



Institute of  
Nuclear Power  
Operations

Suite 1500  
1100 Circle 75 Parkway  
Atlanta, Georgia 30339-3064  
Telephone 404 953-3600

April 4, 1989

Chairman Lando Zech  
U. S. Nuclear Regulatory Commission  
One White Flint North  
11555 Rockville Pike  
Rockville, Maryland 20852

Dear Chairman Zech:

Attached is a copy of a letter to the Sacramento Municipal Utility District's Board of Directors. Because of the nature of the problems described in the letter, we are providing this copy directly to the Nuclear Regulatory Commission.

While the letter points out serious concerns with the long term governance of the District's nuclear program, I do want to emphasize that, at the present time, plant personnel are especially cautious and conservative due to attention by the NRC and due to a strong focus on safety by the management team. We therefore believe that our concerns need to be addressed, not as an immediate crisis, but rather over the coming months to assure long term improvements and consistent performance at the Rancho Seco Nuclear Generating Station.

Sincerely,

A handwritten signature in cursive script that reads 'Zack T. Pate'. The signature is written in black ink and is positioned above the printed name.

Zack T. Pate

ZTP:vpw

Attachment: stated above



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April 4, 1989

TO: SACRAMENTO MUNICIPAL UTILITY DISTRICT BOARD OF DIRECTORS

Mr. J. Buonaiuto, President  
Mr. D. Cox, Vice President  
Mr. P. R. Keat  
Mr. E. Smeloff  
Mr. C. R. Wilcox

Dear Sirs:

The purpose of this letter is to express our concern over the governance of the nuclear program by the Board of Directors of the Sacramento Municipal Utility District (SMUD), and to urge appropriate changes. As the senior officials of the organization that holds a license to operate the Rancho Seco Nuclear Generating Station, the Board members have direct responsibility for the safe operation of the station. It is also the Board which has the major influence or control over the matters of concern to the Institute of Nuclear Power Operations.

Our concern is based on the following factors:

- (1) The history of overall performance of the Rancho Seco nuclear station . . . . . See Attachment 1
- (2) The pattern of troublesome operational events at the Rancho Seco nuclear station . . . . . See Attachment 2
- (3) The excessive turnover in senior management positions that has occurred in recent years, and that appears to be continuing . . . . . See Attachment 3
- (4) The difficulty the company has experienced and continues to experience in attracting and retaining nuclear management talent
- (5) The pattern of actions/decisions by the board of directors, and by individual members of the board, that have led either directly or indirectly to the problems described in 1 - 4 above

Many upgrades have been achieved in the plant in the past few years. It is a potentially valuable resource to northern California and the national electric grid. However, the history of governance and the present governance situation, if unchanged, portend a continuing pattern of performance problems.

Amplification of each of our concerns is provided in the paragraphs that follow.

1. History of Overall Performance: . . . . . See Attachment 1

In the early 1980s, INPO worked with its member utilities, as well as with a number of experienced individuals from outside the utility industry, to develop a set of overall performance indicators for measuring and trending nuclear plant performance. Attachment 1 shows how Rancho Seco compares with other plants in the industry for eight of the ten overall indicators over the past five years. (Sufficient data is not available on Rancho Seco for two indicators.) As can be seen from a review of Attachment 1, Rancho Seco's performance is consistently in the lower quartiles. Although not shown on the graphs, Rancho Seco's performance in the aggregate is well below all other plants with a Babcock & Wilcox nuclear steam supply system.

After its August 1985 evaluation, INPO placed Rancho Seco in its lowest performance category.

During a protracted shutdown following the December 26, 1985 event, a wide range of improvements were made at the plant, and in the training of personnel. A capable management team was put together, and in 1987 and 1988 the board provided good support and a period of relative stability.

After careful scrutiny, the Nuclear Regulatory Commission gave permission for restart in March 1988, and the plant was brought on line and ran well for several months. However, the senior management team, including the Board, that provided the leadership to achieve this progress has now been largely dismantled, as will be discussed in the paragraphs that follow.

2. Pattern of Troublesome Events: . . . . . See Attachment 2

A review of the attachment shows a pattern of recurring troublesome events at Rancho Seco, and that the frequency of such events is much higher than at other U.S. plants. The attachment also shows that two significant events have occurred in recent months.

3. Turnover in Senior Management: . . . . . See Attachment 3

In less than four years, the District has had:

- o 3 Board Presidents
- o 4 General Managers
- o 4 Senior Nuclear Executives
- o 5 Plant Managers

The general manager was removed in June 1988 and a replacement hired. The senior nuclear executive (CEO, Nuclear) who led the station's recovery effort and successful startup and ascension to power in 1987 and 1988 resigned in July 1988.

The individual who was president of the SMUD Board of Directors in 1987 and 1988 was a key factor in achieving a period of board stability and in providing support to the nuclear management team during the recovery and startup of the plant. Notwithstanding this, and the excessively high turnover in the other key positions, the board elected a new board member (who was elected to the board in December 1988 and who has no previous experience at SMUD) as its president in January 1989.

With this action, the board completed a chain that results in the turnover of all top positions (related to nuclear) in a 12-month period, and that includes a change in the top post at a critical time in the recovery of the District's nuclear program. The result is that the senior management team that directed very difficult phases of the recovery in 1987 and 1988 is no longer in place.

4. Difficulty in Recruiting and Retaining Personnel:

It has been difficult for SMUD to attract and retain nuclear personnel for some time, and the situation appears to be getting worse.

- o Total turnover of personnel in the nuclear program is now averaging 12 percent annually, as compared to an industrywide average of 4.9 percent.
- o Turnover of system engineers was 25 percent over the past year.
- o Several key managers at the Rancho Seco Nuclear Generating Station have resigned in recent months. A number of other key managers in the District's nuclear program are actively seeking employment elsewhere in the industry.
- o The personnel assigned to 25 of the top 30 positions at the Rancho Seco Nuclear Generating Station have changed positions within the past 12 months.
- o The District has been unable to attract a deputy for the CEO Nuclear, a position vacated when the present CEO Nuclear was promoted in July 1988.

5. The Pattern of Actions/Decisions By the Board and By Individual Members of the Board:

Some of the following factors or observations are subjective in nature, and are not as readily documentable as those in items 1-4 above. However, each factor listed has been reported to INPO evaluation, accreditation, or assistance visit teams; or directly to the Institute, on so many occasions that we are confident of their validity, and thus of the need to call each item listed below to the attention of the SMUD Board.

- a. The board's frequent practice of making decisions by a 3-to-2 vote, or of electing personnel to key management positions by a 3-to-2 vote has the effect of giving the organization less than full confidence in the durability of those decisions, or of those managers.

This situation is exacerbated by actions by board members who vote against a policy (or an individual) in that these board members frequently publicly denounce the policy or the individual.

As a consequence, personnel in the organization do not accept policies and decisions with the wholehearted support that is so important in managing the nuclear technology.

As a second related consequence, managers hired by a 3-to-2 vote (which vote is known to all employees), do not have the implied confidence of the full board, and the unwaivering support of SMUD employees.

In our view these frequent 3-to-2 votes, and even more importantly the lack of support of the majority decisions, have diminished the effectiveness of some of the managers listed in Attachment 3, and have contributed to the excessive turnover described in section 3 above and in Attachment 3. (The validity of a 3-to-2 decision is not being questioned, nor is the need for board members to vote their conviction. Rather, it is the follow-on actions by minority voters that is of principle concern.)

- b. Board meetings and meetings with individual board members take up an excessive amount of senior management time; time that should be devoted to managing the District's nuclear program. Board members frequently get directly involved in the management of the plant, rather than in setting the broad policies that govern management.
- c. Board meetings are often excessively adversarial, both between board members or between factions of the board, and between board members and management. Since the meetings are public, these proceedings are observed by SMUD employees, or are reported to SMUD employees by the media. This situation serves to further undermine the orderly governance of the District's nuclear program.

INPO reported a concern over this matter in a letter to the President of the SMUD Board of Directors in April 1987, following plant and corporate evaluations conducted in February and March 1987. . . . . See Attachment 4

Subsequently, in a letter to the President of the SMUD Board in February 1988, following a January 1988 plant evaluation, INPO reported an improvement in the SMUD Board/management relationship during the recent recovery efforts, but also expressed a continuing concern. . . . . See Attachment 5

- d. Individual board members are frequently critical of management and of policies regarding the nuclear program in public. This ongoing activity tends to further undermine the sense of direction and support at the nuclear station, and adds to the division between the board and employees.

- e. As a consequence of the activities described in a - d above, employees at Rancho Seco face a uniquely troublesome environment in their daily lives. This environment includes:
  - o a constant barrage of criticism of their company and their plant in both the local print media and local television
  - o family members of employees -- spouses and children -- are subjected to derisive or critical comments about SMUD and the plant to a degree not seen in any other area of the country (This extends to public places, even including the schools.)

We conclude that the board's conduct, as described in a - d above, is the principle root cause of this situation.

These activities, taken in the aggregate, tend to undermine the morale and the professional pride of the managers, operators, technicians, and craftsmen at the plant. This in turn can have an adverse effect on performance.

- f. On March 9, 1988, the SMUD Board adopted Ordinance 88-1. See Attachment 6. This ordinance was subsequently passed by voter referendum on June 7, 1988. The ordinance provides in paragraph 2 that:

"The Sacramento Municipal Utility District must strive to achieve an annual performance goal of seventy percent (70%) capacity factor in the operation of the Rancho Seco Nuclear Generating Station beginning with the month that the plant achieves full power, and, if at any time after December 31, 1988, the performance level falls below a fifty percent (50%) monthly capacity factor for four successive months, then the plant will be permanently closed unless the Sacramento Utility District Board of Directors determines by a four-fifths vote that continued operation is in the best economic interest of the District."

Upon learning of this ordinance, INPO strongly objected to the above provision to the President of the SMUD Board of Directors by telephone on March 8, and on March 15, 1988. . . .See Attachment 7

In response to these phone calls, the President of the SMUD Board caused a second resolution to be passed on March 17, 1988 that was intended to put nuclear safety ahead of economic considerations. . . .See Attachment 8

The SMUD Board's adoption of a resolution that included the paragraph quoted above represents exceedingly poor judgement by the governing body of an organization that holds a license to operate a nuclear plant. Such a resolution places an inordinate burden on the operating staff and could lead to non-conservative (and potentially unsafe) actions by plant personnel in an effort to keep the plant on the line, and in order to preserve their livelihood.

The reactor scram and steam generator dryout event that occurred on December 12, 1988 is an example of the kind of performance that can result from excessive outside pressure to keep a plant on the line. Plant personnel attempted to keep the plant operating by manually compensating for equipment failures when the prudent decision was to shut down. (See Attachment 2 for a description of this event.) In reviewing this event, one has to be concerned about the potential influence of Ordinance 88-1 on decision making by plant personnel.

### Summary and Recommendation

As noted in section 1 above, upgrades to the plant and retraining of personnel were accomplished effectively during 1987 and 1988, and the plant ran well after its startup in early 1988. INPO's overall performance assessment, conducted following a plant evaluation in the Fall of 1988, recognized this. A Systematic Assessment of Licensee Performance (SALP) report for the period ending December 31, 1988, and recently issued by the Nuclear Regulatory Commission, reports an improving trend and overall favorable plant performance.

In our view, the plant is staffed with generally well qualified, capable personnel. The physical plant is now in acceptable material condition. The combination of the plant and its professional staff are a valuable resource to the people of the Sacramento District, and it has the potential to be an even more valuable resource.

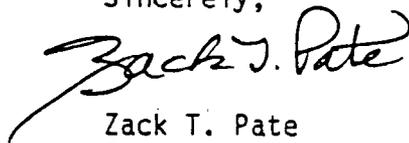
However, after several years of observation, and in view of the matters described in this letter, we conclude that substantial changes are necessary for the continued successful operation of the station. Our concern is that, since the fundamental conditions that led to the poor record of performance described in section 1 and the recurring pattern of events described in section 2 have not changed, the plant's performance in the coming months and years will not be substantially altered.

We therefore recommend and request that the Board examine the District's approach to the governance, oversight, and management of the Rancho Seco Nuclear Station, and make the fundamental changes that are necessary.

We would welcome the opportunity to meet with Board members to further discuss these matters.

Because of the nature of the problems described in this letter, a copy is being provided to the Nuclear Regulatory Commission under separate cover.

Sincerely,



Zack T. Pate  
President

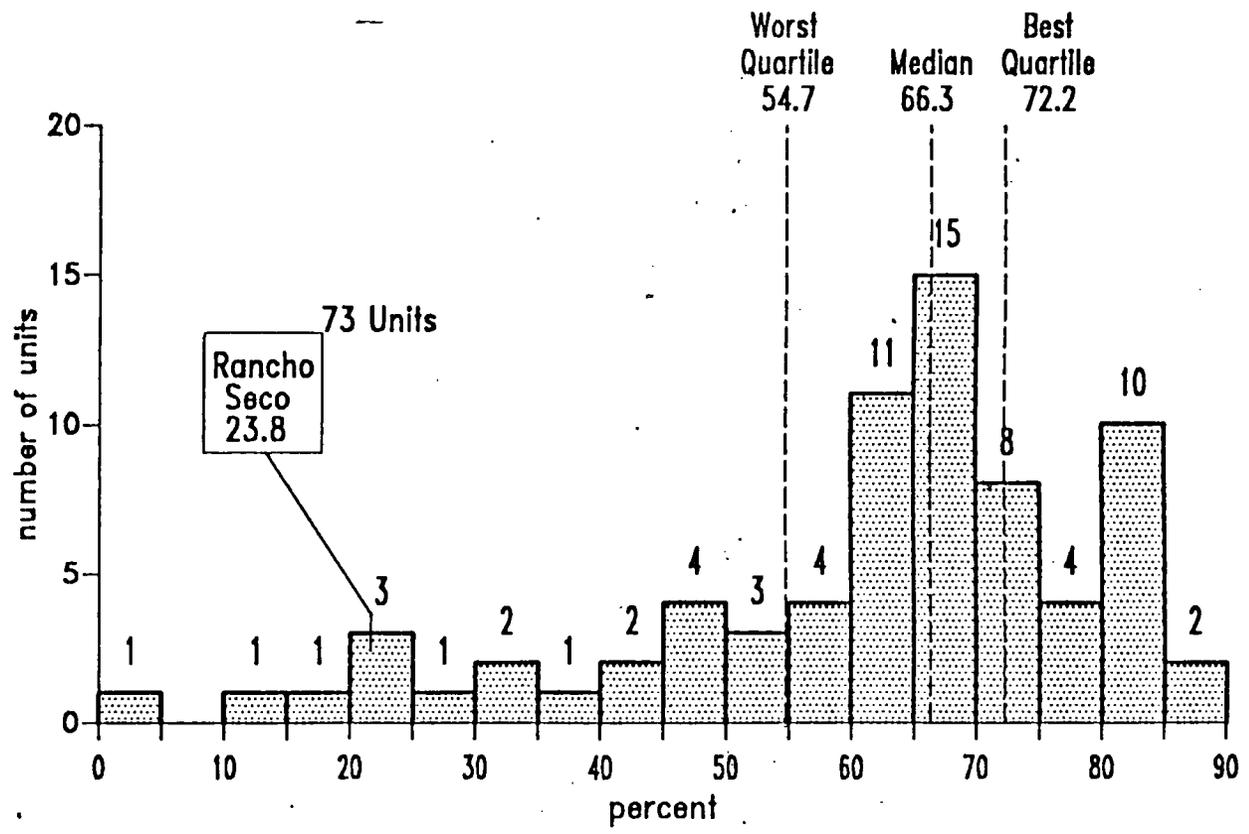
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Attachments (as stated above)

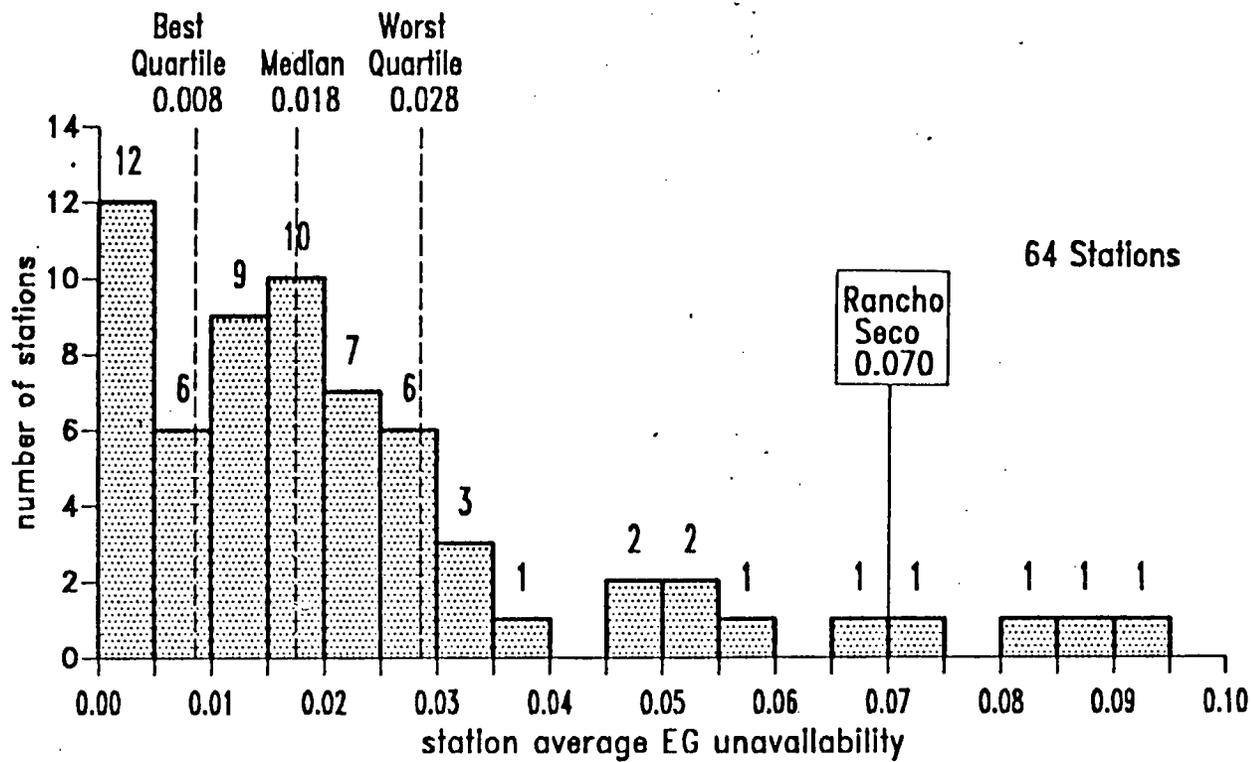
cc/w: Mr. David A. Boggs

Mr. Joseph F. Firlit

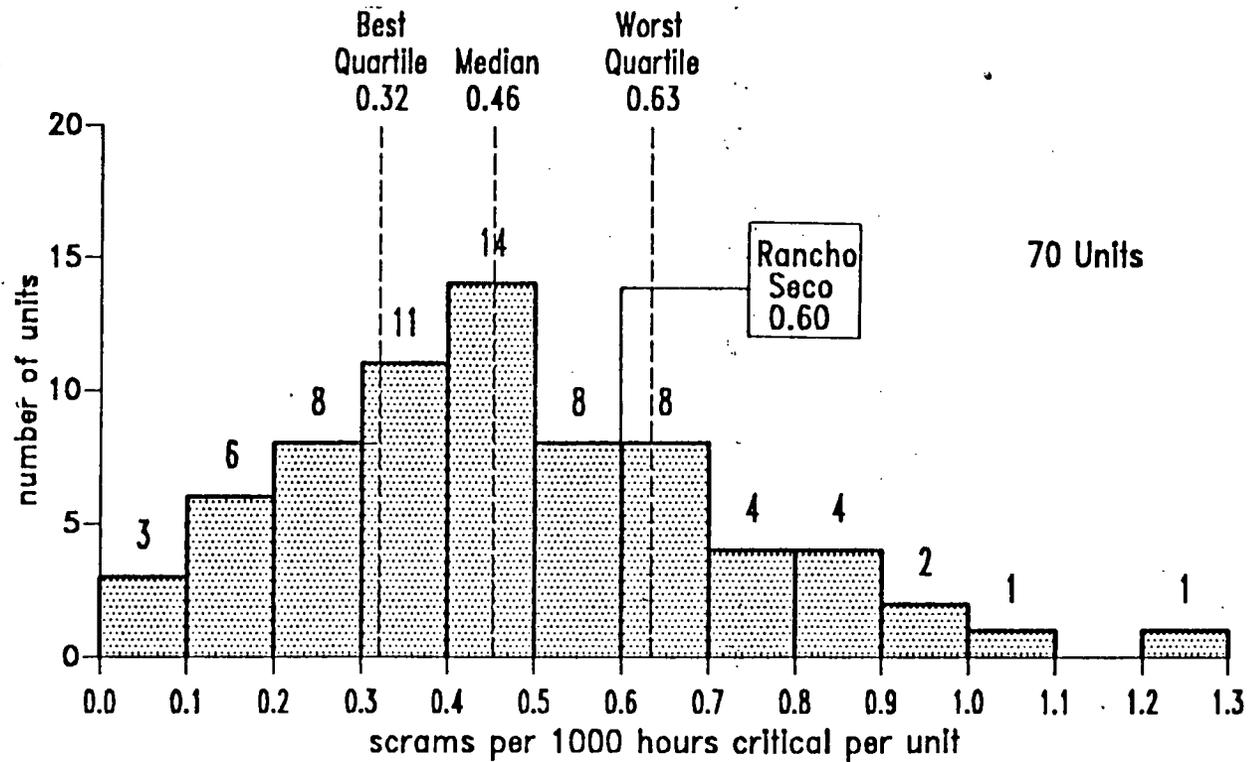
# Equivalent Availability Factor Five Year Distribution (1/84 - 12/88)



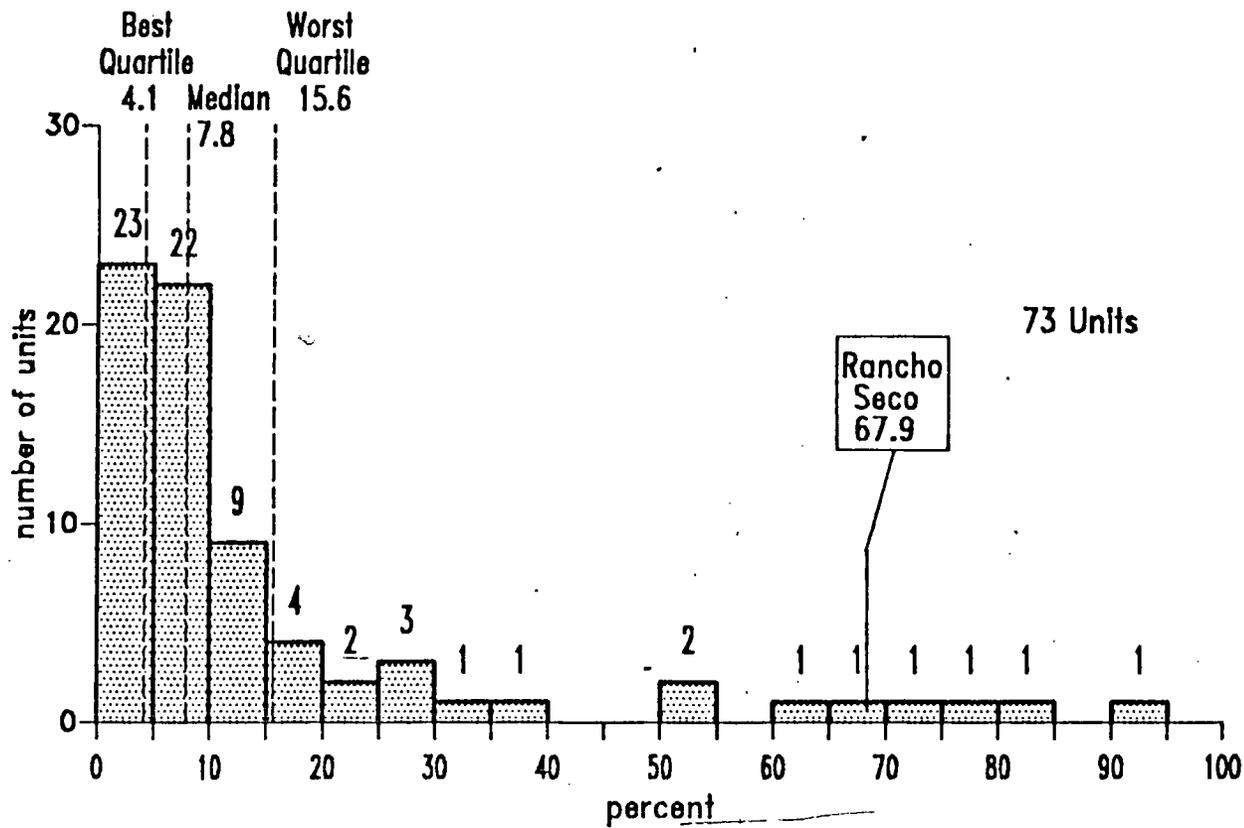
# Safety System Performance (Emergency AC Power System) One Year Distribution (1/88 - 12/88)



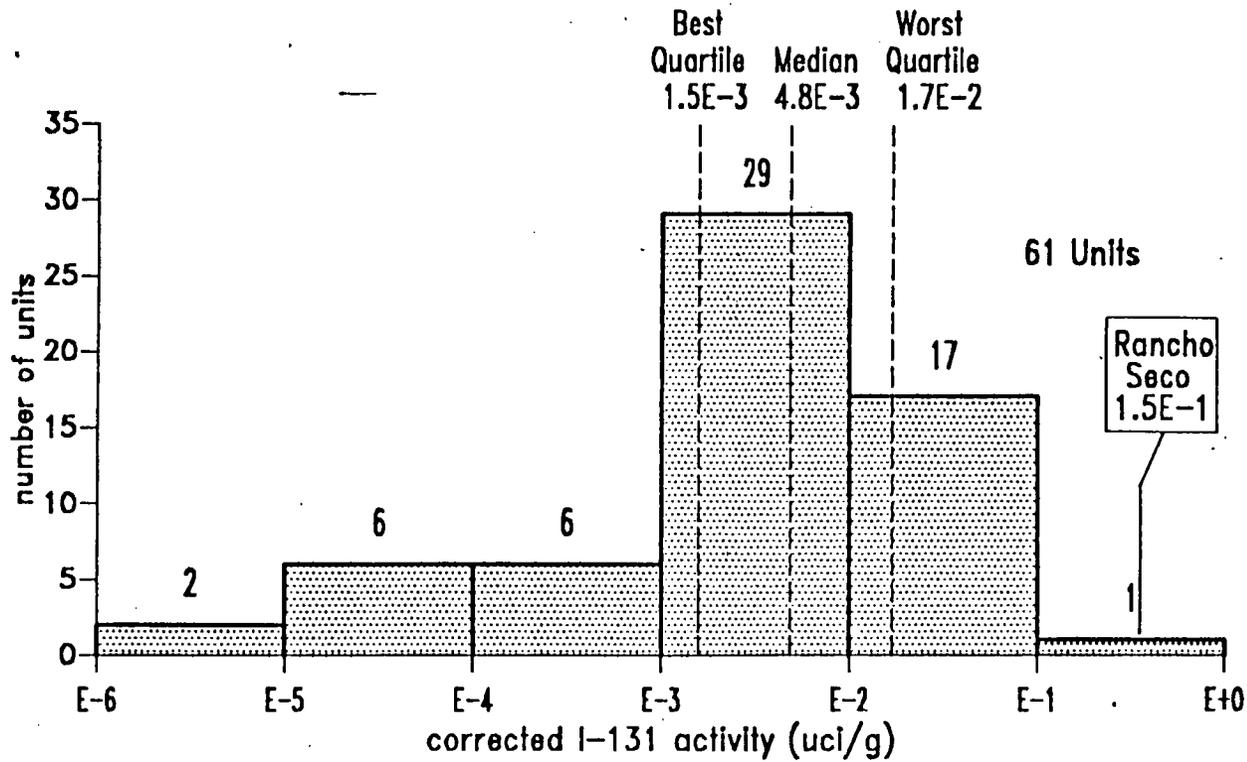
## Unplanned Automatic Scrams Per 1000 Hours Critical Four Year Distribution (1/85 - 12/88)



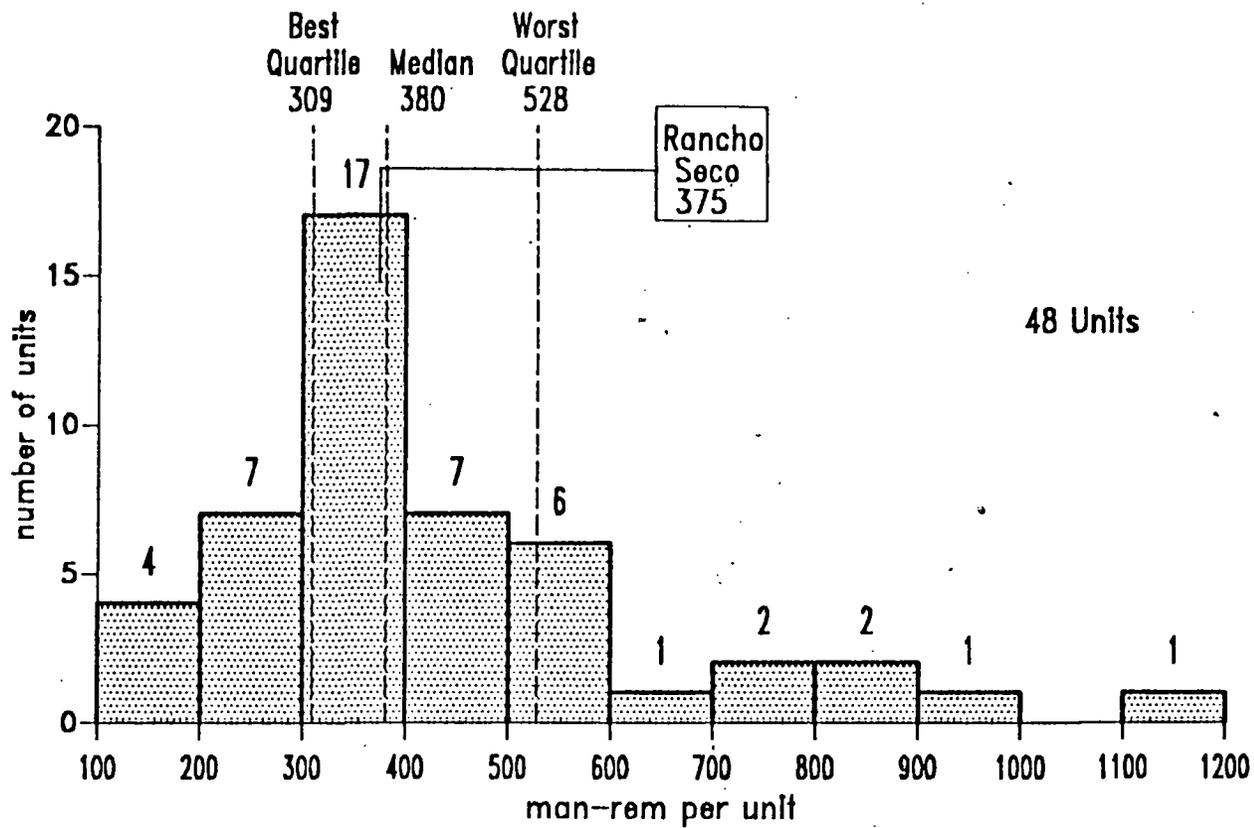
# Forced Outage Rate Five Year Distribution (1/84 - 12/88)



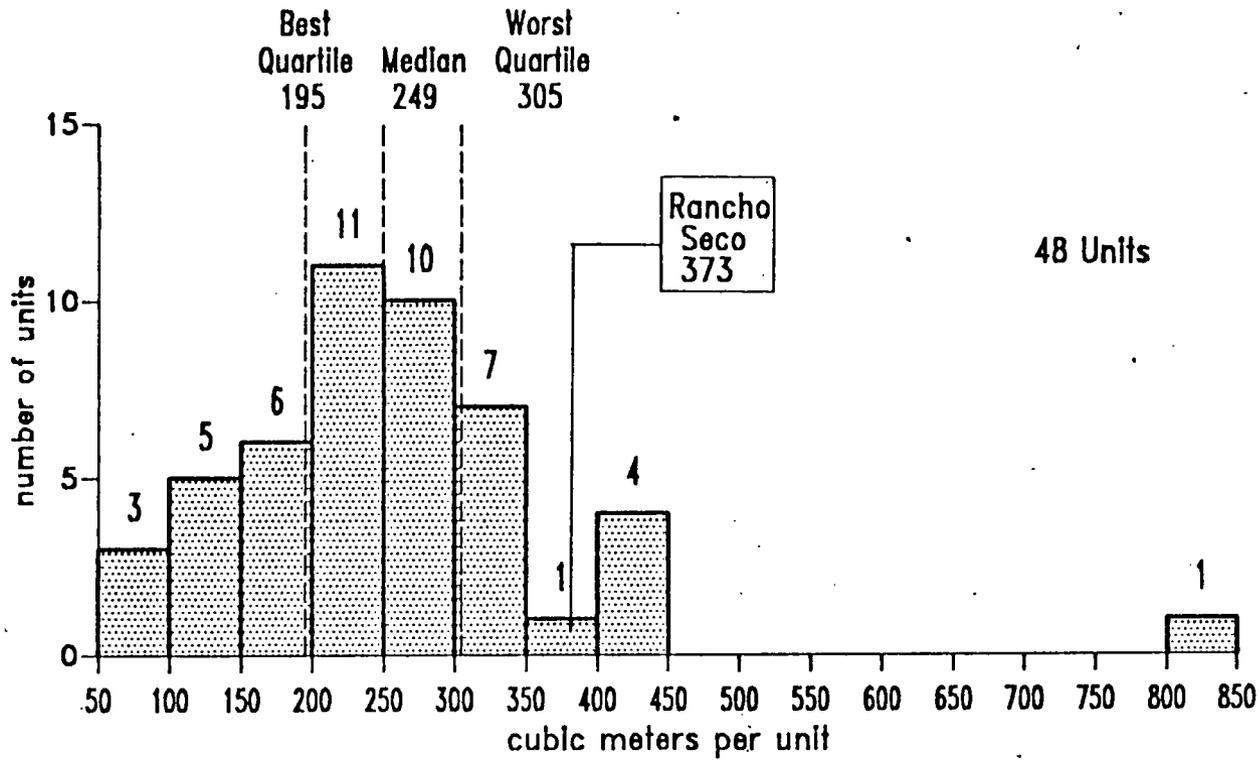
# Fuel Reliability One Year Distribution for PWRs (1/88 - 12/88)



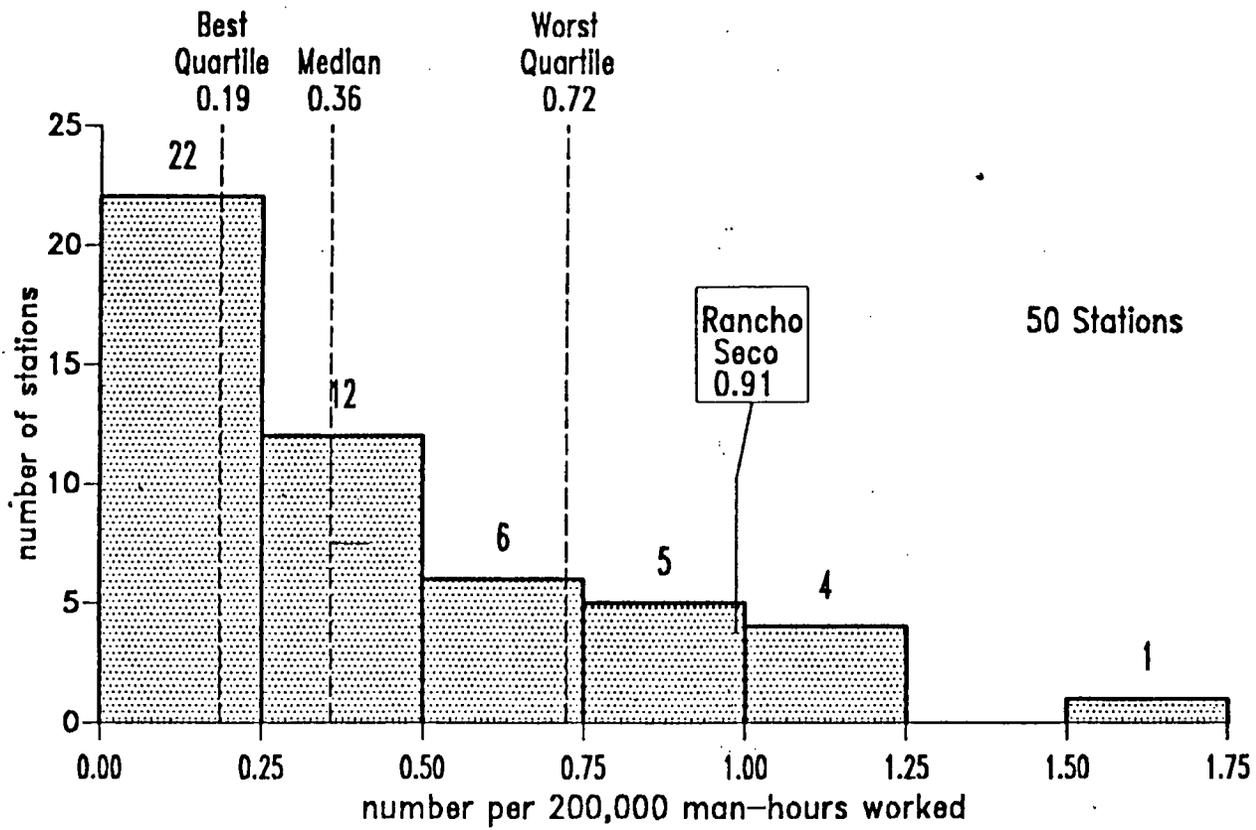
# Collective Radiation Exposure Average Five Year Distribution for PWRs (1/84 - 12/88)



Volume of Low-Level Solid Radioactive Waste  
Average Five Year Distribution for PWRs  
(1/84 - 12/88)



# Industrial Safety Lost-Time Accident Rate Five Year Distribution (1/84 - 12/88)



RANCHO SECO EVENT HISTORY

Over the past several years INPO has screened about 6,000 to 7,000 events each year to identify events of generic potential safety significance. Typically fewer than one percent of these events are selected as significant. In the 1984-85 timeframe, U.S. nuclear units experienced a significant event on average about once every one and a half to two years of operation. By 1988, the average significant event rate per unit had declined to about one significant event every three years.

In the 1984-85 timeframe leading up to the December 1985 shutdown, Rancho Seco experienced five significant events or about three times the industry average. After the March 30, 1988 restart, Rancho Seco ran well for several months but then experienced significant events in December 1988 and January 1989. Even taking into account the relatively good operations following restart, the plant has experienced two significant events for the year ended March 1989 or about six times the current industry average.

This attachment provides a listing of these significant events and selected other noteworthy events that reflect a worrisome pattern of performance leading up to the December 1985 shutdown as well as several troublesome events in late 1988 and early 1989.

**RANCHO SECO EVENT HISTORY**

**JANUARY 1984 - MARCH 1989**

Below is a list of worrisome events that have occurred at Rancho Seco since 1984. Those events introduced in bold type met the industry criteria for a significant event.

- o On March 19, 1984, power was lost to the main generator hydrogen-side seal oil pumps. Power could not be restored due to mechanical binding of the bus supply breaker caused by dirt and other contaminants. The redundant seal oil supply from the main lubricating oil system had been isolated due to a malfunctioning regulator several days earlier. Hydrogen and seal oil blew out of the generator shaft seals and collected in the generator exciter enclosure. An explosion and fire resulted.  
  
Degraded voltage on the alternate inverter and a series of failures caused by the explosion led to the loss of Channel X of the non-nuclear instrumentation, a manual safety injection, and subsequent lifting of the code safety relief valve. The 24 volt DC power supply output fuse for Channel X of the non-nuclear instrumentation blew because an overvoltage protection circuit actuated prematurely. Testing of the other eight 24 volt DC power supplies showed others with the overvoltage protection significantly out of adjustment. This event is discussed in SER 44-84.
- o On June 1, 1984, while at 92 percent power, the plant experienced a transient on the B main feedwater loop because of intermittent shorts in two of four main steam line pressure switches. Eleven minutes after this transient both main feedwater pump demand signals rapidly dropped to zero. The main feedwater pumps were placed in manual, but steam generator levels could not be recovered. A reactor scram occurred on high primary pressure.
- o On June 12, 1984 two maintenance workers were fatally scalded when they opened a bolted flange on a hot pressurized auxiliary boiler. A maintenance work request was approved to repair a flange leak on the auxiliary steam line to the mud drum heat exchanger. To facilitate the repair, the maintenance workers performed work outside the established boundary by attempting to remove an 8-inch bolted flange on the boiler shell. This event is discussed in SER 77-84.
- o On November 8, 1984 during preparation for a plant startup, reactivity was simultaneously changed by both increasing reactor coolant temperature and by reducing the reactor coolant boron concentration. This reactivity mismanagement event occurred over a period of one hour and 26 minutes.

- o On November 18, 1984 a feedwater transient and reactor scram occurred during a rapid change in turbine load. After the scram the steam driven auxiliary feedwater pump could not be secured because the steam admission valve was stuck in the mid-position.
- o On June 23, 1985 an unisolable reactor coolant system leak of 20 gpm occurred. The source of the leak was identified as a crack in a one inch high-point reactor coolant system vent line on the B steam generator. Approximately 16,000 gallons of reactor coolant leaked into the reactor building before the reactor coolant system was depressurized. The high-point vent line was installed during the 1983 refueling outage and included adding cross bracing and revised supports for the adjacent nitrogen supply line. Although records indicated that the bracing and supports had been installed and inspected, they had not in fact been installed. The resulting unsupported four foot length of pipe experienced a fatigue failure at the high-point vent weld. This event is discussed in NRC Information Notice 85-66.
- o On October 2, 1985 during a power reduction to perform a main turbine overspeed trip test, secondary system instabilities and multiple secondary system equipment failures resulted in a steam leak, loss of feedwater, reactor scram, and overcooling of the reactor coolant system. The initiating events were rapid reduction in condenser vacuum and continuous main steam blowdown through open feedwater heater steam relief valves. Safety injection was manually initiated to maintain pressurizer level. This event is discussed in SER 2-86.
- o On December 5, 1985 a reactor scram occurred on high primary pressure. Prior to the scram the integrated control system was placed in manual to support surveillance testing. Minor oscillations in electric output, reactor coolant system temperature, pressurizer pressure, and feedwater flow occurred. When the integrated control system was returned to the fully automatic mode, feedwater flow increased. While attempting to regain control of feedwater flow, underfeeding of the steam generators resulted and the reactor scrambled.
- o On December 26, 1985 with the unit operating at 76 percent power, all DC control power within the integrated control system was lost. This resulted in a rapid reduction of main feedwater flow, followed by a reactor scram on high reactor coolant pressure. Automatic initiation of auxiliary feedwater flow occurred. Without integrated control system power, auxiliary feedwater flow to the steam generators and steam flow through the atmospheric dump valves could not be controlled from the control room. An excessively rapid reactor coolant system cooldown and depressurization occurred. High pressure injection resulted in reactor coolant system repressurization while temperature was still decreasing. This event is discussed in SER 6-86 and NRC Information Notice 86-04.

On December 26, 1985, the plant was shut down by an NRC confirmatory action letter to correct equipment and management problems.

- o On November 21, 1986 with the decay heat removal system in service and two pressurizer level instruments indicating a water level too low for pressurizer heater operation, the pressurizer heaters were energized. A heater feeder breaker tripped along with two more heater feeder breakers. The heater breakers were reset and closed. The heater breakers again tripped. Investigation found that eleven of the thirteen heater groups in the upper heater bundle had been damaged by operating without being covered by water. In addition, two of four pressurizer level indications were determined to be in error due to improper operation of the reference legs.
- o On July 15, 1987 the in-service decay heat removal pump tripped due to closure of the pump suction valve. During authorized modifications to the core flood tank outlet valve, an electrician produced an automatic closure signal for the suction valve. Decay heat removal was lost for 40 minutes. The effect of the modification on the decay heat removal system had not been considered when the work was approved.
- o On February 2, 1988, approximately 1100 gallons of treated water drained from the borated water storage tank to the reactor building floor through the containment spray system during a loss of offsite power test. The prerequisites for the test did not include a check of the manual isolation valve to the spray header.
- o On February 8, 1988 all control room annunciator alarms were lost because of a fire in a remote control cabinet that provides audible and visual control functions to the annunciator system. This event is discussed in NRC Information Notice 88-05.

On March 30, 1988 the plant was operated for the first time following the December 26, 1985 shutdown by NRC confirmatory action letter.

- o On December 9, 1988 while at 60 percent power the integrated control system was placed in manual for calibration of the nuclear instrumentation. About nine hours later, the integrated control system was returned to automatic. Feedwater demand and flow improperly increased. Both feedwater controls were placed in manual and flow decreased. The rapid reduction in feedwater flow resulted in a high primary pressure scram. The integrated control system had failed while in manual.

- o On December 12, 1988, with the reactor at 12 percent power during plant startup, the main steam to auxiliary steam pressure reducing valve that was supplying auxiliary steam loads failed. The reducing valve was isolated and an auxiliary operator was stationed to manually control pressure using the bypass valve. Shortly thereafter, the auxiliary steam to main feedwater pump turbine pressure regulating valve jammed approximately 80 percent open. Another auxiliary operator was stationed to control steam pressure to the operating main feedwater pump turbine.

In spite of the difficulty in controlling auxiliary steam pressure, the decision was made to continue reactor operations. When returning the main steam to auxiliary steam pressure reducing valve to service following repairs, pressure transients on the auxiliary steam system caused a loss of main feedwater and decreasing steam generator level resulting in a manual reactor scram. Following the scram, the reactor coolant system cooled down at a rate higher than expected. Before the cause of the cooldown could be determined and corrected, a steam generator boiled dry. This event is discussed in SER 3-89.

- o On January 31, 1989 during post-installation operation of a refurbished Woodward PG-PL governor on a turbine-driven auxiliary feedwater pump, the turbine oversped resulting in overpressurization of the auxiliary feedwater discharge piping. When the feedwater pump was started, pump speed rapidly increased to 6020 revolutions per minute. Attempts to adjust the manual speed knob to control pump speed were unsuccessful. The mechanical overspeed trip device tripped but did not unlatch the trip/throttle valve to terminate steam flow to the turbine. (The governor is not equipped with an electrical overspeed trip feature.) The feedwater pump was stopped by shutting the supply steam trip/throttle valve from the control room. This event is discussed in SEN 55.
- o On March 28, 1989 with the reactor at 93 percent power main feedwater instabilities lead to a decrease in steam generator inventory. A high reactor coolant system pressure resulted and the reactor scrambled.

**TURNOVER IN SENIOR MANAGEMENT POSITIONS  
IN RECENT YEARS**

**Presidents of the Board of Directors:**

1989	Joe Buonaiuto
1988	Clifford R. Wilcox
1987	Clifford R. Wilcox
1986	Ann L. Taylor
1985	Clifford R. Wilcox

**General Managers:**

David A. Boggs	June 1988 - Present
Richard K. Byrnes	November 1987 - June 1988
William K. Latham (Acting)	July 1986 - October 1987
Dewey K. K. Lowe	September 1985 - June 1986

**Top Nuclear Executives:**

CEO, Nuclear	Joseph F. Firlit	June 1988 - Present
CEO, Nuclear	G. Carl Andognini	April 1987 - June 1988
Deputy General Manager, Nuclear	John E. Ward (contract employee)	April 1986 - April 1987
Deputy General Manager, Nuclear	Ron J. Rodriguez	- March 1986

**Senior Plant Management:**

Dan R. Keuter	July 1988 - Present
Joseph F. Firlit	May 1987 - June 1988
Robert Croley	Jan. 1987 - May 1987
Dan Poole (contract employee)	Sept. 1986 - Dec. 1986
George A. Coward	Oct. 1985 - Sept. 1986



Institute of  
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Operations

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1100 Circle 75 Parkway  
Atlanta, Georgia 30339  
Telephone 404 953-3600

April 16, 1987

Mr. Cliff Wilcox  
President  
Board of Directors  
Sacramento Municipal Utility District  
6201 S. Street  
Sacramento, CA 95817-1899

Dear Mr. Wilcox:

Bill Conway has just briefed me on the exit meeting following our plant and corporate evaluations. He reported a good exchange of information and a receptive attitude on the part of the SMUD and Rancho Seco management team. We are pleased to see the many examples of progress and resource commitments for ongoing and planned improvements at Rancho Seco.

Attached is a copy of the summary of items that require action prior to start up that Bill provided, with minor editorial changes. We realize that the second section of this summary, having to do with uncertainty among SMUD nuclear personnel may be difficult to address, but as discussed in our meeting in Sacramento on February 24 and 25, it is vitally important that this be done prior to start up. My letter of March 9, 1987 to you may also be useful in this regard.

An important area not covered in the attached is the systematic completion and follow up on the many modifications done during the long Rancho Seco outage. Post-modification testing, updating of prints and procedures, and training must be completed for every modification if trouble-free operation is to be assured. This area is not included in the attached because, from our team's review, it is being addressed. I mention it nonetheless, because of the vital importance of this kind of "close out" of each modification, and because of the problems we have seen at other plants when it is not done.

On balance, much remains to be done before Rancho Seco can be started up and a smooth transition to power assured. As we have discussed, an attempt to operate before the plant and the supporting organization are fully ready is not in the best interest of SMUD, and is not acceptable to INPO or the industry. We recommend that SMUD establish a realistic target date for start up, with systematic milestones that include the necessary action steps established by SMUD, as well as those covered by the attachment to this letter.

I would appreciate a report on the status of the items in the attachment from you or the General Manager prior to start up.

To: Mr. Cliff Wilcox  
April 16, 1987  
Page Two.

Finally, we recommend that you provide a copy of the attachment to this letter to the NRC, rather than have the NRC learn the results of the INPO evaluation piecemeal, as occurred last time.

Sincerely,



Zack T. Pate  
President

ZTP/ra  
Encl.  
cc: W. K. Latham  
J. E. Ward

April 15, 1987

RANCHO SECO/SMUD EVALUATION

The findings from the plant and corporate evaluations need to be addressed to assure a smooth start up and safe plant operation. Completion of the following key actions is required prior to start up:

1. Complete the revisions and upgrade of the emergency operating procedures and train the operators on the revised procedures.
2. Ensure readiness of operating shift crews to operate the plant and handle off-normal events, based on SMUD management's assessment during simulator training.
3. Stabilize the nuclear organization, particularly with respect to the assignment of permanent SMUD managers, and significantly reduce reliance on contractors.
4. Implement and demonstrate proficiency in the revised emergency plan.

5. Reduce the excessive administrative burden on operator shift crews to ensure that shift supervision can provide the necessary direction and control of plant operations.

These should not be considered as a comprehensive list of items to complete prior to start up; rather they reflect key areas found by INPO where sufficient progress is not evident. In this regard, note particularly corporate finding 1.2A-1.

We would appreciate confirmation of the completion of these actions prior to start up.

Although not specifically addressed in the evaluation findings, several significant factors contribute to uncertainty among SMUD nuclear personnel. This condition of uncertainty makes it difficult to implement changes for improvement because SMUD nuclear personnel are not confident the initiatives will endure (or that management and resource commitments will continue). Additionally, it is difficult to establish "high standards of performance" in the work place because of a "wait and see" tendency among the permanent staff. Factors contributing to uncertainty include the following:

- o The large number of contractors involved in nuclear activities (about 1700 contractors of some 2500 personnel on site supporting nuclear) with many key positions filled with non-SMUD managers.
  
- o Frequent changes of top managers including the Plant Manager, Restart Implementation Manager (Site Director), Deputy GM Nuclear (or equivalent) and General Manager.
  
- o Prevalent awareness that all or a portion of Rancho Seco could be sold, resulting in operating responsibility being assumed by another organization.
  
- o A lack of consistent direction from the Board of Directors and an often adversarial relationship with management.
  
- o Numerous new policies and procedures are being developed but have not yet been implemented.

As many as possible (and preferably all) of the above items should be resolved prior to plant start up. We would appreciate being informed of the status of these items prior to start up.

In view of current plant status and lack of opportunity for the INPO team to observe operational activities, an overall assessment of plant performance has not been determined.

In follow-up, and with your support, we will plan to observe three operating crews in the simulator prior to start up (and after your confirmation of operating crew readiness, see Item 2 above). Also with your support we will schedule an operational progress check with an INPO team during the early phases of power ascension, and then return for the next regular evaluation within one to two months after full power is achieved and testing completed.



Institute of  
Nuclear Power  
Operations

Suite 1500  
1100 Circle 75 Parkway  
Atlanta, Georgia 30339  
Telephone 404 953-3600

February 17, 1988

Mr. Cliff Wilcox  
President  
Board of Directors  
Sacramento Municipal Utility District  
6201 S. Street  
Sacramento, CA 95817-1899

Dear Mr. *Cliff* Wilcox:

This letter is in follow up to the February 3, 1988 exit meeting with Sacramento Municipal Utility District (SMUD) to review the results of the recent INPO evaluation of Rancho Seco.

As discussed at the meeting, a number of noteworthy improvements have been made in the last nine months at Rancho Seco. SMUD senior nuclear management is providing the necessary direction to upgrade station operations.

Attached is a copy of our Exit Representative's closing remarks at the exit meeting that identify key areas needing improvement. The "strengths" and "weaknesses" from these remarks will comprise the determination or executive summary section of our evaluation report. SMUD should initiate corrective actions in each of these areas prior to startup.

With regard to use of industry operating experience, SMUD should conduct a review of all outstanding Significant Operating Experience Report (SOER) recommendations and unreviewed Significant Event Reports (SERs) and identify appropriate actions that need to be taken prior to startup, reflecting lessons learned from industry experience. We request that SMUD notify us in writing prior to startup of the results of this industry operating experience review and the status of actions taken.

In addition, INPO notes that continuing solid support by the SMUD Board of Directors and direction by the CEO, Nuclear, will be essential to achieving a successful startup and resumption of nuclear operations. Rancho Seco's recent progress is directly related to the support provided by

To: Mr. Cliff Wilcox  
February 17, 1988  
Page Two.

the Board in recent months. (The "lack of consistent direction from the Board and an often adversarial relationship," as reported in my April 16, 1987 letter to you appears to us to have been corrected.) Should this support diminish, our confidence in SMUD's ability to operate a nuclear plant would be substantially reduced.

In follow-up to this evaluation, and with your support, INPO will plan to return with a small team during plant heat-up to observe operational activities, including implementation of actions resulting from the review of industry operating experience. In addition, as requested, INPO will plan to return with a small team when the plant is operating at 40 percent power to observe operational activities. Finally, we will plan to return for the next plant and corporate evaluation about three months after full power operation has been achieved. A formal assessment of the plant's performance will be determined at the conclusion of that evaluation.

We will confirm the dates for the above mentioned visits as soon as possible. Please call me or have your staff call Pat Beard at 404-980-3214 if there are any questions.

Sincerely,



Zack T. Pate  
President

ZTP/ra  
cc: Mr. C. Andognini  
Mr. R. Byrne

EXIT REPRESENTATIVE CLOSING REMARKS

RANCHO SECO NUCLEAR GENERATING STATION

The findings are the result of the team's evaluation as compared to the performance objectives. These findings were covered in more depth in dialogue between team members and your personnel.

In summary, we were favorably impressed by the following:

- o Senior managers are closely involved in day-to-day plant activities and maintain a detailed awareness of plant status and conditions
- o The ability of Rancho Seco personnel to maintain their desire to do a good job in a time of uncertain future is evident.
- o The expanded augmented system review and test program is a noteworthy approach to ensuring that plant systems will function as intended.

Likewise, I would like to emphasize the key areas that need improvement, as follows:

1. Review and application of industry operating experience information as indicated by the following:  
(OE.1-1, OE.3-1)
  - a. Operating experience program implementation has not been effective, and some significant information is not being reviewed.

- b. Some appropriate actions based on the experiences of other plants have been deferred for extended periods.
  - c. An operating experience review program effectiveness review has not been conducted since 1982.
2. Maintenance work activities as noted by the following:
- a. Maintenance work packages are often incomplete or inaccurate. (MA.3-1)
  - b. Workers have difficulty using some work instructions, and errors in maintenance work have occurred. (MA.4-1)
  - c. Maintenance supervisors spend excessive amounts of time resolving work package problems. (MA.3-1)
3. Industrial safety practices and corporate support as evidenced by the following: (OA.5-1)
- a. Management expectations have not been clearly communicated to first-line supervisors and workers.
  - b. Unsafe work practices and hazardous situations are occurring at the plant.
  - c. The corporate industrial safety support groups have not provided needed guidance to the plant.

In addition, although we know you are taking action to resolve the Appendix I issues, we are still concerned about the management stability and staffing as indicated by the following:

4. A significant number of line management changes continue to occur as shown by recent changes of one assistant general manager, two department managers, and two superintendent positions.
5. Several management positions are currently vacant, and some contractors are still filling line manager positions. Included among these are four of four chemistry superintendent positions.
6. Employment candidate uncertainty over the future of Rancho Seco makes recruiting efforts very difficult.

We hope you will analyze our findings in the exit package for possible indications of broad or generic problems.

Corrective actions should address underlying causes, not just the specific details noted in the findings.

## ORDINANCE NO. 88-1

## THE RANCHO SECO UTILIZATION ORDINANCE

WHEREAS the Sacramento community has benefited from power generated by the Rancho Seco Nuclear Generating Station for the past fourteen (14) years,

WHEREAS in recent years modifications that have been made to the Rancho Seco Nuclear Generating Station amount to over four hundred million dollars, thus enhancing its usefulness for the Sacramento Municipal Utility District,

WHEREAS the ascent to power under Sacramento Municipal Utility District management and the careful surveillance with approval of the Nuclear Regulatory Commission indicate that the Rancho Seco Nuclear generating Station can be operated safely,

WHEREAS the production of efficient and economic energy is vital to the future well-being of the community and to insuring adequate jobs and homes in the 1990s,

Be it enacted and ordained by the Board of Directors of the Sacramento Municipal Utility District:

The Sacramento Municipal Utility District shall operate the Rancho Seco Nuclear Generating Station for the duration of the current refueling cycle, a period of approximately 18 months, with the following conditions:

1. All due diligence will be exercised in the eighteen (18) month time frame to divest the Sacramento Municipal Utility District of the Rancho Seco Nuclear Generating Station to a holding company or other legal entity which would assume responsibility for the operation and licensing of the generating station.

2. The Sacramento Municipal Utility District must strive to achieve an annual performance goal of seventy percent (70%) capacity factor in the operation of the Rancho Seco Nuclear Generating Station beginning with the month that the plant achieves full power, and, if at any time after December 31, 1988, the performance level falls below a fifty percent (50%) monthly capacity factor for four successive months, then the plant will be permanently closed unless the Sacramento Utility District Board of Directors determines by a four-fifths vote that continued operation is in the best economic interest of the District.

3. The Rancho Seco Nuclear Generating Station shall not be closed prior to its first refueling, except as provided in the preceding paragraph, unless (a) the Nuclear Regulatory Commission orders such closure on the ground that its continued operation places the public health or safety at risk, or (b) the Sacramento Municipal Utility District Board of Directors determines by a four-fifths vote that continued operation is not in the best economic interest of the District.

4. Nothing in this ordinance shall preclude the Sacramento Municipal Utility District from operating the Rancho Seco Nuclear Generating Station by other than nuclear fuel.

5. If any provision of this ordinance or the application thereof is held invalid, that invalidity shall not affect the other provisions or applications of the ordinance which can be given effect without the invalid provision or application, and, to this end, the provisions of this ordinance are severable.

6. Evaluation of the Rancho Seco Nuclear Generating Station performance will be conducted in a full scale public hearing at six month intervals by an outside, independent, qualified consultant, reporting to the the Board, and the proposition of continued operation of Rancho Seco after eighteen (18) months must be re-ratified by a majority of those voting at a general or special election called for that purpose.

This ordinance will be entitled "The Rancho Seco Utilization Ordinance".

Adopted March 9, 1988



Date: March 16, 1988

## Memorandum

To: File

From: Zack T. Pate

Subject: TELEPHONE DISCUSSIONS WITH MR. CLIFF WILCOX  
CHAIRMAN SMUD BOARD OF DIRECTORS

Upon receipt of the attached resolution in draft form on March 8, 1988, I called Mr. Wilcox to express concern over item 2 of the resolution covering permanent shutdown if the plant is not maintained above 50% capacity factor. I pointed out that INPO considers it unacceptable to plan operation of a nuclear plant with that kind of threat over the operating personnel, noting that the threat of a permanent shutdown is a direct threat to the livelihood of a number of the employees.

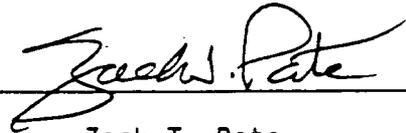
Mr. Wilcox expressed regret over the words in the resolution, noting that he personally did not support them. He explained, however, that at this point the words could not be changed in that the resolution, as proposed for a June 1988 ballot in the Sacramento District, was in a 3 day waiting period, and that if the SMUD Board failed to approve the resolution, as written, on March 9, it could not appear on the June ballot. In that case, the only resolution appearing would be one calling for permanent shutdown. (For the record, the SMUD Board passed the attached resolution March 9.)

After some thought and consultation, I called Mr. Wilcox back on March 15, 1988 and advised him as follows:

- o Please consider this telephone call a call of record
- o INPO has grave concern over the wording of item 2 of the attached resolution, for reasons related to reactor safety, as discussed with him on March 8
- o That, in my opinion, the Board had used poor judgement in passing the resolution with the "50% provisions" in item 2
- o That if the June 1988 vote supports/mandates the attached resolution, some form of action will be required to effectively deal with our concern -- that INPO would find operation of the plant by SMUD unacceptable under the terms of the resolution as written
- o That he advise each SMUD Board member of this conversation. Mr. Wilcox agreed to do this.

FILE  
March 16, 1988  
Page Two

I also pointed out that, while the resolution is not yet effective, many employees at the Rancho Seco unit will be aware of its content, and therefore of the SMUD Board's views as expressed in the resolution, and that this could, even now, have an adverse affect on their behavior. I therefore recommended that the SMUD Board prepare a policy statement or other appropriate document that puts nuclear safety above all economic considerations, and that such a policy be promulgated to all plant employees prior to start up. I noted that such action could serve as a helpful interim step. Mr. Wilcox reacted favorably to this recommendation.



---

Zack T. Pate

ZTP:das

Distribution:

E&A SMUD File  
P.M. Beard  
K.A. Strahm  
S.J. Anderson  
A.S. Howard  
T.J. Sullivan

**SMUD**

SACRAMENTO MUNICIPAL UTILITY DISTRICT □ P. O. Box 15830, Sacramento CA 95852-1830, (916) 452-3211  
AN ELECTRIC SYSTEM SERVING THE HEART OF CALIFORNIA

CEO 88-098  
July 15, 1988

Mr. Zack T. Pate, President  
Institute of Nuclear Power Operations  
1100 Circle 75 Parkway, Suite 1500  
Atlanta, Georgia 30339-3064

Dear Mr. Pate:

Pursuant to your request for information on Measure C, the SMUD Board of Directors passed a resolution on March 17, 1988, stating that safety "will continue to be the first and foremost consideration in the operation of Rancho Seco."

In paragraph 3 of Measure C it states that during the 18 month trial period, the NRC could order the plant shut for safety reasons and that four SMUD directors could shut the plant down for economic reasons. The Board's position to queries that only economic issues seemed to be of concern, was that it would not be in the economic interest of the District to operate an unsafe plant. Therefore, "If the Board determined that the plant should be shut down for safety reasons, it would make a finding that it was in the best economic interests of the District to shut the plant down."

I trust you will find this information responsive to your request, however, should you desire additional information please feel free to contact me.

Sincerely,

Joseph F. Firlit  
Chief Executive Officer,  
Nuclear

Enclosure

RESOLUTION NO. 88-3-34

BE IT RESOLVED BY THE BOARD OF DIRECTORS  
OF SACRAMENTO MUNICIPAL UTILITY DISTRICT:

Safety has been and will continue to be the first and foremost consideration in the operation of Rancho Seco. We direct the General Manager and the CEO, Nuclear, to take all necessary steps and precautions to ensure that Rancho Seco will not be brought to operation or continue to operate if it is not safe to do so.

Adopted March 17, 1988

INTRODUCED BY DIRECTOR	<i>Koehler</i>			
SECONDED BY DIRECTOR	<i>Koehler</i>			
DIRECTOR	AYE	NO	ABSTAIN	ABSENT
SMELCFF	<input checked="" type="checkbox"/>			
KOEHLER	<input checked="" type="checkbox"/>			
KENOE	<input checked="" type="checkbox"/>			
TAYLOR	<input checked="" type="checkbox"/>			
WILCOX	<input checked="" type="checkbox"/>			