Xcel Energy

Prairie Island Nuclear Generating Plant

Nuclear Safety Culture Assessment

Conducted by
Utilities Service Alliance

Dates
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I. Purpose and Scope

The purpose of the self-assessment was to determine to what degree the station has a strong nuclear safety culture, a healthy respect for nuclear safety, and that nuclear safety is not compromised by production priorities. The assessment emphasized leadership skills, behaviors, and approaches necessary to achieve and maintain the proper focus on nuclear safety. The assessment's model of a safety culture, the structure of the assessment process, and the results of the assessment are expressed in terms of INPO's Principles and Attributes of a Strong Nuclear Safety Culture (PSNSC).

The following INPO PSNSC were assessed during the assessment process:

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

The Assessment was conducted at the Prairie Island Nuclear Generating Plant (PINGP) site between August 25-29, 2008, using the Utilities Service Alliance Nuclear Safety Culture Assessment model. Team members were from Donald C. Cook Nuclear Plant, Diablo Canyon Nuclear Plant, Calvert Cliffs Nuclear Power Plant (Constellation Energy), Wolf Creek Nuclear Operating Corporation, Duane Arnold Energy Center, and Prairie Island Nuclear Generating Plant. Additionally, the team executive was from the Fermi Nuclear Plant.

II. Executive Summary

Overall, the assessment team concluded that PINGP personnel have a healthy respect for nuclear safety and nuclear safety is not compromised by production priorities. In addition, PINGP overall met expectations in each of the eight Principles for a Strong Nuclear Safety Culture.

Several attributes and behaviors were identified that supported a strong nuclear safety culture at PINGP. Key positive attributes noted during this assessment include:

- Station personnel generally perceive a strong commitment to nuclear safety at the station and have a high level of trust in their senior management team. Principle 3, Trust Permeates the Organization, scored very positively.
- Personnel generally feel free to raise issues and perceive that management is open to having their decisions challenged.

- Operating Experience (OE) is valued and utilized; OE is accessed from many different sources.

Although PINGP was found to have a strong nuclear safety culture, several opportunities for improvement were found in each of the eight Principles that are detracting from having an even stronger nuclear safety culture. If these issues are not addressed, performance in one or more of the eight Principles could potentially decline. The assessment team identified key concerns under Principle 1, Everyone is Personally Responsible for Nuclear Safety, and Principle 5, Nuclear Technology is Special and Unique.

Key performance detractors identified during the assessment were binned into the following four weaknesses:

1. Organizational alignment is challenged

   - Xcel Energy has a sound Nuclear Safety Culture and Safety Conscious Work Environment (SCWE) corporate policy; however most PINGP personnel were not familiar or knowledgeable of the policy.
   - Some decisions and the status of key initiatives have not been well communicated within the organization; these include the equipment reliability initiatives, the Work Management Recovery Plan, and historically, the results of the 2001 safety culture assessment.
   - Department communication meetings are not always effective in communicating key messages.
   - Senior management is not convinced that personnel at the individual contributor level are sufficiently self-aware of their current performance issues.
   - The plant has a top ten equipment list and a Maintenance Rule a(1) list; however, not all departments are aligned on the relative priorities of the items on these lists.

2. Work force planning has not been fully effective

   - A number of work groups do not have fully qualified staff to meet current plant needs; the number of open positions are not meeting plant goals for filling staffing vacancies.
   - There has been an overall loss of knowledge within Engineering, Operations, and Maintenance that has challenged the efficiency of the organization.
   - Efforts to transition the station from a System Engineering led organization to an Operations led organization has met with resistance.
   - Human Resources processes are perceived as not efficient enough to promptly fill open personnel requisitions.

3. There is a lack of of confidence in station processes

- Some personnel perceive that it takes longer and is more difficult to follow a formal process vice informal methods.
- Personnel have not seen the short term results from the Work Management Recovery Plan needed to keep them motivated.
- Challenges were noted with implementing the Corrective Action Program (CAP) in some areas, which could, in the future negatively impact Action Request (AR) initiation.
- Some station personnel are having difficulty disconnecting from a knowledge based approach to working and transitioning to a process based approach.

The team was particularly concerned about this weakness: when personnel stop trusting in a process, their engagement in the process may drop, thereby actually accelerating its erosion.

4. A culture of prevention has not been fully embraced

- Management visibility in the field is not sufficient to have an impact on personnel performance.
- The OSHA recordable rate at the station is industry fourth quartile; industrial safety performance is often a leading indicator of performance shortfalls in other areas; the station has not been successsful in preventing injuries.
- The Management Safety Review Committee (MSRC) commented that the station fares better in detection mode, vice prevention mode.
- Personnel commented that they are often in the reactive mode and do not feel they have the time to be proactive.
- Meeting observations indicated station personnel were better at covering work that was completed rather than what still lay ahead (backward looking versus forward looking). Challenges were noted with implementing the CAP, which could, in the future impact AR initiation.
- Some personnel perceive the station to be externally driven rather than internal standards driving continuous improvement.

Detailed comments, results, and conclusions can be found in the Assessment Results section of this report under each of the Principle areas by attribute.

Ten (10) recommendations are provided in the "Summary of Recommendations" section of this report to address the weaknesses cited above.

III. Background and Methodology

The foundation for the USA Nuclear Safety Culture Assessment approach used at Prairie Island is stated in INPO's Principles and Attributes for a Strong Nuclear Safety Culture (PSNSC).

> *"Principles for a Strong Nuclear Safety Culture describes the essential attributes of a healthy nuclear safety culture (hereafter "safety culture"), with the goal of creating a framework for open discussion and continuing evolution of safety culture throughout the commercial nuclear electric generating industry. The principles and associated attributes described have a strong basis in plant events.*
>
> *Basic principles are addressed herein, rather than prescribing a specific program or implementing methods. These principles and attributes, when embraced, will influence values, assumptions, experiences, behaviors, beliefs, and norms that describe what it is like to work at a specific facility and how things are done there. Principles appear in boldface type. Attributes help clarify the intent of the principles.*
>
> *Utility managers are encouraged to make in-depth comparisons between these principles and their day-to-day policies and practices and to use any differences as a basis for improvement."*

And in SOER 02-4:

> *"A major contributor to this event [Davis-Besse's Reactor Vessel Head Degradation"] was a shift in the focus at all levels of the organization from implementing high standards to justifying minimum standards. This reduction in standards resulted from excessive focus on meeting short-term production goals, a lack of management oversight, symptom-based problem-solving, justification of plant problems, isolationism, ineffective use of operating experience, and a lack of sensitivity to nuclear safety."*

The USA approach is to perform the assessments utilizing a team of approximately eight or more experienced leaders from inside and outside the host plant.

Davis-Besse had been an INPO rated 1 or 2 facility and highly regarded by the NRC. It was audited both internally and externally by NRC and INPO. The reason that measurable elements of performance alone are inadequate is explained in INSAG-4.

> *"Safety Culture has two general components. The first is the necessary framework within an organization and is the responsibility of the management hierarchy. The second is the attitude of staff at all levels in responding to and benefiting from the framework."*

Performance indicators, inspections, and audits can look at the first component – the framework and its functioning. A safety culture assessment is necessary to look at the second – the attitude of staff. A Nuclear Safety Culture Assessment should not be used to check if processes or programs are in place. That is the function of audits. This assessment process looks for something else — opinions, perceptions, thoughts, and feelings. This may be uncomfortable for technically-minded individuals because a process to assess a safety culture is not an "engineered" activity. No plant can design or purchase a "Safety Culture Meter" to put on the Chief Nuclear Officer's (CNO) office wall. The purpose of the assessment is to gauge a facility's Nuclear Safety Culture.

The USA assessment process links surveys, documentation reviews, site observations, and interviews to a set of behavioral characteristics that model a strong safety culture. Culturally-based characteristics and attitudes are difficult to detect and evaluate during a short self-assessment process. However, discernible symptoms can exist that may indicate flaws in the overall safety culture of the assessed site. The primary goal of the PINGP assessment was to identify these symptoms, increase management awareness of the symptoms, and leave the site with a list of observations that the plant leadership team can use to strengthen the safety culture and improve performance.

USA developed a series of Interview, Behavioral, and Field Note Collection Sheets to be used during the assessment week based on the PSNSC document. These sheets document results from interviews, observations and documentation reviews. Each sheet contains a reference to one or more principles, the principle's description, and the attributes associated with the principles. Each of these has a ratings box which was used to record whether or not the assessed item was perceived to be an example of positive (+), neutral (0), or negative (-) behavior / response. Any PSNSC Attribute with a significant amount of negative ratings were evaluated and discussed in a team setting and is discussed in this report. In order to understand the roll-up of the +, -. or 0 scores, comments from the interviews or observations or the observations and thoughts of the interviewer(s) are recorded. These comments and observations provide context and texture to the scores and provide insights into PINGP's culture as it related to the specific principles or attributes.

The process, basis, assumptions, observations and interview forms and information on the pre-assessment survey and other steps are shown in Tabs A to K of the "*Utilities Service Alliance, Nuclear Safety Culture Assessment Reference Manual and Source Book Phase II.*"

IV. Assessment Results

At PINGP, a pre-assessment USA nuclear safety culture survey was issued to all plant staff, comprising a population of over a thousand individuals. A response rate of 40% was obtained. In general, the pre-assessment survey data is used as one of several inputs into overall conclusions developed as part of the assessment.

Included in this report are graphical representation bar charts of the positive, neutral, and negative comments received. An Overall Principle Roll-up (Figure 1) is a visual representation of the relative rankings of the eight PSNSC. A bar chart for each principle is also provided showing the details for each of the attributes under that principle (Figures 2 through 9). This form of data rollup can potentially be used by the PINGP leadership team to prioritize any necessary corrective actions from the team's findings.

A total of 56 assessed PSNSC Attributes that include 1188 total data points and observations collected during the assessment week fed into the bar chart results.

During interviews and observations, the team identified 480 positive, 311 as-expected, and 397 negative data points. The sum of positive and as-expected responses exceeded the number of negative responses, providing part of the basis that PINGP has a healthy nuclear safety culture.

No specific strengths or weaknesses were discussed at the exit meeting. Rather, the exit meeting included a discussion of performance in each of the eight principles and the positive drivers and challenges under each of those principles. The challenges were consolidated and binned into the four weaknesses in the Executive Summary. In general, the USA assessment process utilizes the following vernacular.

- **A Strength** is some positive activity or behavior that has had or could result in a definite and measurable positive effect on the station's culture and performance.
- **A Weakness** is some negative activity or behavior that could result in a measurable negative effect on the station's culture and performance.

If the behavior or symptom recorded on the Interview, Behavioral, or Field Note Collection Sheets will not support a negative or positive rating for any reason (time constraints, symptoms not detected during the activity, etc.), then a neutral rating was assigned to the observation.

It should be noted that positive comments and negative comments in each of the eight principles are often cross-cutting across different principles and hence some repetitive themes become apparent in a number of the Principles. In addition, challenges under each of the Principles below were binned into the four roll-up problem areas cited above. Challenges could come from multiple Principles to roll-up into a problem area or weakness.

From the interview and observation processes, overall team conclusions related to the eight Principles were as follows **(more detailed analysis and discussion is provided later in the report):**

Overall Conclusions by Principle

1. Everyone is personally responsible for nuclear safety.

   Team Conclusions:

   The line of responsibility for nuclear safety has been defined. Presently the staff is facing challenges related to experience, backlog, and staffing to meet station demands going forward.

   Positives:

   - Station personnel perceive a commitment to keep the plant and personnel safe from a nuclear safety stand point.

- Recent organizational changes have been perceived positively, especially those changes at the senior management level; this provides an opportunity for organizational leverage.

Challenges:

- In general, station personnel were not familiar or knowledgeable of the Xcel corporate policy on Nuclear Safety.
- Work force planning has not been effective.
  - A number of work groups are working overtime to meet the daily workload of the plant (Operations, Security, Emergency Planning, Work Week Managers, and some Engineering).
  - Human Resources processes are not perceived as sufficiently efficient to fill open positions in a timely manner.
  - Some departments have all of their personnel requisitions filled, however, in some cases, those individuals are not yet fully qualified, impacting the remaining work force.
  - Plant knowledge in Engineering has degraded over the time. Experience level is lower, the system engineering job function has changed, and ownership of the "system" is reduced.
- Some processes have been noted as cumbersome (e.g., modification process) and are not meeting current station needs.
- There was variability in understanding of how individual job functions supported nuclear safety.

2. Leaders demonstrate commitment to safety.

Team Conclusions:

There is a commitment to nuclear safety at the station. The organization has noted that equipment reliability, aging equipment, and backlog will be challenges going forward.

Positives:

- Personnel are generally identifying issues in the CAP at a low threshold.
- The Good Catch Program encourages personnel to raise issues; personnel feel comfortable in raising issues and challenging decisions with the current management.

Challenges:

- Oversight of vendors and supplemental personnel could be bolstered. Work and product quality has not met high standards on various occasions.

- A number of compensatory measures exist, contributing to a perceived management tolerance of degraded equipment.
- Some decisions have not been well communicated to the organization. This has led a few individuals to believe that production goals may be overriding nuclear safety. These include some decisions pertaining to plant equipment issues, the status of the Work Management Recovery Plan, and decisions generated from the Operational Decision Making (ODMI) process.

3. Trust permeates the organization.

   Team Conclusions:

   There was a strong feeling of trust demonstrated in that people feel free to raise issues and concerns to the middle and senior management team.

   Positives:

   - Site personnel feel free to raise issues and concerns to middle supervisors and managers as well as the senior management team.
   - Site personnel perceive the recent change in the plant operator (Xcel vs. NMC) to be positive and has fostered greater trust in the management team.

   Challenges:

   - CAP closure to trending and the use of CAP trending in the Department Roll-up Meetings (DRUMs) is confusing and not well communicated to site personnel.
   - CAP work load within the engineering and craft organizations has resulted in some personnel not generating an AR for issues they perceive as low level.

4. Decision-making reflects safety first.

   Team Conclusions:

   In general, decisions made which affect plant operations, reflect a safety first focus. However, a number of long standing equipment issues continue to challenge plant operation after extended periods of time.

   Positives:

   - Middle and senior management is open to being challenged on their decisions.

Challenges:

- Resolution to a number of long standing equipment issues, which have challenged plant operation, are being resolved but only after long periods of time. This is related to the perception that the plant is challenged with problem-solving.
- There has been an overall decrease in knowledge levels within the line organization (Operations, Engineering, and Maintenance) that challenges the efficiency of the organization to perform work and make operational decisions.

5. Nuclear technology is recognized as special and unique.

   Team Conclusions:

   Overall, Prairie Island embraces the principle that nuclear technology is special and unique. Personnel at all levels understand the special characteristics of nuclear technology and take these into consideration when setting priorities and making decisions.

   Positives:

   - Corporate support and funding for long-standing equipment issues and problems with engineering documents retrievability was considered to be positive. This is perceived by many as a fairly recent shift in philosophy by upper management to focus on long-term health as opposed to short-term performance. Many perceived this to be associated with the change of station management from NMC to Xcel Energy.
   - The decision to call a stop work on electro-hydraulic system modification work to validate all clearance order boundaries when an isolation error was identified was considered a positive.

   Challenges:

   - There is a lack of confidence in station processes, including the work control process, which has an improvement plan. Furthermore, the status of the Work Control Improvement Plan has not been adequately communicated.
   - Changes to the duties of Engineering (planning, operability determination, subject matter expert) are generally viewed as a negative by station personnel.
   - Although the amount of funding provided by corporate to resolve some long-standing issues is viewed as a positive, some of the funds are not expended due to not enough resources to implement some initiatives.

- There have been some significant clearance order (tagging) issues. The work management process, quality of design documents, and use of human error reduction tools have been implicated as contributing factors.
- Many people feel they do not have time to be proactive (trending, analysis, system monitoring) and as a result always seem to be in the reactive mode. Being in the reactive mode prevents focusing on reducing backlog, improving cumbersome processes, and monitoring low level indicators to identify precursors before they reveal themselves as events.

6. A questioning attitude is cultivated.

   Team Conclusions:

   There have been substantial improvements in questioning attitude at all levels, due to recent personnel or management changes.

   Positives:

   - Most individuals felt empowered to question information and decisions all the way to the top of the organization.
   - There is a perception that good pre-job briefs are occurring; use of hazard awareness and Are You Ready checklists have fostered open discussions.
   - Employee at all levels felt that they were able to "Stop when Unsure".

   Challenges:

   - Upper management perceives that people are not always recognizing problems, so they may not know when to question decisions or actions.
   - Equipment deficiencies are raised by workers, but management has tolerated untimely corrective action implementation.
   - Some personnel indicated that the decision to restart the plant after work on check valve SI-9-5 created a perception that production was placed ahead of nuclear safety in that instance.
   - Individual contributors in Mechanical Maintenance and Security are not required to enter their own ARs - supervisors are relied upon to initiate the AR based on worker input; they may or may not enter that information in the CAP process.

7. Organizational learning is embraced.

   Team Conclusions:

   Organizational learning is embraced, but difficulties in applying lessons learned challenges the station's ability to implement timely corrective actions.

Positives:

- Managers and Supervisors are participating in benchmarking and self-assessments.
- OE is valued and utilized. OE is accessed from many different sources.
- A high level of engagement is present in entering ARs into the system on a wide range of issues.

Challenges:

- The CAP process is perceived as not being effective at resolving issues in a timely manner due to occurrences of repeat equipment issues.
- Resources are strained in a number of organizations. There is a lack of experienced people with the time to train less experienced workers.
- Individual contributors do not participate in self-assessments or benchmarking as much as leaders do.
- The station does not have a process to capture learning opportunities gained from informal benchmarking.
- A culture of prevention has not been fully embraced by the organization.

8. Nuclear safety undergoes constant examination.

   Team Conclusions:

   Internal oversight is seen by some upper management as a contributor to improving station performance; however, station personnel see external stakeholders as a primary driver of station performance.

   Positives:

   - Nuclear oversight is seen by some as having an increasing impact on improving station performance.

   Challenges:

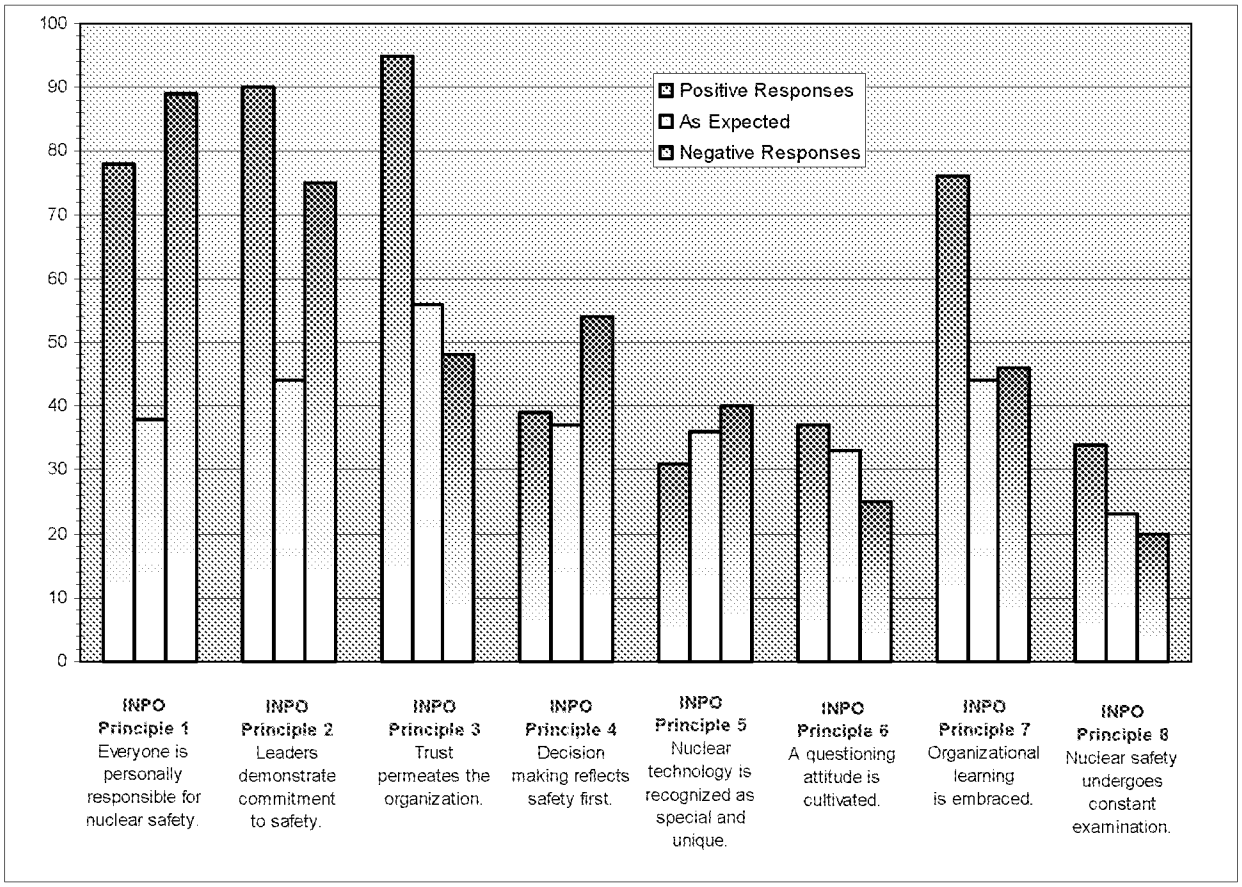
   - Some of the site staff see INPO as the driver of station improvement vice being driven from high internal standards.
   - There had been a lack of communication of the results of the 2001 nuclear safety culture assessment; and although several years old, this has remained in the plant's collective memory.

In Figure 1 below (Overall Principle Roll-Up), the eight major Principles are shown with simple comparisons of the number of positive observations, neutral observations, and

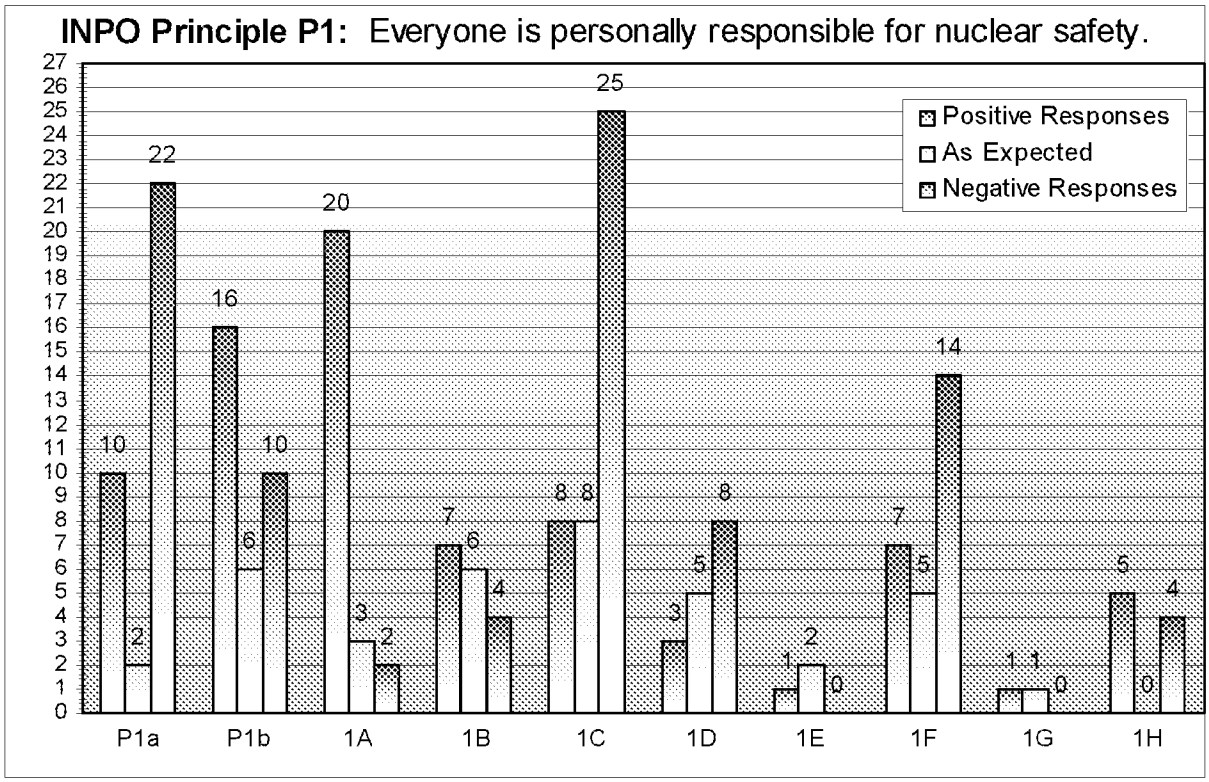
negative observations collected during the assessment week. Neutral observations are observations in which the response or attribute observed was judged to meet expectations. The absolute numbers of positive and negative comments can be seen as well as the relative difference between the two. For instance, in the Overall Principle roll-Up chart, Principle 2, "Leaders demonstrate commitment to safety" has 90 positive comments, 44 neutral data points, and 75 negative ones. There were no Principles that had more negative observations compared to the sum of positive observations and neutral observations. This supports the team's conclusion of the station's strong Nuclear Safety Culture.

Similarly in Figures 2 through 9, for each principle, a roll-up chart is provided that displays observations in each attribute.

PINGP Overall Principle Roll-Up (Figure 1)



Principle 1: Everyone is personally responsible for nuclear safety. (Figure 2)



P1a	Responsibility and authority for nuclear safety are well defined and clearly understood.
P1b	Reporting relationships, positional authority, staffing, and financial resources support nuclear safety responsibilities. Corporate policies emphasize the overriding importance of nuclear safety.
1A	The line of authority and responsibility for nuclear safety is defined from the board of directors to the individual contributor. Each of these positions has clearly defined roles, responsibilities, and authorities, designated in writing and understood by the incumbent.
1B	Support groups, such as human resources, labor relations, and business and financial planning, also understand their roles in contributing to nuclear safety.
1C	People and their professional capabilities, values, and experiences are regarded as the nuclear organization's most valuable asset. Staffing levels are consistent with the demands related to maintaining safety and reliability.
1D	Board members and corporate officers periodically take steps to reinforce nuclear safety, including visiting sites to assess management effectiveness first-hand.
1E	The line organization, starting with the chief executive officer, is the primary source of information and the only source of direction. Other parties, such as oversight organizations and committees, review boards, and outside advisors, who provide management information essential to effective self-evaluation, are not allowed to dilute or undermine line authority and accountability.
1F	All personnel understand the importance of adherence to nuclear safety standards. All levels of the organization exercise healthy accountability for shortfalls in meeting standards.
1G	Relationships among utilities, operating companies, and owners are not allowed to obscure or diminish the line of responsibility for nuclear safety.
1H	The system of rewards and sanctions is aligned with strong nuclear safety policies and reinforces the desired behaviors and outcomes.

Overall, the PINGP organization scored acceptably in Principle 1 (see Figure 2) with 78 positive responses, 38 neutral responses, and 89 negative responses. In terms of absolute numbers, performance under this principle emerged as the lowest scoring area of the eight Principles.

Nuclear Safety Policy and its importance

A noteworthy attribute that drove this principle positively was 1A, The line of responsibility for nuclear safety has been defined. The organization was found to have an appropriately detailed corporate nuclear safety policy embodied in document CP--017.

However, many plant personnel interviewed were not familiar with the nuclear safety policy contents or its significance. This is reflected in part by the large number of negative data points in Attribute P1a. While policy statements may seem lofty, it is important to remember that they serve an important purpose – they set the groundwork for communicating to the workforce what the organization's values are; in other words, what are the things that are important to the corporation and the management team. It is important that a top-level message that distinguishes nuclear safety from other important goals is clearly communicated to and understood by the workforce.

Another contributor to negatives under Attribute P1a was that there was variability in understanding of how individual job functions supported nuclear safety. A few personnel could not articulate how their activities contributed to maintaining nuclear safety. They perceived that nuclear safety was the realm of Operations or direct production activities; their work on ARs or procedure writing was not understood to be supportive of the nuclear safety mission.

Staffing

A large detractor from having stronger performance under Principle 1 was Attribute 1C. The assessment team found that workforce planning has been a challenge to the organization. Interviews indicated that a number of work groups are lacking the fully qualified staff needed to meet workload demands. This is corroborated by performance indicators with the number of vacancies above goal. Moreover, personnel in several departments that do have their requisitions filled are lacking in the experience or qualifications to make these groups efficient, placing burden on other qualified personnel to compensate for these shortfalls. In Plant Engineering for example, the knowledge level has decreased due to attrition and dissolving of the certification program for engineers. In the Radiation Protection department, the lack of fully qualified technicians has resulted in increased dose for those qualified technicians who are needed to cover key jobs.

There also appears to be a delta between the managers and individual contributors on the significance of staffing issues and may be due to not fully appreciating the burden of the loss of process proficiency when more experienced workers leave the organization.

Some examples of this include not being able to locate documents in Sharepoint and not understanding the process of obtaining funding for projects. These processes were consistently identified as major (time consuming) burdens by those with one to two years experience whereas the more experienced staff viewed these as minor issues.

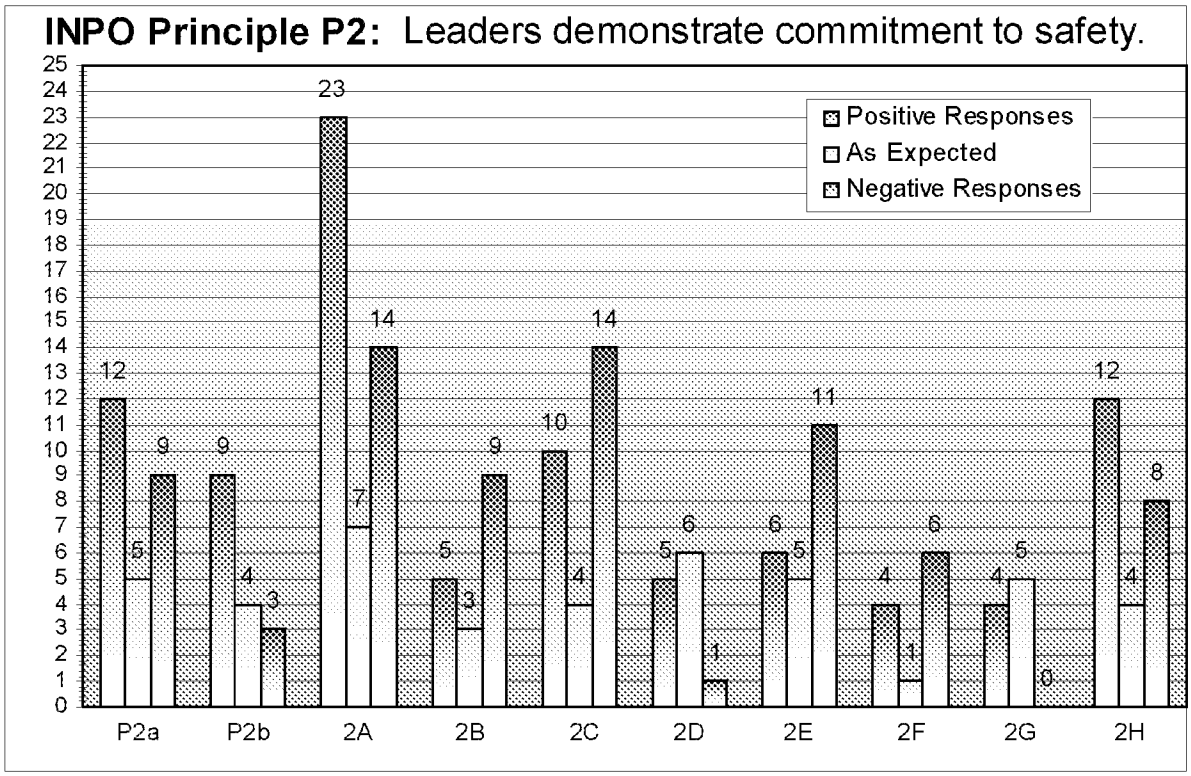
Interviews also indicated that Human Resources was perceived as inefficient in getting openings filled in a timely manner. In general, it was felt that the transition back to Xcel Energy has resulted in reduced customer focus from the Human Resources group.

Organizational Alignment

As a result of observations under this and other Principles, the assessment team found that organizational alignment could be stronger, both vertically and laterally. Issues that supported this observation include:

- Staff unfamiliarity with the Corporate Nuclear Safety Policy (discussed above).
- D15 meetings are not always effective in ensuring communications reach staff.
- Not all members of the management team are confident in the sustainability and success of the Work Management Recovery Plan.
- Senior management is not convinced that personnel at individual contributor level are sufficiently self-aware of their own problems.
- The plant has a top ten equipment list and a Maintenance Rule a(1) list; not all departments are aligned on the relative priorities of the items on these lists.

Principle 2: Leaders demonstrate commitment to safety. (Figure 3)



P2a	Executive and senior managers are the leading advocates of nuclear safety and demonstrate their commitment both in word and action.
P2b	The nuclear safety message is communicated frequently and consistently, occasionally as a stand-alone theme. Leaders throughout the nuclear organization set an example for safety.
2A	Managers and supervisors practice visible leadership in the field by placing "eyes on the problem," coaching, mentoring, and reinforcing standards.
2B	Management considers the employee perspective in understanding and analyzing issues.
2C	Managers and supervisors provide appropriate oversight during safety-significant tests or evolutions
2D	Managers and supervisors are personally involved in high-quality training that consistently reinforces expected worker behaviors.
2E	Leaders recognize that production goals, if not properly communicated, can send mixed signals on the importance of nuclear safety. They are sensitive to detect and avoid these misunderstandings.
2F	The bases, expected outcomes, potential problems, planned contingencies, and abort criteria for important operational decisions are communicated promptly to workers.
2G	Informal opinion leaders in the organization are encouraged to model safe behavior and influence peers to meet high standards
2H	Selection and evaluation of managers and supervisors consider their abilities to contribute to a strong nuclear safety culture.

Overall, PINGP scored well in Principle 2 (see Figure 3) with 90 positive, 44 neutral, and 75 negative data points, respectively. This principle was of particular interest to the assessment team because it was the lowest scoring principle based on the pre-assessment survey. A review of the pre-assessment survey comments indicated a number of persons felt management visibility in the field was lacking.

However, the on-site interviews suggested management field presence was overall adequate, as evidenced by the number of positive scores under Principle 2A. The assessment team found that part of the delta could be explained by worker recognition of senior management visibility coupled with some first line supervisor presence in the field. However, mid-level management presence in the field was found to be challenged as they seemed to be consumed by meetings. Another part of the explanation could be a closer examination of Attribute 2C, which indicates a number of negative data points with regard to oversight of safety significant evolutions. When the results of Attributes 2A and 2C are considered together, the on-site interview data and the pre-assessment survey results come to a better convergence.

PI Management should also be alert to the *possibility* that when managers go out in the plant, they may not be providing feedback or making contact with workers in a manner that makes a lasting impression. PI has an observation goal where managers must complete seven hours of observations per month. Management observation programs that have monthly goals have the potential for some participants to complete the activity simply to get the "bean"; in some cases, this could result in "drive-by" observations where no meaningful interaction occurs between workers and managers. PI Management should consider a process check to assure that required monthly observations include interaction with workers.

Raising Issues

Several comments were received that plant personnel feel comfortable in raising issues and challenging decisions with the current management and it was felt that the "Good Catch Program," was a positive driver for this behavior. However, as discussed under Principle 7, the assessment team found an important caveat associated with identification of issues.

Contractor/Vendor Workmanship

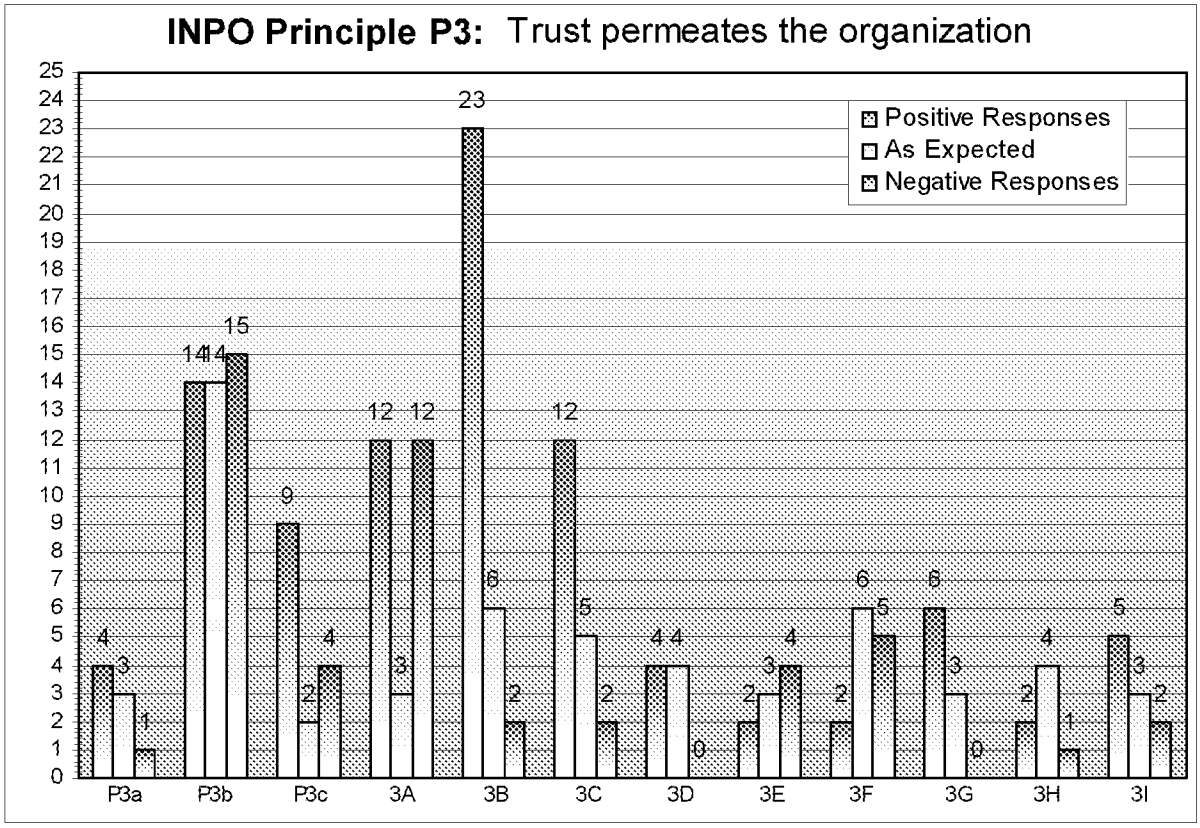
Plant personnel indicated that improved oversight of supplemental personnel and contractors is needed. There have been several equipment and work related problems where contractor activities were a contributor. A recent breaker trip with a cooling tower fan was cited as an example where vendor work quality did not meet standards.

Production goals not properly communicated

Interviews also indicated that negative perceptions have been created due to the number of current compensatory measures and a perceived tolerance of degraded

equipment by management. Examples cited include recent issues with the D3/4 and D5/6 Emergency Diesel Generators, the H2 recombiner, and the turbine lift oil pump. Closely linked with this perception is the team finding that the bases for some decisions have not been adequately communicated to the organization. This has led some to believe that production goals may be overriding nuclear safety in some cases. For, example, there is an ODMI process that is used to make nuclear decisions. The results of those decisions are not shared with the organization, and a historical repository for review of past decisions is not readily available. This lack of effective communication is associated with the number of negative responses under attribute 2E.

Principle 3, Trust permeates the organization (Figure 4)



P3a	A high level of trust is established in the organization, fostered, in part, through timely and accurate communication.
P3b	There is a free flow of information in which issues are raised and addressed. Employees are informed of steps taken in response to their concerns.
P3c	Employees are informed of steps taken in response to their concerns.
3A	People are treated with dignity and respect.
3B	Personnel can raise nuclear safety concerns without fear of retribution and have confidence their concerns will be addressed.
3C	Employees are expected and encouraged to offer innovative ideas to help solve problems.
3D	Differing opinions are welcomed and respected. When needed, fair and objective methods are used to resolve conflict and unsettled differing professional opinions.
3E	Supervisors are skilled in responding to employee questions in an open, honest manner. They are recognized as an important part of the management team, crucial to translating safety culture into practical terms.
3F	The effects of impending changes (such as those caused by sale or acquisition, bargaining unit contract renegotiations, and economic restructuring) are anticipated and managed such that trust in the organization is maintained.
3G	Senior management incentive programs reflect a bias toward long-term plant performance and safety.
3H	Complete, accurate, and forthright information is provided to oversight, audit, and regulatory organizations.
3I	Managers regularly communicate to the workforce important decisions and their bases, as a way of building trust and reinforcing a healthy safety culture. Worker understanding is periodically checked.

PINGP overall scored very well under Principal 3, indicating that there is a healthy level of trust in the organization. There were 95 positive, 56 neutral, and 48 negative data points. The assessment team offers the following two comments upfront:

1. Trust is an often intangible item that can backtrack at a much quicker rate than the effort required to build it.
2. The trust observed during the assessment is in people rather than process. (This will be discussed in greater detail under Principle 5).

A strong driver for the good performance seen under this Principle was Attribute 3B. Similar to comments received under Principle 2 interview questions, personnel feel they can raise issues to management without concerns of retribution. This impression is coupled with trust in the current senior management team and a generally positive reaction towards the transition of the plant operator back to Xcel Energy. This could suggest that PI personnel have an inclination towards a return to the "good old days" Given that this is the case, PI management must be cautious that any helpful initiatives instituted under the previous management company are not inadvertently lost. It may be tempting to dispense with old linkages if personnel had a negative impression of the previous operator. While it is certainly prudent to make changes, a loss of something good that may have come from the previous operator can have detrimental effects that in the long run could ultimately erode trust.

CAP challenges

Interviews indicated that CAP closure to trending and the use of CAP trending in the DRUMs is not well understood. The "close and trend" aspect of nuclear plant corrective action programs is often a challenge to convincingly communicate for many facilities. In general, when an individual writes an AR, that issue is extremely important to them and there is a strong wish that the item is promptly corrected. Most people prefer the instant gratification that comes from seeing their specific concern addressed quickly versus becoming a single data point for *possible* future action. It is important the PI management clearly and convincingly explain AR closure to trending and even more importantly, demonstrate to plant staff by communicating examples where items were corrected as result of trend ARs. If personnel fail to understand that something worthwhile is being done with the AR's they generate, a situation could occur where they stop writing AR's.

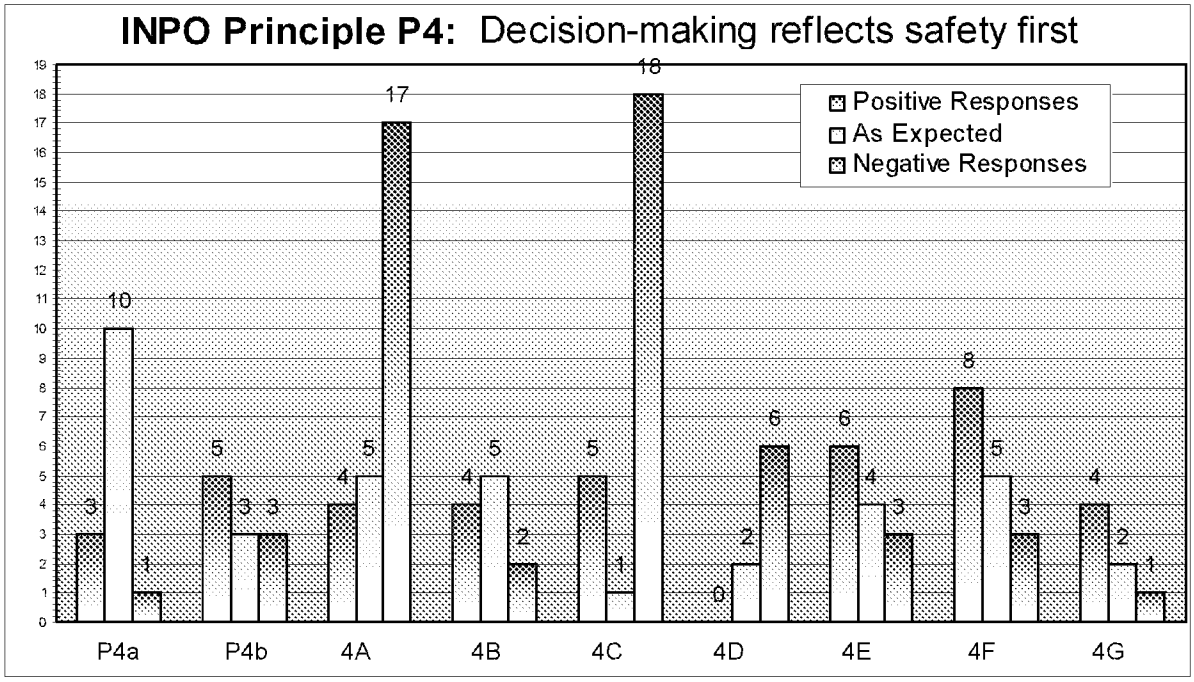
Another challenge the team noted was that the CAP work load within the engineering and craft organizations has resulted in some personnel not generating an AR for issues they perceive as low level. Engineering in particular, has a high number of ARs to reply to, owning approximately 70% of the ARs at the station. The general impression the team received was that issues perceived to be of significance, such as conditions adverse to quality, would be documented. However, if the issue were judged to be of a low level by the individual, time might not be taken to generate the AR. This is a risky situation, as the judgment for what constitutes a condition adverse to quality could be

made at the individual worker level rather than being made by the Operations shift and the AR Screening Committee.

The team did note some interesting paradoxes in this area. The comment that perceived low level issues may not always be documented notwithstanding, there is apparently an operating band with regard to threshold for identification. Interviews suggested a number of low level issues are actually being written into AR's by Operations and Maintenance and "thrown over the fence" to Engineering. Apparently, many of these AR's are actually questions. Engineering perception is that many of these questions should be within the capability of Operations and Maintenance to answer for themselves with just a little research, and thus, they believe the AR could have been avoided altogether. The number of AR's is apparently keeping Engineering bogged down, yet the Engineers are reluctant to give up ownership of these AR's as they believe they have the best knowledge base to answer these issues. While the team is concerned that there could be some misperceptions across interdepartmental lines (Maintenance and Operations perceived to "throw items over the fence"), the team overall sides with identifying issues in the CAP whenever there is a doubt.

Although this did not emerge as a key issue in the aggregate, the team did hear a few comments that some personnel were concerned with the "boomerang effect." An individual writing the AR could be tasked with answering the AR, and thus, could create a motivation to not identify the issue. However, the team did not identify any specific case where an AR was not written due to this "effect."

Principle 4: Decision-making reflects safety first. (Figure 5)



P4a	Personnel are systematic and rigorous in making decisions that support safe, reliable plant operation.
P4b	Operators are vested with the authority and understand the expectation, when faced with unexpected or uncertain conditions, to place the plant in a safe condition. Senior leaders support and reinforce conservative decisions.
4A	The organization maintains a knowledgeable workforce to support a broad spectrum of operational and technical decisions. Outside expertise is employed when necessary.
4B	Managers, supervisors, and staff clearly understand and respect each other's roles in decision-making.
4C	Plant personnel apply a rigorous approach to problem-solving. Conservative actions are taken when understanding is incomplete.
4D	Single-point accountability is maintained for important safety decisions, allowing for ongoing assessment and feedback as circumstances unfold.
4E	Candid dialogue and debate are encouraged when safety issues are being evaluated. Robust discussion and healthy conflict are recognized as a natural result of diversity of expertise and experience.
4F	Decision-making practices reflect the ability to distinguish between "allowable" choices and prudent choices.
4G	When previous operational decisions are called into question by new facts, the decisions and associated underlying assumptions are reviewed to improve the quality of future decisions.

Principle 4 was a challenge area for PINGP. There were 39 positives, 37 neutrals, and 54 negative data points. Strong negative drivers can be seen in Figure 5 above for Attributes 4A and 4C.

There was a slight positive trend where some personnel felt that management was open to having their decisions questioned, as evidenced by the number positive data points under Attributes 4E, 4F, and 4G. For example, interviewees indicated that mechanics are not afraid to bring up issues, and the Maintenance Manager is regularly challenged

by maintenance personnel. In another example, a manager indicated he had questioned a HELB analysis which resulted in entering a shut down technical specification action statement. This manager indicated that he received no negative repercussions from senior management.

Knowledgeable workforce

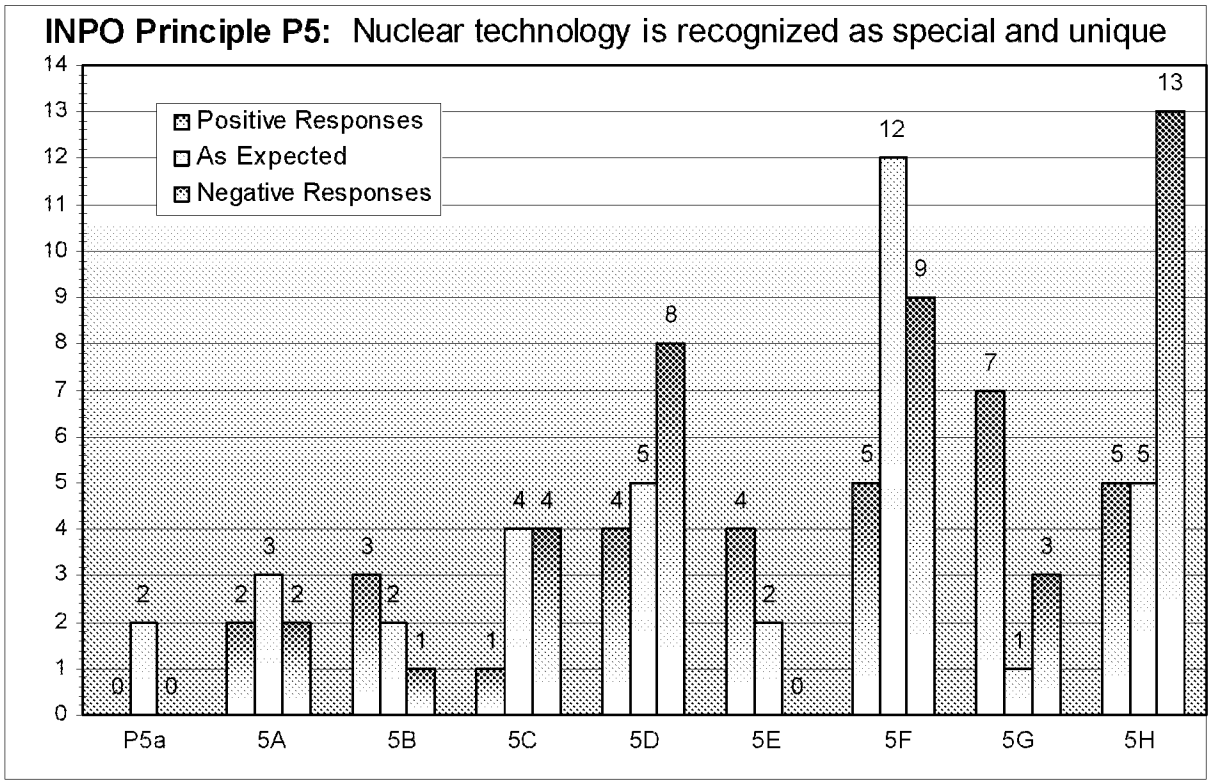
As discussed under Principle 1, PINGP has had issues with workforce planning. There has been an overall loss of knowledge within Engineering, Operations, and Maintenance that has challenged the ability of the organization to perform work and make operational decisions. This accounts for the net negatives under Attribute 4A, above. Part of the background for this issue involves PI efforts to transition the station from a System Engineering led organization to an Operations led organization. At one time, plant knowledge in the Engineering ranks was high, driven by the comprehensive plant certification program engineers were trained under. System Engineers were relied upon to make key decisions that would normally be relegated to Operations. In more recent times, elimination of the certification program for engineers, efforts to put the ownership for the plant back in Operations, and personnel attrition has resulted in reduced plant-level knowledge in Engineering. Furthermore, related efforts have not yet resulted in achievement of an Operations led organization. Interviews indicated Operations is more in the driver's seat than a few years ago, but is still not the organization that is leading the station by setting standards. Another comment received under this area was that design basis information is difficult to retrieve.

Position vacancies are also a contributor to weak scores in having a knowledgeable work force. At the time of the assessment, plant performance indicators were not meeting the targets for filling open positions.

Resolution of equipment problems

Attribute 4C was another strong detractor from better performance under Principle 4. This was related the plant's ability to successfully solve problems. Certain long standing equipment issues, and some equipment issues not being resolved the first time contributed to the negative scoring in this area. Examples of problems cited by interviewees included TSC ventilation, fan coil units, turbine lift oil pump, diesel generators, air compressors, charging pump packing, and Foxboro controllers. This perception was found within Security as well, as interviewees cited degraded security equipment such as doors and pop-up barrier failures. Some personnel felt that problems were being resolved, but only after a long period of time.

Principle 5: Nuclear technology is recognized as special and unique. (Figure 6)



P5a	The special characteristics of nuclear technology are taken into account in all decisions and actions. Reactivity control, continuity of core cooling, and integrity of fission product barriers are valued as essential, distinguishing attributes of the nuclear station work environment.
5A	Activities that could affect core reactivity are conducted with particular care and caution.
5B	Features designed to maintain critical safety functions, such as core cooling, are recognized as particularly important.
5C	Design and operating margins are carefully guarded and are changed only with great thought and care. Special attention is placed on maintaining fission product barriers and defense-in-depth.
5D	Equipment is meticulously maintained well within design requirements.
5E	Insights from probabilistic risk analyses are considered in daily plant activities and plant change processes.
5F	Comprehensive, high-quality processes and procedures govern plant activities.
5G	Employee mastery of reactor and power plant fundamentals, as appropriate to the job position, establishes a solid foundation for sound decisions and behaviors.
5H	** A systematic process is used to prepare the plant for startup and maintenance. Work is properly planned and performed in accordance with established schedules, processes and procedures to achieve clarity of direction and quality of performance.*

PINGP personnel generally understand that nuclear technology is special and unique. However, as alluded to under Principle 3, trust in plant processes is relatively weak. For Principle 5, there were 31 positive data points, 36 neutral, and 40 negative data points. Some of the attributes under Principle 5 are heavily tied in with the health of processes

and how people perceive they are working. This fundamental issue, particularly a lack of confidence in the Work Management Process, is what contributed to many of the negative responses under Principle 5.

This area was perhaps of most concern to the assessment team, from an actual plant impact stand point. PINGP has been expending efforts to transition the facility from a knowledge-based culture to a process-based culture. The assessment team observed that this conversion is meeting with resistance, corroborated by the number of negative responses under Attributes 5F and 5H. Interviews indicated that some personnel perceive that following a formal process takes longer, and they do not see the net benefit of following the process vice just going to the people they know to get the job accomplished. An example of personnel circumventing a formal process involves the number of Priority 2 jobs initiated by Operations. Interviewees indicated that several items were coded as Priority 2 when they actually did not involve nuclear safety implications; rather, these items represented personal preferences in Operations vice following the process as written.

A culture where personnel do not see the value of following process is fundamentally flawed. PI management must proceed carefully in this area, because it is often true that following a process as written, does often take more time, at least initially. However, the rationale and benefits of adhering to formality must be effectively communicated to the workforce so personnel understand that there is a return on investment for doing so. Improved risk management, repeatability, reduced reliance on tribal knowledge, and the reduced likelihood of long term rework are reasons that PI management should consider discussing when attempting to get stronger buy-in for following formal processes.

Challenges in moving the station from knowledge-base to process-base is also closely related with the issue of moving from an Engineering-led organization to an Operations-led organization discussed under Principle 4 above. At one time, plant engineers were doing their own planning, making calls on operability, and making decisions that normally would be made by Operations. Changes to the duties of engineering were generally perceived as negative, indicating that there are improvement opportunities in the manner in which PI Management communicated the basis for the transition.

Work Management Process

The Work Management Process at PINGP is undergoing major renovation. PI Management and plant staff have acknowledged that this is a weak area for the station and one that needs to be corrected. This is reflected in the number of negative comments received under Attribute 5H. However, there is more at play for Attribute 5H than personnel simply knowing and acknowledging the Work Management Process is in a recovery mode.

Interviews indicated that the fact that the Recovery Plan is focused on long term actions is helping build confidence and trust in the senior management team; this is an

indication to some that senior management is more concerned with the long-term good of the facility, rather than just getting their "ticket punched" with quick fixes. The assessment team would concur with the value of long-term focus. However, what is also true is that many personnel on the front lines are still struggling with coordination problems, issues with scheduling, parts, resources, and hand-offs. Personnel in Operations and Maintenance indicated that they needed to see some short-term results as well to restore their confidence in the process to keep the momentum going. The assessment team concurs with this as well. While long-term actions are critical, it is imperative that short and intermediate term results are seen by plant staff. It is good that the station is self-aware of problems in the area of Work Management, but an organization must celebrate the small victories and advertise them so personnel can see that progress is being made.

An assessment team observation of a T-week meeting indicated that it was well-run and good discussion occurred at the meeting. In addition, a review of plant data indicated that there were actually some improvements, such as the timely preparation of work packages. Positive steps such as this should be communicated. If people lose confidence that a process is working, their incentive to contribute to that process is compromised, thereby weakening that process further. PI Management must guard against allowing this self-fulfilling feedback loop to occur.

Meticulously Maintaining Equipment

As discussed under Principles 3 and 4, above, the station has been challenged with equipment problems and this is again reflected under some of the deltas in scores for Attributes 5C and 5D. This was supported by an assessment team tour of the plant which noted rags to collect oil leaks for the diesel generators. However, a positive side of this issue is that interviewees also indicated that Xcel Energy (corporate) has demonstrated its commitment to improving equipment performance by providing funding to resolve some long-standing equipment issues. Examples included funding to address issues with charging pumps variable speed drives, Ingersol-Rand air compressors, R11/R12 Radiation monitors, auxiliary feed pump high bearing temperatures, turbine EH modifications, as well as considerable funding to resolve long-standing issues related to the quality and irretrievability of engineering documents. This was perceived by many as a fairly recent shift in philosophy by upper management to focus on long-term health as opposed to short-term performance. Unfortunately, personnel also indicated that some of the funds allocated by corporate is not expended, as there are not enough resources to implement some of the initiatives.

Clearance and tagging

Challenges with clearances and tagging also contributed to some of the deltas under Principle 5. The work management process, quality of design documents, and use of human error reduction tools have been implicated as contributing factors. Clearance and tagging is an acknowledged problem area for the station, and a root cause evaluation was recently completed. On a positive note, however, the decision to call a

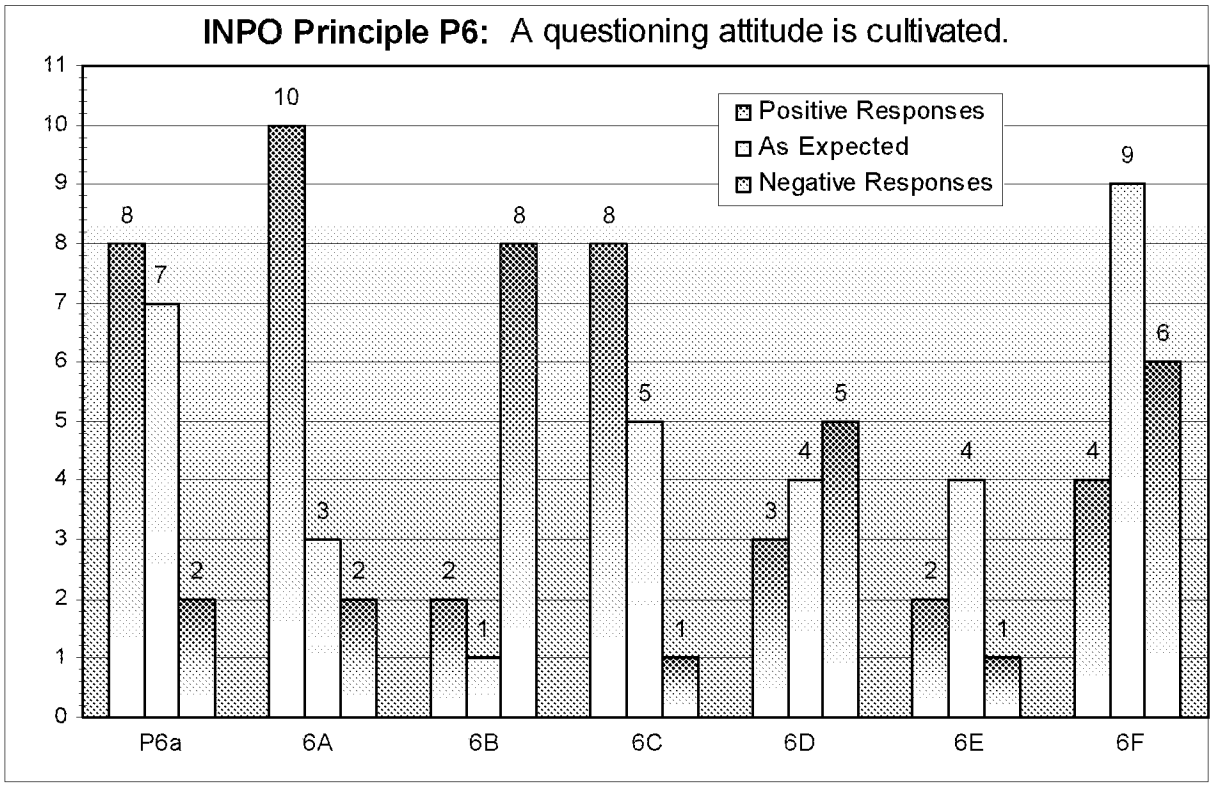
stop work on the Electro-Hydraulic system modification work to validate all clearance order boundaries when an isolation error was identified was considered a positive action. This contributed to some of the positive data under Attribute 5H.

Prevention

Interviewees indicated many people feel they do not have time to be proactive (trending, analysis, system monitoring) and as a result always seem to be in the reactive mode. Some personnel also perceive that when proactive items are identified, they are the first to be removed from the outage scope. Of course, being in the reactive mode prevents focusing on reducing backlogs, improving cumbersome processes, and monitoring low level indicators to identify precursors before they reveal themselves as events. These comments support the assertion that PINGP could have a stronger culture of prevention. This is discussed in more detail under Principle 7.

On a somewhat related note, some interviewees anticipated that the station will be vulnerable to latent errors that may exist as a result of short-term focus on performance during the years the station was managed by the previous operator.

Principle 6: A questioning attitude is cultivated. (Figure 7)



P6a	Individuals demonstrate a questioning attitude by challenging assumptions, investigating anomalies, and considering potential adverse consequences of planned actions.
6A	While individuals expect successful outcomes of daily activities, they recognize the possibility of mistakes and worst-case scenarios. Contingencies are developed to deal with these possibilities.
6B	Anomalies are recognized, thoroughly investigated, promptly mitigated, and periodically analyzed in the aggregate.
6C	Personnel do not proceed in the face of uncertainty.
6D	Workers identify conditions or behaviors that have the potential to degrade operating or design margins. Such circumstances are promptly identified and resolved.
6E	Employees understand that complex technologies can fail in unpredicted ways. They are aware that latent problems can exist, and they make conservative decisions considering this potential.
6F	Group-think is avoided through diversity of thought and intellectual curiosity. Opposing views are encouraged and considered.

Generally, PINGP did well under Principle 6. The assessment indicated that there has been improvement in exercising a questioning attitude at the station. Most felt empowered to question information and decisions all the way to the top. There were 37 positive, 33 neutral, and 25 negative data points under this Principle.

The assessment team attended the first half of the Management Review Meeting on August 28, 2008, and observed good questioning attitude, healthy challenging, and a free flow of information. The meeting was attended by the Chief Nuclear Officer (CNO), Site VP, Site Director, Plant Manager, and department heads. Initially, it appeared the

meeting was top-driven, with the CNO asking most of the questions. It was later explained that most of the department managers at the meeting had seen the meeting topics and package contents before, whereas the CNO had not.

Contributing to positive scores under this Principle were perceptions of good pre-job briefs, use of hazard awareness, Are You Ready checklists, and open discussions. Interviewees indicated that employees at all levels were able to "Stop when Unsure."

As discussed in some of the previous Principles, station personnel gave credit to the transfer back to Xcel Energy which has been perceived to foster change in employee attitude and willingness to care and challenge decisions.

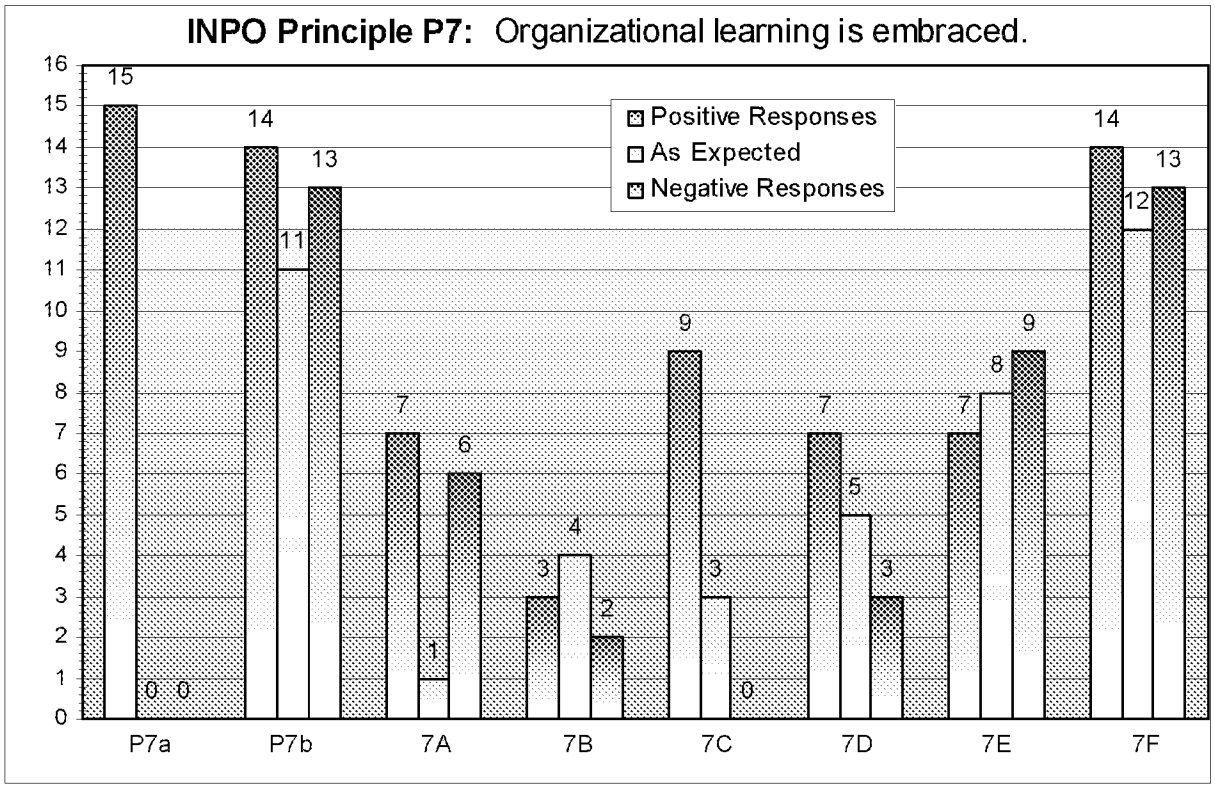
Although interview results indicated an overall good culture of questioning attitude, there were some important detractors to better performance in this area. Some of the negative scores under questioning attitude were reflected in interview responses from senior management. There is a perception by upper management that people are not necessarily seeing problems, so they may not know when to challenge or question decisions or actions. Some senior management interviewees also commented that they were not sure that personnel on the front line levels were always self-aware of their own weaknesses. Another negative contributor for Principle 6 involved personnel comments related to check valve SI-9-5, and the manner in which maintenance work on it was handled at the end of the Spring refueling outage. Some personnel believed this was an example where questioning attitude could have been better, and it appeared that the plant may have put production ahead of safety. The issue discussed in previous principles, where equipment deficiencies are raised by workers and management apparently tolerates long delays in implementing changes or repairs also reflected itself in some of the responses under Principle 6.

CAP Initiation

An item that contributed additional deltas under Principle 6 that warrants its own discussion involves a potential barrier to ensure all conditions are captured in the CAP. Under Principle 3, it was discussed that a lack of confidence in the close and trend program could inhibit personnel from initiating ARs in the future. Interviewees responding to questions under Principle 6 indicated that Mechanical Maintenance and Security individuals are not required to enter their own ARs. Supervisors are given the concerns and often relied upon to generate the AR. On one hand, the team notes, it is good that front line personnel recognize that an issue needs to be documented and captured in the CAP, however, reliance on Supervisors to initiate the AR creates a jeopardy. First line craft Supervisors are amongst the busiest individuals at a nuclear facility, often having to balance administrative burdens with the pressure to be out in the field with their crews. High workload may create a situation where a Supervisor does not have time to enter an AR and the issue is lost. Additionally, a potential exists that Supervisors may make a conscious decision not to enter the item based on their own perception that the issue may not be important or other considerations.

PI management apparently has not established a clear expectation on worker initiation of their own AR's at PINGP. Some members of the management team interviewed indicated they would expect front line workers document their own issues, however, the assessment team did not get the impression there is a strong commitment to this expectation. The assessment team understands there is merit on both sides of the argument; however, PI management should clarify its position on worker initiation of electronic Action Requests.

Principle 7: Organizational learning is embraced. (Figure 8)



P7a	Operating experience is highly valued, and the capacity to learn from experience is well developed.
P7b	Training, self-assessments, corrective actions, and benchmarking are used to stimulate learning and improve performance.
7A	The organization avoids complacency and cultivates a continuous learning environment. The attitude that "it can happen here" is encouraged.
7B	Training upholds management standards and expectations. Beyond teaching knowledge and skills, trainers are adept at instilling nuclear safety values and beliefs.
7C	Individuals are well informed of the underlying lessons learned from significant industry and station events, and they are committed to not repeating these mistakes.
7D	Expertise in root cause analysis is applied effectively to identify and correct the fundamental causes of events.
7E	Processes are established to identify and resolve latent organizational weaknesses that can aggravate relatively minor events if not corrected.
7F	Employees have confidence that issues with nuclear safety implications are prioritized, tracked, and resolved in a timely manner.

Overall performance under Principle 7 was adequate. Principle 7 recorded 76 positive, 44 as-expected, and 46 negative data points. A strong driver for positive performance under this principle can be seen in Attribute P7a. Interviews and meeting observations indicated that OE is valued and utilized. Additionally, OE is accessed from many different sources. For example, during a Plant Health Committee presentation observed, a System Engineer was knowledgeable of OE at another station related to the equipment he was speaking of.

Attribute P7b indicated split results. Positives were driven by comments that Managers and supervisors are participating in benchmarking and self-assessments. However, this was balanced with feedback that there do not appear to be as much self-assessment and benchmarking activity at the individual contributor level. This would be unfortunate for the station, as good learning opportunities may be missed by personnel on the front lines.

Corrective Action Program

During this assessment, challenges were noted with the implementation of the Corrective Action Program (CAP). The assessment team believes that employee perceptions about weaknesses in the effectiveness of the CAP contributed to negative scores in attributes P7b, 7E, and 7F.

This is an area that warrants further discussion in the context of this report. In general, interviews indicated that personnel are identifying issues for inclusion in the CAP at a low level. Additionally, the AR generation rate for PINGP appeared to be in keeping with industry norms. Therefore, the team concluded that actual AR initiation, in general, is occurring when it needs to. However, the team is concerned that certain conditions exist that create a distinct potential that ARs may not be written when they should:

1. Lack of confidence in close and trend ARs.
2. Culture in some groups where they do not generate AR's for issues they perceive as low level; this is caused in part by high work load of AR evaluations.
3. Reliance on Supervisors generating the electronic AR's poses a jeopardy.

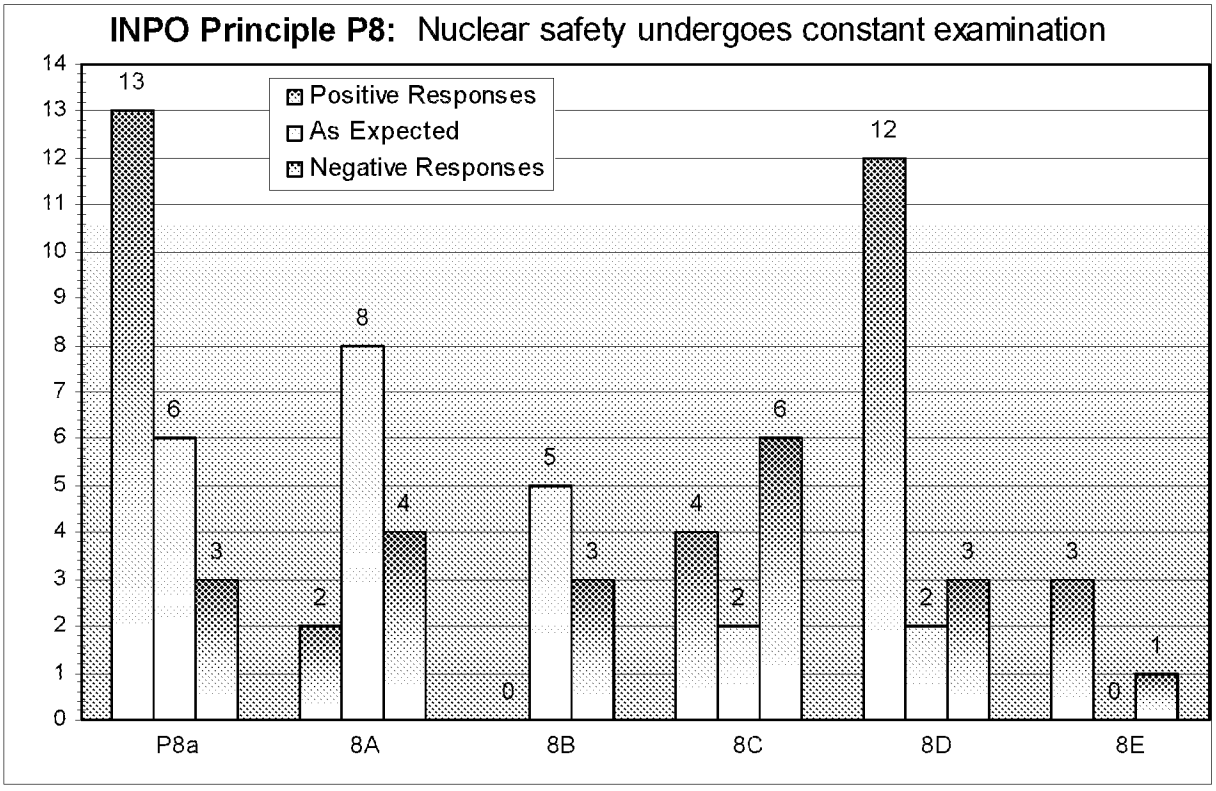
These conditions are discussed in further detail under Principles 4 and 6. In addition to the specific points mentioned above, there is another, more general concern. Under Principle 5 above, it is discussed that when personnel stop trusting a process, they may stop participating in that process, thereby actually causing further erosion of the program, in a sort of self-fulfilling prophecy. The team was referring to the Work Management Process under Principle 5, but the same could be stated about the CAP. Performance indicators for the CAP are not meeting goals, and plant personnel have heard that the program is having challenges. For some, their own experiences bear this out, when they perceive that their issues are not being fixed or recurring equipment issues occur. There is a jeopardy that a general lack of confidence in the CAP could cause people to stop feeding the process. Therefore, it is important that PI management present balanced communication to station staff. It is important for people to understand where performance is not meeting standards. However, excellence is a journey and intermediate victories should be highlighted and discussed. This will help ensure that people remain engaged.

Culture of Prevention

The assessment team believes that a culture of prevention may not have been fully embraced at the station. Prevention is an item that correlates to Principle 7 and provides a foundation for much of nuclear safety culture. The team noted that the Management Safety Review Committee (MSRC) commented in meeting minutes earlier this year, that PINGP may be more in a Detection mode than in a Prevention mode. The assessment team observed other data points that support this assertion:

1. The station's performance in industrial safety is fourth quartile, with an OSHA recordable rate above 1.0. Industrial safety performance is often a leading indicator of performance shortfalls in other areas; PINGP has been unsuccessful in preventing injuries.
2. During a team observation of a PERG meeting, the leadership team was observed to conduct a healthy, critical discussion of the day's accomplishments; however, the dialogue and mindset did not appear forward-looking; there was little discussion of the work for the next day.
3. Most people feel they do not have time to be proactive (trending, analysis, system monitoring) and as a result always seem to be in the reactive mode. The organization seems to be good at "fighting the fires" rather than preventing them.

Principle 8: Nuclear Safety Undergoes Constant Examination. (Figure 9)



P8a	Oversight is used to strengthen safety and improve performance.
8A	A mix of self-assessment and independent oversight reflects an integrated and balanced approach. This balance is periodically reviewed and adjusted as needed.
8B	Periodic safety culture assessments are conducted and used as a basis for improvement.
8C	The pitfalls of focusing on a narrow set of performance indicators are recognized. The organization is alert to detect and respond to indicators that may signal declining performance.
8D	The insights and fresh perspectives provided by quality assurance, assessment, employee concerns, and independent oversight personnel are valued.
8E	Senior executives and board members are periodically briefed on results of oversight group activities to gain insights into station safety performance.

In general, PINGP scored well under Principle 8. There were 34 positive, 23 neutral, and 20 negative data points under Principle 8.

Feedback on the Nuclear Oversight Department (NOS) was divided. Several interviewees commented positively about the products they had seen from NOS or indicated that NOS was having an increasing impact on improving station performance. The number of data points under Attributes P8a and 8D attest to this. Another positive

contributor to Attribute 8D was a team observation of a PINGP Management Review Meeting (MRM). The NOS Manager presented some recent findings and insights at this meeting. The NOS observations and comments received good support from the CNO at this meeting.

Additionally, the assessment team reviewed NOS products, including audit reports, and found the sample to be value-added.

However, caution is warranted before painting too optimistic a picture of NOS performance. The feedback that NOS was a positive contributor to station performance tended to be conveyed by management personnel. A number of staff believed that NOS was not adding value, and referred to "circling the bullet holes" for some issues identified. Some interviewees perceived that NOS would take line self-identified issues and AR data and package them into an NOS finding. Additionally, some interviewees commented that they had not seen or heard from NOS.

The assessment team acknowledges that excellence in quality assurance (QA) cannot be achieved unless oversight can package and communicate information in an effective way that convinces the line organization to take action. However, if some perceive that NOS is "circling the bullet holes", this is not necessarily reflective of poor QA performance. It could be an indication that some groups are not receptive to outside feedback; additionally, if the line organization already knows about the issues, the question could still be reasonably asked as to why the issues are not fixed yet.

Less solid performance was seen under Attribute 8A, partly due to feedback related to self-assessments. As discussed in Principle 7, not many individual contributors had been afforded the opportunity to participate on self-assessments. In addition, interviewees commented that self-assessments identify issues, but follow-through on recommendations is often lacking and not being documented.

A detractor from better performance under this principle was the perception by some plant staff that the plant is external driven, i.e., performance is driven by INPO influence rather than by high internal standards. This may be due to some of the language used by managers in meetings when talking about initiatives; references to INPO, the NRC, the MSRC, or even NOS, when talking about needed improvements need to be conducted with care. Conveyed in the wrong context, personnel could get the impression that their leadership is too heavily driven by outside influences rather than their own desire for continuous improvement.

Another negative influence within Principle 8 was a legacy issue related to plant management not adequately communicating the results of the last nuclear safety culture self-assessment conducted at PINGP in 2001. Although this was several years ago, personnel still retain the collective memory of that lack of communication, and will certainly watch the actions of the current management team and how the results of this assessment are conveyed.

V. Positive Organizational Traits Noted During the Assessment

During the assessment, the team noted several positive traits that the PINGP organization currently exhibits that are worthy of mention. They are important to a good nuclear safety culture (or indirectly helps promote a good safety culture):

- Station personnel generally perceive a strong commitment to nuclear safety and have a high level of trust in their senior management team. Principle 3, Trust Permeates the Organization, was a strong positive at PINGP.
- Personnel generally feel free to raise issues and perceive that management is open to having their decisions challenged.
- OE is valued and utilized; OE is accessed from many different sources.
- Recent organizational changes have been noted as a positive, especially at the senior management level; this provides an opportunity for organizational leverage.
- Personnel are generally identifying issues in the CAP at a low threshold.
- Corporate support and funding for long-standing equipment issues and problems with engineering documents retrievability was considered to be positive. This is perceived by many as a fairly recent shift in philosophy by upper management to focus on long-term health as opposed to short-term performance.
- The practice of providing a formal critique at the end of every meeting was found to be noteworthy.
- Good pre-job briefs are perceived to be occurring; use of hazard awareness and Are You Ready checklists are fostering open discussion

Note: Some of the above items are also discussed in further detail under the specific nuclear safety culture principles they align with.

VI. Summary of Recommendations

The assessment team makes the following recommendations to address the four weaknesses discussed in Section II:

<u>Weakness 1: Organizational alignment is challenged</u>

1. Senior management should communicate and reinforce the importance and relevance of the corporate nuclear safety policy at the next station All-Hands Meeting or other site-wide venues, and at least annually, thereafter.
    a. The discussion should include a reference to the fact that virtually every job on site can potentially help support nuclear safety.

b. Communicate the linkage between the rewards and recognition program to nuclear safety.
c. Leverage first line Supervisors to deliver the message to individual work units; the message should be personalized to fit the applicability of nuclear safety to that work group.

2. Continue the practice of D15 Department Communication meetings; the assessment team generally felt this was a valid tool; however, implement the following enhancements:
    a. Establish a schedule where managers are rotated to deliver the D15 communication to departments other than their own; there are advantages when work groups hear messages from more than one source periodically, including correcting for some systemic weaknesses that could be introduced by a particular speaker all the time.
    b. Provide a basic familiarization training for all managers expected to deliver D15 communications, including communicating the basis for important decisions and plans. This will help ensure there some common standard for delivering the communication; this could be linked with an existing training or qualification already existing at the station. Failure to communicate important decisions and their bases to the workforce may reduce trust in management and adversely affect the perception that the leadership team will make the right decisions.

3. Develop and deliver communication packages for the following topics:
    a. Status of open positions and what the organization is doing to fill those positions. **(This communication will also help address Weakness 2, Workforce Planning)**
    b. Status of the Work Management Recovery Plan; actions that have been completed, including positive results that have been realized thus far. This should include the results of the recent benchmarking trip PI personnel went on to an industry top performer. **(This communication will also help address Weakness 3, Lack of confidence in station processes)**
    c. The objective and importance of the Corrective Action Program, and its current performance levels; a component of this communication should be explaining the rationale of the close to trend program. It is important to show an example where something was actually done with close to trend data points to further demonstrate why it is important to write close to trend AR's. **(This communication will also help address Weakness 3, Lack of confidence in station processes)**
    d. The status and importance of key Equipment Reliability initiatives, including the Top Ten Equipment list.
    e. PI Management should clarify its position on worker initiation of electronic Action Requests. PI Management apparently has not established a clear expectation on worker initiation of their own AR's at PINGP. Some

members of the management team interviewed indicated they would expect front line workers to document their own issues, however, the assessment team did not get the impression there is a strong commitment to this expectation. There is merit on both sides of the argument; the PINGP management team should simply come to a decision on this issue, communicate it, and enforce it.

f. The results of this Safety Culture Assessment. A failure to communicate results from assessments and surveys may impact willingness to provide valid data or inputs for future assessments.

The communication packages need not be lengthy or elaborate; however, each must emphasize and celebrate accomplishments to date, even the small ones. Each communication must include one or more examples where a positive outcome was realized. The objective is to build confidence and engagement in the supporting process.

Communication packages could be distributed electronically, but should be supplemented by face-to-face communications at the department level or senior level in an all-hands meeting.

Weakness 2: Work force planning has not been fully effective

4. Further pursue communications between PINGP Management and corporate HR to evaluate what can be done to facilitate more efficient recruiting, interviewing, and processing of candidates to fill open positions. These discussions should include professionally challenging Xcel Corporate HR on what barriers are preventing more efficient processing of candidates.

5. Generate a training request to analyze the merits of Engineering Support Personnel (ESP) management training that includes systems training and a simulator module. The assessment team is not necessarily recommending a return to full certification for engineers, but believes it is important for training to be responsive to the desires from the Engineering ranks.

6. Develop a just-in-time training package that discusses the roles of Engineering and Operations, including what good interface between the two organizations looks like. A key component of this training should include the concept of an Operations led organization and why it is important to have that. This training should be provided to both Engineering and Operations personnel as well as other pertinent groups on site.

Weakness 3: There is a lack of of confidence in station processes

7. Generate a training request to consider a module that reinforces the value of formality and following formal processes. The training request should consider the following components:

    a. The rationale and benefits of adhering to formality, including improved risk management, repeatability, reduced reliance on tribal knowledge, and the reduced likelihood of long-term rework.
    b. A review of 3-5 Operating Experiences as case studies in which a formal process was not followed and the resulting consequences. Include at least one OE from outside the nuclear industry.

    Administer the training in a phased approach to the plant population, with the priority being on production ranks.

Weakness 4: A culture of prevention has not been fully embraced

8. Perform management observations on a gradient as the month progresses and track the completion of observations to preclude a bow wave as such at month end. If not already included in the observation program, prompt feedback to the observed workgroup should be a requirement in order to get credit for the observation. For enhancement, managers could reinforce how the work being done by that work group relates to nuclear safety.

9. PINGP should consider a focus meeting with PINGP supervisors to reinforce the importance of in-field oversight and correction of at-risk behaviors at a low threshold. An important piece of assuring good industrial safety during outages is to gain the buy-in of contractor supervisors. PINGP contractor supervisors should be in the field and oversee the reinforcement of good human performance and safety behaviors by contractor supervisory personnel.

10. Add an agenda item to the daily production meeting that discusses the most error likely activity for the day and what specific actions are being taken in the prevention mode to avoid problems on that job.