Technical Meeting on Safety Culture Oversight and Assessment 15-18 February 2011

Safety culture assessment in Electrabel GDF SUEZ

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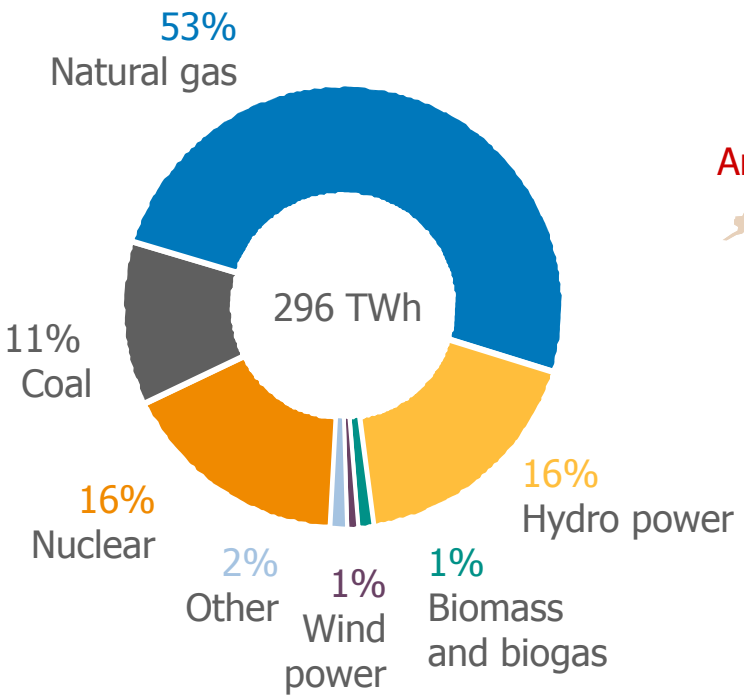
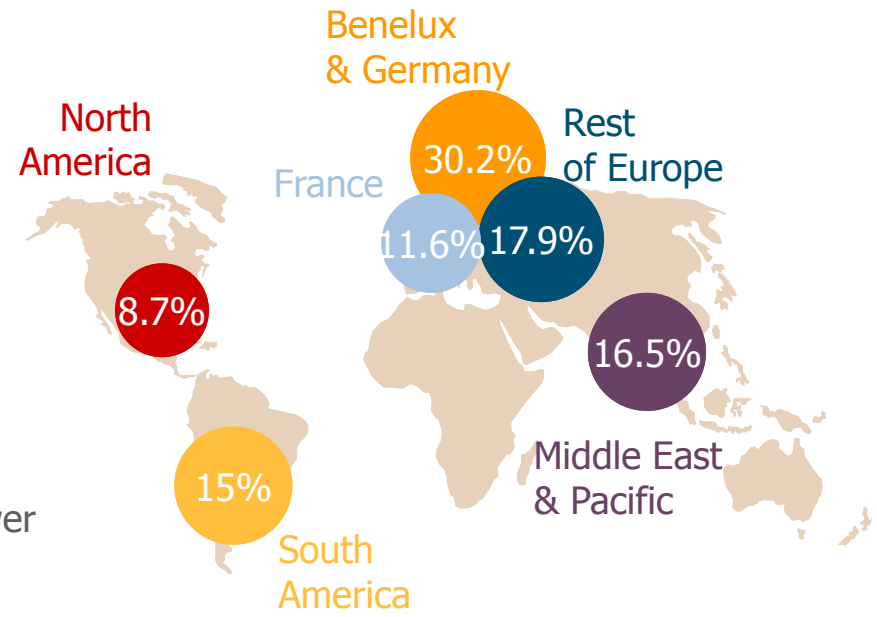
GDF SUEZ
A world leader
in energy and
the environment

Breakdown of power generation in 2009

Breakdown by fuel*



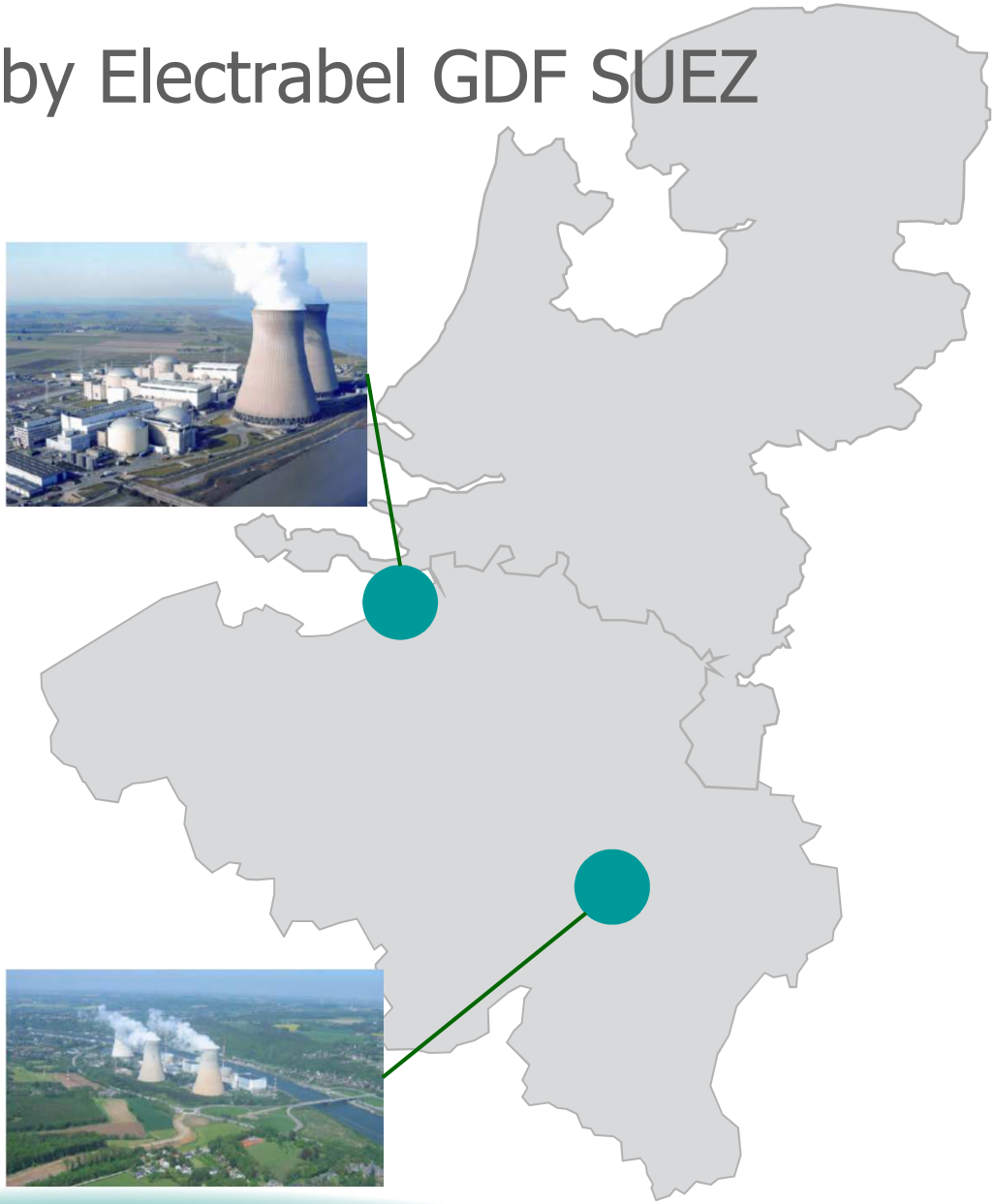
Breakdown by region*



* Including 100% of the capacity of GDF SUEZ assets regardless of the actual holding rate.

Nuclear fleet operated by Electrabel GDF SUEZ

Unit	Startup year	MWe
Doel 1	1975	433
Doel 2	1975	433
Doel 3	1982	1006
Doel 4	1985	1040
Tihange 1	1975	962
Tihange 2	1983	1008
Tihange 3	1985	1054



Assessment of Safety Culture

Context

More and more pressure to assess safety culture

-IAEA GSR3 6.2 &6.3 "assessments shall be conducted regularly on behalf of senior mgt to evaluate the organisation's safety culture…"

-WANO SOER 2003-02 recommendation 2 conduct a self assessment on safety culture

-FANC interest on safety culture

-International trend amongst the nuclear operators to develop methodology for safety culture assessment

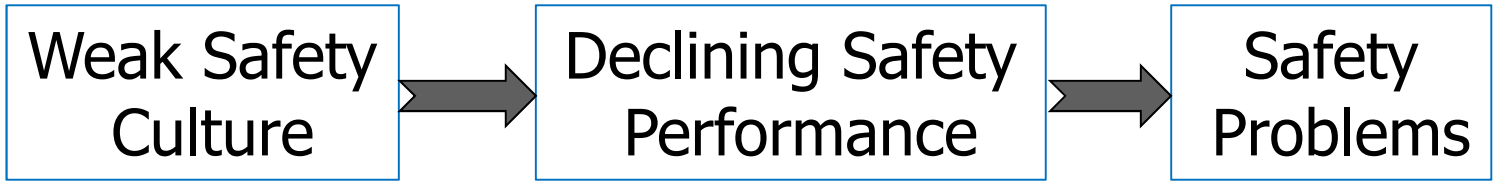
REVIEW SAFETY CULTURE AT ELECTRABEL IN 2010

Mission for EBL Corporate Nuclear Safety Department

Evaluate Nuclear Safety Culture

References used

-WANO GL 2006-02 : "Principles for a strong safety culture"
-OECD NEA document : "The role of the regulator in promoting and evaluating safety culture"



REFERENCES USED

- WANO GL 2006-02 : Principles for a strong safety culture - 8 principles

1. Everyone is personally responsible for nuclear safety → 8 attributes
2. Leader demonstrate commitment to safety → 8 attributes
3. Trust permeates the organization → 9 attributes
4. Decision-making reflect safety First → 7 attributes
5. Nuclear technology is recognized as special and unique → 7 attributes
6. A questioning attitude is cultivated → 6 attributes
7. Organizational learning is embraced → 6 attributes
8. Nuclear safety undergoes constant examination → 5 attributes

REFERENCES USED

- OECD NEA document : The role of the regulator in promoting and evaluating safety culture-June 1999

7 attributes divided in signs of potentially weak safety culture

1. Management → 9 signs
2. Programs → 6 signs
3. Self-assessment → 6 signs
4. Accountability → 5 signs
5. Regulatory relations → 3 signs
6. Isolation → 4 signs
7. Attitude → 6 signs

Scoring

For each attributes, the corresponding signs or attributes have been evaluated by use of a simple scale at three levels :

+ the sign/sub-part is not a concern for the organization (good performance, effectiveness) – quote = 1

~ the sign/sub-part is partially present (some positive elements are present but the organization should pay more attention to this sign) – quote = 0.5

- the sign/sub-part is clearly present (Priority must be given on the elimination of this sign) – quote = 0

Main Inputs (period 2008-2010)

Interviews

Events, incidents reports

OSART

Key Performance Indicators

Exchange with the nuclear community

Safety authority reports

Periodic reports from Electrabel Corporate Nuclear Safety Dpt

Statements expressed by the personnel during a workshop on Safety culture

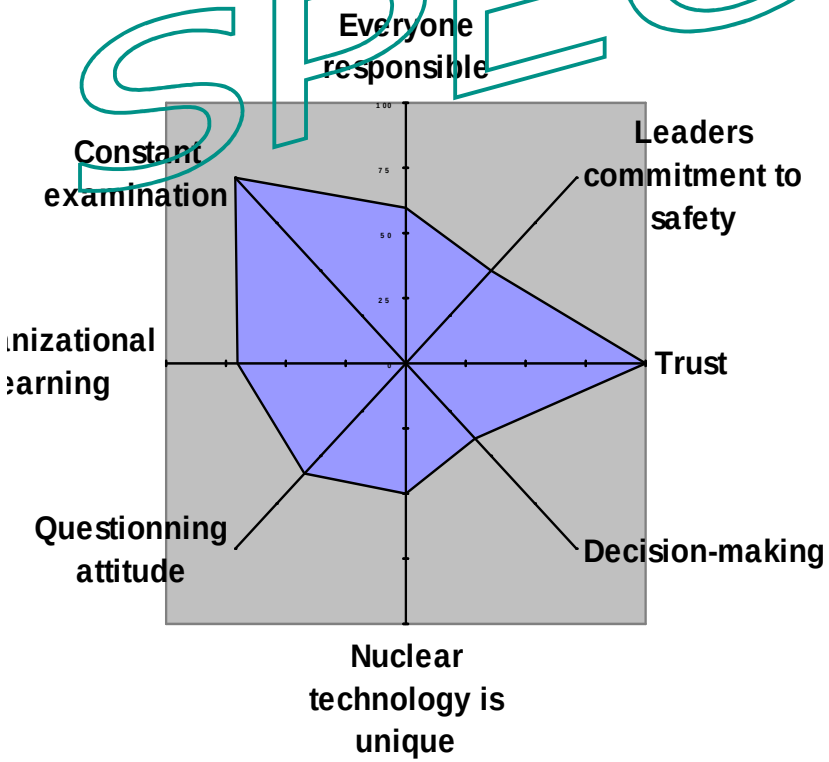
Internal audits, self-assessment

WANO TSM

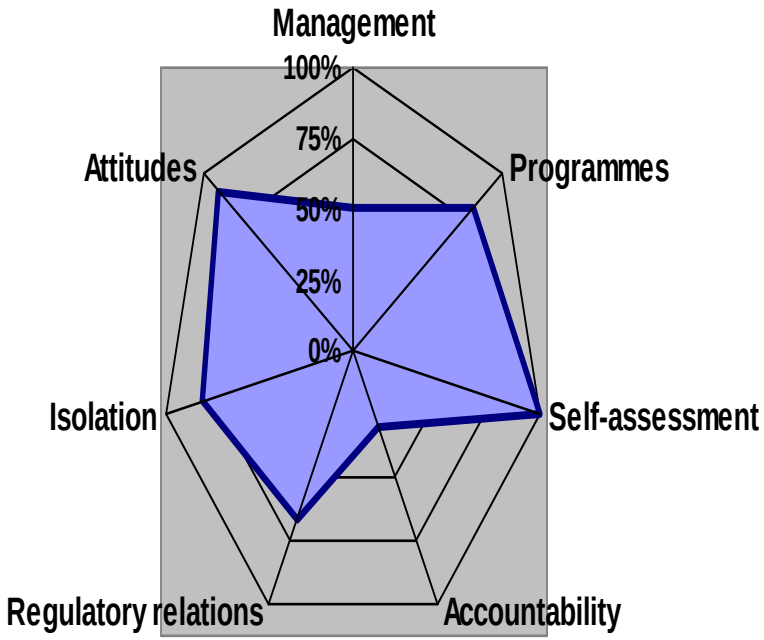
Operational Decision meetings

Exemples of results

WANO Results under radar chart



OECD Results under radar chart



LESSON LEARNED - CONCLUSIONS

- Lessons learned
  - Easily applicable without much development
  - Have a good overview of the results of the internal and external audits, self-assessments, KPI
  - Have a good knowledge of the internal OEF
- Conclusions
  - Applicable on both sites and reusable periodically
  - Give a baseline to conduct a deeper assessment

SCREENING OF VARIOUS METHODOLOGIES

3 main categories of methodologies

Preference	Method	Advantage	Inconvenient
Best	Periodic assessment by expert team (6-10 persons)	Holistic approach External view (if team composed of international experts)	Time consuming (mission 2 weeks) Requires specialists for good results
Low	Employee Surveys	Suitable for assessing psychological factors	Lack of acceptance Difficult to interpret questions and responses
Poor	KPI, events	Easy to communicate Factual Quantifiable	Limited in scope Long time lags Influenced by stochastic effect

Periodic assessment by expert team

Most developed methodologies we have found:

-SCART
-VGB - SBS methodology
-Nuclenor methodology
-Utilities Service Alliance methodology

USA NSCA METHODOLOGY

Feedback from Safety culture assessment in USA

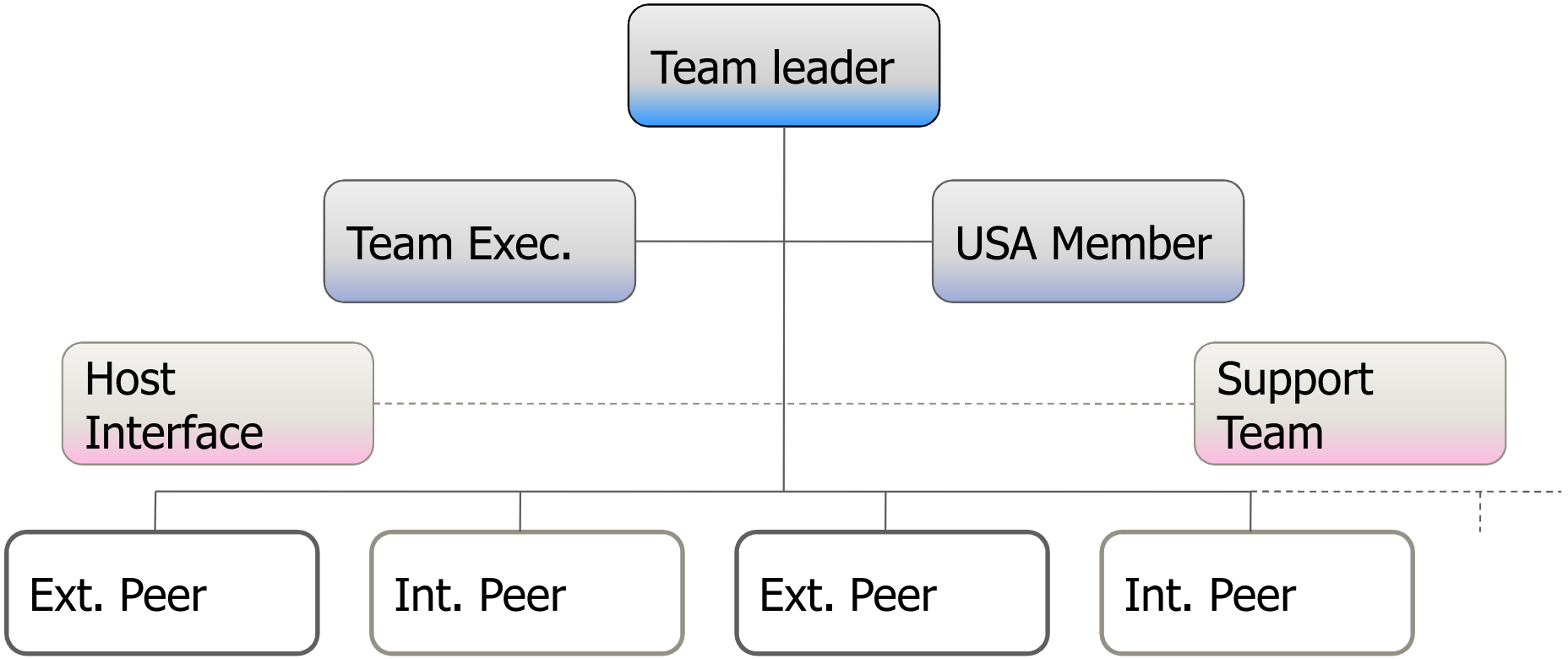
PREPARATION PHASE

-Electronic Survey (personnel and contractors)
-Planning and logistics
-Info pack for team leader (Recent WANO PR…)

ASSESSMENT WEEK

- Interviews
  - -5 different questionnaires (senior management, mid-level managers, supervisors, craft individual contributors, non craft individual contributors)
  - -Duration of interviews : 1 hour
  - -Two peers : host + external ones
  - -About 5 interviews per day per group of peers
  - -Total of 100+ interviews
- Daily team meeting
  - -Review of the findings of the day

Team composition



Assessment week

Sunday evening

- Team introduction
- Methodology refreshers

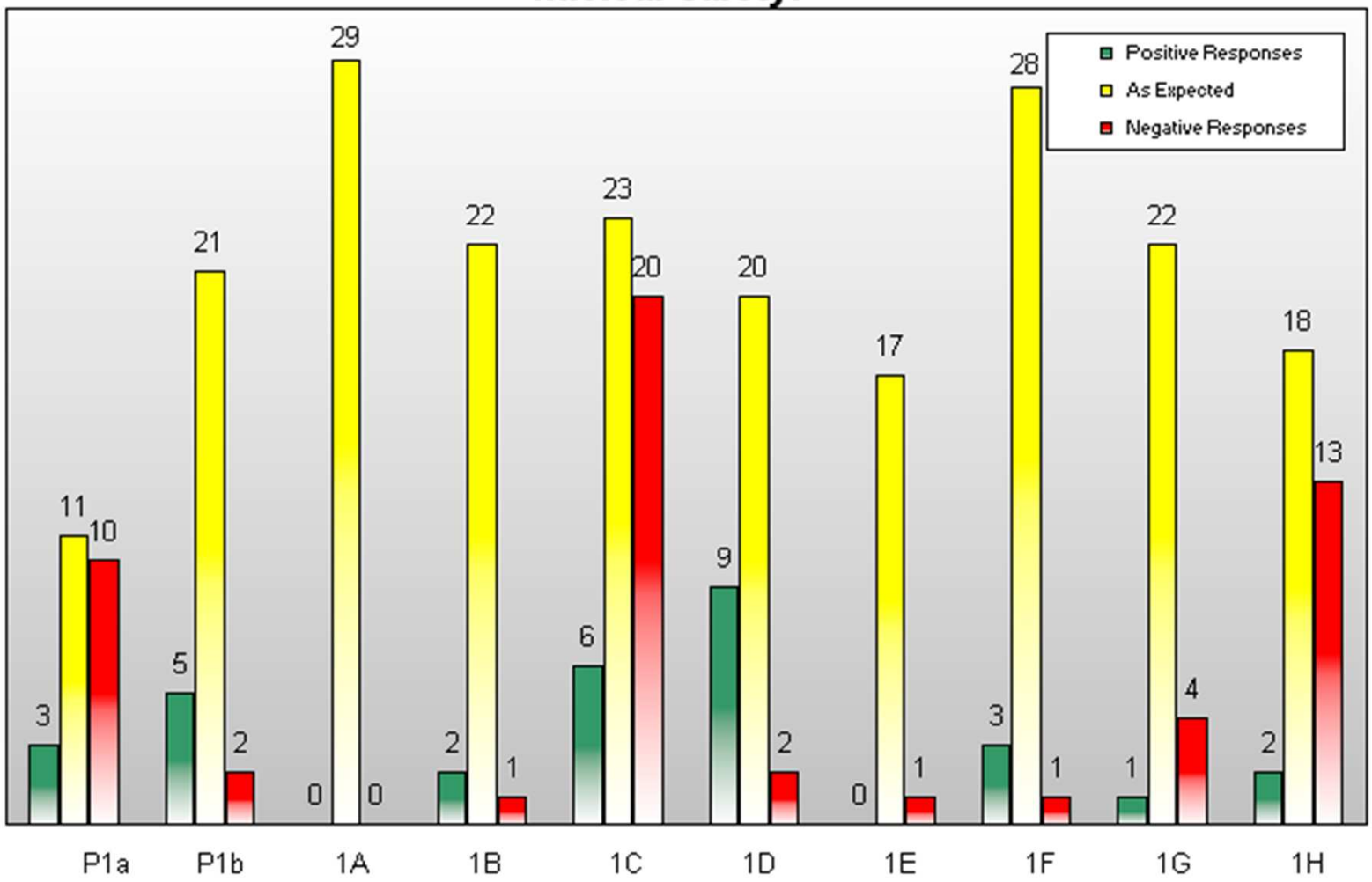
Monday to Thursday

- Interviews
- Daily team meeting

Thursday and Friday

- Drawing conclusions
- Exit meeting

INPO Principle 1: Everyone is personally responsible for nuclear safety.



Drawing conclusions

Exit meeting

-Strengths
-Positive Observations
-Negative observations
-Weakness
-General observations

Final report

-The final report is sent one month after to the plant

NSCA for Electrabel

Lessons learned

(+) Extremelly well documented process. Easily and rapidly applicable within Electrabel without much development (see proposal in next slides)

(+) Mixed team (internal and external peers)

(+) WANO/INPO principles are the references

(+) Methodology allows to measure progress between to assessments

(+) Only few INPO safety attributes may not be applicable for us (ex. reward program). The safety referential for the interviews may have to be slightly modified.

Thank you for your attention !