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U.S. Nuclear Regulatory Commission
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Dear Sirs:

**Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, & 3
Docket Nos. STN 50-528/529/530
Annual Environmental Operating Report for 1999**

Enclosed please find a copy of the Annual Environmental Operating Report for 1999. This report covers the operation of PVNGS Units 1, 2, and 3 during 1999, and is being submitted pursuant to Section 5.4.1 of Appendix B to the Operating License. No commitments are being made to the NRC by this letter.

Should you have any questions, please contact Scott A. Bauer at (623) 393-5978.

Sincerely,


Angela K. Krainik

AKK/SAB/CJJ

Enclosure

cc: E. W. Merschoff
M. B. Fields
J. H. Moorman
A. V. Godwin (ARRA)

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ENCLOSURE

ANNUAL ENVIRONMENTAL OPERATING REPORT FOR 1999

FOR

PALO VERDE NUCLEAR GENERATING STATION

1999 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 1999 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.

Twenty-seven plant design and operation changes were evaluated in 1999 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 1999.

V. NON-ROUTINE REPORTS

There were no non-routine reports required by Section 5.4.2 of the EPP submitted during 1999.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1999
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-002	DMWO 0070551	Reviewed a design modification model work order for the replacement of anode beds associated with the cathodic protection program. The cathodic protection program replaces existing anodes with a new design over next 10 years.	Anode replacement involves offsite excavation activities.	Impacts from offsite excavation and construction during necessary pipeline repairs were evaluated in the FES. The FES concludes that any disturbance of the land resulting from necessary repairs will be practically no concern and temporary.	There was no unreviewed environmental question because excavation was already performed for the existing boreholes and all work will be done in accordance with state and county requirements.
99-005	PR 148935	Reviewed a request to purchase a portable dust collection unit.	The addition of a portable dust collection unit has the potential to affect particulate emissions discharged from the facility.	The addition of the device will reduce the effluents from the plant and therefore cannot impact any conclusions regarding airborne effluents as described in the FES.	There was no unreviewed environmental question because plant effluents will be reduced. The equipment will be permitted and operated in accordance with county environmental regulations.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1999
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-009	AFCR – 0140	Reviewed a proposed change to install a sandblast media hopper at the coating facility so bulk sandblast media can be utilized instead of 50 pound bags.	The addition of the hopper could increase particulate emissions discharged from the facility.	<p>The FES discusses and evaluates the impacts of air pollutants from stationary sources, mobile sources, fugitive dust, and ozone. It does not specifically address air emissions from blasting equipment.</p> <p>The addition of the hopper will not affect the operation of any equipment already described in the FES and therefore it cannot alter any conclusions in the FES.</p>	<p>There was no unreviewed environmental question.</p> <p>All equipment will be permitted and operated in accordance with county environmental regulations. As a result, there will be no significant increase to any environmental impact already evaluated.</p>
99-010	T-Mod 3-98-PW-006	Reviewed 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 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.

TABLE III - 1
SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1999
FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-011	N/A	Reviewed a proposed change to uprate Unit 2 thermal power from 3876 to 3990 MW(t) Reactor Power as part of the steam generator replacement project.	The proposed change has the potential to increase the cooling tower current operating evaporation rate, blowdown rate, and drift rate due to the required extra heat removal.	The FES Construction and Operating Stages evaluated potential environmental impacts from cooling tower emissions. The design basis review was for towers rated to 4100 MW(t) capacity. The evaluations bound the proposed design change.	There was no unreviewed environmental question because the impacts of tower operation evaluated in the FES bound the proposed changes.
99-015	PR # 156357	Reviewed request to purchase new pressure washer.	The purchase of the new pressure washer could increase airborne emissions from the site resulting from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted in accordance with county regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county regulations.
99-016	DMWO 813493	Reviewed a design change to inject ammonia (ammonium hydroxide) into the ED system.	The proposed design change has the potential to increase ammonia emissions from the plant.	FES discusses the impacts of effluent discharges from the facility. Ammonia releases are not specifically addressed. Releases of ammonia from all sources at the plant are addressed in EPA regulations. Releases will be maintained with these current limits.	There was no unreviewed environmental question. All ammonia releases will be maintained within EPA regulatory limits.

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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-021	WO # 0080721	Reviewed the work order for the WRSS May 99 Pipe Repair Outage	The inspection and repair of the pipeline involves the rental of diesel driven pumps that could potentially increase effluent emissions. It also involves offsite excavation and construction activities.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county regulations. Impacts from offsite excavation and construction during necessary pipeline repairs were evaluated in the FES.	There was no unreviewed environmental question because the combustion equipment will be permitted and operated in accordance with county regulations. The FES concludes that any disturbance of the land resulting from necessary repairs will be practically no concern and temporary.
99-023	DMWO #00880632	Reviewed a modification to increases the condenser backpressure setpoint.	The proposed modification raised the condenser backpressure operational limits. This increase could affect cooling tower operational parameters and subsequent emissions.	The FES Construction and Operating Stages evaluated potential environmental impacts from cooling tower emissions. The design reviewed was for towers rated to 4100 MW(t) capacity. The evaluations bound the proposed design change.	There was no unreviewed environmental question because the impacts of tower operation evaluated in the FES bound the proposed changes.

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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-026	AFCR 99-0137 PO 500221722	Reviewed a change request to replace the sandblast booth filtration system with a high efficiency filter.	The proposed change modifies the sand blast booth emissions control system. It has the potential to affect air emissions.	<p>The FES discusses and evaluates the impacts of air pollutants from stationary sources, mobile sources, fugitive dust, and ozone. It does not specifically address air emissions from the sandblast booth.</p> <p>The addition of the filtration equipment will not affect the operation of any equipment already described in the FES and therefore it cannot alter any conclusions in the FES.</p>	<p>There was no unreviewed environmental question.</p> <p>All equipment will be permitted and operated in accordance with county environmental regulations. As a result, there will be no significant increase to any environmental impact already evaluated.</p>
99-027	WDP-TB-450	Reviewed a design modification to install a new cooling tower make up line to supply makeup cooling water from the reservoir to the cooling towers.	The addition of the cooling tower make up line is a modification of the cooling tower design. It also involves the construction and excavation activities.	<p>The FES describes the function and design of the cooling towers. The proposed CTMU piping addition does not modify the basic design of the pipeline or its function.</p> <p>Disturbances of land during construction and maintenance are addressed in the FES. Any potential effects on the land or land use associated with implementing this modification will be temporary. All repair and earthmoving activities are being performed within land that has previously been disturbed and in accordance with an approved earthmoving permit.</p>	<p>There was no unreviewed environmental question. The proposed work does not significantly increase any environmental impact as previously identified in the FES.</p>

TABLE III - 1
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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-032	EDC 98-00727	Reviewed a "Paper Only" change to the FP Design Basis Manual (DBM)	The design basis manual revision changes the run test frequency for the fire pump diesels from weekly to monthly. There were no equipment changes.	The FES does not address airborne releases from the fire pump diesels. The equipment is operated in accordance to county environmental regulations. These regulations ensure no adverse environmental impact.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-033	PR 166209	Reviewed a purchase request for two 12,000 CFR trailer mounted diesel blowers.	The proposed purchase would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-034	PR 180788	Reviewed a purchase request for a diesel driven construction pond pump.	The proposed purchase would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-036	DFWO 00756022	Reviewed a design change to the Unit 1 Cooling Tower #1 Basin Wall.	The proposed change cuts deteriorated concrete from the top of the basin wall and applies protective coatings on the concrete surface. It changes the configuration of the cooling towers.	The FES discusses impacts resulting from cooling tower operation. The specific design requirements for the basin wall are not identified. The proposed change will not affect operation of the tower or impact effluent releases.	There was no unreviewed environmental question. The proposed change will not affect the operation of the towers or impact effluent releases.

TABLE III - 1
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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-037	PR 182894	Reviewed a request to rent a Fusion Machine.	The proposed rental would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-038	PR 183791	Reviewed a request to rent a Fusion Machine	The proposed rental would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-039	N/A	Reviewed a proposal to increase cooling tower cycle times.	The proposed change would increase the recycle rate of the cooling tower and increase total dissolved solids. It has the potential to affect cooling tower emissions.	The FES evaluated cooling tower operation with a salt drift factor more conservative than actual data. The operational data used in the FES evaluation bounds the proposed operating parameters. In addition, the cooling tower will be operated within county environmental permit requirements.	There was no unreviewed environmental question. Actual operating parameters will be bounded by the design parameters used in the FES evaluation. The towers will be operated in accordance with county environmental permit requirements.
99-042	PR 176473	Reviewed a request to purchase Mustang Gasoline Jetter Washer	The proposed purchase would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.

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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-043	PR 184625	Reviewed a request to purchase two MSW Pro Spray 5000 Water Blasters	The proposed purchase would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-045	WO 00894589	Reviewed the work order for the WRSS October '99 Pipe Inspection Outage	Inspection and repair activities involve the rental of diesel driven pumps that could potentially increase effluent emissions. It also involves offsite excavation and construction activities.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations. Impacts from offsite excavation and construction during necessary pipeline repairs were evaluated in the FES.	There was no unreviewed environmental question because the combustion equipment will be permitted and operated in accordance with county environmental regulations. The FES concludes that any disturbance of the land resulting from necessary repairs will be practically no concern and temporary.
99-048	PR 186614	Reviewed a request to rent Aggreko Air Compressors and associated equipment for Unit 1 ILRT	The proposed rental agreement would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.

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FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-049	PR 188392	Reviewed a purchase request for a 20K Hydrolaser	The proposed purchase would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-054	N/A	Reviewed the purchase of two portable generators.	The purchase added equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-055	N/A	Reviewed the purchase of a Coleman Powermate Portable Generator	The purchase added equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.
99-057	40AO-9ZZ06	Reviewed a request to rent diesel driven air compressors.	The proposed rental would add equipment that could increase airborne emissions from the combustion of fossil fuel.	The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.	There was no unreviewed environmental question because the equipment will be operated in accordance with county environmental regulations.

TABLE III - 1
 SUMMARY OF ENVIRONMENTAL EVALUATIONS PERFORMED DURING 1999
 FOR PLANT DESIGN AND OPERATION CHANGES

Log #	Title	Description	Analysis	Interpretation	Evaluation
99-058	WO 00907693	Reviewed the work order for the WRSS January 2000 Pipe Repair Outage	Inspection and repair activities involve the rental of diesel driven pumps that could potentially increase effluent emissions. It also involves offsite excavation and construction activities.	<p>The FES does not address portable emission sources. The equipment purchased will be permitted and operated in accordance with county environmental regulations.</p> <p>Impacts from offsite excavation and construction during necessary pipeline repairs were evaluated in the FES.</p>	<p>There was no unreviewed environmental question because the combustion equipment will be permitted and operated in accordance with county environmental regulations.</p> <p>The FES concludes that any disturbance of the land resulting from necessary repairs will be practically no concern and temporary.</p>

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