

Creating a safety culture for a sustainable future in Petrobrazî Refinery

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Petrobrazî HSSE Manager



More than 160 years of crude oil refining in Romania



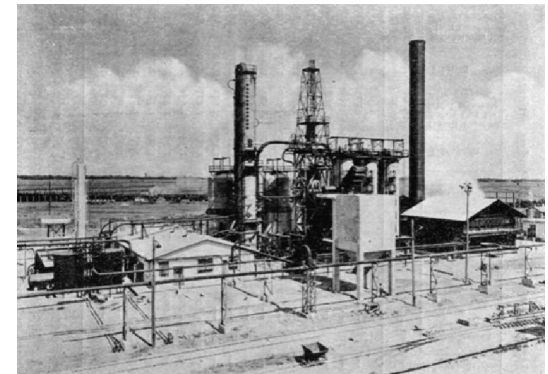
Mehedințeanu brothers refinery



Crude oil extraction

- ▶ **Mehedințeanu brothers operated a refinery** in Ploiești as early as 1857
- ▶ **Romania produced 275 tons** of crude oil in 1857, recorded by international statistics
- ▶ **Bucharest, the first city in the world to use kerosene for street lighting**, on 1 st April 1857

- ▶ **In June 17, 1934 Creditul Minier Society** – Romanian capital company, established in early 1919, founded the refinery;
- ▶ **Creditul Minier – Brazi refinery** was almost all destroyed during the Second War, 1943-1944 was nationalized, becoming Brazi refinery, today Petrobrazi.
- ▶ **In December 2004, OMV** became the majority shareholder



Petrobrazi Refinery - 84 years Experience/ 14 years after privatization

▶ Petrobrazi refinery is part of **OMV Petrom SA**

▶ **Major units:**

- 4.2 mn t/y crude distillation
- 1.5 mn t/y FCC
- 0.8 mn t/y Delayed coker
- 0.5 mn t/y CR
- 1.25 mn t/y Gas oil Hydrofining
- 0.8 mn t/y FCC post-treater
- Cogeneration group

▶ **Products obtained:**

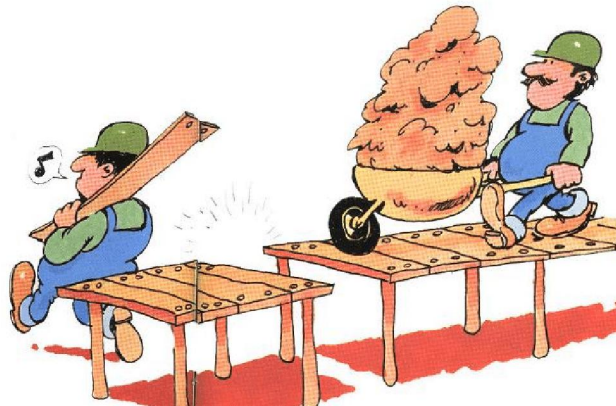
- Gasoline, diesel fuels;
- Liquified gases;
- Aviation fuels (Jet A1);
- Petroleum Coke;
- Sulphur, ETBE.



Safety at the beginning

Main obstacles :

- ▶ Attitude (attitudinal obstacles and misconceptions of leaders and employees)
- ▶ Roles and responsibility
- ▶ Training



Petrobraz safety improvements over the years

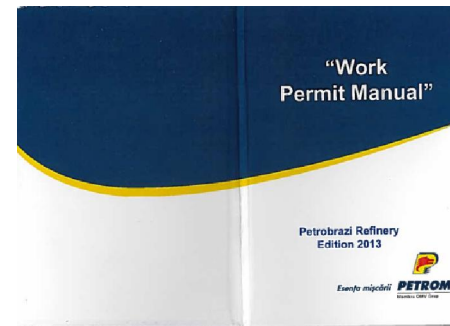
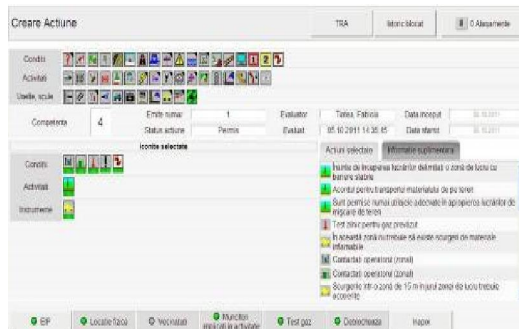
Safety Initiative Program 2011 - 2013

- ✓ DuPont Coaching Program
- ✓ Training Organization
- ✓ Electronic Work Permit Procedure
- ✓ Rework Operation Manuals
- ✓ Rework/ development P&ID
- ✓ New Warehouse Concept
- ✓ ESD Docum. and Regular Check
- ✓ Pre Start Up Safety Review
- ✓ Retro HAZOP
- ✓ Quantitative Risk Analysis
- ✓ Ex Zone Plan Revision
- ✓ Noise Assessment
- ✓ Contractors Audit & Safety Program
- ✓ Communication Concept

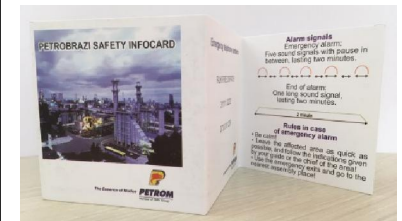


Petrobrazi safety improvements over the years

► Electronic Work Permit

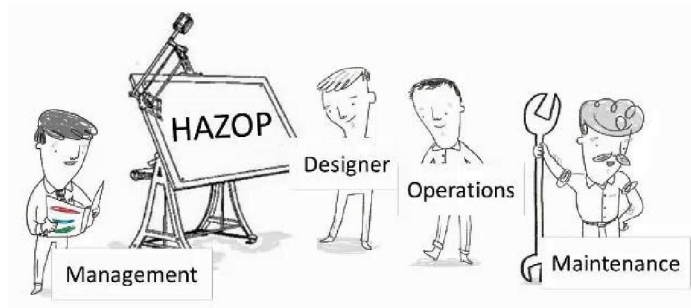


► Procedures and safety guidelines



Petrobrazi safety improvements over the years

► Retro - HAZOP



► ESD Documentation and regular checks

All ESD and process related shut off/on systems in Petrobrazi Refinery were verified and updated



| Sistem de semnalizare, comanda si protectie | | Norma Petrom OMV K 1002 | |
|---|----|--|----|
| | | Pag. 1 | |
| Emergency Shutdown System | | Petrom OMV Standard K 1002 | |
| Acesta norma a fost elaborata pentru rafinariile Petrom prin prelucrarea si adaptarea normei OMV K 1002 rev. 01.12.2000 | | | |
| This norm was elaborated for Petrom refineries by the processing and adapting of norm OMV K 1002 rev. 01.12.2000 | | | |
| 1.0 GENERALITATI | 2 | 1.0 GENERAL | 2 |
| 1.1 Domeniul de aplicare | 2 | 1.1 Scope | 2 |
| 1.2 Norme si reglementari | 2 | 1.2 Standards and instructions | 2 |
| 2.0 TERMINOLOGIE | 2 | 2.0 TERMS | 2 |
| 2.1 Dispozitive electrice si de automatizare | 2 | 2.1 Measurement and control equipment | 2 |
| 2.2 Noutuni de specialitate | 3 | 2.2 Technical terms | 3 |
| 3.0 PRINCIPII DE UTILIZARE | 5 | 3.0 BASIC PRINCIPLES OF USE | 5 |
| 4.0 SCHEME DE SEMNALIZARE SI BLOCARE | 6 | 4.0 HARDWIRED CONTROL SYSTEM | 6 |
| 4.1 Generalitati | 6 | 4.1 General | 6 |
| 5.0 INTERFETE | 7 | 5.0 INTERFACES | 7 |
| 5.1 Tablouri de comanda | 7 | 5.1 Electrical switchgear system | 7 |
| 5.2 Interfete la PLS (sistem dirijare procese) | 8 | 5.2 Interfaces with PCS (process control system) | 8 |
| 5.3 Iesire la sistem de inregistrare alarme in timp real | 8 | 5.3 Output to real time printer system | 8 |
| 5.4 Lampi de supraveghere si avertizare | 8 | 5.4 Lamp outputs | 8 |
| 6.0 DOCUMENTATIE | 8 | 6.0 DOCUMENTATION | 8 |
| 7.0 CLASIFICARE COMENZILOR | 9 | 7.0 CLASSIFICATION OF CONTROL SYSTEMS | 9 |
| 7.1 Dispozitive de protectie electrica si automatizare Clasa A | 9 | 7.1 Class A measurement and control protective equipment | 9 |
| 7.2 Dispozitive de protectie electrica si automatizare Clasa B | 9 | 7.2 Class B measurement and control protective equipment | 9 |
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Why people break rules

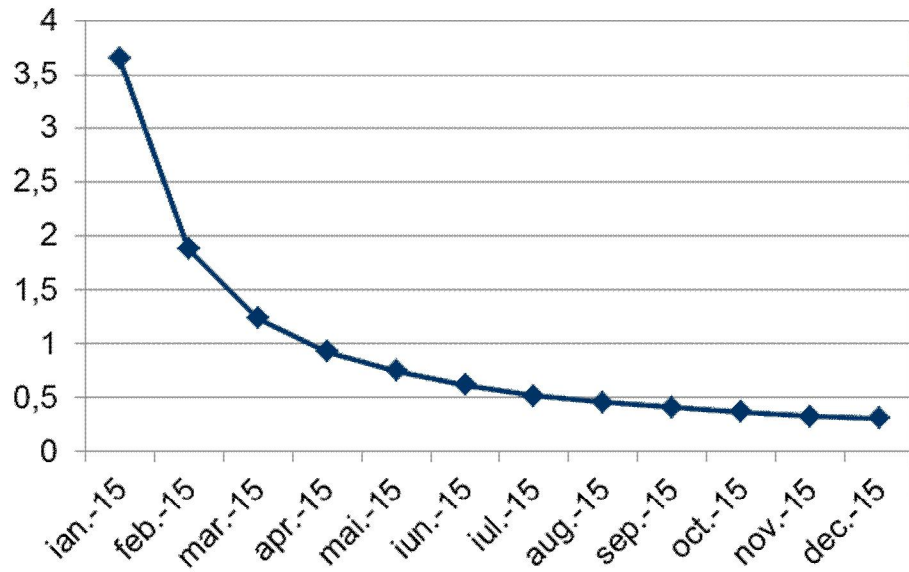
Rule breaking is driven by personal attitude, the environment employees operate in, and external pressure, which cause employees to make decisions at the spur of the moment to either follow or break the rule.

The same rule can be broken for different reasons at different times.

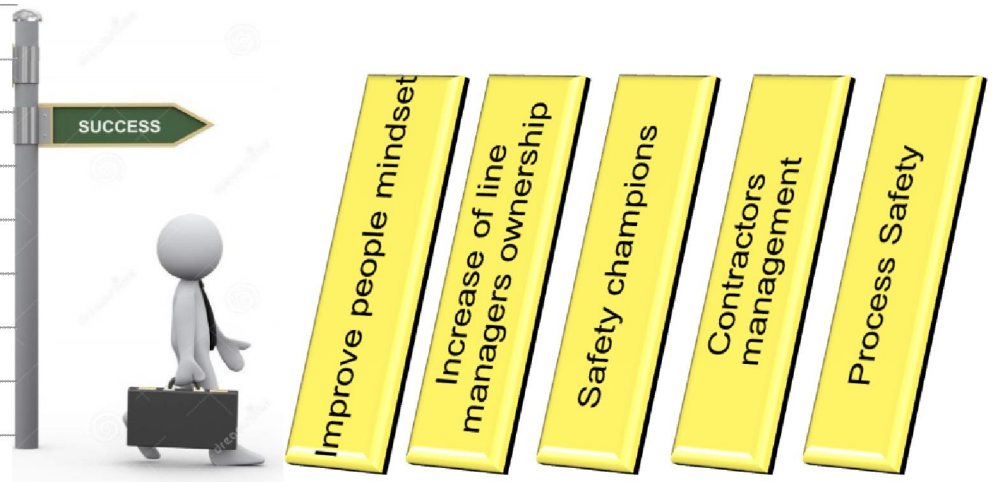


Petrobrazili safety improvements over the years

LTIR combined employees and contractors



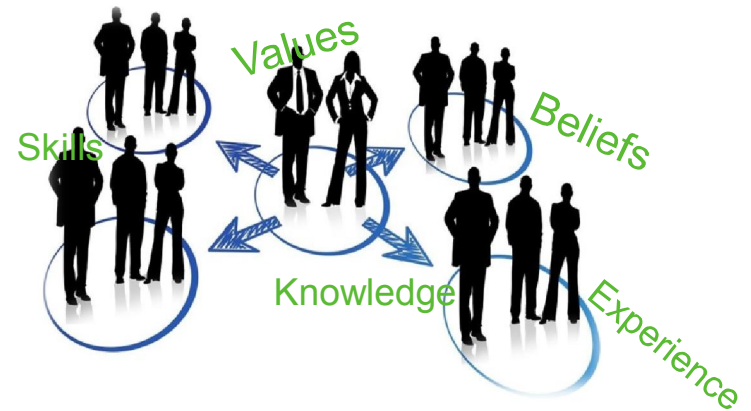
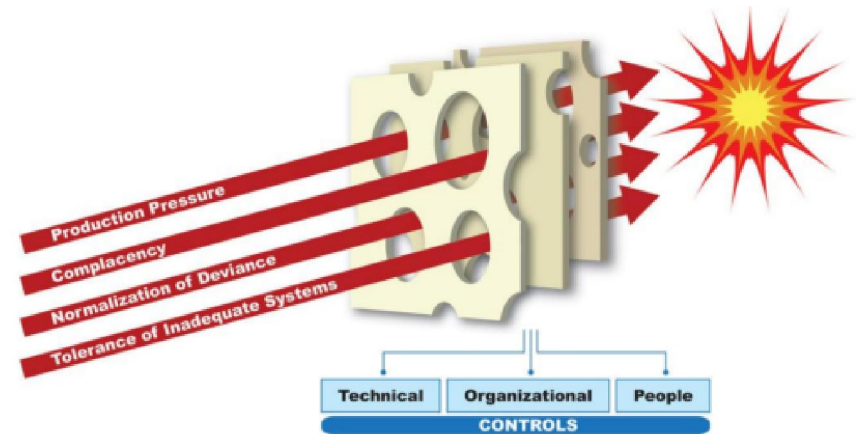
Goal : „Zero harm: No losses“



Why focus on culture?

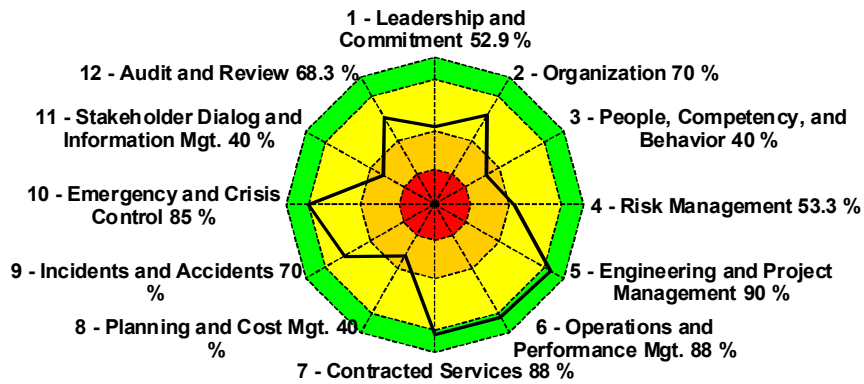
Simplified culture definition “*The way we do things around here*”

- ▶ Safety management system is not effective unless accompanied by a good safety culture
- ▶ Wish to stay alert to potential risk factors that increase the risk of a major disaster
- ▶ Pro-active approach involving self-assessment and feedback of less visible elements of safety management system
- ▶ Both managers and employees take greater responsibility for operations, and results improve.



Petrobrazili safety improvements over the years

► Contractors' management



| | |
|--|--|
| Level 1 Sub standard < 25% | Level 2 Basic awareness 25 - 50% |
| Level 3 Satisfactory 51- 85% | Level 4 Best Practice >85% |



► Safety champions



Petrobrazili safety improvements over the years

▶ Trainings

▶ Own employees

- Induction trainings (for new employees)
- Periodically trainings
- General training
- Trainings requested by the law



▶ Contractors

- Access in the refinery
- Turnaround
- Supervisors training – “License to sign”

▶ Safety campaigns



The HSE Golden Rules in nutshell:

- Ask!
Ask when you are in doubt!
- Risk Assessment
Know the hazards before you start!
- Permit to Work
Make sure you have a Permit to Work or authorization for your job!
- Working at Heights
Use fall protection whenever you could fall from heights!
- Lifting Operations
Follow basic rules for every lift and plan all your lifts!
- Housekeeping
Maintain your/our workplace clean and tidy!
- Stop Work
Stop all unsafe work, acts and conditions!
- Transportation Road Safety
Drive safely and comply with road transportation rules!

“Be Smart, Be Safe”
Safety Culture Change Program

- “Would you intervene?” Downstream Awareness campaign
- Refining / safety actions program
 - Increase Line management ownership for Safety; focusing on:
 - Positive Intervention; Assessments; Safety Leadership Talks; Hazard Awareness; Consequence Management; Incident Investigation & Follow up
- “Behavior based safety” safety cultural assessment
 - extended to maintenance contractors (common initiative with Upstream)
- “Ask me: your safety is important to me!”
 - OMV Petrom awareness campaign rolled out
- Interactive “HSE talks”
 - Focus on people, involve and engage, energize, raise hazard/risk awareness
- “Behavior based safety” safety cultural assessment / Gap analysis / Scan Diagnosis
 - plot WS run with OPM retail management

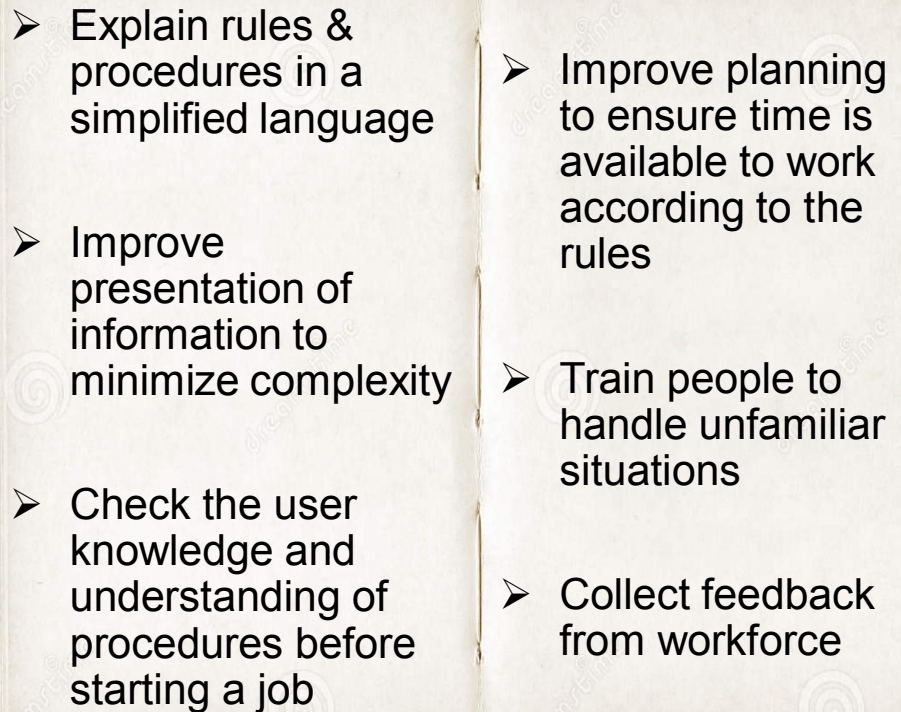


How to change wrong behavior?

Last minute risk assessment

Safety meetings

Department meetings

- 
- Explain rules & procedures in a simplified language
 - Improve presentation of information to minimize complexity
 - Check the user knowledge and understanding of procedures before starting a job
 - Improve planning to ensure time is available to work according to the rules
 - Train people to handle unfamiliar situations
 - Collect feedback from workforce



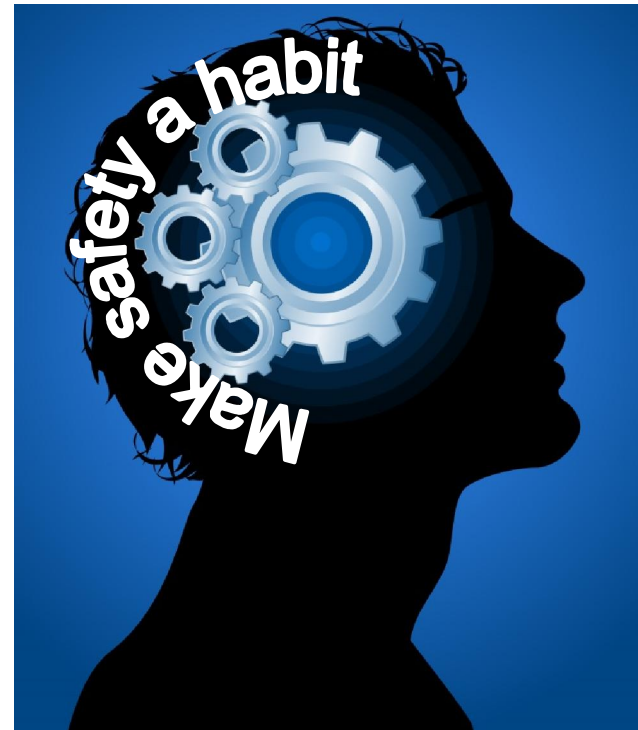
Petrobrazî safety improvements over the years

► Reward and recognition



What we want to achieve


SAFETY
AS
HABIT



Thank You!



OMV Petrom