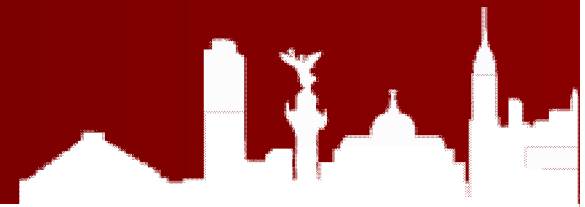


Safety in electrical installations in the petroleum industry

Brasil

Estellito Rangel Junior



PCIC MEXICO 2013

Petroleum and Chemical Industry Committee Technical Conference

México, D. F. – July 24-26, 2013



Safety management plan



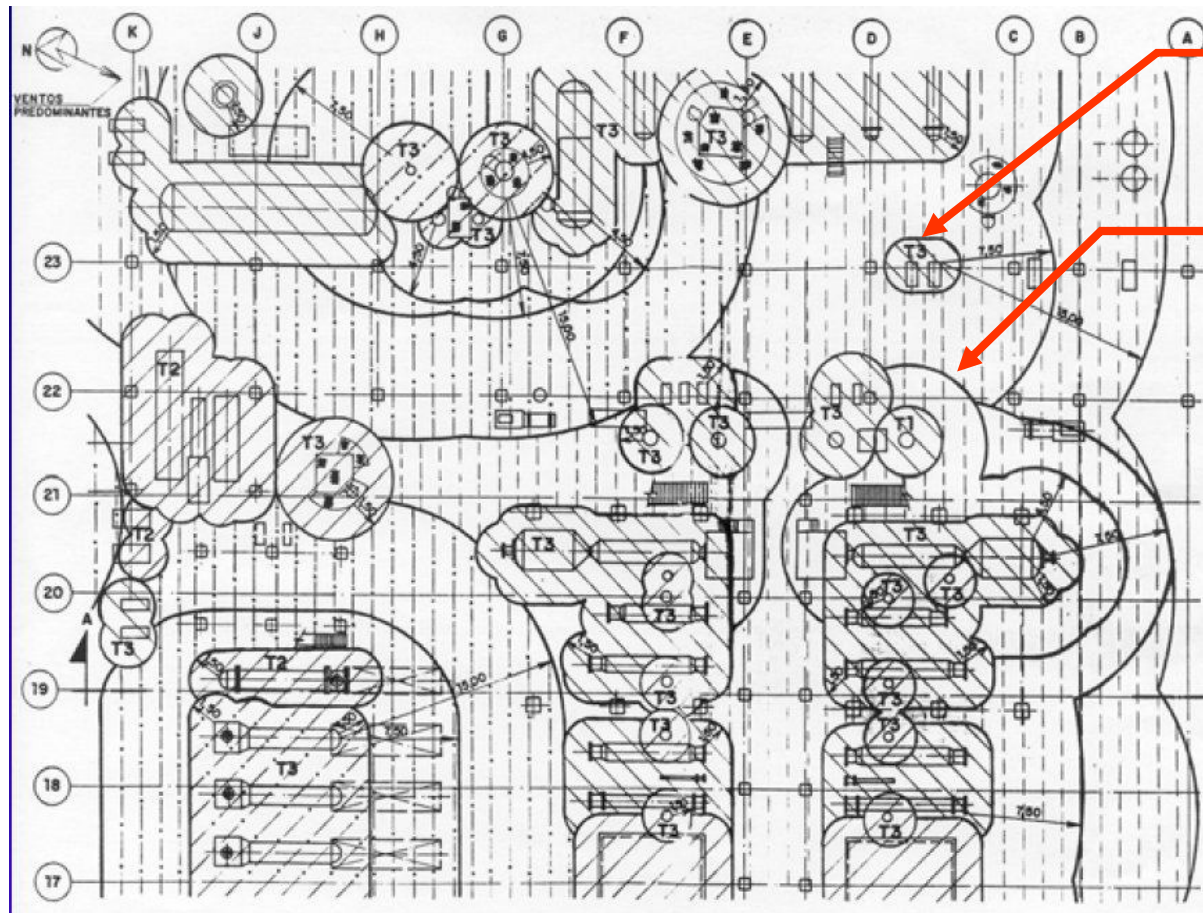
- Area classification
- Signalization
- Maintenance
- Permit-to-work
- Training
- Audits

Area classification

- No longer a one-person's task
- Interdisciplinary team
- It is not the simple copy of "typical figures and notes"
- At the executive design stage, a review on the study made at the basic design stage is highly recommended



Area classification drawings



Temperature class

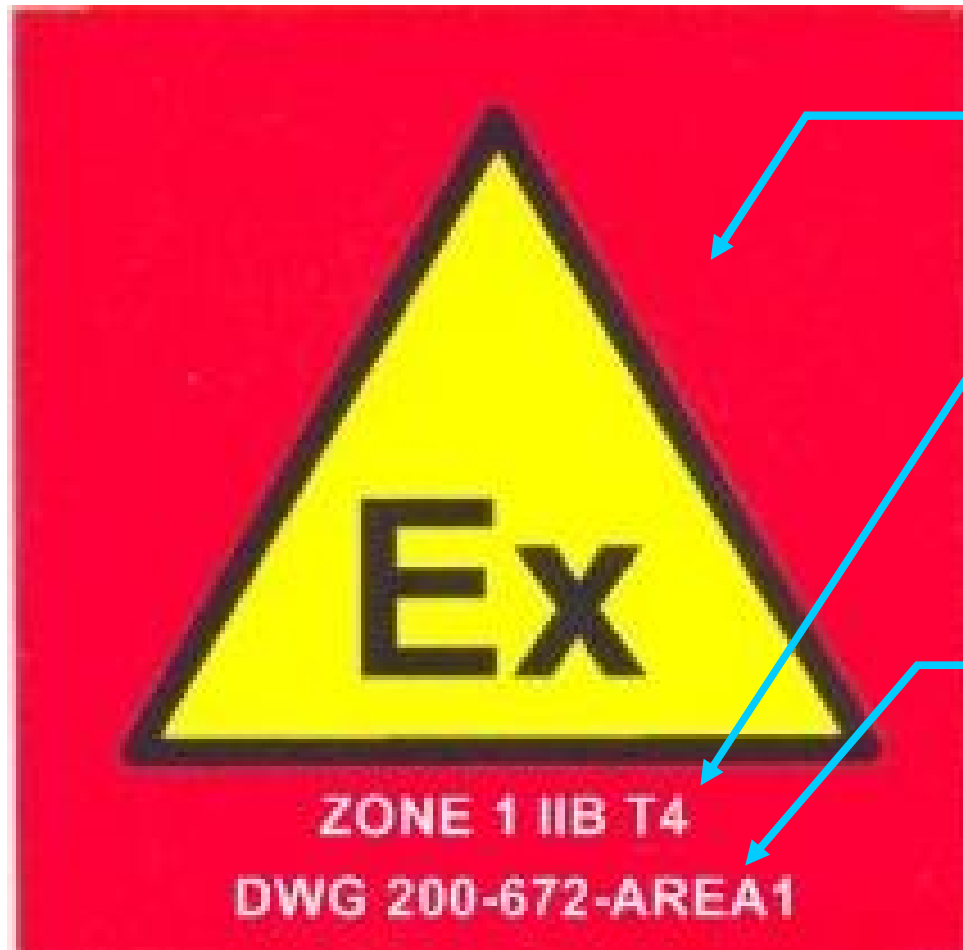
It can't be a copy of a "typical figure"

Keeping documents updated

- Milestones:
 - Expansions
 - Process changes



Signalizing classified areas



No unnecessary texts

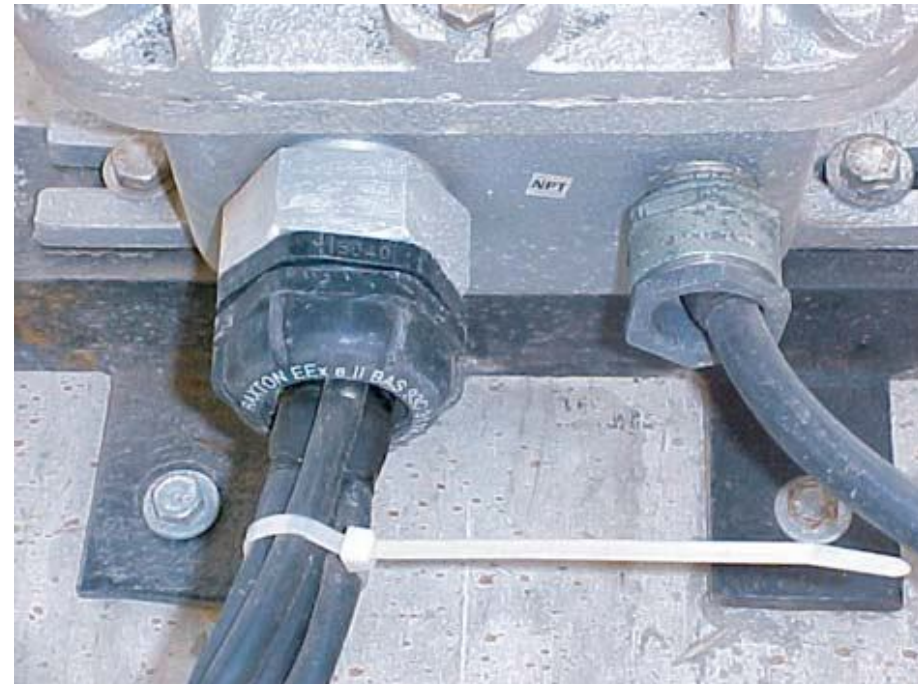
Zone, gas group and temperature class

Reference drawing number



Maintenance

- Documentation
- Training



Training



- Hands-on training for Ex installers and inspectors

Audits



- Objectives
- Reports
- Corrective actions

Conclusions

- Safety in the workplace should be a primary objective of petroleum companies, and it depends on many actions since the design phase of the unit until maintenance activities
- The use of special signs for classified areas contributes to alert workers
- On petroleum installations, continuous education of operation and maintenance personnel contributes to reduce the explosion risks

Thank you! Questions?

- Estellito Rangel Junior
- Petrobras

