UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	Docket Nos. 50-361 OL
	)	50-362 OL
SOUTHERN CALIFORNIA EDISON COMPANY, ET. AL.	)	
	)	
(San Onofre Nuclear Generating	)	
	)	
Station, Units 2 & 3)	)	

DIRECT TESTIMONY AND EXHIBIT

OF MR. DAVID F. PILMER

TESTIMONY OF DAVID F. PILMER

Q. Mr. Pilmer, have you appeared previously on the emergency planning issues presented in this case?

A. Yes.

Q. What is the purpose of your testimony in this portion of the proceeding?

A. My testimony is in support of Applicants' Alternative Motion for Fuel Loading and Low Power License for SONGS Unit 2. My testimony demonstrates that based on the limited potential for an accident with offsite consequences, the current state of emergency preparedness at SONGS Unit 2 is adequate to protect the public health and safety during fuel load and low power testing.

Q. Please describe the onsite emergency planning and implementation that will be available during the fuel loading and low power testing period at SONGS Unit 2.

A. The Emergency Plan for SONGS Units 2 & 3 (Exhibit No. 51,) will be in effect prior to the first fuel loading activities. This plan will be implemented, including the complete set of implementing procedures and the accomplishment of all required training.

Q. What emergency response personnel will be available during fuel loading and low power testing at SONGS Unit 2?

A. Chapter 5 of the Emergency Plan for SONGS Units 2 & 3 sets forth the organizational control of emergencies. The

immediate response to emergencies would be performed by SONGS Unit 2 on-shift operations personnel. The key emergency response organization positions are assumed by the same people who would respond to a SONGS Unit 1 emergency. These key people include the following:

1. Emergency Coordinator
2. Emergency Advisor
3. Engineering Leader
4. Administrative Leader
5. Radiation Protection Leader
6. Security Leader, and
7. Emergency Support Leader

The SCE Emergency Support Organization ("ESO") is the same as that which would be used for emergencies at SONGS Unit 1. The key people listed above and the ESO have exercise experience and have received training in emergency response at SONGS Unit 1 which is directly applicable to Unit 2 operations.

Q. Has there been an examination by the NRC of SCE's emergency response capability?

A. Yes. The NRC's office of Inspection and Enforcement conducted an inspection of SONGS Unit 1 emergency preparedness during the period of May 11-15, 1981. This inspection included observations by the NRC team members of the May 13, 1981 exercise, interviews with SCE personnel, and examination of procedures and various records. An inspection

report was issued by the NRC Region V Office dated July 10, 1981 with the result that no items of noncompliance with NRC requirements were identified. A copy of this inspection report is provided as Exhibit DFP-6, "Letter of July 10, 1981 from NRC, Region V to Southern California Edison Company".

Q. How is this NRC inspection relevant to onsite emergency preparedness for the fuel load and low power testing period for SONGS Unit 2?

A. The inspection is not applicable to the on-shift operating personnel at SONGS Unit 2, but it is directly applicable to the key onsite management, supervisory, and senior technical personnel that make up a large portion of the onsite emergency response.

Q. During the period of fuel loading and low power testing activities at SONGS Unit 2, what emergencies with offsite consequences should be planned for?

A. The answer to this question varies according to the activities being conducted. Mr. Rosenblum has described the range of activities contemplated during this period. He has estimated that the initial criticality of the SONGS Unit 2 reactor will occur on or about the eleventh week of the program. During the period preceding initial criticality, the fission product inventory is exceedingly small (caused by naturally occuring spontaneous fissions and subcritical multiplication of the installed neutron sources) and can not possibly cause offsite doses in the PAG range from any

conceivable scenario. Furthermore, accidental criticality is essentially precluded during this period because of the large shutdown margin (i.e., margin below criticality), which is imposed for these activities.

The next activities consist of initial criticality and zero power reactor physics testing. This testing requires approximatley three weeks to accomplish during which time the reactor is critical. The fission rate and, consequently, the fission product generation during this period is sufficiently low that a significnat fraction of these fission products would have to be released to the atmosphere to create offsite doses in the PAG range. Mr. Buttemer's testimony indicates that a core-melt is not physically possible because of the limited decay heat generation associated with this testing which is all conducted at less than 0.1% power (approximately 3 MWt).

Therefore, I have concluded that there can not exist a set of conditions that could constitute a General Emergency as defined by section 4.1.4 of the Emergency Plan during the period of these activities which Mr. Rosenblum has estimated will require approximately 14 weeks to accomplish.

Furthermore, planning to deal with accidents that are classified as a "site emergency" or less, should be in effect during the 14 week period that ends with completion of the zero power physics testing.

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The last period of testing occurs during the final two weeks. Such tests require reactor power levels generally between 3-5% (sustained power levels up to 170 MWt). For the first time the reactor will accumulate sufficient quantities of fission products such that a Class-9 accident sequence, although highly improbable, would be possible (although the range of possible consequences is greatly reduced compared to full power). The necessity for taking protective actions offsite could arise, although a much longer time period would be required to culminate in significant core damage and containment failure.

For the two weeks of turbine testing and reactor coolant system natural circulation testing, planning to respond to an accident classified as a "general emergency" should be in effect. This planning is given in the Emergency Plan for SONGS Units 2 & 3. The requirements for rapid notification and response on the part of offsite agencies is clearly not important because of the long periods of time necessary for Class-9 accident sequences to develop. By way of comparison, the Reactor Safety Study presents the results of calculations of the time required for radionuclide release for full power (including time for core melt) as follows:

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Class-9 Accidents

Category	Time of Release (Hours)
PWR 1	2.5
PWR 2	2.5
PWR 3	5.0
PWR 4	2.0
PWR 5	2.0
PWR 6	12.0
PWR 7	10.0

Consideration of the above Class-9 accident categories is the basis of the current emergency planning regulations. With a time period on the order of a day or so for a Class-9 accident sequence to develop to the point of generating the radionuclide release, and with the reduction in possible offsite consequences discussed above, minimal offsite planning should be sufficient.

Q. Does the longer time required for the development of the Class-9 accident sequences provide a basis for expecting successful intervention by operator action in preventing a core melt accident?

A. Yes. The longer time periods allow for successfully restoring cooling to the core by repairing equipment or making temporary alignment of other equipment to deliver cooling water to the reactor. Probability Risk Assessments for full power such as the Reactor Safety Study, do not take

into account the ability, of emergency response personnel to take innovative action to fulfill the required safety function by alternative means. With several hours to work on the problem, action could be taken to provide the relatively small amounts of cooling water required in this case to prevent the core melting.

Q. In your opinion, what would be the minimim state of preparedness to adequately protect public safety in the event of an accident during the low power testing program?

A. The onsite organization should have received the training and otherwise be properly qualified to carry out all of its responsibilities set forth in the Emergency Plan for SONGS Unit 2 & 3. As a minimum, the means to communicate with offsite authorities is required in the event the accident may produce offsite consequences. However, because of the length of time available, offsite authorities for SONGS are well able to carry out any recommended protective actions even without further detailed procedures or special training.

WITNESS: David F. Pilmer

EXHIBIT NO. , (DFP-6)

DATE:

LETTER OF JULY 10, 1981 FROM NRC,
REGION V, TO SOUTHERN CALIFORNIA
EDISON COMPANY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
1990 N. CALIFORNIA BOULEVARD
SUITE 202, WALNUT CREEK PLAZA
WALNUT CREEK, CALIFORNIA 94596

July 10, 1981

Docket No. 50-206

Southern California Edison Company
P. O. Box 800
2244 Walnut Grove Avenue
Rosemead, California 91770

Attention: Dr. L. T. Papay, Vice President
Advanced Engineering

Gentlemen:

Subject: NRC Inspection - San Onofre Unit 1

This refers to the inspection conducted by Mr. R. F. Fish, Team Leader, and other NRC team members on May 11-15, 1981 of activities authorized by NRC License No. DPR-13, and to the discussion of our findings held by Mr. Fish with Mr. Robert Dietch and other members of your staff at the conclusion of the inspection, including Mr. Fish's telephone call to Mr. Jerry Haynes on June 2, 1981.

Areas examined during this inspection are described in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the NRC team members.

No items of noncompliance with NRC requirements were identified within the scope of this inspection.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed inspection report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be exempt from disclosure under 10 CFR 9.5(a)(4), it is necessary that you (a) notify this office by telephone within ten (10) days from the date of this letter of your intention to file a request for withholding; and (b) submit within 25 days from the date of this letter a written application to this office to withhold such information. If your receipt of this letter has been delayed such that less than seven (7) days are available for your review, please notify this office promptly so that a new due date may be established. Consistent with section 2.790(b)(1), any such application must be accompanied by an affidavit executed by the owner of the information which identifies the document or part sought to be withheld, and which contains a full statement of the basis on which it is claimed that the information should be withheld from public disclosure. This section further requires the statement to address with specificity the considerations listed

in 10 CFR 2.790(b)(4). The information sought to be withheld shall be incorporated as far as possible into a separate part of the affidavit. If we do not hear from you in this regard within the specified periods noted above, the report will be placed in the Public Document Room.

Should you have any questions concerning this inspection, we will be glad to discuss them with you.

Sincerely,

H. E. Book

H. E. Book, Chief
Radiological Safety Branch

Enclosure:
IE Inspection Report
No. 50-206/81-19

cc w/o enclosure:
Mr. R. Dietch, SCE
Mr. J. Curran, SCE (San Clemente)

DETAILS

1. Persons Contacted

J. Curran, Plant Manager
K. Barr, Manager, Health Physics
J. Schramm, Watch Engineer
S. Mc Mahan, Supervisor, Plant Maintenance
D. Bennette, Nuclear Engineer
S. Medling, Chemical and Radiation Protection Engineer
E. Bennett, Foreman, Health Physics
J. Commings, Reactor Operator
D. Pilmer, Supervising Engineer (Health Physics & Emergency Planning)
G. Allen, Nuclear Engineer (Emergency Planning)

Other licensee personnel and contractor health physics technicians participating in the emergency plan exercise were also interviewed.

2. Emergency Exercise Plan

The emergency exercise plan was developed by Southern California Edison Company (SCE) Health Physics and Emergency Planning Group in concert with the several participating offsite jurisdictions. The plan document provided information on the objectives of the exercise, the guidelines to be used by the various participants during the exercise, the duties of the observers, the contents of reports prepared by designated controllers and observers and applicable references. The second volume of the plan document, which had a restricted distribution, described the scenario to be used during the exercise and the expected responses for each event. The scenario was initiated by informing the control room operator that a sample from the reactor coolant system showed a high concentration of iodine-131. During the next eight (8) hours various events occurred that required classifying the emergency as an alert (initial event, high concentration of iodine-131), a site and a general emergency situation. The events included releases of airborne radioactivity under changing meteorological conditions so that the several offsite jurisdictions could implement their emergency plans. The objective of the exercise was to evaluate a major portion of the basic elements existing within the emergency preparedness plans and organizations of the several involved offsite jurisdictions and SCE. The ability to provide a coordinated response by all participating parties was also appraised. This emergency plan exercise was intended to comply with the requirement for an exercise to be conducted within the first year of emergency plan implementation as required by Section III.F, Appendix E, 10 CFR Part 50.

3. Observers

Three groups of observers were involved in the exercise evaluation. The licensee provided observers for all onsite areas where exercise activities took place. Some SCE observers were also used at offsite locations. In addition some of the SCE observers served as controllers. The function of the controller was to provide cue cards and data packages at the appropriate times and, if necessary, certain controllers could alter the course of the exercise or provide needed guidance. The various offsite jurisdictions also provided observers for their portions of the exercise. The NRC observers represented a second group. The NRC observed activities in the Control Room, Technical Support Center (TSC), Operations Support Center, Emergency Support Center (ESC) and near-site Emergency Operations Facility. The SCE medical response and radiological/environmental monitoring teams were also observed by the NRC. A team of observers under the direction of Federal Emergency Management Agency (FEMA) Region IX were present to evaluate the portions of the exercise that involved local, state and federal agencies as well as the interfaces with those responsibilities under the jurisdiction of the NRC (e.g. the Emergency Operations Facility/Emergency Operations center at the San Clemente Civic Center Building).

On May 11, 1981 SCE held a briefing for all controllers. This meeting provided an opportunity for discussions on the schedule of activities, the role of the controllers, personnel identification system and telephone numbers for controller communications. The packages containing cue cards and scenario related data were distributed. There was confirmation that the attendees had all necessary materials, including the scenario and anticipated responses, and they were invited to ask questions. The controllers (and observers) were required to complete an evaluation form at the end of the exercise.

4. Exercise

The exercise was initiated at about 6:[illegible] a.m. on May 13 and continued until about 2:45 p.m. The exercise involved the following locations described in the San Onofre Nuclear Generating Station (SONGS) Unit 1 Emergency Plan: Control Room; Technical Support Center; (Onsite) Operations Support Center; Emergency Support Center; Station Assembly Area (Administration and Warehouse Building); Media Center and near-site Emergency Operations Facility (San Clemente Emergency Operations Center). According to the SONGS Unit 1 Emergency Plan, the on-site Emergency Support Center and the near-site Emergency Operations Facility constitute the interim Emergency Operations Facility (EOF). The exercise included a simulated injured SCE employee who was transported to South Coast Community Hospital for treatment. Radiation monitoring by SCE at onsite and near-site locations was performed as part of the exercise activities.

Other locations were involved in the exercise; however, these were all offsite. The activities at these various offsite locations will be covered by a separate report issued by FEMA Region IX.

5. Critiques

Shortly after the termination of the exercise, SCE held a critique session to review the sequence of events and identify any items that may require some form of corrective action. Controllers, observers, participants and management attended the critique. The results of the critique were to be documented. The Health Physics and Emergency Planning group in Nuclear Engineering and Safety (Rosemead) has been assigned the responsibility for implementing any corrective actions identified during the critique process.

On May 14 a second critique was held to provide preliminary comments to SCE from the various participating offsite organizations. SCE requested the attendees to submit a chronology of important events and comments on items the exercise disclosed needed improvement or change. SCE intends to publish a critique document covering the exercise within the near future. The offsite organizations will be given an opportunity to review the document when it is in draft form. The following items were discussed during the May 14 session:

(a) Communications

There is a need to better coordinate the use of the telephone system that connects the several Emergency Operations Centers (EOC) with the San Onofre site. At the time a "general emergency" was declared by SCE the City of San Clemente was not listening to the notification; however, SCE became aware of this situation before the notification was completed and took corrective action. The forms used by the various organizations and SCE need some modification(s) to assure better transmission and recording of information and data. The California Office of Emergency Services (Sacramento) could receive more current information if they were also connected to the telephone system that connects the EOC's to the site.

(b) Meteorology

There was some confusion regarding wind direction and the forms used by the various organizations should clarify whether the direction being reported is "from" (this is the normally used direction) or "to". The use of sectors along with wind direction resulted in some difficulties. The potential problem resulting from the difference between true and magnetic north was also identified.

(c) Dose Assessment

The offsite dose assessment team (representatives of State Radiologic Health Section and Orange County) expressed a need for more data including source terms. There was a problem relative to the adequacy of data in connection with the reported "puff release". It was also reported that the media (center) had some difficulty handling the reported puff release. The dose assessment team also experienced a time problem because of the changing conditions. SCE noted that this was done to involve the several offsite organizations and the identified problem may have been caused by the scenario.

(d) Response to Declaration of General Emergency

Following SCE's declaration of a general emergency, discussions were held at the San Clemente EOC regarding the sounding of the warning system that satisfies criteria E.6 of NUREG-0654/FEMA-REP-1, Rev. 1. Supposedly SCE was having similar discussions; however, a question was raised during the critique whether these separate groups were also talking to each other on this matter.

6. Exercise Summary

On Thursday afternoon, May 14, a summary of the exercise results was presented at the San Clemente City Hall. This presentation was open to the public and media. The Leader of the FEMA Region IX observers chaired this session. Representatives of the following organizations summarized the exercise findings from their standpoint: FEMA Region IX, Nuclear Regulatory Commission, City of San Clemente, City of San Juan Capistrano, Orange County, San Diego County, California Parks and Beaches, California Office of Emergency Services and SCE.

7. Exit Interview

On May 15, at the conclusion of the inspection, an exit interview was held to discuss the NRC findings. Attachment A is a list of those persons attending this meeting. The licensee was informed that there were no items of noncompliance or deviations. The following items were specifically discussed during this meeting:

(a) Two aspects of the handling of the simulated injured employee may require some corrective action. Improvement in the response time of the emergency team is possible. The team knew the injury was major, but there was a review of the response procedures before they went to the injured person. Also it did not appear that proper attention was paid to a possible shock condition. In addition the injured person was placed in a plastic carrier

upon removal from the building. This carrier is such that first aid care (e.g. check of pulse, check of breathing or administration of oxygen) cannot easily be accomplished when it is closed. It was possible that the specifics of the scenario had an impact on this part of the exercise.

(b) Some items needing improvement were identified during observations of the SCE monitoring team. At times the monitoring team had to alter their communicator's location in order to be heard by the intended receiver. The importance of regular maintenance of the portable communications equipment and training on its proper use was also mentioned. A more permanent means for storing the emergency equipment needs to be established. The monitoring team should record their results at the time of the measurements and the records should be in the units actually measured.

(c) The exercise disclosed some procedures could be improved through changes. Some of the monitoring procedures appeared to need expansion of the "Procedure" section. Also the proper form of the data and appropriate record keeping should be addressed in the procedures. The procedure covering dose projections appears to include mathematical steps that may not be proper or correct.

(d) The operation of the EOF during the exercise did not appear to fully accomplish its intended functions. By letter dated April 25, 1980 the NRC clarified the requirements for the interim Emergency Operations Facility. The ESC, with the support of the TSC, provided overall management of the licensee's emergency response. Dose projections and recommended public protective actions were prepared in the TSC, but the ESC decided whether the latter were acceptable and could be communicated to the offsite organizations. It was not obvious that the EOF was involved in the coordination of emergency response activities with State and local agencies. In addition there was a lack of coordination on the part of the EOF in the area of radiological and environmental assessment. Radiological and environmental data collected by SCE apparently was not being provided to the offsite organizations.

The licensee provided the following responses and comments to the above discussed items. The same identification relates licensee response to NRC comment:

(a) There will be a review of the handling of the injured person during the exercise to assure a minimum delay in responding to an injury during an emergency situation. In addition there will be a review of the first aid treatment provided during the exercise

to make sure that in an actual situation injured personnel will receive proper first aid attention.

(b) For this exercise the emergency equipment was kept in temporary storage containers. A more permanent system, involving the use of seals, is planned for the future. Also they were aware of the communications problems and intended to see if some action could be taken to alleviate the difficulties. With respect to the preparation of records by the monitoring team, the SCE observer/controller had copies of the records made by the monitoring team in his possession.

(c) An SCE contractor has been writing and rewriting many of the radiation safety procedures that are being used or will be used at the SONGS site. Presently these procedures are in the process of being examined and used on a trial basis by SCE personnel. They have already identified some changes in these procedures that will be necessary. They are aware of some modifications that will have to be made to the procedures relating to dose projections. SCE intends to factor in the above NRC comments concerning procedure improvements.

(d) The licensee expressed their opinion that the interim EOF was involved in the coordination envisioned by the NRC for this emergency response facility. They stated that they were aware of the discussions by the local agencies concerning possible evacuation of San Juan Capistrano before San Clemente, but they did not participate because a satisfactory resolution was reached by these agencies. To show that they could participate if necessary, they said they became involved in the discussion when Camp Pendleton decided to evacuate some of their areas even though SCE had only recommended sheltering. According to the licensee the ESC was aware of the offsite monitoring results reported to the San Clemente EOC and these were in agreement with the results of the SCE monitoring team. Because they were monitoring the Interagency Telephone System on a continuous basis, the ESC became aware of the wind direction problem and that all intended parties were not on the system during one of the important SCE offsite notifications. They believe the ESC took corrective action on a timely basis. The NRC observed in the TSC that corrective action had been taken with respect to wind direction and providing all offsite organizations with notification information. The licensee also stated that during the exercise it was necessary for the ESC to contact an SCE representative at the near-site EOF, using a dedicate telephone established specifically for this purpose, to provide the latter with clarifying information.

The NRC Team Leader held a follow-up discussion of the exercise findings with Jerry Haynes, SCE, by telephone on June 2, 1981. Based upon the above described May 15 discussion of the EOF activities during the exercise and a subsequent review of the requirements for the interim EOF, as identified in an enclosure to the February 18, 1981 generic letter (no. 81-10, Subject: Post-TMI Requirements for the Emergency Operations Facility) that D. G. Eisenhut sent to all licensees of operating plants, it appears that SCE met the established requirements. The communications capabilities between the ESC and near-site EOF made it possible for the two locations to accomplish the objectives of the EOF. SCE appears to have been involved in the coordination of emergency response activities with State and local agencies to the extent that their participation was necessary for satisfactory decisions. Also SCE appeared to have current offsite radiological and environmental data developed by the offsite jurisdictions; however, there still remains a need for corrective action to assure that such data obtained by SCE is provided to the dose assessment group at the near-site EOF/San Clemente EOC. Mr. Haynes was informed that the SONGS Unit 1 Emergency Plan should be modified to better describe the operations of the ESC and near-site EOF to show how they accomplish the requirements assigned to the interim EOF. Mr. Haynes stated that SCE would agree that the plan could better describe the operations of the ESC and near-site EOF and this will be done.

The licensee had been informed that if significant deficiencies preventing appropriate protective measures were identified during the emergency plan exercise, they would be notified in writing and given an opportunity to correct them within a four (4) month period. None of the items needing corrective action were considered by the NRC to be significant because they did not prevent appropriate protective measures from being taken. With respect to those areas being evaluated by FEMA, the NRC would also notify SCE in writing of those matters that needed to be corrected within a succeeding four month period. Separate correspondence may be used to provide the FEMA findings.

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-206/81-19

Docket No. 50-206 License No. DPR-13 Safeguards Group _____

Licensee: Southern California Edison Company

2244 Walnut Grove Avenue

Rosemead, California 91770

Facility Name: San Onofre Unit 1

Inspection at: Camp Pendleton, California

Inspection conducted: May 11-15, 1981

Inspectors: R. F. Fish — 7/9/81
R. F. Fish, Radiation Specialist - Team Leader — Date Signed

M. Cillis — 7/9/81
M. Cillis, Radiation Specialist — Date Signed

K. Scown — 7/10/81
K. Scown, Emergency Preparedness Coordinator — Date Signed

R. F. Fish for — 7/9/81
J. Sears, Senior Nuclear Engineer — Date Signed

Approved By: R. F. Fish for — 7/10/81
F. A. Wenslawski, Chief, Reactor Radiation Protection Section — Date Signed

Approved by: H. E. Book — 7/10/81
H. E. Book, Chief, Radiological Safety Branch — Date Signed

Summary:

Inspection on May 11-15, 1981 (Report No. 50-206/81-19)

Areas Inspected: Announced inspection of the emergency plan exercise and associated critiques. The inspection involved 99 hours onsite by seven (7) NRC inspectors and observers.

Results: No items of noncompliance or deviations were identified.

RV Form 219 (2)

ATTACHMENT A

Southern California Edison

R. Dietch, Vice President
J. Haynes, Manager, Nuclear Operations
H. Ottoson, Manager, Nuclear Engineering and Safety
D. Nunn, Manager, Quality Assurance
D. Pilmer, Supervising Engineer (Health Physics & Emergency Planning)
J. Curran, Station Manager
H. Morgan, Assistant Station Manager, Operations
K. Barr, Manager, Health Physics
J. Dunn, Project Quality Assurance Supervisor
B. Katz, Station Supervising Engineer
D. Bennette, Nuclear Engineer
F. Briggs, Compliance Engineer
E. Gault, Compliance Assistant
J. Willis, Training Manager
G. Allen, Nuclear Engineer (Emergency Planning)
S. Garry, Health Physicist

SCE Contractors

G. Beatty, Health Physicist, NUS
J. Massey, Radwaste Consultant, ATI

NRC

R. Fish, Radiation Specialist, Region V
R. Pate, Senior Resident Inspector
J. Sears, Senior Nuclear Engineer, Emergency Preparedness Licensing Branch