# PLANT X Case Study (Team Lead)

* 1. You are the Team Lead of the Safety Culture Assessment Team at Plant X.
  2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
  3. Your team is comprised of five members:
     + behavioural scientist
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

The team was eager to take on the work. Each team member was given the opportunity to work with the different methodologies to help broaden their understanding of the approach and to ensure that the review benefited from a broad range of perspectives. The team also enlisted the aid of an analyst to help them understand the findings from a questionnaire circulated to all Plant X staff and onsite contractors.

The day the self-assessment started, you reminded the team: “Throughout the information gathering and analysis process it is essential for all of us to stay open to new ideas and new insights. The use of multiple data sources and analysis techniques gives us the opportunity to triangulate data in order to strengthen our findings and conclusions. Let’s wait for the facts to speak for themselves, rather than jump to conclusions and bias our line of exploration.”

* 1. You have just called a meeting. You would like to review each person’s findings, have them explain their impressions, and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***Questions to consider as you listen to each person’s information:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want the team to pursue to gain a better understanding of individual and systemic learning at Plant X?

# PLANT X Case StudY (Power Plant Operator)

1. You are a member of the Safety Culture Assessment Team at Plant
2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
3. The team is comprised of:
   * + behavioral scientists
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

You have enjoyed your role on the team and look forward to sharing the information that you have gathered.

1. The Team Leader has just called a meeting. She would like to hear about your findings and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***The facts you gathered from document reviews:***

A series of license event reports that indicated multiple incidences of fire doors being left open. The recurring response to the issue was to increase coaching and to revise the relevant procedure.

The review of management system documents for Plant X finds well written processes in place for an Operating Experience (OE) Program and a Human Performance program. Management has designated both an OE Coordinator and a Human Performance Specialist. The documents reflect industry expectations but there is no evidence that the two programs are designed to feed information to one another. In addition, there are no implementing procedures in place for either process.

Maintenance procedures, including pre-job brief guidelines, do not mention Operating Experience or Human Performance as key references for information on safe work execution or for reporting on completion of the work.

Root cause analysis reports frequently reference inadequate pre-job briefs as reasons that avoidable mistakes occurred. The most typical recommendation for correction is increased supervisory training and field presence.

Health and Safety Committee minutes identify poor supervision and inappropriate use of personal protective equipment as frequent contributors to injuries.

Training records indicate that basic training on scaffolding, fall arrest, hand tools, etc., is routinely provided as refresher training in advance of outages. Review of the training materials for these programs finds classroom-based instructional designs with multiple-choice tests to confirm learning, and an extensive set of PowerPoint slides specific to each topic. Although practical examples are given, the training does not refer to plant operating experience or plant injury statistics.

***Questions to consider:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want to pursue to gain a better understanding of individual and systemic learning at Plant X?

**PLANT X Case Study (Behavioural Scientist)**

1. You are a member of the Safety Culture Assessment Team at Plant X.
2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
3. Your team is comprised of:
   * + behavioral scientists
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

You have enjoyed your role on the team and look forward to sharing the information that you have gathered.

1. The Team Leader has just called a meeting. She would like to hear about your findings and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***The facts you gathered from a questionnaire:***

On reviewing the results a plant-wide safety culture questionnaire, you noted that the number of respondents for electrical maintenance was 90%, consistent with most other groups in the plant, compared with 75% for mechanical maintenance. During coffee break you asked a friend from mechanical maintenance why this might occur. Your friend responded “In the pecking order, engineers think they’re smarter than electrical, who think they’re smarter than mechanical, so we tend to avoid these competitive ‘we scored higher than you’ surveys. Besides we have real work to do.” You mulled over his response and went back to look at the results. Among other findings related to learning, you listed the following statistically significant observations arising from the questionnaire:

* The number of responses from the mechanical maintenance group, normalized to group size, was lower than that of all other plant groups.
* The demographic under 25 years of age indicate that key information is not commonly shared. This pattern is evident for electrical maintenance, mechanical maintenance, engineering, and safety specialists. In contrast, by a significant margin, management feels that key information is shared.
* The degree to which electrical maintenance, mechanical maintenance, and engineering report that key information is shared has a weighted mean that ranges between 4.7 and 5.3, indicating that a general consensus among line staff that key information is not commonly shared.

***Questions to consider:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want to pursue to gain a better understanding of individual and systemic learning at Plant X?

# PLANT X Case Study (Mechanical Maintainer)

1. You are a member of the Safety Culture Assessment Team at Plant X.
2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
3. Your team is comprised of:
   * + behavioral scientists
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

You have enjoyed your role on the team and look forward to sharing the information that you have gathered.

1. The Team Leader has just called a meeting. She would like to hear about your findings and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***The facts you gathered from observations:***

In a meeting to discuss whether to shut the unit down due to problems with a transformer the plant manager actively solicited each participant’s views and concerns, and summarized the issues and thoughts expressed by all parties. After a decision was taken, he continued by asking each person around the table “How do you feel about this decision?” Review of actions by the minute taker indicated that the decision had been taken with consensus by the team.

During observation of a training session the assessor observed the Plant Manager open the session with a story that emphasized the importance that a fall arrest harness had played in a recent near-miss in the plant. When asked by a contractor about the general availability of the harnesses, he immediately asked whether the individual had any concerns about availability. Later in the session, a supervisor remarked that “things would work a lot better around here if somebody cleaned up the purchasing process so materials could be replaced when needed”. Several participants nodded their heads in agreement. The Plant Manager asked for specific examples to discuss with the head of procurement.

In a walk-about with the plant Communications Officer, she was observed speaking with several people. The first touched her on the arm and commended her on the retirement festivities that she had organized the previous evening and said “too bad he didn’t deserve it”. They both laughed. Passing through the cafeteria she stopped to speak with two employees and inquired about the status of an annual charity fundraising event. One employee commented “Things are off to a slow start. Maybe you can get our new boss to kick in some big money”. Passing into the controlled zone, she pointed at signs and tags on a nearby fire door and commented in a frustrated tone “Look at these signs. Six of them and you can’t read half of them. Why don’t they ask my advice? I could help them.”

The lunchroom was filled with cafeteria style tables crowded with staff from many different areas of the plant. Younger and older employees sat at the same tables near the window. The Production Manager walked in and heads turned. Three Operations staff in white shirts quickly closed their lunchboxes and headed towards the exit into the plant. Four people remaining at the table chuckled and averted their gaze. A union representative walked in and three employees shared the ‘high five’ from across the lunchroom. The Production Manager stopped to speak with two female engineers. They listened very attentively and nodded their heads repeatedly. The only comment they made before the Production Manager moved on appeared to be a ‘thank you’.

***Questions to consider:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want to pursue to gain a better understanding of individual and systemic learning at Plant X?

# PLANT X Case Study (Electrical Engineer)

1. You are a member of the Safety Culture Assessment Team at Plant X.
2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
3. Your team is comprised of:
   * + behavioral scientists
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

You have enjoyed your role on the team and look forward to sharing the information that you have gathered.

1. The Team Leader has just called a meeting. She would like to hear about your findings and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***The facts you gathered from focus groups:***

At the start of a focus group with a management team, the senior manager immediately spoke for several minutes about the organization’s approach to safety. He interrupted people often to reframe the participants’ comments, and in one case stated that what a person had just said was incorrect. Participants watched the senior manager closely, especially when they wanted to introduce a new topic. The feeling in the room was reserved and cautious.

In a second all-staff focus group comprising Operations, Maintenance, Medical, Radiation Protection, Engineering, and Nuclear Safety staff, the group cautiously responded to the established questions with the two Operations participants consistently assuming the lead. At no point did the more vocal members directly address or prompt the largely silent representatives from Maintenance to participate. The vocal members laughed, joked, and bantered with the facilitators. When a question about work planning raised the frequency of deferred work due to missing parts, one Maintainer commented “It’s been like that for years. We rob Peter to pay Paul”. When asked to explain further, he stated that parts ordered for outage work were being used to address emergent needs. When asked why the problem was going on for so long, the reply was “It’s a head office purchasing problem. They don’t know the real state of the plant”. His tone was frustrated.

During the third focus group session, when participants were asked the question “Can you give an example of how an event in the plant was handled?” the discussion quickly moved from in-plant to how contract staff demonstrated use of personal protective equipment when conducting construction work at a manager’s home. The manager went on to explain “They learned the importance of fall arrest and I felt very proud of how well we taught them”. When asked for another situation, there was extended silence and then the example turned to an event in a sister plant. Later, participants were asked what three things they would like to see changed in order to improve safety. One participant spoke up: “I’d put an end to the corporate purchasing process - it takes too much time and we can’t choose what we want”. Another responded: “Different personal protective equipment should be purchased. We don’t get the right stuff”. A third employee suggested a need for “more opportunity to learn from other plants’. Several chimed in to suggest that benchmarking trips were reserved for the ‘special people’.

***Questions to consider:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want to pursue to gain a better understanding of individual and systemic learning at Plant X?

# PLANT X Case Study (Radiation Protection Supervisor)

1. You are a member of the Safety Culture Assessment Team at Plant X.
2. Your team decided to use all five methodologies to conduct a thorough self-assessment.
3. Your team is comprised of:
   * + behavioral scientists
     + power plant operator
     + mechanical maintainer
     + electrical engineer
     + radiation protection supervisor

You have enjoyed your role on the team and look forward to sharing the information that you have gathered.

1. The Team Leader has just called a meeting. She would like to hear about your findings and have the team discuss their opinion on whether Plant X has an adequate ‘learning culture’.

***The facts you gathered from interviews:***

A junior mechanical maintainer related how he made a serious mistake during an outage. When he reported the mistake to the plant manager (who clearly understood the significant cost implications of the error), the maintainer was relieved and surprised that the plant manager thanked him for reporting directly. The investigation revealed failure to work with a procedure in hand while working on a safety system.

In an interview with the onsite Human Resources Specialist at the same plant, she explained that her recommendations for how to improve performance, which included stronger emphasis on performance appraisal and progressive discipline, were well received by line managers. When asked, she also confirmed that the Union was supportive because “they want employees to be treated fairly in accordance with the collective agreement”.

During a second interview later in the self-assessment process, the Maintenance Manager expressed the view “this place is run like a country club where anything goes”. When asked for a clear example of what he meant, he talked about the Corporate Wellbeing Program that encouraged lunchtime walking to increase physical fitness and alertness while reducing stress. When prompted further, he described growing frustration about differences in treatment between administrative staff that embraced the program and were frequently seen walking, and maintenance staff who were not able to eat lunch and go for a walk in the time allotted. “It is management’s right and responsibility to enforce the collective agreement. I have instructed my supervisors to observe who is late returning from lunchtime walks and to give verbal warnings for repeat occurrences.”

The nuclear Vice President explained that the majority of plant staff worked their entire careers with the facility. Workforce challenges such as attrition, long term disability, and ‘entitlement’ were becoming a concern. When asked about his biggest concern, he replied “mistakes resulting from poor knowledge transfer and lack of cooperation between experienced and new staff”.

***Questions to consider:***

1. What do these first impressions suggest about systemic learning at Plant X?
2. What questions would you want to pursue to gain a better understanding of individual and systemic learning at Plant X?