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April 28, 1999

U. S. Nuclear Regulatory Commission
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Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket Nos. STN 50-528/529/530
Annual Environmental Operating Report for 1998

Enclosed is the PVNGS Annual Environmental Operating Report for 1998. This report covers the operation of PVNGS Units 1, 2, and 3 during 1998, and is being submitted pursuant to Section 5.4.1 of Appendix B to the Operating License. There are no commitments in this letter.

Should you have any questions, please contact Scott A. Bauer at (602) 393-5978.

Sincerely,

JML/AKK/HCL/rth

Enclosure

cc: E. W. Merschoff
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ENCLOSURE

1998 Annual Environmental Operating Report

1998 Annual Environmental Operating Report

I. - INTRODUCTION

The Palo Verde Nuclear Generating Station (PVNGS) is located in Maricopa County, Arizona, approximately 50 miles west of the Phoenix metropolitan area. The PVNGS site comprises approximately 4050 acres. Site elevations range from 890 feet above mean sea level at the southern boundary to 1030 feet above mean sea level at the northern boundary. The station consists of three pressurized water reactor electrical generating units with a nominal generating capacity of 1270 MWE per Unit.

PVNGS was issued low power operating licenses NPF-34, NPF-46 and NPF-65 for Units 1, 2 and 3 by the United States Nuclear Regulatory Commission (NRC) on December 31, 1984, December 9, 1985, and March 25, 1987, respectively. The Unit 1 full power operating license NPF-41 was issued June 1, 1985. The Unit 2 full power operating license NPF-51 was issued April 24, 1986. The Unit 3 full power operating license NPF-74 was issued November 25, 1987. Appendix B to these operating licenses is entitled the "Environmental Protection Plan (Non Radiological)". The Environmental Protection Plans (EPP) of each of the current operating licenses are identical.

The EPP is to provide for protection of environmental values during construction and operation of the nuclear facility. The principal objectives of the EPP are as follows:

- (1) Verify that the station is operated in an environmentally acceptable manner, as established by the FES (Final Environmental Statement) and other NRC environmental impact assessments.
- (2) Coordinate NRC requirements and maintain consistency with other Federal, State and Local requirements for environmental protection.
- (3) Keep NRC informed of the environmental effects of facility construction and operation and actions taken to control those effects.

This Annual Environmental Operating Report is required by Section 5.4.1 of the EPP. This report describes the activities during the year 1998 related to the PVNGS EPP. For purposes of this report, references to the EPP are considered to be the EPP of NPF-41, NPF-51, and NPF-74.

II. ENVIRONMENTAL MONITORING SUMMARIES AND ANALYSIS

A. Cultural Resources

Section 4.2.1 of the EPP requires that an archaeological survey be performed when final alignment of the PVNGS-to-Saguaro transmission line is completed. As of the date of this report, plans for this transmission line have been indefinitely suspended. Therefore, there has been no activity with regard to this requirement of the EPP.

B. Terrestrial Ecology Monitoring

As communicated in a letter from William F. Conway, APS, to NRC, dated December 30, 1991, the salt deposition monitoring program was discontinued at the end of 1991.

III. PLANT DESIGN AND OPERATION CHANGES

Section 3.1 of the EPP allows changes in station design or operation or the performance of tests or experiments affecting the environment provided that such changes, tests, or experiments do not involve an unreviewed environmental question and do not involve a change to the EPP. Changes, tests, or experiments in which all measurable non-radiological effects are confined to the on-site areas previously disturbed during site preparation and plant construction or in which the environment is not affected are exempt from the evaluation and reporting requirements of Section 3.1.

Section 3.2 of the EPP also exempts changes, tests, or experiments, which are required to comply with other Federal, State, or local environmental regulations.

Twelve plant design and operation changes were evaluated in 1998 to determine if they involved either an unreviewed environmental question or constituted a change in the EPP. Table III-1 summarizes the results of these evaluations. None of these changes involved an unreviewed environmental question or a change in the EPP.

IV. EPP NON-COMPLIANCES

There were no instances of non-compliance with the EPP identified during 1998.

V. NON-ROUTINE REPORTS

There were no non-routine reports required by Section 5.4.2 of the EPP submitted during 1998.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-003	T-Mod 1-97-PW-006	A temporary modification that adds a portable cooling tower for Plant and Nuclear Cooling Water Systems heat removal while the main cooling towers of Unit 1 are out of service for maintenance during the refueling outage.	The addition of a portable cooling tower has the potential to increase particulate effluent releases and could cause a visual change outside of the plant during operation due to cooling tower plumes.	The FES* and Operational Salt Drift Study concluded that there is acceptable environmental impact associated with main cooling tower operation. The emissions from the portable cooling towers will be significantly less than the emissions from the main cooling towers.	There was no unreviewed environmental question because the operation of the portable cooling towers is bounded by the evaluation and monitoring performed for the main cooling towers.
98-006	DMWO 813493	A design change that allows chemical injection of ammonium hydroxide directly into the feedwater heater drain system to reduce iron corrosion	The design change has the potential to increase releases of gaseous ammonia during normal operations.	Ammonia releases from plant operation are not specifically discussed in the ER-OL* or FES*. However, releases of ammonia from any source are restricted by a reportable quantity (RQ) identified in EPA regulations. Routine release of ammonia following this modification will continue to remain well below the RQ for ammonia.	There was no unreviewed environmental question because all releases will remain below current EPA RQ limits.
98-011	Work Requests 943927, 943928, and 94929	The work requests involve the demolition of an existing concrete pad near Unit 1	The work has the potential to increase particulate and dust emissions during normal operations.	Particulate and dust emissions from excavation and maintenance activities are regulated by county air quality regulations. Activities that generate dust associated with this modification will be conducted in accordance with county air quality regulations.	There is no unreviewed environmental question because modification activities will be performed in accordance with current state and county regulations.



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TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-014	T-Mod 3-98-PW-006	A temporary modification to add a portable cooling tower for Plant and Nuclear Cooling Water Systems heat removal while the main cooling towers of Unit 3 are out of service for maintenance during the refueling outage.	The addition of a portable cooling tower has the potential to increase particulate effluent releases and could cause a visual change outside of the plant during operation due to cooling tower plumes.	The FES* and Operational Salt Drift Study concluded that there is acceptable environmental impact associated with main cooling tower operation. The emissions from the portable cooling towers will be significantly less than the emissions from the main cooling towers.	There was no unreviewed environmental question because the operation of the portable cooling towers is bounded by the evaluation and monitoring performed for the main cooling towers.
98-015	DFWO 0845317	A design change that installs a prototype wind vane on one bay (two levels) of Unit 1 Cooling Tower #2.	The installation of the wind vane has the potential to affect the operation of the cooling towers and subsequently cooling tower emissions.	The FES* and Operational Salt Drift Study concluded that there is acceptable environmental impact associated with main cooling tower operation. The impacts on emissions from the towers were discussed with county regulators and permission was received to change the design since there would be no significant change in emissions.	There was no unreviewed environmental question because any change in cooling tower emissions was not significant.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-016	Procedure 32MT-9NA02	A procedure revision that allows a portable combustion generator to be used as a temporary power supply for a non-class power load center	The use of a portable generator and fuel supply can potentially increase emissions and can affect groundwater quality in the event of a fuel leak.	The use of portable combustion equipment was not explicitly discussed in the FES* or ER-OL*. Emissions from portable combustion equipment are regulated by county air quality regulations. Use of this equipment will be in accordance with these regulations. Fuel oil leaks are to be contained by berming the storage tanks as needed. Any leaks or releases from these temporary tanks that may develop can be promptly identified and cleaned-up before groundwater quality can be impacted.	There was no unreviewed environmental question since portable combustion equipment will be used in accordance with county air quality regulations. In addition, since fuel storage is above ground and any spills would be contained there is no possibility to affect groundwater quality before any spills can be identified and cleaned-up.
98-020	WDP-Z0-338	A design change that installs Pressure Relief Valves (PRV's) and reduces the rupture disk setpoint on the water supply pipeline at the Hassayampa Pumping Station (HPS).	The installation of the pressure relief valve has the potential to increase releases of water from the pipeline supply and possibly affect groundwater quality.	The discharges from the relief valves will be directed to the holding pond at the pump station. Releases to the holding pond are permitted under the current Groundwater Quality Protection Permit (GPP).	There is no unreviewed environmental question because releases of water to the holding pond are permitted under the current Groundwater Quality Protection Permit.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-021	WDP-ZI-341	A design change that replaces a flowmeter on the water supply pipeline at 91 st Avenue.	Installation of the flowmeter requires trenching activities that have the potential to increase dust and particulate air emissions.	Impacts from routine maintenance activities associated with the water supply pipeline have already been assessed in the FES* as minimal and temporary. Particulate and dust emissions from excavation and maintenance activities are regulated by county air quality regulations. Activities that generate dust associated with this modification will be conducted in accordance with county air quality regulations.	There is no unreviewed environmental question since routine maintenance on the pipeline has already been addressed in the FES. In addition, all activities will be performed in accordance with county air quality regulations.
98-023	WDP-ZO-354	A design change that encases two water supply pipeline pipe sections to support the construction of a water diversion canal by the Maricopa County Flood Control District	The design change has the potential to increase airborne particulate emissions from excavation. De-watering the pipeline to support the construction activities has the potential to increase water releases.	Impacts from routine maintenance activities associated with the water supply pipeline have already been assessed in the FES* as minimal and temporary. Particulate and dust emissions from excavation and maintenance activities are regulated by county air quality regulations. Activities that generate dust associated with this modification will be conducted in accordance with county air quality regulations. Discharges from the pipeline will be made in accordance with the Water Reuse permit issued by the state.	There is no unreviewed environmental question. Offsite impacts associated with repairing the pipeline have already been addressed in the FES. In addition all airborne and water releases will be made in accordance with the appropriate county and state regulations.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-025	WDP-FP-274	A design change that installs a forklift pad and underground caustic line for replenishing the Fire Protection (FP) chemicals.	The design change has the potential to affect groundwater quality in the event an underground line fails.	The design change encases the chemical delivery line inside a PVC pipe, which drains to a containment basin. Any potential release from the underground line can be easily identified and will be contained such that groundwater quality cannot be impacted.	There is no unreviewed environmental question because the proposed design contains potential leaks before groundwater quality can be impacted.
98-028	DMWO 00684226 and 00706505	A design change that involves removing penetration seals utilizing a high pressure water jet process.	The process has the potential to increase air emissions from the use of portable diesel combustion equipment. In addition, there is a potential to increase releases of liquids that could potentially affect groundwater quality by using the pressurized water sprayer.	The use of portable combustion equipment was not explicitly discussed in the FES* or ER-OL*. Emissions from portable combustion equipment are regulated by county air quality regulations. Use of this equipment will be in accordance with these regulations. In addition, all water releases will be directed to the appropriate plant systems for proper treatment / disposal.	There is no unreviewed environmental question since portable combustion equipment will be used in accordance with county air quality regulations. In addition, since all water releases will be directed to the appropriate plant systems for proper treatment / disposal, there are no new discharges to evaluate.
98-029	31MT-9ZC05	A procedure revision that addresses the use of backup power to close the containment equipment hatch.	The procedure change involves the use of rented diesel combustion generators as a backup power supply. Operation of the equipment has the potential to increase air emissions.	The use of portable combustion equipment was not explicitly discussed in the FES* or ER-OL*. Emissions from portable combustion equipment are regulated by county air quality regulations. Use of this equipment will be in accordance with these regulations.	There was no unreviewed environmental question since portable combustion equipment will be used in accordance with county air quality regulations.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-034	WDP-PS-359	A design change that adds audible fire alarms, vent fan alarms, and scent to the carbon dioxide Fire Suppression System at the Hassayampa Pumping Station on the water supply pipeline.	The design change has the potential to release carbon dioxide and wintergreen scent in the event of actuation.	Impacts of non-radiological emissions are discussed in the FES* and ER-OL*. The release of carbon dioxide from the pumping station fire suppression system is bounded by the analysis for the station fire protection system. There is no environmental impact. Since the scenting agent is not a hazardous chemical, its release cannot have any more impact than for emissions already evaluated.	There is no unreviewed environmental question since the discharge of carbon dioxide and any non-hazardous winter green scent is bounded by the discussion in the ER-OL*.
98-035	WDP-ZO-374	A design change that implements repairs to the water supply pipeline.	The design change has the potential to increase airborne particulate releases from excavation activities and water release from pipeline de-watering. It also affects offsite areas.	Impacts from routine maintenance activities associated with the water supply pipeline have already been assessed in the FES* as minimal and temporary. Particulate and dust emissions from excavation and maintenance activities are regulated by county air quality regulations. Activities that generate dust associated with this modification will be conducted in accordance with county air quality regulations. Discharges from the pipeline will be made in accordance with the Water Reuse permit issued by the state.	There is no unreviewed environmental question. Offsite impacts associated with repairing the pipeline have already been addressed in the FES. In addition all airborne and water releases will be made in accordance with the appropriate county and state regulations.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1998
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
98-042	WDP-QH-379	A design change that enhances the cathodic protection of the water supply pipeline.	The design change requires minimal offsite excavation but has the potential to increase airborne dust and particulate emissions	Impacts from routine maintenance activities associated with the water supply pipeline have already been assessed in the FES* as minimal and temporary. Particulate and dust emissions from excavation and maintenance activities are regulated by county air quality regulations. Activities that generate dust associated with this modification will be conducted in accordance with county air quality regulations.	There is no unreviewed environmental question since routine maintenance on the pipeline has already been addressed in the FES. In addition, all activities will be performed in accordance with county air quality regulations.

* FES - Final Environmental Statement; ER-OL - Environmental Report, Operating License Stage

