



25th world gas conference  
"Gas: Sustaining Future Global Growth"

# Development of safety management processes

Feedback, analysis of human and organisational factors, and creation of a simulator to enhance collective competences in operational activities

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Patron



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## GrDF Background

GrDF, the subsidiary of the GDF SUEZ Group in charge of managing the natural gas distribution network in France



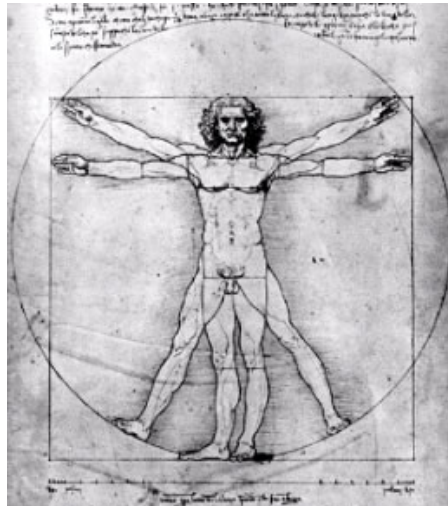
GDF SUEZ

193,000 km of pipes  
9,340 municipalities  
11 million customers  
12 300 employees



# Technical aspects of risk management effectively controlled

**Actions of operators in situ ??**



**Human factor: major lever for action  
in Industrial Safety Policy of the Distributor**

# Industrial safety: issues and objectives

- Energize and reinforce **Feedback (FB)** and the analysis of **human and organisational factors (HOF)** : a key of **individual and collective learning**

- Anticipate risks
- Advance transparency and exchange
- Advance the safety culture
- Develop a management that gives players
- Support the cycle of continuous improvement



- Simulator for assessing the collective professionalism of operating managers then a training course
- FB- HOF approaches rolled out to the 18 operational units across France

# Industrial safety: issues and objectives



# The Human Factors approach: general principles

- Realistic, lucid, radical approach that gives the floor to the field, and requires “**a change of model**” in terms of managerial practices.
- Some safety mechanisms remain invisible to hierarchies: this is **the professional culture**



- Productive pressure / Individual comfort: permanent “migration” towards a greater risk without any counter-force
- Limiting migration towards risk: border more visible to stay within the acceptable operating framework.
- Human Factor and Feedback training: **clarify risks, safety margins and migrations.**

# The Human Factors approach: variation within GrDF

- The aim
  - Make each employee proactive and transparent
  - Open up the floor
  - Remove the taboos surrounding error
  - Control mechanisms of drift on the ground,
  - Participate in the development of a safety culture.
- A cultural change
  - Acknowledge imperfection, ambiguity, uncertainty
  - Improving consistency between the logics of operators and managers,
  - Restoring clarity to organisation, culture of honesty, “justice”, trust and repositioning the role of sanctions by right to human error,
  - Increase ability to manage variations in complete safety
- Motors, tools and rituals
  - “self-constructed” within the unit.
  - Anchoring based on the organizers/HF relays
  - Daily comment by the actors within the group and the manager
  - Summary and feedback each week by management



# The Human Factors approach: results, key success factors (1/2)

- Perspective of managers:
  - Improving team spirit / Living better at work
  - Trust-Transparency
  - Better knowledge and control of risks – disparities encountered on the ground
  - Easier debriefings
  
- Perspective of employees:
  - Cohesion of the group / Trust / Transparency
  - Being taken into consideration by the manager
  - Fewer stresses by what is left unsaid
  - No phenomenon of accumulation
  - Returns taken into account, discussed and processed quickly

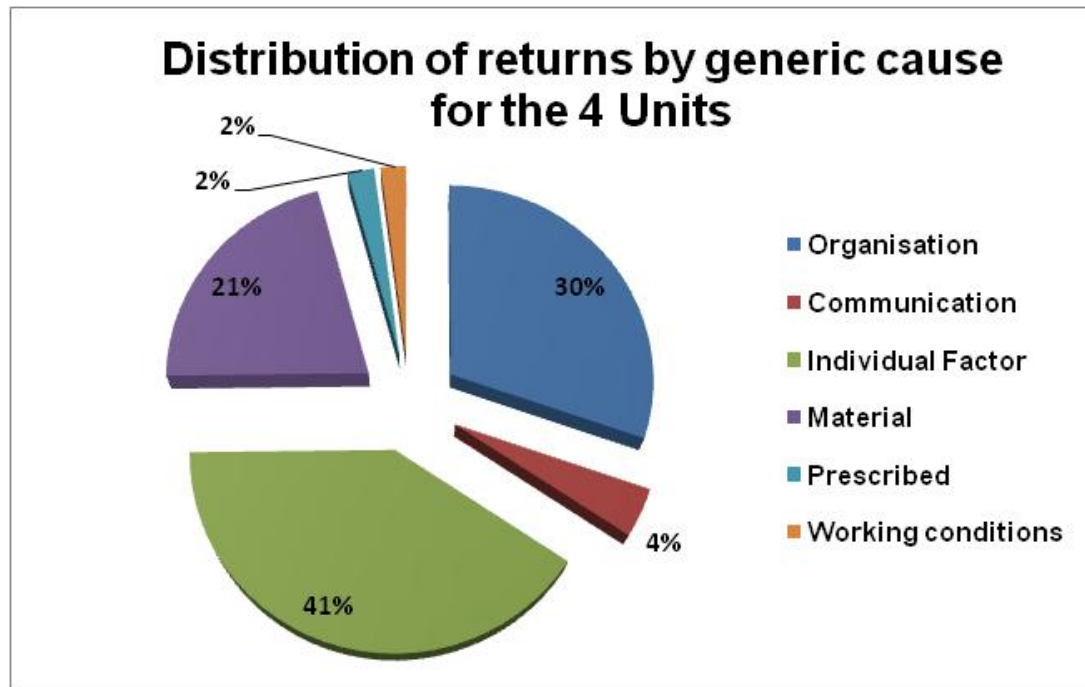


**Role of the manager is vital**



# The Human Factors approach: results, key success factors (2/2)

- 4 units took up this approach in 2008/2009
- **2,200** analyses centered on the human factor
- Major influence of
  - **individual factor (41%)**
  - organisation (30%)
  - material (21%)



# The approach of Feedback on incidents: general principles

- Two key stages:

The “**tell the story**” stage

The “**cold analysis**” stage

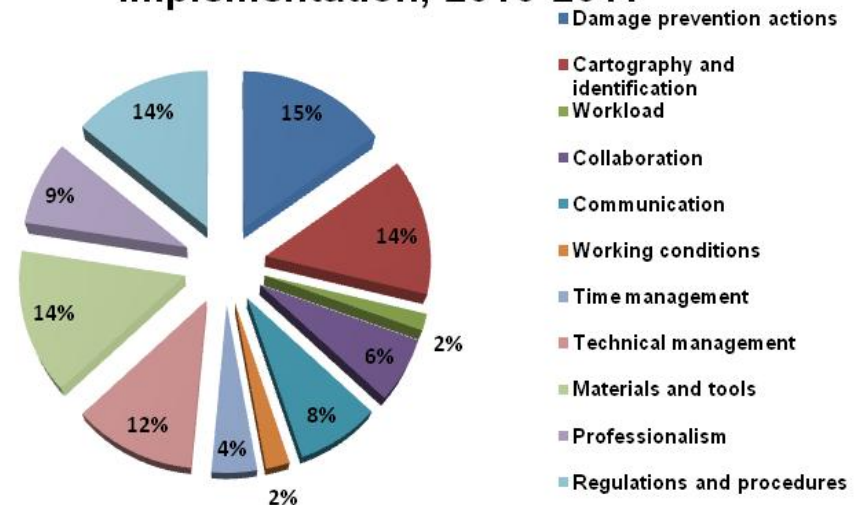
- Necessity of managerial standards
  - A key of success: communicate about the feedback in all the teams frequently
- Root causes, aggravating factors and proposed actions identified and relevant.
- Significant Feedback: high general instructional value, reproduced in other Units, preventive or corrective actions generalized, highlight “fundamental” causes and major sources of risk of repetition of dysfunction in the national grid



# The approach of Feedback on incidents: results, key success factors

- FB analysis: **1160** in 2010 and **1450** in 2011
- A wide range of causes: damage prevention actions, cartography and identification of structures, materials and tools, regulations and procedures
- **16** significant FB shared with all operational unit managers
- A change in mentality
- Industrialized process
- Safety culture to be strengthened
- Innovative way of analyzing events generalized all GrDF's operational entities

**Distribution of actions by Condition of Implementation, 2010-2011**



# Training-coaching on gas distribution network management simulator: context

- Operational Offices (OO) created in the operational units in an operating grid of several departments with a team consisting of one Operational Manager (OM) and 2 assistants (AOM)
- Design coaching program for teams on managing their activities: **developing and enhancing the value of collective team competences.**



# Training-coaching on gas distribution network management simulator: collective simulator training (1/2)

- As of 2011, **7 scenarios** available: 3 levels of gradual degradation based on actual cases experienced on the ground.
- Scenarios adapted to the hand of teams of organizers.
- Test trainees knowledge of the key aspects of their mission and improve their ability to **control disrupted situations**.
- Test management at a distance from the safety of those involved, the prioritization and distribution of the information to be analyzed, the sharing of activities.
- During 2010-2011:



**73 sessions carried out  
involving 222 trainees  
from 26 of the 31 functioning OOs**



# Training-coaching on gas distribution network management simulator: collective simulator training (2/2)

- Feedback for the trainees:
  - **identify areas of progress in practices, work in a team, organisation and operation of Operational Offices.**
- Feedback for the teams of organizers:
  - After the simulation sessions, in a few minutes, **identify** those **procedures poorly managed**, list the behaviors observed to **suggest areas for improvement to strengthen the operational efficiency of the group and individuals.**
- The data collected feed the national expertise on how work teams function in OOs, both for detecting and implementing actions to **improve professionalism and to validate organisational schedules in disrupted situations.**



# Training-coaching on gas distribution network management simulator: potential of creating value

- Collectively, the OO teams learn to manage events “in disrupted situations” on the simulator:
  - **manage their stress** in a situation “as close as possible to reality”
  - **improve their professionalism**, for themselves and for the service of the group.
- An observed phase of renewal the population of OMs and AOMs
  - creating an **OM academy** based on the principle of promotions for a period of 6 months
  - use of the simulator fits into the initial training of OMs and AOMs.
  - **Individual assessments** in the simulator to complete the 6-month training and lead to the issue of a **pass mark**



# Training-coaching on gas distribution network management simulator: simulator



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## Conclusion (1/3)



**Resilience**

## Conclusion (2/3)

- **Human factor**, in the sense of “behavior and mentality” but also “competence and professionalism”: a **lever** for action identified as **major in any Industrial Safety policy**.
- FB and HF approaches: clearly **basic approaches**
  - to advance the **safety culture** and its social and managerial benchmarks
  - based on exchange, **collective sharing** and **creation of trust**
  - Allow **recovery of weak signals** and **good practices**
  - Create ideal context for guaranteeing **transparency and depth** required to seek out causes during Feedback.



- Simulator training has proved to be something that facilitates **change management** and improves the **professionalism** of operational players.

## Conclusion (3/3)

- GrDF is pursuing the objective of developing a culture of:
  - risk management
  - enrichment through feedback (FB) and analysis of human factors
  - rigor in procedures and individual and collective responsibility

The road is long: patience, courage, tenacity and self-denial

**GrDF place Man at the heart of operations**

**and advance the “resilience” of the players  
in the industrial safety chain**

**in a vision of sustainable performance.**

