Assessment of the Office of Inspector General Event Inquiry into the Nuclear Regulatory Commission's Oversight of the Auxiliary Feedwater System at Diablo Canyon Nuclear Power Plant

Executive Summary

An auxiliary feedwater (AFW) system discharge pipe leak was discovered at Diablo Canyon Nuclear Power Plant (DCNPP) Unit 2 on July 23, 2020, following nearly 6 days of system operation while the plant was shut down for an unrelated issue. The through-wall leak was caused by corrosion due to water that was trapped and hidden under metal-covered insulation on a cooling line to one of four steam generators. Upon the licensee's discovery, the leak was isolated and AFW flow was maintained to other steam generators, preserving system safety function. Also following the discovery, the licensee conducted an "extent of condition" inspection and completed appropriate repairs, including permanently removing the insulation and coating the affected piping.

In October of 2020, during a scheduled inspection, the U.S. Nuclear Regulatory Commission (NRC) documented one finding related to this event that was screened as very low safety significance (Agencywide Documents Access and Management System (ADAMS) Accession No. ML20303A238). The cause of the leak, corrosion under insulation, is known to the industry and the NRC; appropriate measures are in place to inspect for this degradation mechanism.

The Office of the Inspector General (OIG) initiated an event inquiry based on "specific allegations that the NRC had inadequately inspected the AFW system" two months prior to the leak discovery and "questions as to whether there is a lack of NRC oversight at the DCNPP" (Inquiry, pg. ii). The OIG made several findings and observations in the OIG Event Inquiry (OIG CASE No. 20-025, hereinafter referred to as "the inquiry").

The NRC staff evaluated each of the OIG's findings and observations in the inquiry by examining whether NRC inspectors followed NRC inspection procedures and COVID guidance at the time of the event. Based on the evaluation, the staff determined that inspection procedures and COVID-19 guidance were appropriately followed and found no evidence to suggest that the AFW pipe corrosion hidden under metal jacketing material should have reasonably been identified by NRC inspectors before the leak occurred. The staff also provided additional context and addressed inaccuracies contained in the inquiry regarding the actual amount of inspection activity conducted, the cause of the Unit 2 plant shutdown, the existence of a finding and not a violation, the purpose of NRC inspections, and guidance versus requirements in inspection procedures.

However, the staff did identify some opportunities to improve inspection programs and training based on the results of its evaluation of the inquiry. In order to further strengthen the inspection program, the staff recommends inspector training on corrosion under insulation and the Inspection Manual and a review of inspector qualifications for potential improvements. The staff also recommends reviewing the Inspection Procedure (IP) 71111.04, "Equipment Alignment" (ADAMS Accession No. ML21032A255), to ensure its objectives, requirements, and associated guidance are clear to internal and external stakeholders. The staff also recommends reviewing the Reactor Oversight Process (ROP) inspection program to determine if additional direction or training should be included to ensure consistent application across single and multi-unit sites.

Finally, the staff recommends communicating the DCNPP corrosion under insulation operating experience in an appropriate venue to highlight an example where corrosion under insulation can affect plants before license renewal.

Background

The NRC resident inspectors at DCNPP documented a complete system walkdown on the Unit 1 and Unit 2 AFW systems in April 2020 in the DCNPP second quarter integrated inspection report; 2020002 (ADAMS Accession No: ML20203M732). On July 23, 2020, while Unit 2 was shut down to correct a main generator hydrogen leak, the licensee discovered a through-wall leak of 3.9 gallons per minute in Unit 2 AFW piping (of the total 410 gallons per minute delivered by the system) in the elbow downstream of LCV-111, SG 2-2 AFW Control Valve. A subsequent root cause evaluation determined the cause to be corrosion under insulation from damaged insulation that allowed moisture and contaminants to penetrate the aluminum jacket. The licensee performed extent of condition evaluations, conducted repairs, and declared the system operable before returning Unit 2 to full power on August 3, 2020. Subsequently, the OIG initiated an inquiry into the event after receiving allegations of inadequate inspections and questions regarding NRC oversight at DCNPP (Inquiry, page ii).

Factual Corrections

The staff notes that additional clarifications and context would provide a proper characterization of the events described in the inquiry.

Cause of Shutdown

Throughout the inquiry the OIG states that the licensee "was required to shut down the unit on July 23, 2020, because two AFW pumps were inoperable" (e.g., page 5). This is not accurate. As described in Enclosure 2, the unit was shut down on July 17 due to a hydrogen leak on the main generator cooling system (ADAMS Accession No. ML20259A183). Pressurized water reactor AFW systems are not normally in service during reactor power operations. As such, the section of pipe in question is not normally under system operating pressure. The AFW through-wall pipe leak downstream of the LCV-111, SG 2-2 AFW Control Valve, was discovered on July 23, after the system had been in operation for 6 days (the first 6 days after the unit was shut down). DCNPP Unit 2 technical specifications limiting condition for operation 3.7.5.D.2 was conservatively entered because the licensee could not determine the exact location of the leak. Once the unit was cooled down to an operating mode where the AFW system was not required to be operable per plant Technical Specifications, the licensee determined that AFW flow to one steam generator (of four) had been affected by the leak.

"Finding" as Opposed to Notice of Violation

The inquiry states that "[a]fter the event, the NRC issued the licensee a notice of violation" (page 3). The NRC issued a very low safety significance finding, not a notice of violation, related to this event (ADAMS Accession No. ML20303A238). A finding involves a more than minor performance deficiency not related to a specific NRC regulation, whereas a notice of violation involves a violation of NRC requirements. In this case, the failure to incorporate operating experience was a failure to follow a station procedure not required by NRC regulations.

Senior NRC Official Statements

Senior NRC official's statements were taken out of context. Specifically, on page iii the inquiry states, "[s]enior regional officials acknowledged that the inspection was inadequate" in reference to the resource expenditure of 5 hours of inspection. The staff determined the actual resource expenditure was 9.5 hours. On page 11 the inquiry states, "[s]enior NRC officials acknowledged that the inspections of the AFW system did not meet their expectations and that the objectives of the NRC's inspection procedures were not met." As further explained under OIG finding 2, the inspectors met management's expectations.

NRC Staff Evaluation of Findings and Observations

Finding 1. [Failure to Identify] Degraded Insulation
During routine inspections, the NRC failed to identify rain-soaked, long-degraded insulation. **(Inquiry, page 5)**

To properly reflect the role of NRC inspections at licensed facilities, additional context is needed. While it is widely understood that licensees are responsible for safe operation of their facilities, it may be less clear to external stakeholders that independent NRC inspection and oversight processes are meant to assess licensee performance in their obligation to maintain safety. Consistent with the NRC's ROP, inspections are conducted to provide a sample of licensee performance within the seven ROP cornerstones of safety. These inspections are not intended to serve as a certification of compliance or safety. Further, NRC inspectors are not licensee employees and cannot manipulate or remove licensee equipment, such as insulation, to look for corrosion under insulation. That is the role of the licensee in accordance with their preventative maintenance programs.

The staff determined that NRC inspectors toured the AFW system area of concern at an appropriate frequency as a part of ROP "plant status" tours. The staff also judged that it is reasonable for inspectors to observe damage to the metal jacket insulation covering and not question the operability of the AFW system.

Inspectors toured the area according to the procedures in Inspection Manual Chapter (IMC) 2515D, "Plant Status," dated January 1, 2019 (ADAMS Accession No. ML21281A180), and completed one partial walkdown sample and one full system walkdown sample of the Unit 2 AFW system under IP 71111.04, "Equipment Alignment," dated December 20, 2018 (ADAMS Accession No. ML18047A019). The "pipe rack" area where the leak occurred contains very few AFW components and is relatively low safety significance. Primarily, this area contains segments of AFW piping and four sealed hydraulic valves that reposition to control flow to steam generators in the event of a unit shutdown. A review of DCNPP access logs for 2020 reveal that the resident inspectors usually enter that area monthly as a part of their plant status walkdowns. The staff determined this frequency is consistent with guidance with IMC 2515D guidance.

The inquiry referred to operating experience (page 3) in a finding documented in DCNPP integrated inspection report 2020003 (ADAMS Accession No. ML20303A238). This operating experience is from a proprietary Institute of Nuclear Power Operation (INPO) database, one that is available to INPO membership (i.e., NRC licensees). The corrosion under insulation failure mechanism is generally known to the NRC, but the NRC resident inspectors at DCNPP did not have access to the specific operating experience information cited in the finding until the licensee identified it during their investigation into the cause of the leak. Although NRC

licensees are expected to screen relevant operating experience in their maintenance and operation of safety systems, the INPO operating experience events were of minor safety significance and did not merit wider dissemination by the industry or action by the NRC.

The NRC documented the AFW system through-wall pipe leak at DCNPP as a very low safety significance finding because the licensee failed to appropriately screen relevant operating experience relating to corrosion of carbon steel piping under insulation. This contributed to the licensee failing to identify and implement actions that could have eliminated vulnerabilities and prevent a similar event from occurring at DCNPP. Although a "finding" was documented in the resident inspectors' report, no violation of NRC requirements was identified.

The OIG finding 1 also suggests a failure on the part of the NRC to train its inspectors on this specific piping failure mechanism. NRC inspectors are trained and knowledgeable of general corrosion mechanisms but do not receive corrosion under insulation specific training. External corrosion is a known failure mechanism, and corrosion under insulation is discussed in American Society of Mechanical Engineers (ASME) and NRC documents. While damaged metal jacketing material covering piping insulation can be a cause of corrosion under insulation, superficial damage is not uncommon and generally not indicative of an underlying degraded condition in and of itself. Normally, the ASME code does not require the removal of insulation on carbon steel piping for inspections but directs that the surrounding areas be inspected for signs of corrosion. The NRC has promulgated and implemented guidance on licensee expectations regarding corrosion under insulation for those plants operating beyond their initial 40-year license terms (DNCPP is still under its initial license and therefore is not subject to this guidance). This guidance, LR-ISG-2012-02 (ADAMS Accession No. ML13227A361) recommends removal of insulation and inspection of a sample of applicable piping for plants operating beyond 40 years. Because corrosion under insulation can be caused by any number of reasons and superficial damage to insulation does not directly correlate to corrosion under insulation, the guidance does not recommend immediate action upon identification of external metal jacketing material damage.

This OIG finding 1 suggests that the NRC inspectors, had they seen degraded outer metal jacketing on AFW piping, should have identified the potential for corrosion under insulation and compelled the licensee to take action. However, following inspector guidance, the NRC inspectors would have needed to provide clear evidence that the underlying piping was wetted and corroded to the point that the piping might no longer meet ASME code requirements in order to compel the licensee to take more immediate action. IMC 2515D guidance suggests inspectors should observe the overall status of plant systems structures and components (SSCs) during status walkdowns, including "[o]bvious signs of degraded material condition of piping such as substantial corrosion or other conditions [that] may call into question operability." If a resident inspector had noted the damaged external insulation, IMC 0326, "Operability Determinations," dated September 30, 2019, (ADAMS Accession No. ML19273A878) states that they would have needed additional compelling information of underlying corrosion before the licensee would have an obligation to perform a more detailed evaluation of system operability. Under the concept of the "presumption of operability," unless presented with contrary information, a system that has been declared operable (i.e., capable of performing its specified function) will remain operable. The following guidance on the presumption of operability is from IMC 0326:

> It should be noted, that once a condition is identified that may impact the function of an SSC [structures, systems and components], the presumption of operability is not necessarily lost. The presumption of operability is only lost when it is

> apparent that a condition has been identified that causes a substantive (i.e., non-trivial) functional impact during the required mission time or would be expected to have a substantive functional impact during an event requiring the SSC to perform its specified safety function(s).

Given the above, the damaged insulation would not change the licensee's presumption of operability without additional evidence of underlying corrosion.

As stated previously, the NRC inspectors toured the AFW system area of concern at an appropriate frequency. While the staff determined that the inspectors' actions were reasonable, the staff does see an opportunity to improve the inspection program by considering additional inspector training communications on the specifics of corrosion under insulation, how to identify it, and ASME code and generic aging lessons learned for plants that are susceptible. The staff also recommends communicating the DCNPP corrosion under insulation operating experience in an appropriate venue to highlight an example where corrosion under insulation can affect plants before license renewal.

Finding 2: Inadequate Inspection of the Pipe Rack
Our review of plant access records revealed that the Unit 2 AFW pipe rack area where the leak occurred was not accessed during the inspection period, despite NRC inspectors reporting a complete walkdown. **(Inquiry, page 7)**

The objective of verifying equipment alignment and identifying any discrepancies that impact system safety function(s) is completed through a combination of several inspection methods, such as reviews of maintenance records, design documentation, corrective action records, and a physical inspection of the system. The staff confirmed from DCNPP access logs that NRC inspectors did not access the area of concern during the performance of the April 2020 equipment alignment inspection. However, the NRC inspectors employed a number of the aforementioned inspection methods described in IP 71111.04. Furthermore, they accessed this area of concern during plant status tours (as per IMC 2515D) in January, February, March, June, and July of 2020, as shown in Enclosure 2. Through the conduct of these activities, the inspectors reasonably inspected the AFW system by following NRC guidance.

IP 71111.04, "Equipment Alignment," contains one requirement for a complete walkdown sample:

> Walkdown and verify that the selected mitigating system is correctly aligned and able to perform its intended safety function(s).

This requirement is purposefully broad to provide inspectors with the necessary flexibility to adapt their samples to the systems they are inspecting and focus their inspection on specific areas based on risk-informed insight for specific circumstances. Combined with the guidance, the requirement implies a physical walkdown.

Traditionally, inspectors emphasize in-plant observations, when possible, to meet inspection objectives. As specified by IMC 2515, "Light-Water Reactor Inspection Program—Operations Phase," dated January 1, 2020 (ADAMS Accession No ML19345F282) "[p]erformance-based inspection emphasizes observing activities and the results of licensee programs over reviewing procedures or records." Further, specific circumstances may impact the amount of in-plant presence.

While the staff found the inspectors appropriately followed existing guidance, the inspection in question was further governed by additional guidance due to the COVID-19 public health emergency (PHE). The NRC transitioned to a maximum telework posture on March 16, 2020, and on March 19, 2020, provided guidance to its resident inspectors to visit their assigned sites once every three workdays. On April 6, 2020, the Director of the Division of Reactor Oversight in the Office of Nuclear Reactor Regulation (NRR) followed up the original guidance with a formal memorandum (ADAMS Accession No. ML20097E538), which is publicly available on the NRC Web site: Guidance For Resident Inspectors | NRC.gov. In addition to the referenced memorandum, the NRR program office provided internal, non-public guidance on remote inspection capabilities. The internal guidance notes some portion of the complete system walkdown must be completed onsite to meet inspection objectives, and stated:

> For procedures that must be completed onsite, inspectors are encouraged to complete as many requirements as possible remotely and limit onsite inspection to only that required to complete the sample.

Regarding completion of the objectives of the inspection procedure and the extent of the walkdown, the inspectors followed COVID-19 guidance in effect at the time. The AFW system was not in operation at the time of the inspection. The hidden corrosion under insulation did not reveal itself as a through-wall pipe leak until July 23, 2020, which was 6 days after the system was in operation and the discharge line pressurized (Enclosure 2). As such, there is no evidence to suggest that the AFW pipe corrosion under insulation should have reasonably been identified by NRC inspectors before the leak occurred.

Notwithstanding the above, the staff's review of the inquiry identified differences in staff interpretations on the minimum extent of physical walkdowns required to be performed in order to consider the inspection sample as complete. Therefore, the staff will review IP 71111.04, "Equipment Alignment," to determine if the wording in the procedure can be clarified so that internal and external stakeholders may better understand its objectives and requirements regarding the extent of physical walkdowns. Further, there is currently a COVID-19 "Lessons Learned" effort underway, and this operating experience will be incorporated into that effort as well.

Finding 3: Insufficient Direct Inspection
***We determined that during the April 2020 inspection, the NRC spent approximately 5 direct inspection hours divided between 2 units* (Inquiry, page 7)**

The OIG inquiry appears to only consider physical inspection of SSCs as direct inspection, combining worktime records and plant access records to reach the conclusion that only 5 hours of AFW system direct inspection occurred (Inquiry page 7). Physical observation of plant SSCs is only one element of direct inspection.

NRC employees utilize Human Resources Management System (HRMS) software to enter their worktime. Inspector time is recorded in HRMS at the inspection report and docket level, with direct inspection hours further recorded for the specific inspection procedure used. The amount of time charged at the docket level is important for licensee fee billing purposes. The granularity down to the inspection procedure is only necessary for data analytics by the NRC program office.

In the inquiry, the OIG lists the times inspectors were in the vicinity of DCNPP Unit 1 and 2 AFW SSCs according to plant access records. However, the list contains only the dates that inspectors charged to the 71111.04 procedure and were physically on the DCNPP site. This suggests the OIG reviewed HRMS to correlate the periods charged to the procedure to onsite periods but did not determine or include the total amount of direct inspection charged by the inspectors in the system.

A staff review of time charged in HRMS reveals that rather than the 5 hours the inquiry identifies, inspectors performed 9.5 hours of direct inspection of the system for the sample in question, 5 of which were performed in the vicinity of AFW SSCs. As previously discussed, direct inspection is not limited to in-plant physical inspection. Direct inspection could include any number of appropriate activities that take place outside of the immediate vicinity of the SSCs. The guidance for a complete system walkdown in IP 71111.04, "Equipment Alignment," includes reviewing system lineups, procedures, design documents, vendor manuals, drawings, logs, maintenance, design issues, modifications, and inspection records. A partial list of other direct inspection activities includes printing and reviewing procedures and drawings, reviewing problem identification and resolution records, conducting interviews with system engineers, discussing specifics with other inspectors, walking to and from the area of the inspection, and discussing observations with control room operators. Numerous Inspection Manual documents discuss the purpose of resource estimates for inspections. IMC 0040 states the following:

> Section 04, "Resource Estimate." This section provides an estimate of the average time needed to complete the inspection (not including preparation and documentation time). This estimate is for broad resource planning and is not intended as a measure for judging the inspector's or the region's performance. Actual inspections may require substantially more or less time, depending on the individual circumstances.

Reactor Programs System (RPS) data shows that, on average in calendar year 2020 and 2021, inspectors performed approximately 90 percent of the budgeted hours for IP 71111.04, "Equipment Alignment." Nine and a half hours of direct inspection is 80 percent of the 12-hour resource estimate, which is within standards for a single baseline inspection sample.

Furthermore, the AFW system inspection in question was one of the first activities that the inspectors performed after the April 6, 2020, COVID-19 additional inspection guidance was promulgated, which reduced the amount of onsite inspection presence. As discussed above, inspectors prioritized their onsite tours to those safety significant SSCs that merit frequent observation. The inspectors spent 20 percent of their onsite time in April performing this inspection, with 13 percent of their onsite time spent on a physical walkdown of the AFW systems.

Given the above, the staff concludes that sufficient resources were devoted to the performance of this inspection. There is no requirement that inspectors strictly adhere to inspection resource estimates, which are used for broad resource planning and not inspector performance metrics. Additionally, contrary to the inquiry finding that inspectors only spent 5 hours of inspection on this sample, 9.5 hours of direct inspection were documented.

Observation 1: Senior Regional Management is Not Involved in System Sample Selections for ROP Inspections.
During this inquiry, we identified that from 2015 through 2020, 50 percent of the

total partial walkdowns performed at DCNPP were on only two safety systems. **(Inquiry, page 10)**

OIG supports their observation that senior regional management is not involved in system sample selections by stating that "from 2015 to 2020, 50 percent of the total partial walkdowns performed at DCNPP were on only two safety systems." Staff reviewed all partial system walkdowns (a partial walkdown is a full inspection sample performed under IP 71111.04 which means that an inspector verifies critical portions of a selected system/train are correctly aligned) completed under IP 71111.04, "Equipment Alignment" in this period at DCNPP and found that the OIG most likely identified a large number of samples on the emergency diesel generator (EDG) and AFW systems. The inspectors generally performed one partial walkdown on an EDG (or diesel subsystem) per quarter and two partial walkdowns on the AFW system per year in addition to samples on over a dozen other systems during the five-year period in question. The procedure requires that nominally twelve partial walkdowns be completed at a site per year; the EDG and AFW samples at DCNPP alone add up to 6, or 50 percent of the required nominal number of samples.

Commercial nuclear power plants often have redundant trains of systems for defense in depth. In the case of partial system walkdowns, sample selection guidance in IP 71111.04, "Equipment Alignment" suggests inspectors perform partial walkdowns when the opposite train is out of service for maintenance, as this increases the risk significance of the redundant train(s). DCNPP has three safety-related diesels per unit for a total of six on site; the EDGs are in the top ten of DCNPP's most risk significant systems along with the AFW system, as described in the inquiry (page 3). During late 2015 to 2016, DCNPP was responding to a potentially significant issue with their EDGs that required additional maintenance and consequently increased risk significance. It is appropriate for inspectors to increase their samples on specific systems as a part of a risk-informed and performance-based program. The sample selection process is discussed in IP 71111, "Reactor Safety—Initiating Events, Mitigating Systems, Barrier Integrity," dated October 28, 2011 (ADAMS Accession No. ML111511016). Utilizing both licensee risk insights and those from internal NRC probabilistic risk modelling software (Sapphire), inspectors choose samples based on risk significance, periods of heightened risk due to on-line maintenance activities, planned testing, etc. Resident inspectors track their samples under the baseline procedures to ensure they are covering the multitude of SSCs in a risk-informed fashion. This is done utilizing the RPS application in addition to informal systems kept in resident offices.

Regional leadership does provide direction regarding inspection focus areas at various levels. Per IMC 0305, "Operating Reactor Assessment," (ADAMS Accession No. ML21092A111), branch chiefs conduct quarterly reviews of licensee performance and consider inspection plan changes as necessary. Each February, regional office leaders, inspectors and subject matter experts conduct "End-of-Cycle" meetings to discuss licensee performance during the prior calendar year and other pertinent oversight information to inform inspection planning for the next 18 months. Of note, Regional Administrator permission is required to implement reactive and certain infrequently performed inspection procedures. Inspectors utilize the insights from these meetings in developing their inspection plans.

The staff finds that the sample selection process as currently described in the Inspection Manual is adequate. Despite this conclusion, the staff recommends reviewing guidance related to inspection planning and sample selection to see if improvements on clarity and management expectations could be made.

Observation 2: NRC Inspection Procedures Do Not Differentiate between a Single or Multiple Unit Site for Sample Size and Budgeted Hours, which can Lead to Inconsistent Inspection Approaches.
When we observed that NRC policy does not differentiate between single or multiple unit sites for sample size and budgeted hours, an NRC principal said that sometimes an inspection sample will be for one unit, or sometimes it will be for two units, and the senior resident inspectors have the flexibility to decide if an inspection sample consists of one or two units. **(Inquiry, pp. 10, 11)**

Some baseline inspection procedures differentiate between sites with different numbers of units (e.g. IP 71111.15, "Operability Determinations and Functionality Assessments, ADAMS Accession No. ML20238B973), but most do not, and none provide clarification on the expectation of hours expended or scope of samples for each unit at multiple-unit sites. At the start of the ROP, sample sizes were determined using expert judgement and relevant risk information on the level of inspection activities sufficient to verify that the licensee was meeting the objectives of all seven ROP cornerstones of safety (ADAMS Accession No. ML19056A200). Initially, based on feedback, staff added sample ranges to the procedures to provide flexibility to inspectors to adjust individual inspection plans based on plant-specific insights. These numbers have been adjusted as experience with the ROP accumulated. This oversight methodology has worked well without the need to adjust sample ranges by unit number for all procedures. There is no specific requirement or guidance for determining the scope for a sample at a multiple-unit site to allow for that flexibility. Traditionally, any inconsistency resulting from this policy is not an issue because the inspection program is indicative and not diagnostic. The purpose of inspection is to evaluate aspects of licensee programs and processes and their implementation; an inspection is not a systematic certification of equipment operability (IMC 2515A, "Risk-Informed Baseline Inspection Program," dated July 26, 2019, ADAMS Accession No. ML18180A098). The staff nevertheless recommends reviewing this observation to see if changes to the Inspection Manual or additional training may be helpful. A more consistent understanding of this issue for inspectors and the public may help meet the principles of good regulation and the ROP's goals of predictability and clarity.

CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation, the staff determined that inspection procedures and COVID-19 guidance were appropriately followed and found no evidence to suggest that the AFW pipe corrosion hidden under metal jacketing material should have reasonably been identified by NRC inspectors before the leak occurred. However, the staff did identify some opportunities to improve our programs and training based on the results of the evaluation.

Examples of Opportunities to Improve Programs:

- Provide inspectors with training on corrosion under insulation, specifically on the following topics:
  - Causes and effects
  - How to spot corrosion under insulation and areas of susceptibility
  - Ensuring licensees have properly scoped corrosion under insulation inspections into their programs

- Provide refresher training on the content of the Inspection Manual, to include the following:
  - Requirements versus guidance
  - Completing inspection objectives
  - Resource estimates
  - Role of the program office and how inspectors can engage program points of contact when they have questions.
- Review inspector qualification requirements to ensure the above items are properly captured during initial qualification.
- Review the Inspection Manual for potential improvements such as the following:
  - Clarify the requirements in IP 71111.04 and consider their applicability to other procedures.
  - Clarify sample scope expectations for multi-unit sites.
  - Determine whether the number of samples should be altered for multi-unit sites.
  - Clarify management expectations in ensuring inspector objectivity and adequacy of inspection planning and completion.
- Consider appropriate internal or external operating experience on corrosion under insulation.