UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

September 14, 2016

Randall K. Edington
Executive Vice President, Nuclear/CNO
Palo Verde Nuclear Generating Station
P.O. Box 52034, MS 7602
Phoenix, AZ 85072-2034

SUBJECT: PALO VERDE NUCLEAR GENERATING STATION, UNITS 1, 2, AND 3 - NOTIFICATION OF NRC INSPECTION OF THE IMPLEMENTATION OF MITIGATION STRATEGIES AND SPENT FUEL POOL INSTRUMENTATION ORDERS AND EMERGENCY PREPAREDNESS COMMUNICATION/ STAFFING/MULTI-UNIT DOSE ASSESSMENT PLANS (05000528/2016009; 05000529/2016009; AND 05000530/2016009) AND REQUEST FOR INFORMATION

Dear Mr. Edington:

The purpose of this letter is to notify you that the U.S. Nuclear Regulatory Commission (NRC) staff will conduct a mitigation strategies for beyond-design-basis external events, spent fuel pool instrumentation, and emergency preparedness enhancements inspection at the Palo Verde Nuclear Generating Station from November 14 – 18, 2016. The inspection will consist of two reactor inspectors from the NRC's Region IV office, one inspector from the NRC Region III office, plus one of the assigned Resident Inspectors at Palo Verde for one week. The inspection will be conducted in accordance with the NRC's Temporary Instruction 2515/191, "Inspection of the Implementation of Mitigating Strategies and Spent Fuel Pool Instrumentation Orders, and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans."

Experience has shown that this inspection is resource intensive both for the NRC inspectors and licensee staff. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection activity. Please note that the documents are requested to be provided by November 1, 2016. During the onsite inspection, inspectors will verify that plans for complying with NRC Orders EA-12-049 and EA-12-051 are in place and are being implemented. Inspectors will also verify the establishment of staffing and communications plans provided in response to the March 12, 2012, request for information letter, and multi-unit dose assessment information provided per COMSECY-13-0010, Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned, dated March 27, 2013. These plans and information were provided in the site specific submittals, which were subsequently reviewed by the NRC staff for understanding and documented in the NRC's plant safety evaluations (SEs) and safety assessments. Therefore, appropriate personnel knowledgeable of the station's FLEX strategies, spent fuel pool instrumentation, and emergency preparedness enhancements should be available to support the inspectors at the site during the inspection.

We have discussed the schedule for this inspection activity with your staff and understand that our regulatory contact for this inspection will be Sean Dornseif of your licensing organization. If there are any questions about this inspection or the material requested, please contact the lead inspector, Ryan D. Alexander, by telephone at (817) 200-1195 or by e-mail at ryan.alexander@nrc.gov.

This letter 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. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

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Sincerely,

/RA/

Geoffrey Miller, Chief
Project Branch D
Division of Reactor Projects

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

Enclosure:
FLEX Strategies, Spent Fuel Pool Instrumentation, & EP Enhancements Inspection Request for Information

Request for Information
FLEX Strategies, Spent Fuel Pool Instrumentation, & EP Enhancements Inspection
Palo Verde Nuclear Generating Station

Inspection Report:	05000528/2016-009 05000529/2016-009 05000530/2016-009
Inspection Dates:	November 14 – 18, 2016
Inspection Procedure:	Temporary Instruction 2515/191, "Inspection of the Implementation of Mitigating Strategies and Spent Fuel Pool Instrumentation Orders, and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans"
Inspectors:	Ryan D. Alexander, Team Lead, Sr. Project Engineer, Region IV Dustin Reinert, Ph.D., PVNGS Resident Inspector Eddie Uribe, Reactor Inspector, Region IV Bruce Bartlett, Project Engineer, Region III

Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (use of the Certrec IMS information portal is preferred), to the attention of Ryan Alexander, by November 1, 2015. [If electronic/CD format is preferred by PVNGS, additional copies may need to be sent to the home office of supporting inspectors.] The inspectors will select specific items from the information requested below and then request from your staff additional documents needed during the onsite inspection week. Also, we request that you categorize the documents in your response with the numbered list below. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the lead inspector, and provide subject documentation during the first day of the onsite inspection. If you have any questions regarding this information request, please call the lead inspector as soon as possible.

TI 2515/191 - Appendix A

1. Provide current revision of the FLEX Final Integrated Plan, including any revisions since December 2015 submission to the NRC
2. Provide the FLEX Strategy Basis Document
3. Provide each operating, off-normal, abnormal, and/or emergency procedures where entry into the FLEX Support Guideline(s) are initiated
4. Provide a list of key pieces of equipment that directly perform a FLEX mitigation strategy for core cooling (RCS and Steam Generators), containment, and/or spent fuel pool cooling.
5. Provide a list and copies of every FLEX Support Guideline (FSG) or equivalent procedure which you developed or revised to implement your mitigating strategies. Provide copies of the FSGs/procedures which address (as applicable):

a. Restoration of AC power to essential loads (with or without alternate AC power source(s))

b. DC Load shedding

c. Primary (RCS) loss and makeup, including water source(s)

d. Secondary/steam generator makeup, including water source(s)

e. Containment isolation and safe shutdown valve operations while AC power is unavailable

f. Monitoring and makeup options to the Spent Fuel Pool

g. Portable lighting (e.g., flashlights or headlamps) necessary for ingress and egress to plant areas required for deployment of FLEX strategies

h. Communications systems necessary for ingress and egress to plant areas required for deployment of FLEX strategies

i. Achieving area access during a loss of AC power, including the Protected Area and internal locked areas where remote equipment operation is necessary

j. Mitigating the effects of a loss of forced ventilation/cooling

k. Access and pathways to locations where operators will be required to perform local manual operations

l. Equipment failure does not occur as a result of loss of heat tracing during ELAP

m. Replenishment of fuel to diesel/gas powered equipment (e.g., FLEX diesel generators, pumps, etc.)

n. Implementation of portable systems (such as portable power supplies & portable pumps)

o. Deployment routes and locations for FLEX portable equipment

p. Containment venting (and/or analysis to demonstrate that containment venting is not required)

q. Actions to maintain the FLEX equipment necessary to support shutdown risk processes/procedures (i.e., FLEX strategies in Modes 5 and 6)

r. How FLEX equipment could be deployed or pre-deployed/pre-staged to support maintaining or restoring key safety functions in the event of a loss of shutdown cooling

6. Applicable site specific hazards for PVNGS

   a. Seismic

      i. Provide documents which show the locations and configuration of structures which store FLEX equipment.

      ii. Provide the evaluation/evidence to support that FLEX equipment is stored in location(s) such that <u>each</u> location:

         1. Meets the plant's design basis Safe Shutdown Earthquake, OR

         2. Meets the design requirements as described in ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures," OR

         3. Is outside a structure and evaluated for seismic interactions to ensure equipment is not damaged by non-seismically robust components or structures.

iii. Provide documentation that explains how large portable FLEX equipment such as pumps and power supplies are secured to protect them during a seismic event (i.e., Safe Shutdown Earthquake (SSE) level).

iv. Provide documents which show that stored equipment and structures are protected from seismic interactions to ensure that unsecured and/or non-seismic components do not damage the equipment.

v. Provide the travel route(s) for FLEX equipment from storage location(s) to their location(s) of use, AND evaluation(s) which demonstrate that for the potential for soil liquefaction is not of a concern for these travel route(s).

vi. Seismic concerns for water source(s)

1. If the FLEX water sources are seismically robust, then provide the assessment that shows that they are.

2. If the FLEX water sources are not seismically robust, then provide:

a. an assessment of alternate water sources, and

b. the procedure(s) which describe when and how to access those sources.

vii. If power is required to move or deploy FLEX equipment, then describe and identify the locations of the power supplies which provide that power, and provide the procedures which describe implementing those power supplies.

viii. If equipment is needed to move the FLEX equipment, provide documents that show how that equipment is protected from the seismic event.

ix. Provide documents which show that the FLEX equipment connection points to permanently installed plant system are seismically qualified to the same extent as the permanently installed equipment.

x. Provide documents which show that staged tools used to connect FLEX equipment are acceptable/compatible with the connections used.

b. Extreme high temperatures

For each key piece of equipment described in #4 (above) that directly performs or implements a FLEX mitigation strategy:

1. Provide the document which describes the high-temperature limit of the range within which the equipment will function.

2. Describe how the equipment is maintained below that limit in its storage location.

7. Provide the station-specific FLEX strategies time validation study(ies)

8. Relative to the testing and maintenance program for FLEX equipment, for each key piece of equipment described in #4 (above) that directly performs or implements a FLEX mitigation strategy:

a. Identify the equipment and provide documents that describe either how you tested the equipment (including electrical cables) or how you used other means to verify that the equipment can perform its required function.

b. If the equipment is portable, then provide documents that describe how maintain and test the equipment in accordance with INPO AP-913 or an acceptable alternative.

9. Provide documents which describe the programmatic controls in place to ensure that if equipment and applicable connections are unavailable (e.g., due to maintenance), then compensatory measures are implemented in accordance with guidance outlined NEI 12-06.

10. Identify the procedure(s) provided in response to #4 above which address:

    i. early notification to mobilize the offsite response,
    ii. establishment of a point of delivery for the off-site equipment,
    iii. arrangements for delivery and deployment at the site, and
    iv. sufficient supplies of commodities to support the equipment and site personnel

    a. Provide documents which describe your evaluation of what equipment and commodities are needed to sustain and backup the site's coping strategies.

    b. Provide documents which show that you have established means to ensure that fuel for FLEX equipment can be delivered to the site if onsite fuel is unusable or depleted.

    c. Provide documents which describe the process by which you will revise the required supplied equipment due to changes in the FLEX strategies or plant equipment or equipment obsolescence.

11. Provide documents which show that your installed standard mechanical and electrical connections are compatible with Phase 3 equipment.

    a. Provide the station-specific National SAFER Center "Playbook"

12. Relative to personnel training on FLEX strategies, provide:

    a. FLEX training bases document(s)

    b. Lesson plans for site emergency response leaders responsible for the implementation of FLEX strategies. (Records for staff completing this training may be requested to be provided to the inspectors during the onsite inspection week.)

    c. Lesson plans for site personnel responsible for the execution of mitigating strategies for BDBEEs (i.e., operators, craft personnel, security, radiation protection, etc.) to ensure familiarity and considering available job aids, instructions, and mitigating strategy time constraints.

13. Provide the procedure(s) which describe your configuration control program; AND provide lists that identify by number, name, and revision number the documents, drawings, sketches, calculations, analyses, procedures/guidance and evaluations related to your mitigation strategies.

14. Listing of corrective action program document summaries generated related to FLEX equipment, strategies, procedures, and/or training.

<u>TI 2515/191 - Appendix B</u>

15. Provide the procedures you approved for maintenance, testing, calibration, and use of the primary and backup Spent Fuel Pool (SFP) instrumentation channels.

16. Provide documents which describe the training program that addresses the use, maintenance, calibration, surveillance, and the use of alternate power to the primary and backup SFP instrument channels. Specifically provide training materials used in that program.

TI 2515/191 - Appendix C

17. Communications:

    a. Provide documents which show that the communications system(s), technologies, equipment and power supplies would be available from the beginning of the event and operate during an ELAP.

    b. Provide documents which show that you have completed appropriate maintenance and testing program activities to verify off-site response organizations communication systems operate as designed.

    c. Provide the procedures and/or guidance used to implement the communication capabilities.

    d. Provide documents which show that you have added any new communications equipment, portable power supplies and/or systems have been added to ongoing testing and preventative maintenance programs.

18. Staffing:

    a. Provide documents which show that onsite and augmented staff will be available to implement the strategies in response to a large scale natural event that results an ELAP and impedes access to the site, and that functions/tasks have been appropriately staffed.

    b. Provide documents which show that the site access methods (e.g., roadways, navigable bodies of water and dockage, airlift, etc.) expected to be available following the event and available to the Emergency Response Organization (ERO) [as described in your Phase 1 and 2 staffing assessments and NRC safety assessment].

    c. Provide documents which show the testing, training, and drills/exercises performed by you to demonstrate the ERO's ability to utilize the communications systems and/or equipment.

19. Provide documents which show that your multi-unit dose assessment is capable of analyzing concurrent radiological releases from all on-site significant sources (including releases from spent fuel pools) during an ELAP.

Lead Inspector Contact Information:

Ryan D. Alexander, Sr. Project Engineer
817-200-1195
Ryan.Alexander@nrc.gov

Mailing Address:
U.S. NRC, Region IV
1600 East Lamar Blvd.
Arlington, TX 76011-4511
Attn: Ryan Alexander, DRP

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Sincerely,

/RA/

Geoffrey Miller, Chief
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SIGNATURE	***/RA-E/***	***/RA/***		
DATE	09/13/16	09/14/16		

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Letter to Randall K. Edington from Geoffrey Miller, dated September 14, 2016

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DISTRIBUTION:
Regional Administrator (Kriss.Kennedy@nrc.gov)
Deputy Regional Administrator (Scott.Morris@nrc.gov)
DRP Director (Troy.Pruett@nrc.gov)
DRP Deputy Director (Ryan.Lantz@nrc.gov)
DRS Director (Anton.Vegel@nrc.gov)
DRS Deputy Director (Jeff.Clark@nrc.gov)
Senior Resident Inspector (Charles.Peabody@nrc.gov)
Resident Inspector (David.You@nrc.gov)
Resident Inspector (Dustin.Reinert@nrc.gov)
Administrative Assistant (Yvonne.Dubay@nrc.gov)
Branch Chief, DRP/D (Geoffrey.Miller@nrc.gov)
Senior Project Engineer, DRP (Vacant)
Project Engineer, DRP/D (Jim.Melfi@nrc.gov)
Project Engineer, DRP/D (Brian.Parks@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Project Manager (Siva.Lingam@nrc.gov)
Team Leader, DRS/IPAT (Thomas.Hipschman@nrc.gov)
Technical Support Assistant (Loretta.Williams@nrc.gov)
Inspection Team Lead, Sr. Project Engineer, DRP/A (Ryan.Alexander@nrc.gov)
Team Member, Reactor Inspector, DRS/IPAT (Eduardo.Uribe@nrc.gov)
Team Member, Project Engineer, Region III/DRP (Bruce.Bartlett@nrc.gov)