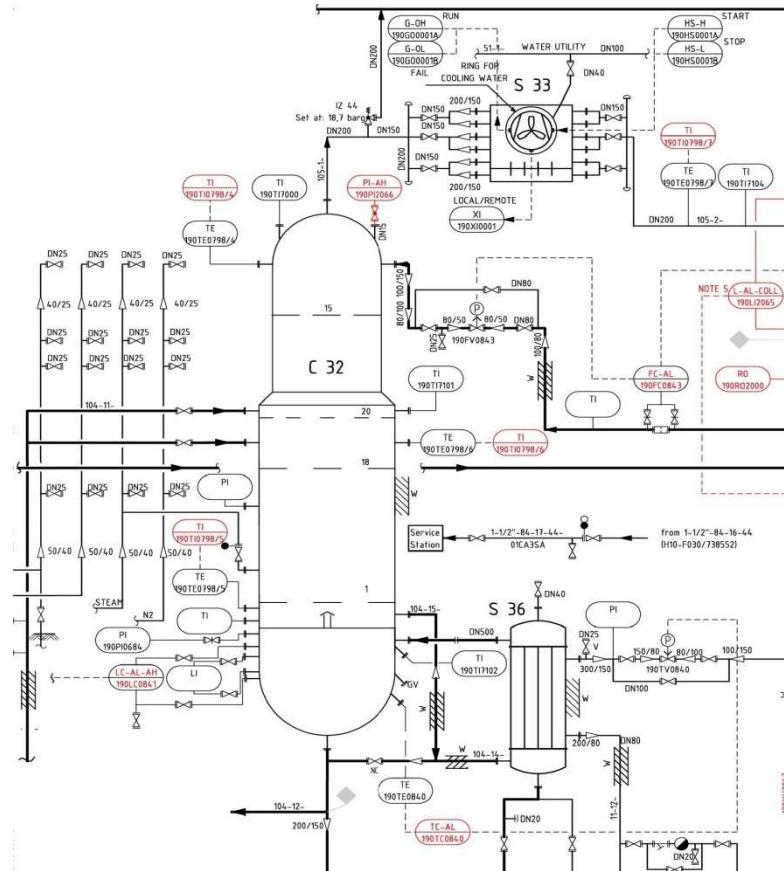
- Detail engineering

Year: 2012

Refineries – offsite facilities & network utilities

Recent key projects

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DCS, ESD implementation

Customer: HONEYWELL ROMANIA

Location: OMV PETROM
PETROBRAZI REFINERY

Scope of Work :

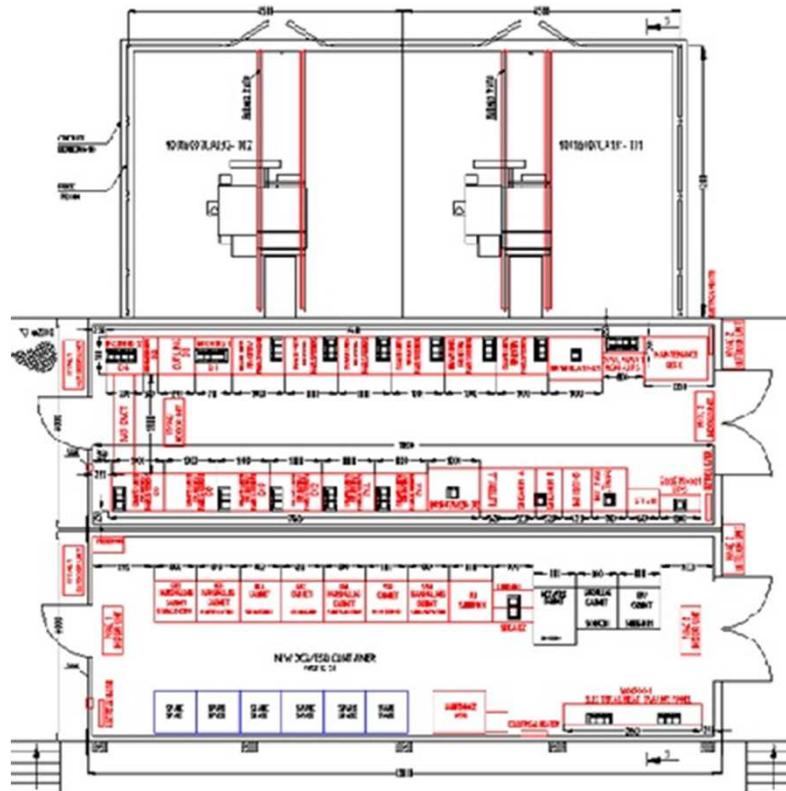
Define Phase for DCS & ESD Implementation in:

- Isomerization
- ETBE
- DGRS (Amine Units only)
- RC1 Unit

Year: Start 2015 - 2017

Refineries – offsite facilities & network utilities

Recent key projects



DCS & ESD implementation in Amine & RC 1

Customer: HONEYWELL ROMANIA

Location: OMV PETROM
PETROBRAZI REFINERY

Scope of Work :

Detail Design Engineering for DCS & ESD Implementation in:

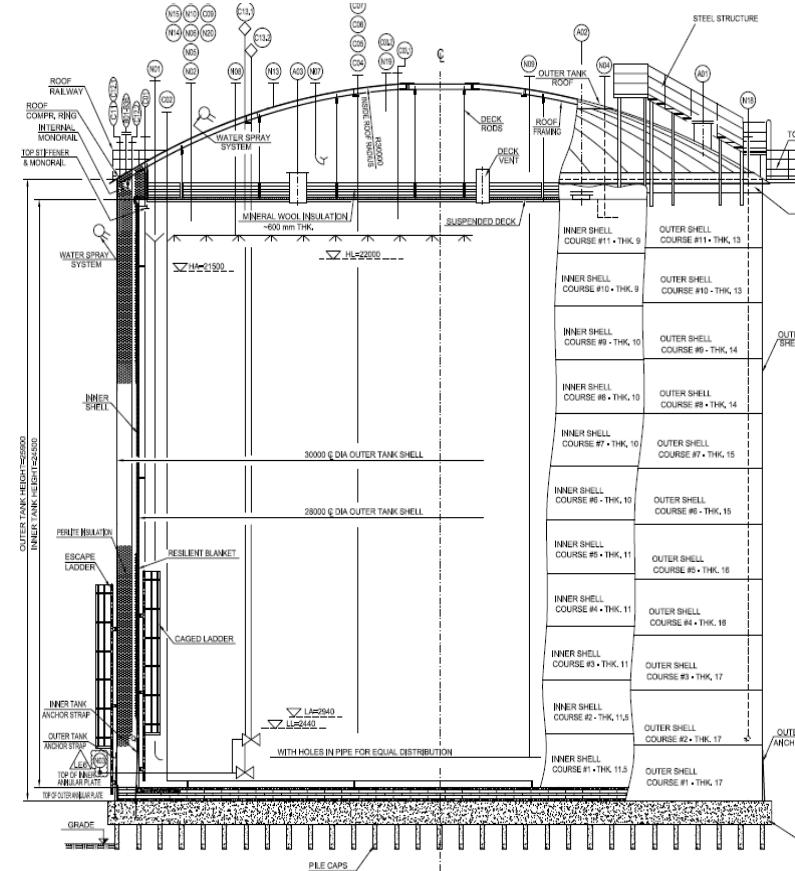
- RC1 Unit
- Amine Unit

Year: Start 2017 – On going

Refineries – offsite facilities & network utilities

Recent key projects

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Refineries – offsite facilities & network utilities

Recent key projects



Detailed Multidisciplinary Engineering activities for CO2 Recovery Unit & TIE-INS and Steam Generation Unit

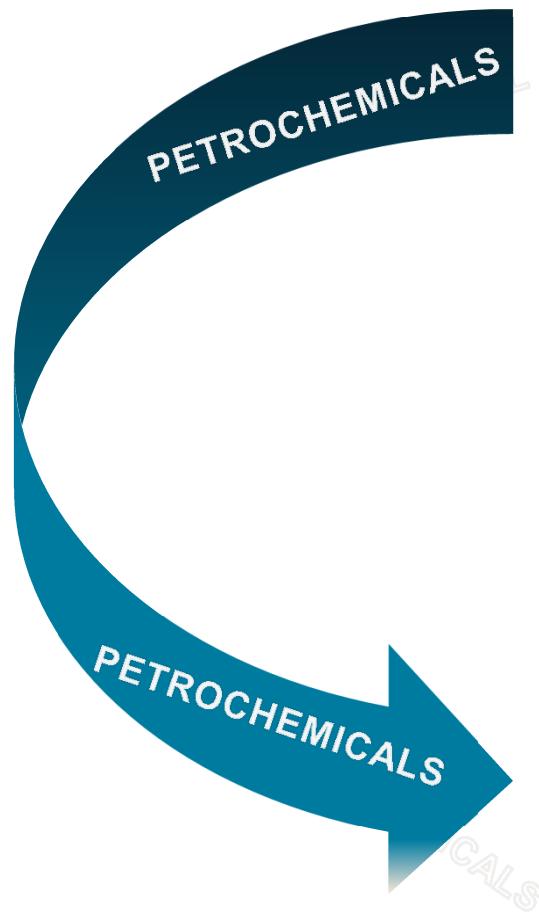
Customer: Casale S.A.

Location: Gubakha, Perm Region, Russian Federation

Scope of Work:

- Detailed Engineering Design Package

Year: 2017 – On-going



With the global demand for plastics and consumer products continually increasing, the need for petrochemicals has never been greater.

Continuing its presence into the fields of Petrochemicals, IPIP has demonstrated the capability in meeting demands and high requirement from clients.

IPIP offers basic design, FEED & detailed engineering, including project management, schedule, cost and quality control for petrochemical & aromatics plants.

Petrochemicals

Recent key projects

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HDPE (High Density Polyethylene) Revamp / Extension

Customer: Rompetrol Petrochemicals
Location: Navodari Romania

Scope of Work:

- Detail Engineering for
- Layout & piping (PDS 3D)
- Civil and Steel structure
- Static & Rotating equipment
- Electrical & Instrumentation

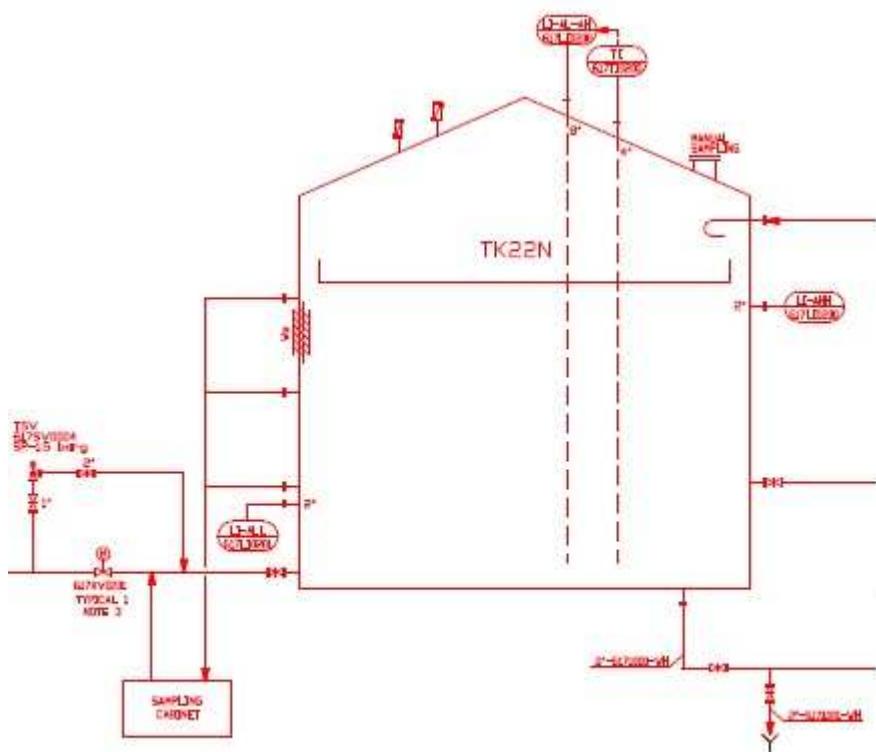
Objective:

- Increase of the installation capacity - from 60,000 to 100,000 t/yr
- Reduction of over 10% in the processing cost
- Diversification of the product range
- Increase the operating safety

Year: 2011

Petrochemicals

Recent key projects



Tank farm optimization - Benzene & Toluene Stream

Customer: OMV PETROM

Location: Petrobrazi, Romania

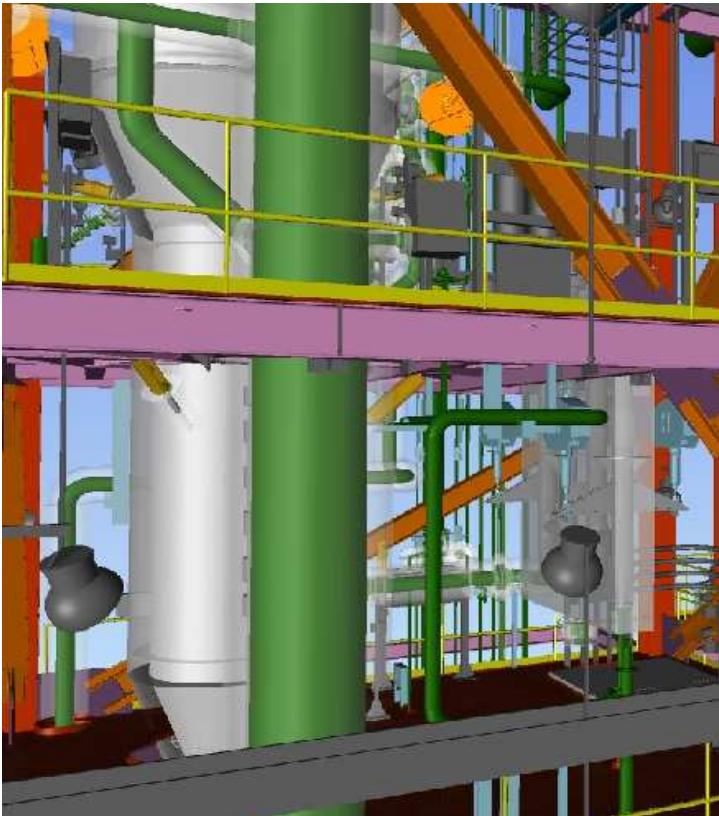
Scope of Work:

- Select study

Year: 2018

Petrochemicals

Recent key projects



ENTERPRISE 1500 pph Oleflex CCR

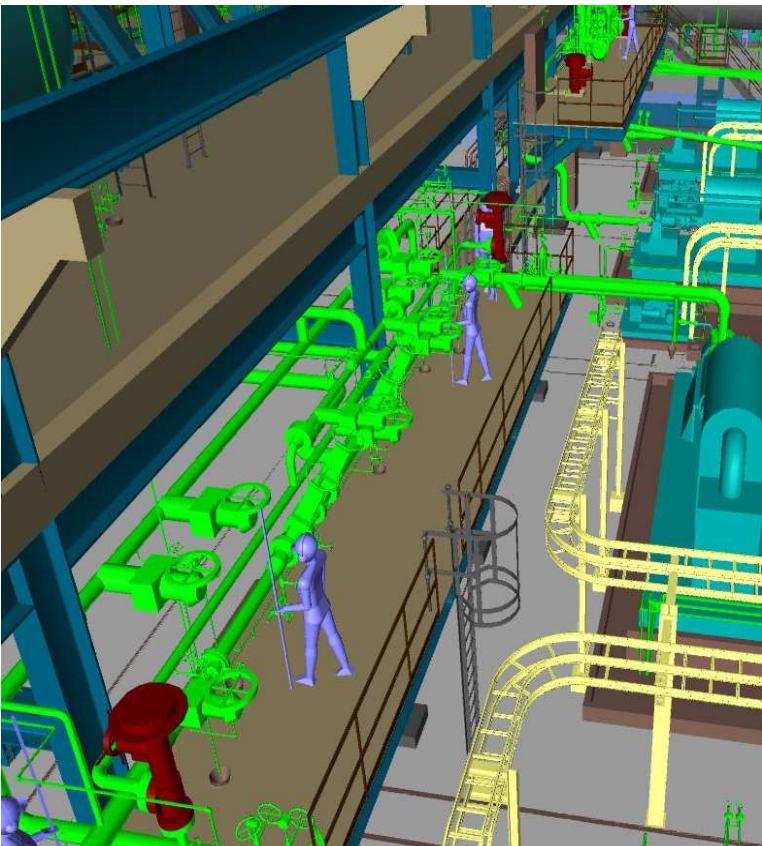
Customer: UOP LLC, a Honeywell Company

Location: Texas, USA

Scope of Work:

- Detailed Engineering Design Package

Year: 2017 – On going



Urea plant Capacity 2200 MTD

Customer: Casale S.A.

Location: Togliatti, Samara region, Russian Federation

Scope of Work:

- Detailed Engineering Design Package

Year: 2015 – 2017



Urea plant upgrading project

Customer: Casale S.A.

Location: Nevinnomissky,
Russian Federation

Scope of Work:

- Detailed Engineering Design Package

Year: 2016



With more than 60 years in the field , IPIP has acquired experience in performing of the conceptual design, detail engineering, gas recovery and storage facilities.

IPIP's projects range from small facilities to large-scale plants, and we specialize in delivering fast-track, grassroots projects.

IPIP's experience covers every aspect from pipelines and compression stations to process plant such as gas sweetening, gas recovery and sulphur recovery.

By performing every phase of a project with its own forces, IPIP translates into shorter project schedules, lower costs, improved quality control and reduced risk for the customer.

Gas processing

Recent key projects

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GAS SWEETENING, C2 RECOVERY & FRACTIONATION PLANT

Customer: BUSHEHR PETROCHEMICAL COMPANY

Location: IRAN

Scope of Work:

- Basic Design and Extended Basic Design,
- Site Technical Assistance at commissioning, start-up, test run, guarantee test

Year 2013

Gas processing

Recent key projects



Suplac Phase II – Abramut Gas Plant Revamp

Customer: OMV Petrom

Location : Abramut/Romania

Scope of Work:

- Concept Selection
- Define phase

Year: 2015 - 2018

Gas processing

Recent key projects



H2 and C3, C4 recovery project in MOL Plc's Danube Refinery and in MOL Petrochemicals Ltd. Site

Customer: MOL PLC. Corporate Services
Investment Procurement

Location : Százhalombatta and Tiszaújváros,
Hungary

Scope of Work:
• FEED
• DDE

Year: 2016 - 2017

Main clients

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Thanks for your attention

