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January 18, 2007

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Docket Control
Parties to the Docket

Re: Arizona Public Service Company, Docket No. E-01345A-05-0816 E-01345A-05-0826 E-01345A-05-0827

Dear Colleagues and Parties to the Docket:

I would like to docket and add to the record in this case the following publication from Standard and Poor's entitled, *"More NRC Oversight at the Palo Verde Plant Could Generate Problems for APS."*

Sincerely,

Kris Mayes
Commissioner

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RESEARCH

More NRC Oversight At The Palo Verde Plant Could Generate Problems For APS

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Since 2004, Palo Verde Nuclear Generating Station (Palo Verde), the largest nuclear power plant in the United States, has experienced a number of operational and regulatory issues. The plant's performance during the past few years has resulted in the potential for increased Nuclear Regulatory Commission (NRC) oversight, and has possible credit implications for Arizona Public Service Co. (APS; BBB-Stable/A-3), the operator and largest owner of the approximately 4,000 MW facility.

APS' Key Palo Verde Ownership Challenges In 2007

Palo Verde is composed of three pressurized water nuclear reactors located in Wintersburg, Ariz., about 50 miles from Phoenix. Since coming on line between 1986-1988, the units have generated an average of 30,000 gigawatt hours a year. Table 1 provides an overview of the utilities that have an ownership stake in the nuclear plant.

Table 1

Palo Verde Participants

Utility	Rating	Ownership share of Palo Verde (%)	% of 2005 Power Supply from Palo Verde
Arizona Public Service Co.	BBB-/Stable/A-3	29.1	33
Salt River Project	AA/Stable/A-1+	17.5	12
El Paso Electric Co.	BBB/Stable	15.8	46
Southern California Edison Co.	BBB+/Stable/A-2	15.8	17¶
Public Service Co. of New Mexico	BBB/Negative/A-3	10.2	25
Southern California Public Power Authority	A+/Stable	5.9	<11*
Los Angeles Dept. of Water and Power	AA-/Stable/A-1+	5.7	9§

* SCPPA is a joint action agency with 10 members. Most members relied on Palo Verde for about 4%-6% of 2005 energy requirements. For one member, it is around 11%. ¶ Based on 2006 data, includes both Palo Verde and San Onofre Nuclear Generation Station. § Based on 2006 data.

As Palo Verde's operator, APS faces three important challenges in 2007:

- Restoring Palo Verde's operational performance to its traditionally strong levels,
- Regaining its reputation with the NRC as a strong nuclear operator, and
- Recovering in authorized rates the majority of replacement power costs associated with Palo Verde's 2005 and 2006 unplanned outages.

Historically, capacity factors at Palo Verde have been strong but a variety of factors have eroded the plant's performance in recent years. Table 2 provides a summary of Palo Verde's plant capacity factors over the past few years.

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Table 2

Palo Verde Nuclear Generating Station Historical Capacity Factors				
	1999-2003 Average	2004	2005	YTD Through Sept. 30, 2006
Combined capacity factor (%)	91.1	83.7	77.4	69.3

These figures importantly include planned outages for the replacement of steam generators. Each unit has two steam generators. The replacements extend the life of the plants and, with other upgrades and uprates, will increase net capacity by approximately 67 MW per unit at a total cost of $660 million (APS' share is about $190 million).

However, the improvements have required longer planned outages that have reduced capacity factors by increasing typical refueling outages during years in which the steam generator replacements have been made--from 35-40 days to almost 80 days.

Unit 2's steam generators were replaced in fall 2003; Unit 3's steam generators are scheduled to be replaced in fall 2007. Unit 1 was replaced in 2005, exiting from its outage last December. Soon after, the unit had to be derated to 25% of capacity due to excessive acoustic vibrations on one of its cooling lines. On March 18, 2006, APS took the unit offline to repair the problem. It returned to service in mid-July.

Year to date (through Sept. 30, 2006), Palo Verde's capacity factor was about 69%, principally reflecting Unit 1's reduced output to address the vibration issue and minor unplanned outages at Unit 2 and Unit 3. However, Palo Verde's third quarter capacity factor reflects improvement at 88%, and Unit 1 has been operating at levels expected by the company since the repair was completed. While these steam generator replacements have dampened performance, it is important to note that the largest driver of reduced Palo Verde capacity factors since 2004 has been unplanned outages.

Operational Challenges Coinciding With Growing NRC Concerns

Operational challenges at a nuclear plant do not necessarily coincide with heightened NRC scrutiny, but that has been the case for Palo Verde, which in 2005 was determined to require increased monitoring and oversight. In late 2006, two new safety concerns emerged as part of NRC special inspections. These concerns relate to the mix of chemicals used in Palo Verde's spray ponds and the procedures and maintenance standards surrounding the plant's emergency diesel generators (EDG). While the spray pond issue has been resolved (see "How Likely Is An Adverse Finding?," below), the EDG issue could result in the plant being moved into the next-to-worst of the five NRC performance categories--referred to as "multiple or repetitive degraded cornerstone," a diminished performance level.

Only two other nuclear facilities, both of which have had reputations of being closely watched plants by the NRC, are currently in the fourth category. The 1,240 MW Perry plant near Cleveland, Ohio is operated by FirstEnergy Corp. (BBB/Stable/--). The Point Beach units in the Milwaukee, Wis. region total 1,036 MW and are owned Wisconsin Electric Power Co. (WEPCO; A-/Negative/A-2). (In February 2007, it is expected that Point Beach will move out of the "multiple/repetitive degraded cornerstone.")

If Palo Verde is moved to the fourth category, NRC oversight will increase, as will the number of special inspections. This could result in higher expenses to comply with any NRC directives (see "Ramifications If Plant's Performance Category Is Degraded," below). In the extreme, it could require temporary outages to address NRC concerns, a circumstance that occurred at Palo Verde in October 2005. In addition, the NRC executive director of operations would also hold public meetings with APS management, who would have to develop an NRC-approved performance plan.

ACC Controls What Costs APS Recovers For Palo Verde Share

While the NRC has sole authority over Palo Verde's operational status, the Arizona Corporation Commission (ACC) authorizes how much of Palo Verde's costs may be recovered in customer's retail electric rates. APS' relationship with the ACC has been recently tested as a result of cash flow problems stemming chiefly from its retail rates being benched to 2003 costs. By mid-2007, the ACC should rule on the company's general rate case in which it is seeking a 20% rate increase. As part of the case, the ACC

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is expected to rule on how much of the $45 million 2005 Palo Verde replacement power costs should be recovered in rates. The ACC staff has recommended that $17.4 million (pre-tax) be disallowed. Staff has also suggested that Palo Verde be required to meet minimum capacity factor targets in order for APS to collect any incremental fuel and replacement power costs associated with unplanned Palo Verde outages.

The financial overhang associated with weaker Palo Verde performance is not limited to 2005. In 2006, the company estimates that power costs associated with unplanned Palo Verde outages will be about $78 million. The ACC staff has called for a prudence audit. In terms of recovery mechanics, these costs, as well as any incurred in 2007, could be addressed in adjustments to the company's power supply adjuster (PSA). Cash flows from the PSA will depend on whether the costs are deemed to be prudent and whether the amount of the adjuster, which can be reset in February 2007, has sufficient headroom to accommodate these costs.

Palo Verde's Most Immediate Challenge

Today, APS has the opportunity at the NRC's regional headquarters in Arlington, Texas, to convince its staff that Palo Verde's EDG performance issues during summer and fall 2006 do not pose serious safety concerns. The regulatory conference follows the NRC's Dec. 6, 2006 letter to the company outlining the results of a November 2006 special inspection of one of Unit 3's EDG. The inspection occurred after the EDG failed twice during routine testing. The cause of the failure was a relay on the EDG, which had been replaced summer 2006. The replacement part was later found to be defective. The NRC has faulted the company for failing to identify that the replacement part was defective, causing the EDG to be unreliable for 40 days and inoperable for 18 days. A final NRC determination is expected in early March.

Ramifications If Plant's Performance Category Is Degraded

While escalated NRC regulation does not necessarily equate to immediate erosion in credit quality, it is a development that will be monitoring closely. The most significant potential risk an adverse NRC outcome could have is one which we view as unlikely to occur. That is, under sale leaseback agreements for Unit 2, APS could have to buy out the leases and assume the lease debt. Specifically, in 1986, APS sold about 42% of its share of Unit 2 in three separate sale leaseback transactions. If certain NRC violations occur, APS would be required to assume the debt associated with the transactions, make payments to the equity participants, and would take title to the lease interests, which could require a write down. In its 2005 10K filing, APS estimated that if this had occurred, it would have to assume $234 million in debt and pay the equity participants $185 million.

The lease language specifies that these terms would be triggered if, within a two year period, the NRC issues two or more final orders involving "severity level I" violations, or three or more final orders involving "severity level I" or "severity level II violations." Since the leases were written, NRC oversight procedures have changed, but under the then-effective enforcement procedures, severity level I violations included items such as the actual failure of safety equipment when called upon or the release of radioactive material beyond approved standards. Severity level II violations include "a system designed to prevent or mitigate serious safety events not being able to perform its intended safety function."

Our more immediate credit concern is that Palo Verde's performance improve to avoid any significant replacement power purchases in 2007. It is important to note that generation performance may not necessarily be compromised as a result of increased NRC oversight. For example, while the 2005 dry pipe issue discussed below triggered NRC violations, it did not directly affect generation performance, although follow-up inspections did raise other issues that led to the company taking Units 2 and 3 offline for 10 days in October of that year. Conversely, while Unit 1's 2006 acoustic vibration problems did not result in any NRC violations, the unit's output had to be temporarily derated to fix the problem. Thus, it is possible that plant performance could stabilize in 2007, even if NRC regulatory oversight increases.

The NRC is moving away from the use of fines to achieve compliance. As a result, direct out-of-pocket expenses associated with heightened NRC regulation are expected to be nominal (for example, APS paid a modest $50,000 in fines associated with the dry pipe violation in 2005). In addition, capital expenses are not expected to increase significantly as a result of increased NRC oversight. To date NRC's concerns are clearly in areas that have to do with human performance, rather than any fundamental integrity of equipment or systems, although this could change. Any additional investment would be borne

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pro rata by all of the station's owners.

What could be expensive is allocating the necessary staff and consultant time to participate in special inspections. For example, demonstrating to the NRC in 2005 that Palo Verde's emergency cooling equipment would function as designed required several million dollars in engineering studies.

Understanding The NRC's Performance Categories

The NRC uses a color coding system to assess nuclear reactor performance. Specifically, the NRC looks at seven criteria or "cornerstones" and quarterly assigns color flags.

- Green--Requirements are met.
- White--Performance is outside of expected range, but related cornerstones continue to be met.
- Yellow--Moderate reduction in safety.
- Red--Significant reduction in safety.

Among the seven criteria that the NRC measures are emergency preparedness plans, site security, and the integrity of the structures to ensure that radioactive leaks do not occur. Depending on the number of violations and the color assigned, a plant may move from being in compliance (the best of the five categories) to being shut down (the fifth category). A degraded cornerstone--Palo Verde's current status--occurs when a plant has two or more white flags or a single yellow flag. A repetitive degraded cornerstone, which Palo Verde is in jeopardy of receiving, occurs when there are multiple yellow or white flags or a red flag in a single cornerstone (a multiple degraded cornerstone occurs if there non-green flags assigned to more than two cornerstones).

A cornerstone that is most frequently responsible for triggering NRC violations is the performance of a nuclear plant's "mitigating systems." Palo Verde's NRC violations all fall under this single cornerstone. Mitigating systems criteria address how well a plant's safety and secondary systems, such as emergency core cooling and backup power equipment, function in a test environment, which simulates the operator's ability to manage a nuclear emergency. All but one NRC concern since 2004 has been in the mitigating systems cornerstone.

A Single Incident Could Result In A Lower Category

Unfortunately for the operators and owners of Palo Verde, the plant already has a yellow flag, which was assigned in 2005 for another mitigating system issue related to its safety injection system piping. In July 2004, the company identified piping in a portion of the emergency core cooling that, while designed to be filled with water, was left dry (e.g., the dry pipe issue).

The NRC issued that violation notice to APS in April 2005. In December 2005, it completed supplemental inspections to follow up on the issue, but did not remove the yellow flag, stating that not all of the root and contributing causes that led to the pipe being left dry since the late 1980s had been fully identified; the NRC also indicated that corrective actions were too narrowly focused. APS requested a follow up inspection in 2006, which was completed by the NRC in September of that year. Recently, the NRC elected to keep the yellow finding in place.

Because this outstanding yellow flag has not been resolved, any EDG finding other than green will result in Palo Verde moving from its current status of having a single "degraded cornerstone" to the "repetitive degraded cornerstone" category.

How Likely Is An Adverse Finding?

While not a foregone conclusion, we view a white finding as likely. The EDG issue is the second of two issues addressed by the NRC in late 2006. The NRC was also concerned that poor control of the chemical mix in the ponds caused chemical fouling of cooling water heat exchangers. In a Dec. 22, 2006 letter to APS, the agency dismissed all five possible violations associated with spray ponds, indicating that the violations posed "very low safety significance."

But, as reported widely in the press, the NRC wrote that degradation in key safety systems was

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"egregious." More importantly, the issues raised in the letter clearly reflect that the NRC believes APS' performance improvement initiatives have not been effective. The tone and substance of the letter lends weight to the likelihood that the EDG issue will result in a white finding.

A potential mitigating factor is that APS last week announced the appointment of a new senior vice president of plant operations who has strong credentials in the nuclear industry, most recently as the chief nuclear officer for the Entergy Corporation (BBB/Negative/--), a respected nuclear plant operator. The new appointment could assist in realigning APS' relationship with the NRC.

Increased Oversight Is Many Steps From A Shutdown

Palo Verde would have to be assigned multiple red flags, which are a rarity, for the NRC to call for a plant shutdown. Moreover, in the history of NRC oversight, the gradual escalation of safety issues has not led to the prolonged suspension of operations or license revocation.

Nevertheless, recent events are not trivial, and the majority of U.S. nuclear facilities are meeting all NRC performance requirements. Of the 103 operating nuclear units in the U.S., 73 units have green flags in all seven cornerstones. Twenty units have met their cornerstones but have white flags in place (or, in cases, two white flags across different cornerstones). Two plants, Palo Verde and Kewaunee located in Carlton, Wis. and owned by Dominion (BBB/Positive/A-2) have been assigned yellow flags in recent years. A red flag was assigned to Point Beach Units 1 and 2 in early 2002. Thus, if the NRC determines that the EDG issue merits a white flag, Palo Verde will be among the poorest complying plants regulated by the NRC.

These developments suggest that 2007 will be a critical year for APS and its parent, Pinnacle West Capital Corp. (BBB-/Stable/A-3). The two crucial elements that will drive APS' future financial performance and business risk are the outcome of its pending rate case and the performance of Palo Verde. Until recently, Palo Verde has appeared to be restoring its otherwise superlative safety and generation track record. However, recent NRC regulatory concerns suggest that rebuilding credibility with the NRC may take time, even absent an adverse ruling on the EDG issue. Unplanned outages will continue to be an important measure of APS' ability to effectively manage Palo Verde's issues.

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