



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

October 16, 2018

Mr. Robert S. Bement
Executive Vice President Nuclear/
Chief Nuclear Officer
Arizona Public Service Company
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION – NRC BIENNIAL
PROBLEM IDENTIFICATION AND RESOLUTION INSPECTION REPORT
05000528/2018008, 05000529/2018008, AND 05000530/2018008

Dear Mr. Bement:

On September 14, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution inspection at your Palo Verde Nuclear Generating Station, Units 1, 2, and 3. The NRC inspection team discussed the results of this inspection with Ms. M. Lacal, Senior Vice President, Regulatory and Oversight, and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspection team reviewed the station's corrective action program and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems and to confirm that the station was complying with NRC regulations and licensee standards for corrective action programs. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

The team also evaluated the station's processes for use of industry and NRC operating experience information and the effectiveness of the station's audits and self-assessments. Based on the samples reviewed, the team determined that your staff's performance in each of these areas adequately supported nuclear safety.

Finally the team reviewed the station's programs to establish and maintain a safety-conscious work environment and interviewed station personnel to evaluate the effectiveness of these programs. Based on the team's observations and the results of these interviews, the team found no evidence of challenges to your organization's safety-conscious work environment. Palo Verde Nuclear Generating Station employees appeared willing to raise nuclear safety concerns through at least one of the several means available.

The NRC inspectors documented one finding of very low safety significance (Green) in this report, which involved a violation of NRC requirements. Additionally, the team documented two licensee-identified violations that were determined to be of very low safety significance.

The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest these violations or their significance, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC resident inspector at the Palo Verde Nuclear Generating Station.

Likewise, if you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC resident inspector at the Palo Verde Nuclear Generating Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA Gerond George Acting for/

Geoffrey B. Miller, Team Leader
Inspection Program and Assessment Team
Division of Reactor Safety

Docket Nos. 50-528, 50-529, and 50-530
License Nos. NPF-41, NPF-51, and NPF-74

Enclosure:
Inspection Report 05000528/2018008,
05000529/2018008, and 05000530/2018008
w/ attachment: Information Requests

**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number(s): 05000528, 05000529, 05000530

License Number(s): NPF-41, NPF-51, NPF-74

Report Number(s): 05000528/2018008, 05000529/2018008, and 05000530/2018008

Enterprise Identifier: I-2018-008-0001

Licensee: Arizona Public Service Company

Facility: Palo Verde Nuclear Generating Station

Location: Tonopah, Arizona

Inspection Dates: August 27, 2018, to September 14, 2018

Inspectors: E. Ruesch, J.D., Sr. Reactor Inspector (Team Lead)
P. Jayroe, Reactor Inspector
G. Kolcum, Sr. Resident Inspector
D. Reinert, Resident Inspector

Approved By: Geoffrey B. Miller, Team Leader
Inspection Program and Assessment Team
Division of Reactor Safety

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting a biennial problem identification and resolution inspection at Palo Verde Nuclear Generating Station, Units 1, 2, and 3, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. Findings and violations being considered in the NRC’s assessment are summarized in the table below. A licensee-identified non-cited violation is discussed in report section 71152.

List of Findings and Violations

Inadequate Corrective Actions For Missing Control Room Hand-Switch Operator Knobs			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528, 05000529, 05000530/2018008-01 Closed	H.12	71152—Problem Identification and Resolution
The team reviewed a Green, NRC identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to promptly identify and correct the failures of multiple control room hand-switch operator knobs.			

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The team reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

OTHER ACTIVITIES – BASELINE

71152—Problem Identification and Resolution

Biennial Team Inspection (1 Sample)

The team performed a biennial assessment of the licensee's corrective action program (CAP), use of operating experience, self-assessments and audits, and safety-conscious work environment. The assessment is documented below.

- (1) Corrective Action Program Effectiveness: Problem Identification, Problem Prioritization and Evaluation, and Corrective Actions – The inspection team reviewed the station's CAP and the station's implementation of the program to evaluate its effectiveness in identifying, prioritizing, evaluating, and correcting problems, and to confirm that the station was complying with NRC regulations and licensee standards for CAPs. The sample included review of over 200 condition reports and associated records, and an in-depth 5-year review of condition reports associated with the safety injection and shutdown cooling systems.
- (2) Operating Experience, Self-Assessments, and Audits – The team evaluated the station's processes for use of industry and NRC operating experience. The team also evaluated the effectiveness of the station's audits and self-assessments program by reviewing a sample of nine self-assessments (benchmark, simple, formal departmental) and seven audits.
- (3) Safety-Conscious Work Environment – The team evaluated the station's safety-conscious work environment. The team interviewed 42 station personnel in 6 group interviews. These included personnel from operations, work management, maintenance, radiological protection, engineering, organizational effectiveness and performance improvement, and security. The team also interviewed employee concerns program personnel, reviewed employee concerns files, and reviewed the results of the most recent safety culture survey and the licensee's actions to address "priority groups" identified through that survey.

71153—Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports (1 Sample)

The team evaluated licensee event report (LER) 05000528/2018-002: Condition Prohibited by Technical Specification for Inoperable Excore Instrument Channel (ADAMS Accession Number ML18130A986). The team reviewed two licensee-identified non-cited violations associated with the LER, described in the inspection results below.

INSPECTION RESULTS – OBSERVATIONS/ASSESSMENT

Corrective Action Program Assessment	71152—Problem Identification and Resolution
<p>Effectiveness of Problem Identification: Overall, the team found that the licensee’s identification and documentation of problems was adequate to support nuclear safety, though some challenges were noted. In particular, the team identified opportunities for improvement in the identification and screening of potential trends and other aggregate issues. These are described in observations, findings, and violations below.</p> <p>Effectiveness of Prioritization and Evaluation of Issues: Overall, the team found that the licensee’s prioritization and evaluation of issues was adequate to support nuclear safety. The licensee continues to work to improve management oversight of the corrective action program, which has been consistently identified as an area for improvement by both third party and internal reviews. The team noted that the licensee’s actions appear to have improved management oversight, including improvements to quality and consistency of evaluation products through enhanced CARB oversight, and the addition of new tools for scoping the evaluation. However, these actions were too recently completed for the team to determine whether they have been fully successful. Additionally, the team noted that while individual problems were generally fixed, the licensee did not always expand evaluations to determine the cause or aggregate impact of multiple similar conditions. Examples are discussed below.</p> <p>Effectiveness of Corrective Actions: Overall, the team found that the licensee’s corrective actions, when accomplished, generally supported nuclear safety. However, the team noted that the licensee failed to appropriately manage its backlog of conditions adverse to quality that were classified as “nonconformances,” this is discussed below as a minor violation.</p>	

Observations on the Corrective Action Program	71152—Problem Identification and Resolution
<p>The team reviewed the engineering design change process and impact review process, and found it to be adequate and in line with industry standards. The team also screened a sample of condition reports that originated over the past 2 years and found several examples of “misses” tied to the design change process and impact reviews where the required updates to documentation were not completed or were incorrect. Personnel interviewed by the team indicated that these “misses” were sometimes identified by workers being unable to perform work activities as directed by work orders or unable to draft clearance orders due to incorrect drawings. In all examples reviewed by the team, the licensee revised or updated affected documentation after the condition report was written; however the team did not note any significant efforts to evaluate or improve the engineering design change impact review process. The team reviewed the station’s use of trend codes to track these examples and</p>	

identified several instances where expected trend codes were incorrectly applied or not applied at all. One particular trend code (CM 3.10) is applied to condition reports which are created in advance or just recently after a plant modification to create a tracking item for required updates to various documents; the team noted examples of documentation revisions tied to legacy modifications lumped in under this trend code. Liberal use of this particular trend code in coincidence with restricted use of more applicable trend codes may be masking potential trends in documentation revisions missed by the impact review process. The licensee documented this observation in Condition Report 18-14427.

The team observed that the licensee’s condition report classification committees (the Screening Committee and the Condition Review Group) did not always consistently apply the corrective action program (CAP) definitions of condition adverse to quality (CAQ) and non-condition adverse to quality. In particular, a lack of guidance or familiarity in what constituted an adverse trend in a quality process CAQ versus a potential adverse trend (non-condition adverse to quality until evaluated and confirmed) led to inconsistency in classification of condition reports documenting aggregate issues. The licensee documented this observation in Condition Reports 18-13648 and 18-14334.

Additionally, some identified deficiencies in quality programs were classified as non-condition adverse to quality. For example, on January 2, 2018, the licensee’s organizational effectiveness department issued a “Corrective Action Program Elevation Letter,” which identified, “inconsistent identification of issues entered into the condition reporting process, CAP product quality decline, inappropriate closure of CAP actions, and rejection of CAP products including causal evaluation.” The condition report associated with this letter, Condition Report 18-00055, was classified as non-condition adverse to quality. In procedure 01DP-0AP12, “Condition Reporting Process” the licensee defines CAQ to include, “failures to comply with procedures that implement the current licensing basis (CLB),” where CLB is defined to include both 10 CFR Part 50 and the licensee’s quality assurance program, both of which contain requirements implemented by CAP. In these examples and others reviewed by the team, the conditions adverse to quality were timely addressed, even when classified as non-condition adverse to quality. Therefore there was no violation of NRC regulations. The licensee documented this issue in Condition Report 18-13739.

Assessment of Use of Operating Experience	71152—Problem Identification and Resolution
<p>Based on the samples reviewed, the team determined that the licensee appropriately evaluated industry operating experience for its relevance to the facility. Operating experience information was incorporated into plant procedures and processes as appropriate. The team further determined that the licensee appropriately evaluated industry operating experience when performing root cause analysis and apparent cause evaluations. The licensee appropriately incorporated both internal and external operating experience into lessons learned for training and pre-job briefs.</p>	

Self-Assessments and Audits Assessment	71152—Problem Identification and Resolution
<p>Based on the samples reviewed, the team determined that station performance in these areas adequately supported nuclear safety. Generally, self-assessments and audits were effective at identifying deficiencies and enhancements. In all cases, deficiencies were documented in condition reports for both self-assessments and audits. Audits, in particular, were highly effective in identifying and documenting deficiencies. One self-assessment (16-10139) did not appear to have a tracking item (i.e. condition report) for an enhancement.</p>	

Safety-Conscious Work Environment Assessment	71152—Problem Identification and Resolution
<p>The team found no evidence of challenges to the safety-conscious work environment of station work groups. Individuals appeared willing to raise nuclear safety concerns through at least one of the several means available.</p>	

INSPECTION RESULTS – ISSUES/FINDINGS

Minor Violation	71152—Problem Identification and Resolution
<p>Performance Deficiency: Failure to promptly identify and correct conditions adverse to quality as required by 10 CFR 50, Appendix B, Criterion XVI.</p> <p>The team identified a backlog of conditions adverse to quality that the licensee had failed to timely correct. The oldest of these conditions was approximately 10 years old, with several hundred having been identified at least two operating cycles prior to the inspection. The team determined that the licensee was appropriately addressing degraded components that had an impact on safety or security, but was not always tracking or timely correcting nonconformances with its design bases in cases where these nonconformances had been assessed as not impacting safety-related functions. Further, the licensee was unable to initially determine the scope of its nonconformance backlog. The licensee documented this deficiency as Condition Reports 18-13549 and 18-14426.</p> <p>Screening: The performance deficiency was minor because if left uncorrected it would not have led to a more significant safety concern and it did not adversely affect any cornerstone objectives.</p> <p>Enforcement: This failure to comply with 10 CFR 50, Appendix B, Criterion XVI constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.</p>	

Minor Violation	71152—Problem Identification and Resolution
<p>Performance Deficiency: Failure to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe all activities affecting quality as required by 10 CFR 50, Appendix B, Criterion VI.</p> <p>The team identified that the CAP procedure directed the use of the "Cause Analysis Manual" in performing some cause evaluations. This cause evaluation process is an activity affecting quality required by 10 CFR 50, Appendix B and the licensee's Quality Assurance Program.</p>	

The licensee failed to control the Cause Analysis Manual in accordance with the Palo Verde Nuclear Generating Station Operations Quality Assurance Program Description, Revision 0, Section 2.6, Document Control. The licensee documented this violation in Condition Report 18-13996.

Screening: The performance deficiency is minor because if left uncorrected it would not have led to a more significant safety concern and it did not adversely affect any cornerstone objectives.

Enforcement: This failure to comply with 10 CFR 50, Appendix B, Criterion VI constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.

Licensee-Identified Non-Cited Violation	71153— Follow-up of Events and Notices of Enforcement Discretion
This violation of very low safety-significant was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	
Violation: 10 CFR Part 50, Appendix B, Criterion V requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings.	
Contrary to the above, on May 24, 2007, the licensee failed to perform the installation of the Unit 1, channel C excore nuclear instrument preamplifier connection, an activity affecting quality, in accordance with these instructions, procedures, or drawings. The licensee determined that a human performance error occurred during the performance of the 2007 work order which explicitly stated that the o-rings were required for environmental qualification. As a result, the excore detector would not have performed its safety function during a design basis main steam line break.	
Significance/Severity Level: The team determined this finding was of very low safety significance (Green) because a minimum of two excore detector channels always remained available to trip the reactor during a main steam line break. Redundant channels were not affected and were available to perform the required safety function to trip the reactor.	
Corrective Action Reference(s): Condition Report 18-12217	

Licensee-Identified Non-Cited Violation	71153— Follow-up of Events and Notices of Enforcement Discretion
This violation of very low safety-significant was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.	

<p>Violation: 10 CFR 50.73(a)(2)(i)(B) requires, in part, that the holder of an operating license shall submit an licensee event report within 60 days of discovery of the event, which includes any operation or condition which was prohibited by technical specifications.</p> <p>Contrary to the above, the licensee failed to submit a licensee event report within 60 days of April 23, 2016, after discovering that the Unit 1 channel C excore was in a condition which was prohibited by technical specifications. The detector was found in a configuration without o-rings at two electrical connection interfaces. Condition Report 16-06735 documented the non-conforming condition, but was closed without performing a reportability review.</p> <p>Significance/Severity Level: This violation was considered as traditional enforcement because the failure to notify the NRC had the potential for impacting the NRC’s ability to perform its regulatory function. Consistent with the guidance in Section 6.9, Paragraph d.9, of the NRC Enforcement Policy, the failure to report the condition prohibited by technical specifications was determined to be a Severity Level IV violation.</p> <p>Corrective Action Reference(s): Condition Report 18-02569</p>

Non-Cited Violation (NCV): Inadequate Corrective Actions For Missing Control Room Hand-Switch Operator Knobs			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000528; 05000529; 05000530/2018008-01 Closed	None	71152—Problem Identification and Resolution
The team reviewed a Green, NRC identified, non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action” for failure to promptly correct a condition adverse to quality. Specifically, since October 30, 2014, the licensee failed to implement prompt corrective actions to correct an adverse condition related to the failure of control room hand-switch operator knobs.			
<u>Description:</u> While performing control room observations on August 28, 2018, the team identified that various control room hand-switches were missing operator knobs. The control room switches are Coordinated Manual Controls 910 series currently manufactured and supported by Senasys. The switches are operated by turning the selector knob, which rotates a cam at the end of the knob shaft, pushing a set of plungers which will make or break electrical contact continuity within the contact block. The primary purpose of the knob is to allow operators to change the status of equipment in the plant.			

The team identified a total of eighteen missing operator knobs among the three unit control rooms. Fourteen of these controlled safety-related, technical specification (TS)-related, or emergency operating procedure (EOP)-related components:¹

	<i>Broken switches</i>	<i>Number safety-related</i>	<i>Number TS-related</i>	<i>Number EOP-related</i>	<i>Oldest</i>
<i>Unit 1</i>	5	4	2	2	October 30, 2014
<i>Unit 2</i>	7	6	3	2	October 18, 2015
<i>Unit 3</i>	6	1	0	2	April 27, 2018
<i>Total</i>	18	11	5	6	

The licensee had provided one or two spare operator knobs in each control room that could be used to operate a hand-switch when necessary during routine, alarm, abnormal, or emergency events. However, the licensee had performed no formal evaluation of the use of these spare knobs as a compensatory action or of the aggregate impact to each control room during off-normal or emergency scenarios. The licensee did not control the spare knobs despite having dedicated them as basic components for use in safety-related applications. All equivalent knobs in the plant reference simulators were intact. The licensee did not model or brief this discrepancy between the simulator and the plant during training scenarios. Neither did the licensee list the missing knobs on the simulator differences list or evaluate the missing knobs in the overall simulator program of maintenance, testing, and correction of discrepancies with the actual plant.

Corrective Action(s): As an immediate corrective action, the licensee provided five additional knobs for each control room and provided a formal communication to control room staff regarding their use.

Corrective Action Reference(s): Condition Reports 18-13575 and 18-14201.

Performance Assessment:

Performance Deficiency: The failure to promptly identify and correct a condition adverse to quality related to the failure of control room hand-switch operator knobs as required by 10 CFR 50, Appendix B, Criterion XVI was a performance deficiency.

Screening: The performance deficiency was more than minor, and therefore a finding, because it affected the configuration control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Since October 30, 2014, the licensee had failed to implement prompt corrective actions to correct an adverse condition of broken operator knobs in the control rooms of all three units.

Significance: The team performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The team determined that the finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of any system or train.

¹ Four of the eighteen switches met none of these criteria, though one of those four controlled a breaker that was included in the probabilistic risk model. The other fourteen switches variously met one or more of the criteria. Because of this overlap, the numbers in the table do not sum horizontally.

Cross Cutting Aspect: This finding had a cross-cutting aspect in the area of human performance, avoid complacency, in that the licensee failed to recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Specifically, the licensee did not implement prompt corrective actions to correct an adverse condition of broken operator knobs in the control room (H.12).

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action” requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to this requirement, the licensee failed to assure that conditions adverse to quality were promptly corrected. Specifically, since October 30, 2014, the licensee failed to correct a condition adverse to quality related to broken operator knobs in the control room, to which 10 CFR Part 50, Appendix B, applies. Consequently, the licensee’s failure to implement prompt corrective actions to correct an adverse condition related to the broken operator knobs in the control room resulted in not returning the switch to the vendor drawing configuration and specifications.

Disposition: This violation is being treated as a non-cited violation (NCV), consistent with Section 2.3.2 of the Enforcement Policy.

<p>Licensee Event Report (Closed)</p>	<p>Condition Prohibited by Technical Specifications for an Inoperable Excore Instrument Channel (LER 05000528/2018-002)</p>	<p>71153— Follow-up of Events and Notices of Enforcement Discretion</p>
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EXIT MEETINGS AND DEBRIEFS

On September 14, 2018, the team presented the inspection results to Ms. M. Lacal, Senior Vice President, Regulatory & Oversight, and other members of the licensee staff. The team confirmed that any proprietary or sensitive information reviewed was controlled to protect from public disclosure.

DOCUMENTS REVIEWED

Condition Reports

10-00424	16-04624	17-12748	18-00837	18-06960	16-19560
12-00391	16-04625	17-13751	18-00869	18-07751	16-19864
13-00349	16-04628	17-13780	18-01277	16-13267	16-20048
13-00736	16-04646	17-14018	18-01512	16-13529	16-20333
14-01375	17-08432	17-14219	18-01657	16-13896	16-20383
14-01904	17-08633	17-14504	18-01685	16-14370	16-20395
14-02854	17-08634	17-15012	18-01702	16-14791	18-12743
15-02470	17-08636	17-15793	18-01737	16-14896	18-13345
15-02897	17-08672	17-16181	16-10666	16-15709	18-13446
15-06128	17-08818	17-16495	16-10742	16-16024	18-13575
15-07118	17-09022	17-16497	16-11578	16-16585	18-13996
16-03489	17-09222	17-16552	16-11605	16-16995	18-14126
16-03566	17-09257	17-16563	16-12160	18-07903	18-14201
16-03843	17-09326	17-17371	16-12430	18-07964	18-14212
16-03914	17-09336	16-07329	16-12465	18-08156	18-14215
16-04598	17-09524	16-07589	16-12783	18-08409	18-14218
17-16181	17-09656	16-07632	16-12797	18-08466	18-14222
17-16495	17-10518	16-08413	16-13128	18-08815	18-14223
17-16497	17-11997	16-09123	18-02462	18-09130	18-14224
17-16552	17-12205	16-09548	18-02960	18-09679	18-14226
17-16563	16-04677	16-09997	18-03038	18-10024	18-14372
17-17371	16-04977	16-10139	18-03154	18-10995	
17-17791	16-04980	16-10173	18-03173	18-11453	
17-17965	16-04982	16-10185	18-03177	18-12086	
17-18155	16-04984	17-17791	18-03346	18-12157	
18-00055	16-05436	17-17965	18-04528	18-12174	
15-07118	16-05926	17-18155	18-04994	18-12217	
16-03489	16-05966	18-00055	18-05015	18-12423	
16-03566	16-06026	18-00055	18-05879	16-18951	
16-03843	16-06578	18-00086	18-06317	16-19295	
16-03914	17-12265	18-00194	18-06774	16-19296	
16-04598	17-12466	18-00202	18-06912	16-19554	

Plus approximately 100 anonymous condition reports initiated between January 1, 2018, and August 7, 2018, and the text of most of the several hundred condition reports issued while the team was on site.

Work Orders

24481	4340548	4616104	4699032	4842349
4316976	4412917	4699031	4699034	4857178

Audit Reports

2016-007	2016-010	2017-009	2018-003
2016-009	2017-003	2018-002	

Procedures Number	Title	Revision
01DP-0AP01	Procedure Process	59
01DP-0AP12	Condition Reporting Process	23, 24, 29, 30
01DP-0AP22	Procedure Writer's Guide	10
01DP-0AP58-01	Trend Analysis and Coding Administrative Guideline	1
02DP-0AP01	Plant Review Board	22
12DP-0MC08,	Control of Purchasing Material and Equipment	
5DP-0CC05	Simulator Instructor's Guide and Reporting	0
15DP-0TR08	Systematic Approach to Training	14
30DP-0AC02	Station Rework Reduction	5
30DP-0WM15	Fix-It-Now Multi-Discipline Team	13
31MT-9SI02	High Pressure Safety Injection Pump Disassembly, Examination, and Assembly	32
40AL-9RK6A	Panel B06A Alarm Responses	19
40AO-9ZZ21	Acts of Nature	38
40DP-9OP15	Operator Challenges and Discrepancy Tracking	29
40DP-9OP20	Watch Standing Practices	48
40DP-9OP26	Operations Condition Reporting Process and Operability Determination / Functional Assessment	45
40DP-9OP33	Shift Turnover	35
40DP-9WP01	Operations Processing of Work Orders	34
40DP-9ZZ04	Time Critical Action (TCA) Program	13
40OP-9AF02	Non-Essential Auxiliary Feedwater Pump Operation	20
40OP-9CH03	RCP Seal Injection System	30
60DP-0QQ02	Trend Analysis and Coding	27
65DP-0QQ01	Industry Operating Experience Review	41
73TD-0ZZ03	System Engineering Handbook	25
75RP-9RP20	Use and Control of HEPA Filtration and Vacuum Equipment	5
81DP-0EE10	Design Change Process	45

Procedures Number	Title	Revision
93DP-0LC18	Part 21 Reporting Process	2
Miscellaneous Documents Number	Title	Revision or Date
	2018 PVNGS Condition Reports CRG Refuse Back to SC Rate / Through Rate Performance	August 27, 2018
	Active Night Orders	August 10, 2017
	Active Standing Orders	August 10, 2017
	Control Room Discrepancies	August 10, 2017
	Open Operator Burdens	August 10, 2017
	Operations Challenges List	August 10, 2017
	Operator Work Arounds	August 10, 2017
	Organizational Effectiveness Monthly Performance Summary: 2018 1st Quarter	March 2018
	Organizational Effectiveness Quarterly Performance Summary	2nd Quarter 2018
	PRB Meeting Minutes: Monthly PRB (October 2017) and U1R20 Refueling Outage Restart	Oct 31, 2017
	PRB Monthly and U2R20 Startup Meeting Minutes	April 28, 2017
	PVNGS Operations Quality Assurance Program Description (QAPD)	0, 0a
	Simulator to Unit Differences	August 22, 2018
	Training Slides: "Introduction to Cause Analysis"	November 16, 2016
13-NS-C088	Mission Time Study	1
Design Equivalent Change 00462	Containment Construction Vent Concrete Cover Rework and Design Drawing Detail Revision	0
Drawing 12-E-2YU-009	Diesel Storage Tank Conduit Plan & Section	12
NLR17C030201	Licensed Operator Continuing Training	April 5, 2017

INFORMATION REQUESTS

**Information Request
Biennial Problem Identification and Resolution Inspection
Palo Verde Nuclear Generating Station
June 8, 2018**

Inspection Report: 50-528; -528; and -530/2018-008
On-site Inspection Dates: August 27-30 and September 11-14, 2018

This inspection will cover the period from March 24, 2016, through September 14, 2018. Your response to this request should be limited to information associated with activities performed during this period unless otherwise specified. To the extent possible, the requested information should be provided electronically in word-searchable Adobe PDF or Microsoft Office format. Any sensitive information should be provided in hard copy during the team's first week on site.

Lists of documents ("summary lists") should be provided in Microsoft Excel or a similar sortable format. Please provide updates during the first week of on-site inspection. As used in this request, "corrective action documents" refers to condition reports, notifications, action requests, cause evaluations, and/or other similar documents, as applicable to the station.

Please provide the following information no later than August 13, 2018:

1. Document Lists

Note: For these summary lists, please include the document/reference number, the document title, initiation date, current status, and long-text description of the issue.

- a. Summary list of all corrective action documents related to significant conditions adverse to quality that were opened, closed, or evaluated during the period
- b. Summary list of all corrective action documents related to conditions adverse to quality that were opened, closed, or evaluated during the period
- c. Summary list of all apparent cause evaluations (or equivalent) performed during the period; if fewer than approximately 20, provide full documents
- d. Summary list of all currently open corrective action documents associated with conditions first identified any time prior to July 1, 2017, including prior to the beginning of the inspection period
- e. Summary lists of all corrective action documents that were upgraded or downgraded in priority/significance during the period (these may be limited to those downgraded from, or upgraded to, apparent-cause level or higher)
- f. Summary list of all corrective action documents initiated during the period that identify an adverse or potentially adverse trend in safety-related or risk-significant equipment performance or in any aspect of the station's safety culture
- g. Summary lists of operator workarounds, operator burdens, temporary modifications, and control room deficiencies (1) currently open and (2) that were evaluated and/or closed during the period; this list should include the date that each item was opened and/or closed

- h. Summary list of all prompt operability determinations or other engineering evaluations performed to provide reasonable assurance of operability
- i. Summary list of plant safety issues raised or addressed by the Employee Concerns Program (or equivalent) (sensitive information should be made available during the team's first week on site—do not provide electronically)

2. Full Documents with Attachments

- a. Root cause evaluations completed during the period; include a list of any planned or in progress
- b. Quality Assurance audits performed during the period
- c. Audits/surveillances performed during the period on the Corrective Action Program, of individual corrective actions, or of cause evaluations
- d. Functional area self-assessments and non-NRC third-party assessments (e.g., peer assessments performed as part of routine or focused station self- and independent assessment activities; do not include INPO assessments) that were performed or completed during the period; include a list of those that are currently in progress
- e. Assessments of the safety-conscious work environment at Palo Verde, including any safety culture survey results; if none performed during the inspection period, provide the most recent
- f. Corrective action documents generated during the period associated with the following:
 - i. NRC findings and/or violations issued to Palo Verde
 - ii. Licensee Event Reports issued by Palo Verde
- g. Corrective action documents generated for the following, if they were determined to be applicable to Palo Verde (for those that were evaluated but determined not to be applicable, provide a summary list):
 - i. NRC Information Notices, Bulletins, and Generic Letters issued or evaluated during the period
 - ii. Part 21 reports issued or evaluated during the period
 - iii. Vendor safety information letters (or equivalent) issued or evaluated during the period
 - iv. Other external events and/or Operating Experience evaluated for applicability during the period
- h. Corrective action documents generated for the following:

- i. Maintenance-preventable functional failures that occurred or were evaluated during the period
- ii. Action items generated or addressed by offsite review committees during the period
- iii. Comments, observations, or minor performance deficiencies documented in the 2016 NRC PI&R inspection report or generated due to inspector comments during the inspection (include any initiated prior to the period)

3. Logs and Reports

- a. Corrective action performance trending/tracking information generated during the period and broken down by functional organization (if this information is fully included in item 3.b, it need not be provided separately)
- b. Current system health reports, Management Review Meeting package, or similar information; provide past reports as necessary to include ≥12 months of metric/trending data
- c. Radiation protection event logs during the period
- d. Security event logs and security incidents during the period (sensitive information should be made available during the team's first week on site—do not provide electronically)
- e. List of training deficiencies, requests for training improvements, and simulator deficiencies for the period

Note: For items 3.c and 3.d, if there is no log or report maintained separate from the corrective action program, please provide a summary list of corrective action program items for the category described.

4. Procedures

Note: For these procedures, please include all revisions that were in effect at any time during the period.

- a. Corrective action program procedures, to include initiation and evaluation procedures, operability determination procedures, cause evaluation procedures, and any other procedures that implement the corrective action program
- b. Quality Assurance program procedures (exclude specific audit procedures)
- c. Employee Concerns Program (or equivalent) procedures
- d. Procedures that implement/maintain a Safety Conscious Work Environment
- e. Conduct of Operations procedure (or equivalent) and any other procedures or policies governing control room conduct, operator burdens and workarounds, etc.

- f. Operating Experience (OpE) program procedures and any other procedures or guidance documents that describe the site's use of OpE information

5. Other

- a. List of risk-significant components and systems, ranked by risk worth; if the list uses system designators, provide a list of the associated noun names
- b. List of structures, systems, and components and/or functions that were in maintenance rule (a)(1) status or evaluated for (a)(1) status at any time during the inspection period; include dates and results of expert panel reviews and dates of status changes
- c. Organization charts (searchable) for plant staff and long-term/permanent contractors
- d. Electronic copies of the UFSAR (or equivalent), technical specifications, and technical specification bases, if available
- e. Table showing the number of corrective action documents (or equivalent) initiated during each month of the inspection period, by screened significance
- f. For each day the team is on site,
 - i. Planned work/maintenance schedule for the station
 - ii. Schedule of management or corrective action review meetings (e.g. operations focus meetings, condition report screening meetings, CARBs, MRMs, challenge meetings for cause evaluations, etc.)
 - iii. Agendas and materials for these meetings

Note: The items listed in 5.f may be provided on a weekly or daily basis while the team is on site.

All requested documents should be provided electronically where possible. Regardless of whether they are uploaded to an internet-based file library (e.g., Certrec's IMS), please provide copies on CD or DVD. One copy of the CD or DVD should be provided to the resident inspector at Palo Verde; three additional copies should be provided to the team lead at or prior to his scheduled site visit on August 13, 2018:

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Arlington, TX 76011

PAPERWORK REDUCTION ACT STATEMENT

This request does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

**Supplemental Information Request
Biennial Problem Identification and Resolution Inspection
Palo Verde Nuclear Generating Station
August 22, 2018**

Inspection Report: 50-528; -528; and -530/2018-008
On-site Inspection Dates: August 27-30 and September 11-14, 2018

This request supplements the original information request. Where possible, the information should be available to the inspection team immediately following the entrance meeting. This inspection will cover the period from March 24, 2016, through September 14, 2018. The scope of the requested information is limited to this period unless otherwise noted.

Please provide the following:

1. As part of the inspection, the team will do a five-year in-depth review of issues and corrective actions related to the Safety Injection and Shutdown Cooling systems. The following documents are to support this review:
 - a. Copies of all root and apparent cause evaluations related to these systems performed within the last 5 years, including root cause evaluations not already provided (specify any that were provided)
 - b. Summary list of all condition reports written on these systems in the last 5 years
 - c. List of all tests or surveillances performed on these systems within the last five years (include tech spec surveillances, LLRT, IST, NDT, etc.), sortable by component if possible, and including acceptance criteria; provide CRs for any acceptance criteria not met
 - d. List of all corrective maintenance work orders performed on these systems within the last 5 years
 - e. List of all temporary modifications or operator burdens associated with these systems that have been in place at any time during the last 5 years
 - f. List of maintenance rule functional failure assessments—regardless of the result—performed on these systems (or the system/function into which the component is scoped) within the last 5 years; include a description of how these systems/components are scoped for maintenance rule
 - g. Engineering forms/logs (including the engineer's notes), if any, from the last two engineering walk-downs/inspections of these systems; if these logs and notes are not in controlled documents, please provide governing procedures and arrange an interview with the engineer(s)
 - h. List of ECs associated with these systems that were developed or implemented within the last 5 years; include any currently open ECs
 - i. P&IDs for these systems showing process piping and components fulfilling primary safety functions
2. Full copies of the following condition reports, including operability evaluations, cause evaluations, and other attachments where applicable:

16-05436	16-09123	16-10185	16-13128	16-19296	17-05240
16-07329	16-09548	16-10742	16-13529	16-20383	17-06814
16-07632	16-09997	16-11605	16-18951	17-01149	17-06820
16-08413	16-10173	16-12465	16-19295	17-03359	17-07578

17-08818	17-11997	17-15012	18-00869	18-05015
17-09257	17-12205	17-15793	18-01657	18-05879
17-09336	17-12466	17-16181	18-03038	18-06317
17-09524	17-13751	17-17371	18-03177	18-07751
17-09565	17-13780	17-17965	18-03346	18-07964
17-10518	17-14018	17-18155	18-04528	18-08815

3. Copies of the following procedure(s):
 - 60DP-0QQ02, "Trend Analysis"
4. Copies of most recent Quality audits for all audited programs. (These have been twice requested previously—first in the original information request (item 2.b), and again verbally during an August 10 meeting with the acting NAD manager.)
5. Copies of all quality escalations/elevations over the last two years, to include associated condition reports, evaluations, closure criteria, and closure memos where applicable (This was previously requested during an August 10 meeting with the acting NAD manager.)

In addition to the list above, please provide any additional updates to the information previously provided in response to the June 8, 2018, information request.

PAPERWORK REDUCTION ACT STATEMENT

This request does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

PALO VERDE NUCLEAR GENERATING STATION – NRC BIENNIAL PROBLEM
 IDENTIFICATION AND RESOLUTION INSPECTION REPORT 05000528/2018008,
 05000529/2018008, AND 05000530/2018008 – OCTOBER 16, 2018

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DATE	9/21/2018	9/21/2018	9/21/2018	10/16/2018	10/16/2018	10/16/2018

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