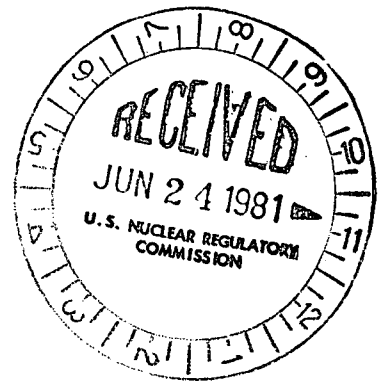




FEDERAL EMERGENCY MANAGEMENT AGENCY

Washington D.C. 20472

June 3, 1981



MEMORANDUM FOR: Brian Grimes
U.S. Nuclear Regulatory Commission

FROM: John E. Dickey
Director, Radiological Emergency
Preparedness Division

SUBJECT: Interim Findings and Determination Relating to the
Status of State and Local Emergency Preparedness for the
San Onofre Nuclear Generation Station (Units 2 and 3)

This responds to your March 4 and March 10, 1981 requests for the above information. No formal submission of radiological emergency preparedness (REP) plans by the State of California has been made to our FEMA Region in accordance with FEMA proposed Rule 44 CFR 350.7. The State's "Nuclear Power Plant Emergency Response Plan", in effect since 1975, has gone through a number of revisions. The 1978 version received NRC concurrence in August 1978. The latest draft revision was submitted in early 1981. As it stands, it is basically an administrative document lacking operational level detail and annexes addressing what support will be provided and how it will be supplemented. Annexes are forecast to be drafted by August 1981.

RAC review comments on the latest drafts were furnished to the State on April 28, 1981. They consider the staff Plan, based upon the NUREG-0654/FEMA-REP-1, Revision 1, criteria to be about 40 per cent complete. Portions of local government plans are also incomplete. Deficiencies are notably SOPs and checklists. Finally, there is a significant need for more coordination among the State agencies and local governments to eliminate both duplication and inadequate interface in the plans.

A joint exercise was conducted on May 13, 1981, to evaluate the off-site capabilities of the State and local jurisdictions to respond to a nuclear emergency at the San Onofre station. The exercise reflected a general overall state of preparedness to implement general emergency plans. Significant shortfalls, however, were observed in the conduct of radiological emergency response operations. Further, the critical areas of ingestion pathway sampling and analysis, as well as reentry and recovery operations were not observed due to the restricted nature of the scenario. Communications, EOC operations, and general coordination were also considered to be weak and need further addressing through training and drill efforts.

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A public meeting was held on May 18, 1981, in San Clemente. The meeting was attended by some 90 persons. Each jurisdiction was represented and reviewed its plan. The public was then given ample opportunity for the expression of their concerns. One area addressed was the ability to evacuate the population around San Onofre under normal circumstances, as well as under abnormal conditions, such as an earthquake or other impediment. The "single egress" issue of local roads near San Onofre and the City of San Clemente also was a point of concern. A number of opponents to plant operations were heard.

FEMA Region IX, in response to your March 4, 1981 letter, has reassessed the issue of effects of an earthquake on emergency operations in coordination with the California Office of Emergency Services and with RAC members. While current plans reflect no direct assessment of earthquake issues, all planning considered the ramifications of such events and it is considered that a general capability exists to respond through basic emergency planning to what is currently considered to be the most likely and frequent levels of seismic activity. A catastrophic earthquake notwithstanding (which would likely nullify the significance of a nuclear emergency), the off-site jurisdictions reflect a level of preparedness through existent basic planning to minimally respond to the potential seismic problem. Alternate emergency operating centers are identified and backup communications, frequently radio as opposed to land-line or wire, are present or identified or are forecast to be entered into the response capability/planning in the near future.

In summary, our interim finding is that State and local government radiological emergency response plans are minimally adequate. However, until corrective actions have been taken, the off-site capability for implementation of the plans is not considered adequate. Additional details with respect to the plans and the capabilities of State and local governments to implement them are contained in the attached FEMA Region IX Evaluation.

Attachment
as stated



FEDERAL EMERGENCY MANAGEMENT AGENCY

Region IX 211 Main Street, Room 220 San Francisco, CA 94105

May 29, 1981

Mr. Alex R. Cunningham
Director, Office of Emergency Services
State of California
Post Office Box 9577
Sacramento, California 95823

Dear Mr. Cunningham:

Enclosed is the Federal Emergency Management Agency Region IX evaluation findings of the exercise of the San Onofre offsite emergency response plans conducted on May 13, 1981.

A copy of this letter and the enclosure are being sent directly to the jurisdictions and the utility.

Sincerely yours

S I G N E D

Francis S. Manda
Acting Regional Director

Enclosure

Copies to:
Orange County
San Diego County
San Clemente
San Juan Capistrano
U.S. Marine Corps
State Parks and Beaches
Southern California Edison
CA OES Nuclear Power Plant
Planning Div (2 cys)

EXECUTIVE SUMMARY

Pursuant to tasking identified in FEMA directives and related letters, FEMA Region IX and the Regional Assistance Committee (RAC) began preparation in early March 1981 to evaluate the exercise, eventually scheduled for May 13, 1981, at the San Onofre Nuclear Generating Station (SONGS). The exercise included offsite jurisdictional play in varying degrees but all jurisdictions were to play at least to a limited degree. The State of California Office of Emergency Services and Radiological Health also participated as did CALTRANS and some units of the California Highway Patrol. The Nuclear Regulatory Commission (NRC), Region V, evaluated onsite utility actions of Southern California Edison Company (SCE), the SONGS' principal owner. FEMA Region IX and support staff from other agencies evaluated State and local jurisdictional play.

Following the exercise, an assessment of the exercise events was made by the 45 person evaluation team and a general finding determined within 24 hours (in accordance with FEMA Guidance Memorandum #17) through a pyramidal critique process. An informal debriefing was scheduled for Thursday, May 14, at 4 p.m., to provide cursory critique input to the jurisdictions that played. Subsequent preparation of final findings for the record have been prepared and are the content of this document.

Team member activities and requirements were identified in an evaluator's packet. Advance briefings and reviews of plans were conducted, as well as an evaluation team briefing the afternoon before the exercise (May 12). An evaluation team coordinator (Team Chief) served as an advance party to receive team members and provide coordination in advance of formal initiation activities on the day prior to the exercise.

The scenario was specifically site-oriented and was limited to an initiating event and cue cards for field radiation readings by field team members. All offsite jurisdictional play was as a result of message traffic from the Utility. The following generally summarizes the FEMA Evaluation Team findings. It was developed through a consolidation process following the exercise and represents general comments relating to key findings. The observations and resultant findings were based upon three primary factors: adherence and execution of present planning; demonstration of the ability to protect public health and safety; and application of basic planning criteria identified in NUREG 0654/FEMA REP-1.

We were impressed with the tremendous effort made on the part of all jurisdictions to respond to this exercise and the extremely short preparation time involved regarding response procedures and staff. Our findings reflect that understanding and are presented as suggested recommendations which are to be incorporated into subsequent planning, training, and drill or exercise activities.

Overall, every jurisdiction demonstrated an active, dynamic, and enthusiastic effort during the exercise. General disaster response procedures and participant play were found to be very good and demonstrated a good capability to handle all play related to the exercise. The specific areas dealing with radiological issues, however, reflected some areas of concern and a need for further training and drills. The following reflects some of the specific items of concern:

1. There appeared to be no preparation or limited address of public information or Emergency Broadcast System (EBS) releases to emergency information following activation of sirens. Materials were in one instance released to the media/EBS 20 minutes after simulated sounding of the alert siren creating a potential for confusion on the part of the general public who would not receive immediate follow-up information from their radios.
2. With the exception of Orange County, evaluators did not observe any implementation of rumor control systems. Orange County had a system of ten phones established but the information release did not specifically reflect a "for exercise release only" caption until identified by an evaluator.
3. There was a perception of a lack of telephone or communications discipline in all observed areas. Telephones identified for specific use such as, for coordination or radiological information relay were used without regard to planning and were not staffed by an "identified" or dedicated communicator with "message" dissemination to internal staff members.
4. There was a general observation that meteorological data and sources such as, National Weather Service (NWS), were not used effectively. Weather status boards were not maintained, where established in EOC's.
5. With the exception of the San Clemente Team, radiological field team procedures and application were found to require further training and standardization. Understanding and application of basic Radiological Defense (RADEF) principles were not considered to be sufficient to provide the type of monitoring necessary for dose assessment and resultant decision making required of Radiological Emergency Preparedness (REP). Teams were found to have faulty, out of inspection, or non-operating equipment in a number of cases. Reporting procedures were varied and in some cases communications posed problems.
6. No ingestion pathway sampling and no laboratory analytical capability were observed due to omission from the scenario.
7. Limited coordination between jurisdictions regarding decisions made by each EOC was observed. Totally effective use of the dedicated telephone was hindered in some cases due to the lack of speaker-phone capability at EOC's. Use was not limited to critical functions such as, dose assessment and decision making issues. Further procedural definition, including written Standing Operating Procedures (SOP's) was observed to be needed.

8. There was no demonstration of a flexible monitoring response capability to plume tracking through use of sector and zone designators as depicted in Table J-1 of NUREG 0654/FEMA REP-1 or some similar alternative. Additionally, no cooperative interjurisdictional monitoring team response capability was observed limiting available teams and standardized procedures.

9. A number of operational level team activities lacked SOP's or checklists that would have assisted in team response and standardized actions where, for example, personnel turnover (shift changes) might occur and limit team proficiency.

10. Traffic control/highway access was hampered by an apparent lack of coordination between counties. Procedures differed as to initiation of roadblocks and traffic evacuation. Procedures were not followed according to planning or exercise guidelines as determined by controllers.

A number, if not all, of the concerns generally identified here are felt to be correctable through training and future drill and exercise. The present and ongoing coordination and development of planning criteria on San Onofre will, we believe, reflect corrective actions that will resolve a number of the identified concerns.

The evaluation conclusion was that the jurisdictions and the Utility have to establish further plan review, training, and drill efforts to correct current shortfalls in radiological coordination and communications areas. Further drills and exercises evaluated by FEMA are recommended to assure a level of protection in the best interests of public health and safety.

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PART I

EXERCISE EVALUATION OVERVIEW

A. EXERCISE DEVELOPMENT AND OPERATION

The desire of the utility to conduct a licensing exercise so as to meet the time frame of Atomic Safety Licensing Board hearings resulted in initial coordination of planning in early February. Subsequent serious definition of an exercise date did not evolve until early March when an April 14 date was proposed. Due to a concern by the State of California Office of Emergency Services and the Federal Emergency Management Agency, Region IX, that the local jurisdictions were not fully aware of the depth of the required exercise, a suggestion was made to delay the exercise date to no earlier than the month of May. As a result of extensive debate and coordination, the utility decided upon a May 13 date and no objection was raised by the local jurisdictions other than the City of San Clemente. Despite some reservation, and to their credit, all jurisdictions agreed to participate and played extensively throughout the event.

FEMA Region IX initiated development of an evaluation team in late March. Through the assistance of FEMA Regions VIII and X, as well as the Regional Assistance Committee (RAC) Federal agencies (particularly DOE who provided some ten evaluators at their expense), some 45 evaluators under the direction of a FEMA Region IX Team Chief completed approximately ten hours of preparatory training, including review of appropriate plans relative to their areas of evaluation.

Scenario development was accomplished by Southern California Edison Company and essentially was composed of an initiating event and cue cards for field monitoring teams. Local jurisdictions and the utility initially developed exercise guidelines reflecting depth of participation without FEMA Regional output. Subsequent review of the product by Regional staff prompted suggested changes that were partially, but not fully, incorporated into the guidelines. Future exercise development should reflect exercise development by the Utility, NRC, FEMA Region IX, and the local jurisdictions so as to preclude omission of critical objectives and to provide optimum cost effectiveness of play.

The Utility and local jurisdictions were identified as "controllers," while FEMA staff were to serve solely as evaluators. Some lack of clarity of activities resulted which may be a result of this separation of functions and suggests review of such procedures prior to future exercises.

Prior to the exercise, meetings were held to review evaluation procedures, scenario events, objectives, and related procedural concerns. A controller's meeting was called by the Utility on May 11, 1981, to review last minute concerns and to handout cue cards to controllers. Until this meeting, FEMA was not provided the cue cards and further, was informed of changes to participant play which required last minute alterations to the evaluation effort. It is suggested that such scheduling and exercise development be finalized no later than 10 days prior to the exercise (pending emergency changes, of course) so as to not limit the total value and effectiveness of the exercise. A meeting between NRC Region V and FEMA Region IX was held April 27 and again on May 11, 1981, to identify areas of evaluation, scenario development, and guidelines of play. It was agreed that the Off-Site Interim EOF was to be evaluated by FEMA evaluators due to the combined nature of its operation.

Lastly, concern was elicited by FEMA Region IX and a RAC member regarding the current EOF/EOC operation at San Clemente, California. The physically combined and somewhat undefined character of operating procedures left some doubt as to how the system was to operate. Local jurisdictions met within a week of the exercise to develop an internal procedure for coordination of dose assessment.

The evaluation team consisted of FEMA Headquarters; FEMA Regions VIII, IX, and X personnel as well as Regional Assistance Committee (RAC) organizational support from DOE, NRC, EPA, HHS, FDA, and DOT. A total of 45 evaluators were assigned to cover eight EOC locations and eight field activities. This depth of coverage was considered appropriate due to the level of organizational development and dearth of training and observed drills at the time of the exercise. Evaluators were given approximately 10 hours training to cover evaluation techniques as well as plan review and a general overview of jurisdictional capability. An evaluator's packet was developed to provide further guidance regarding exercise objectives, agenda of events, and depictions of suggested critique format. Teams were generally site-oriented and Team Leaders served to coordinate team operations and consolidation of findings due to time constraints.

Following the exercise, an evaluator's debriefing session was held for 3-1/2 hours to create a time oriented history of events. This was to bring a perspective to the site-specific evaluation process and to corroborate various communications actions during the exercise that were originally perceived in a unidirectional fashion. Subsequent to this session, team members and leaders worked to consolidate their findings and provided those findings to the Evaluation Team Chief. He in turn formulated a preliminary finding for issuance to the exercise participants in an informal debriefing the afternoon following the exercise. The information was provided again at the public meeting on Monday evening, May 18, 1981.

The findings resulting from the review of all team members' evaluations and resultant group discussions were developed within eight days of the informal report (presented May 14, 1981). They were reviewed by the RAC Chairman, FEMA Region IX Plans and Preparedness Division Director, and the FEMA Acting Regional Director, and are reflected in the following pages.

Those findings reflecting recommendations for corrective action are expected to be reviewed and integrated into planning, training, and drill activities at the earliest opportunity. Jurisdictions should establish corrective action dates and provide a summary to FEMA Region IX within 60 days of receipt of this finding. All jurisdictions should review general findings and take action to correct shortfalls where appropriate. FEMA Region IX and the State of California OES should be advised of all drills and exercise efforts so that records of events and evaluations of performance, where appropriate, can be established. Plan changes or revisions should be forwarded through the State of California OES to FEMA Region IX for review and comment.

Clarifications or further information regarding these findings should be addressed to Mr. Kenneth W. Nauman, Jr., Evaluation Team Chief, FEMA Region IX.

B. TEAM MAKEUP

SAN ONOFRE

OFFSITE EMERGENCY RESPONSE EXERCISE

FEMA/RAC REGION IX

May 13, 1981

LIST OF EVALUATORS AND ASSIGNMENTS

SACRAMENTO - California OES

Team Leader:	M. Wedge	FEMA R-IX
Members:	M. Seal	FDA
	J. Haley	DOE
	J. Taylor	FEMA R-IX
	J. Dehorty	FEMA R-IX

ORANGE COUNTY - EOC (Santa Ana)

Team Leader:	J. Eldridge	FEMA R-IX
Members:	M. Davis	FEMA R-VIII
	J. Kobold	FEMA R-IX
	S. Martin	FEMA R-IX
	R. Tuttle	DOE
	F. Bold	DOE

SAN DIEGO COUNTY - EOC

Team Leader:	N. Nikas	FEMA R-IX
Members:	R. Brown	FEMA R-X
	E. Kaufman	FEMA R-IX
	R. Trolan	DOE

CITY OF SAN CLEMENTE

Team Leader:	B. Gilbert	FEMA R-X
Members:	H. Gaut	FEMA Hq.
	R. Carlton	FEMA R-IX
	T. Knight	FEMA R-IX
	R. Williams	FEMA R-X
	J. Hanchett	NRC

CITY OF SAN JUAN CAPISTRANO

Team Leader:	S. Elkins	FEMA R-IX
Member:	R. Ives	FEMA R-VIII

STATE PARKS AND BEACHES

Team Leader:	N. Smith	FEMA R-IX
Member:	M. Voytilla	DOE

U.S.M.C. - CAMP PENDLETON

Team Leader:
Members:

D. Schroder	FEMA R-IX
E. Raymond	FEMA R-IX
D. Stevenson	FDA
A. Toy	DOE

FIELD ASSIGNMENTS

CALTRANS/CHP (Orange &
San Diego Co's.)

F. Checini	FHA
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SAN CLEMENTE P.D.

V. Guzman	FEMA R-IX
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RECEPTION & CARE

Team Leader:
Member:

R. Manuel	FEMA R-IX
V. Thompson	FEMA R-IX

HOSPITAL/MEDICAL RESPONSE
Orange Co.

J. Reilly	HHS
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NEWS MEDIA CENTER

V. Paule	FEMA R-IX
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DOSE ASSESSMENT AND
FIELD TEAM ASSESSMENT+

ORANGE COUNTY

F. Fong (Team Leader)	DOE
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L. O'Neill	DOE
------------	-----

P. Murphy	DOE
-----------	-----

SAN DIEGO COUNTY

R. Staley	DOE
-----------	-----

SAN CLEMENTE

C. Penwell	DOE
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+ Report to Site Team Leader and Dose Assessment Team Leader

NEAS SITE EOF

Team Leader:
Members:

D. Duncan	EPA
R. Sandwina	FEMA R-IX
K. Nauman	FEMA R-IX
D. Gales	NWS
D. Kunihiro	NRC

C. OBJECTIVES AND GUIDELINES

SAN ONOFRE LICENSING EXERCISE

OBJECTIVES AND EVENTS

As a result of the meeting held by Southern California Edison Company on April 10, 1981, the following objectives have been identified and the representatives of the involved jurisdictions informed of what was expected for each objective.

1. State of California, Counties of San Diego and Orange, Cities of San Clemente and San Juan Capistrano, and the USMC Camp Pendleton.

- . Demonstrate that response organizations can alert, notify, and mobilize emergency response personnel.
- . Demonstrate that emergency operation centers can be staffed in a timely fashion.
- . Demonstrate that decisions can be made with regard to protective measures for both the plume and ingestion pathway emergency planning zones.
- . Demonstrate that State and local Radiation Control staffs can assess the accident and make appropriate recommendations to the decision-makers at the County and State EOC's.
- . Demonstrate that the State and local Radiation Control staffs can respond to and provide analysis of a simulated airborne release. This demonstration should include the collection of most sample media (water, vegetation, milk, and air), and the simulated routing of such samples to appropriate laboratories for simulated analysis.

- . Demonstrate that the Counties can dispatch personnel to all appropriate access control points that the simulated evacuation would call for.

2. Joint Objectives (Southern California Edison, State of California, Counties of San Diego and Orange, Cities of San Clemente and San Juan Capistrano.

- . Demonstrate that the parties can coordinate all releases of information to the media.
- . Demonstrate that the parties can coordinate the protective measures to the public (warning notices and recommendations for protective measures per plume EPZ).
- . Demonstrate that the parties can carry out free play per decision-making with regard to protective measures for the plume and ingestion emergency planning zones.
- . Demonstrate support and action of responsible elected or appointed public officials.
- . Demonstrate adequate communications between all facilities and field teams, and adequate displays within facilities to maintain an awareness of status of events.
- . Demonstrate a capability of all jurisdictions to execute emergency response plans to protect the public.

3. Exercise Scenario

The exercise scenario should begin with an unusual event situation and escalate through the types of emergencies to a General Emergency. Simulated radioactive release will reflect realistic accident conditions and could require an anticipatory evacuation to 5 miles and shelter to 10 miles. Wind direction will vary throughout the exercise. A sample evacuation, monitoring, and dose projection will be conducted within Orange County and the City of San Clemente with supporting assistance from State and utility. San Diego County will provide monitoring and initial evacuation activities. Field teams will be dispatched from each jurisdiction for purposes of testing response time, communications, and demonstration of monitoring procedures and training. IRAP and DOE response may be requested, but response will be simulated. State and county EOC's will be fully staffed and will perform their functions as identified in their respective plans.

Medical facilities and capability will be tested through evacuation of a simulated injured worker for treatment and decontamination. Highway barricade material will be deployed to preidentified positions. The highway will not be closed. A sample evacuation will be conducted moving a group of people from the City of San Clemente to a reception and care facility in Orange County. A sample in-processing of evacuees will be conducted at which time the evacuees will be released to return to the school.

D. SCENARIO OVERVIEW

The attached scenario overview identifies the local jurisdictional scope of play. The State participation was by OES and State Radiological Health, both in Sacramento and in Southern California. The Utility scenario input is also attached.

EXERCISE PLAN
SAN ONOFRE NUCLEAR GENERATING STATION-UNIT 1
MAY 13, 1981

VOLUME I

SOUTHERN CALIFORNIA EDISON COMPANY
SAN DIEGO GAS AND ELECTRIC COMPANY

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I. FOREWORD

SONGS UNIT 1

1981 EMERGENCY EXERCISE PLAN

VOLUME I

I FOREWORD

The purpose of this exercise plan is to provide a basis for the performance of a simulated radiological accident exercise at the San Onofre Nuclear Generating Station - Unit 1 in which the capabilities and the effectiveness of the Emergency Plans for the Southern California Edison Company, SONGS-Unit 1, Orange County, San Diego County, City of San Clemente, City of San Juan Capistrano, Camp Pendleton Marine Corps Base and the Pendleton Coast Area of the State Department of Parks and Recreation can be evaluated. It shall be used by selected observers of the Federal, State and local agencies, and of the utility, to initiate, assist, and evaluate the activities of the participants in the exercise.

Volume I gives general information and guidelines for all participants in the exercise. Volume II describes the scenario and gives specific information for the controllers of the exercise. Volume II will not be made available to the players and will have a very limited and controlled distribution.

II. OBJECTIVES

II Objectives of the Exercise

The major objective of the exercise is to evaluate the integrated capability and a major portion of the basic elements existing within the emergency preparedness plans and organizations. The exercise will simulate an emergency at SONGS-1 that results in offsite radiological releases which will require response by offsite authorities. Specific objectives of the exercise are outlined as follows:

A. Evaluation of on-site capability to:

1. Classify the emergency
2. Activate, staff and operate the support centers
3. Activate the notification network
4. Promptly communicate with offsite agencies
5. Mobilize radiological monitoring teams
6. Monitor and assess radiological field data
7. Determine dose projections
8. Determine protective actions
9. Coordinate news releases

B. Evaluate each Offsite Agency's Capability to:

1. Respond to notification calls from SONGS
2. Activate communication systems
3. Mobilize emergency response personnel
4. Activate, staff and operate EOC
5. Establish traffic and access control
6. Coordinate news releases
7. Coordinate major decisions with other agencies
8. Mobilize Reception and Care centers

9. Coordinate decision making in response to protective action guides for both plume and ingestion pathway.
10. Promptly notify the public
11. Execute the agency Radiological Emergency Response plan for protecting the public
12. Maintain adequate displays of the status of events

III-A, GUIDELINES - GENERAL.

III. Guidelines

A. General Guidelines

1. The emergency conditions being simulated by SONGS will not be in real time and the reported conditions can change suddenly and unrealistically in order to test the many parts of the response plans within the approximately 8 hours of the planned exercise.
2. The involvement of the public will be minimal
3. No sirens will be activated
4. All communications and messages that relate to the exercise shall be clearly identified "This is a Drill"
5. Press releases and radio, TV or EBS messages that are a part of the exercise shall not actually be disseminated to the public
6. Major actions are to be coordinated with other jurisdictions
7. All notifications required by the various plans will actually be made
8. Radiation monitoring will be demonstrated by deploying at least one radiation monitoring team to the field by the agencies within the 10 mile EPZ
9. Radiation monitoring dose rates will be simulated by having the teams report predetermined dose readings to their respective EOC's during the exercise
10. Simulated meteorological data may be used during the exercise
11. Ingestion pathway EPZ sampling will be demonstrated by contacting laboratories for analysis
12. Each of the affected agencies will activate their EOC
13. No one but the pre-designated controllers can alter the course of the exercise
14. Evacuation of the public will be demonstrated by moving a small group of the public to an R & C center, making an accountability and then returning them to

15. One R & C center will be opened by the Red Cross by making one room available
16. Realism is to be used in all actions and messages to the extent possible. Professional response to all all situations is expected
17. All actions and messages are to be documented even if the action or message is simulated
18. Traffic and Access control will be demonstrated by moving barricades to the side of the road for at least one pre-determined intersection
19. Controllers will be identified by green armbands
20. Observers will be identified by red armbands. Official FEMA (offsite) observers will wear name tags in addition to armbands
21. SCE personnel will wear blue armbands offsite
22. The EOF will be activated

III-B. GUIDELINES - SONGS

EXERCISE GUIDELINES FOR SONGS

1. The exercise will involve a major portion of the Emergency Implementing procedures. The 1981 exercise will simulate action stipulation in series S01-VIII only. Therefore, corrective actions which would be required in a real emergency, such as activation of engineered safety features, or shutdown of turbine and reactor will not be simulated or practiced. Preparedness in these areas is demonstrated in licensing examinations.
2. The exercise is planned and shall be conducted in such a manner to minimize interference with on-going construction and repair efforts at Unit 1 and construction on Units 2 and 3.
3. Supervisory personnel will participate in the exercise as stipulated in the emergency procedure as required by the exercise. Non-supervisory personnel will participate in the exercise to a limited extent to permit on-going work to continue.
4. Security procedures will remain in force throughout.
5. Press releases should be prepared but not issued.

6. Communicate with your staff personnel and supervisor as you would during a real emergency, use procedures in a normal way; however, do not take physical action such as announcement of PA system, telephone, and radio which would interfere with normal station activities.
7. Plant and site evacuation shall not be implemented - normal work shall be allowed to go on uninterrupted. Record what action would have taken place.
8. Beach should not be evacuated by use of the PA system.
9. Any notice given over public address system should be replaced by the message "Testing, Testing, Testing". Do not read any message stipulated in procedures over public address systems.
10. Any message between parties should be preceeded and followed by the statement that "This is a drill".
11. Completely read cue card before implementing any action.
12. Values given on cue card are not spurious - do not change cue card reading.
13. Use real time meteorological data unless instructed otherwise.

14. When requesting ambulance, be sure to tell them it is a drill and a real emergency takes precedence.
15. When calling hospital, be sure to tell them it is a drill and that a real emergency takes precedence.
16. All personnel shall document all exercise messages and responses taken and comments of effectiveness of emergency plans and ability of personnel to implement the plans. This information will form the basis of the critique of the exercise.
17. On-site health physics activities will be simulated by no more than, one supervisor, two foremen and six technicians.
18. Distribution of iodide blocking pills will be simulated.
19. Use of respirators will be simulated.
20. All controllers and observers will be indentified by green and red armbands, respectfully. Players will not wear colored arm bands except for off-site Edison and agency personnel who will be identified by blue armbands.

III-C. GUIDELINES - ORANGE COUNTY

Exercise Guidelines For Orange County

1. All notification calls will be made.
2. Chairman of Board of Supervisors, or his designee, will be in command of the Orange County emergency organization as Operational Area Coordinator (OAC), County health officer will be Designated County Authority to provide OAC with necessary information to insure timely decisions
3. A Real emergency pre-empts the exercise.
4. Offsite radiation monitoring will be demonstrated by partial activation of monitoring team(s). The monitoring team(s) will report predetermined dose readings to the EOC throughout the exercise
5. Document activities and messages even if simulated.
6. Public notification shall be simulated only, by placing calls to radio station but not actual broadcast. Prior arrangements with the radio stations for taking of messages will be made.
7. Press releases will be formulated and approved through normal channels but not issued to press, but forwarded to Emergency News Center for simulated release.
8. Notification of support emergency units, volunteers, etc., can be real but no action shall be requested. Notification should be real and get verification that they can respond properly.
9. Evacuation of the public will be demonstrated by moving, at least, one bus load of persons to a Reception and Care Center. They will be registered and then returned to San Clemente.

III-D. GUIDELINES - SAN CLEMENTE

Exercise Guidelines For San Clemente

1. All notification calls will be made.
2. EOC will be activated as follows:
 - a) City Manager or his designee will participate as Director of Emergency Services.
 - b) Fire chief and assistant fire chief will participate fully.
 - c) Other shift personnel will participate as normal work load permits.
3. Offsite radiation monitoring will be demonstrated by partial activation of the monitoring team. The monitoring team will report predetermined dose readings to the EOC throughout the exercise.
4. A controllers simulator room will be located in the police conference room.
5. The city radio communication van will be mobilized and participate as the In-field command post.
6. Public notification shall be demonstrated by placing calls to radio stations. Prior arrangements with radio station for taping of messages will be made.
7. Press releases will be formulated and approved through normal channels but not issued to press, but forwarded to Emergency News Center for simulated release.
8. Notification of volunteers shall be real but no action shall be requested.
9. Documentation of all actions taken and messages given will be made.
10. A real emergency takes precedence over any exercise action or message.
11. Demonstrate evacuation in coordination with Orange County.

III-E. GUIDELINES - SAN JUAN CAPISTRANO

EXERCISE GUIDELINES OF THE CITY OF SAN JUAN CAPISTRANO

1. Initial alert of pending circumstances at 0700 will necessitate notification from O.C.C.~~2~~ to the City Manager/Director of Public Works at their homes. Active participation by staff, etc. will commence at 0800.
2. This exercise is planned and shall be conducted in such a manner to minimize interference with daily staff activities.
3. Personnel involved will participate in the exercise as routine tasks and public interface allow. City responsibilities will take precedent over exercise activities.
4. As determined in the City's Emergency Response Plan, all designated contacts will be attempted. On-going monitoring of the situation is anticipated. The City EOC will be partially activated and staffed (if personnel are available.)
5. City public information persons will be briefed and advised as to the on-going situation.
6. Public information messages will be prepared and up-dated as conditions develop.
7. City maintenance crews will participate in this exercise to the extent that they will be advised over the City radio of a test (drill) situation and asked to respond (if possible) as directed. This will simulate the City's ability to provide assistance to County operations as deemed necessary. Important crew responses (across the radio and in person) will deal with the condition of City streets, projects and possible problem areas.
8. As the City contracts with the O.C. Sheriff's Dept. and O.C. Fire Dept. to provide services (emergency included) their reactions will depict the majority of emergency efforts in the City. City staff, however, will keep a City telephone line open to facilitate communications with these two departments throughout the exercise.
9. A log will be kept of all communications received or transmitted by City staff regarding this exercise.
10. Should personnel be available, a City representative will be dispatched to the San Clemente EOC to coordinate exercise activities.
11. Key City personnel may not be present for this exercise which will result in task modifications and reassignments.

III-F. GUIDELINES - CAPISTRANO UNIFIED SCHOOL DISTRICT

Exercise Guidelines for Capistrano Unified School District

1. Schools will remain in session during this exercise and not actively participate in this exercise except for answering the phone.
2. All notification calls will be made to the Principals of the 25 schools.
3. School evacuation will be simulated by calls to transportation department requesting information on the number of buses available.
4. The school district EOC mobilization will be simulated by one person.
5. A representative will not be sent to the San Clemente EOF.
6. Communications with the San Juan Capistrano & San Clemente will be practiced as appropriate.

III-G. GUIDELINES - SAN DIEGO

Exercise Guidelines for San Diego County

1. All notifications calls will be made.
2. Offsite radiation monitoring will be simulated by partial activation of the monitoring system. Predetermined dose readings will be reported to the EOC throughout the exercise.
3. The communication nets will be mobilized and participate.
4. Public notification shall be simulated only - calls will be placed to radio and TV station but not put on the air. Prior arrangements with radio and TV stations shall be made for taping messages and for nonbroadcast instructions.
5. Press releases will be formulated and approved through normal channels but not issued to press.
6. All actions taken and messages taken or given shall be documented, even if simulated.
7. A real emergency takes precedence over any exercise action or message.
8. The interim EOC is located in the Farm Advisor Conference room in the Kearny Mesa County facilities. Portions of the EOC will be made operational prior to the exercise.

III-H. GUIDELINES - USMC-CAMP PENDLETON

Exercise Guidelines
for Marine Corps Base Camp Pendleton

1. All notification calls will actually be made.
2. Radiation monitoring will be demonstrated by partial activation of monitoring teams in which predetermined dose readings are reported to the EOC throughout the exercise.
3. Public notification shall be demonstrated Press releases are to be prepared and approved through normal channels but not issued to the press.
4. All actions taken and messages given will be documented, even if simulated.
5. A real emergency takes precedence over any exercise action or message.
6. Evacuations will be demonstrated by making the required phone calls to area commanders and in one area sending a vehicle with PA system to the area and driving around the area to simulate the door to door notification.
7. Communication systems implementation will be real.
8. A helicopter will be flown, if available, to demonstrate airborne radiological monitoring.

III-I. GUIDELINES - STATE PARKS

Exercise Guidelines for State Parks and Recreation

1. The exercise will be conducted with minimum impact on normal operation.
2. The exercise will be preempted by any real emergency.
3. The Parks EOC will be activated.
4. A representative will be sent to the EOF (with radio unit)
5. All notification calls will be made.
6. Ranger(s) will be mobilized to actually open evacuation route gates for a brief period. The public will not be evacuated.
7. The Security Posts No. 1 through 5 will be activated and manned as far as personnel can be made available without overtime. Their activation will be noted in the log books in either case.
8. Teams A and B will only be activated as far as regular, on shift personnel permits. The special call outs will be only simulated.
9. The radiation monitoring unit(s) will be activated (one person on team A and B). Predetermined dose readings will be reported to the EOF/EOC throughout the exercise.
10. Loudspeakers or sirens to alert members of the public will not be used.
11. Calls to the Coast Guard and sheriff's unit for assistance, will be simulated only. Calls to the EOF will actually be made.
12. Requests for other mutual assistance will be simulated.
13. All actions taken and messages given shall be documented, even if simulated.
14. The 30' rescue boat will be actually launched but notification from the boat by loud speaker will only be simulated.

III-J. GUIDELINES - SCE CORPORATE

SCE CORPORATE GUIDELINES

1. The SCE Emergency Support Organization will be activated and personnel dispatched to SONGS, EOF & ENC.
2. The Corporate Temporary Telecommunications System (TTS) utilized.
3. The Headquarters Support Center, GO Room 410, will be made operational.
4. The Emergency News Center will be made operational and will serve two functions: one, as a central point for disseminating information about the exercise; two, participate in the exercise in its emergency function.

IV. CONTROLLERS

EXERCISE
Controllers Phone List

CONTROLLERS

AGENCY

PHONE NUMBERS

Dick Northrup	SC	(714)492-5101 ext. 233
Paul Falk	SC	(714)492-5101 ext. 233
Carol Hopwood	Orange	(714)834-2648
Bob Lacy	SD	(714)448-4611
Cynthia Ferguson	SJC	(714)493-1171
Jill Swanson	Capistrano Unified Schools	(714)496-1215 x282
Lt. Col. Rothwell	USMC	(714)725-5744/5745
Harold Doerkson	Parks	(714)492-0802
Don Bennette	SONGS - TSC	
Jack Kroeger	SONGS - CR	
Don Bennette	SONGS	Home (714)492-2565
USMC EOC	USMC	(714)725-5012/5212
GO-410	SCE	(213)572-2300

Controllers Review Form

Name _____

Location _____

1. Did you understand your role well enough prior to the exercise to be effective during the exercise? Yes No

Explain _____

2. Did the exercise remain on schedule? Yes No

Explain _____

3. Was it necessary for you to give assistance to some players to ensure the proper response and to keep the exercise on track? Yes No Explain the circumstances and how you corrected the situation. _____

4. Briefly describe your interaction with players and observers, if not covered in #3 above. _____

5. Were the cue cards a viable method for interjecting events? Yes No

Explain

6. Unexpected responses developed by the player:

None

Few

Many

Explain

7. Was the list of anticipated response/actions helpful to you? Yes No

Explain

8. What aspects of the exercise went very well?

(Explain in detail)

9. What aspects of the exercise were average?

(Explain in detail)

10. What aspects of the exercise went poorly?

(Explain in detail)

11. What suggestions would you make to improve the role of the controllers?

12. What could be done to improve the overall operation of the next exercise?

13.

Other comments and/or continuation of earlier answers.

V. OBSERVERS

SCE Observer Duties

1. To observe actions and reactions of the players involved at specified locations.
2. To take notes for reference and discussion at a later date, see attachment
3. Determine areas which could use improvement and methods of improvement and areas which were especially well affected

Observers

Location	Time Start	Finish	Name
<u>SONGS</u>			
Control room	0700	1500	E. Murri
TSC	0730	" "	" "
ESC	0730	" "	Nick Dimascio Long Island Lighting
<u>EOF</u>			
San Clemente	0900	" "	G. Beatty Geroge Buzzelli
<u>EOC</u>			
San Clemente	0700	" "	" "
State Parks	" "	" "	Steve Sagaties
San Diego County	" "	" "	Jim Brown
USMC Base	" "	" "	Charlie Crowe
Orange County	" "	" "	Teresa Gildersleeve
San Juan Cap	" "	" "	Steve Sagaties
UC SD	" "	" "	" "
<u>ENC</u>	0900	" "	Lionel Brooks
<u>R & C Center</u>	1210	" "	Jack Wyatt
<u>Monitoring Teams</u>			
USMC Base	0910	" "	
State Parks	" "	" "	
Orange County	" "	" "	
San Clemente	" "	" "	
San Diego County	" "	" "	

Observers

Location	Time Start	Finish	Name
<u>Barricades</u>			
San Clemente	1210	1330	
SJC	1350	1500	

EVALUATION FORMS

Each observer should complete this form and return to SCE. An attempt should be made to evaluate each of the areas listed. If an area does not apply to that particular response function being observed, N/A should be placed in that block.

Location and nature of the activity observed (such as Technical Support Center, County Emergency Operations Center, etc.): _____

Date: _____ Time: From _____ To _____

1. Emergency Plans and Procedures
(Were they used, were they adequate)

2. Command Functions:
(Assume responsibilities, timely decision making, management)

3. Assessment and Evaluation
(Of the accident, necessary response, reports.)

4. Personnel Functions & Staffing
(Adequacy of Staffing)

5. Communications:

a. Internal, including
the message center

b. External

6. Notification and Alerting

a. Officials

b. Public

7. Physical Facilities
(Space, comfort, etc.)

8. Data Displays

9. Interface With Other Groups
and Areas (Both intra and
inter jurisdictional)

10. Public Information
(Other than alerting)

11. Emergency Equipment
(Availability and Knowledge
of existence)

12. Records and Logs
(Exposure control, number
of evacuees, reception and
care centers)

13. Security Control
(Facility Access)

14. Benefit of the Exercise to the Participants:

15. Capability of the Jurisdiction, Agency and/or Function to Execute Radiological
Emergency Response Plans to Protect the Public. _____

16. Summary and Recommendations:

17. Observer's Name and Organization _____

- 

VI. REFERENCES

REFERENCES

- A. Emergency Plan for SONGS-UNIT 1, January, 1981
- B. SCE Emergency Support Organization Procedure, March 1981
- C. County of Orange SONGS Emergency Response Plan, December 1980
- D. The Unified San Diego County Nuclear Power Plant Emergency Response Plan, December 1980
- E. City of San Clemente Emergency Response Plan, March 1981
- F. San Juan Capistrano Radiological Emergency Response Plan, December 1980
- G. Emergency Response Plan, Marine Corps Base, Camp Pendleton, 1979
- H. Nuclear Power Plant Emergency Response Plan, San Onofre, San Clemente and Doheny State Park and Beaches Area, December 1980
- I. State of California Nuclear Power Plant Emergency Response Plan, 1978
- J. Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants NUREG-0654, FEMA-REP-1, REV.1 Nov. 1980
- K. SONGS-1 Emergency Implementing Procedures, Sol-VIII-1.x (X:1 thru 40)
- L. Interagency Agreement and Evacuation Procedure for the San Onofre Plume Exposure Pathway Emergency Planning Zone, December 1980

VII. GLOSSARY

Glossary of Terms

Brief definitions of many of the terms used in this plan are given here. For more exact and detailed information, standard reference works should be consulted.

Absorbed dose: The quantity of energy absorbed from ionization per unit mass of tissue. The rad is the unit of absorbed dose.

Accident: An uncontrolled event which has the potential of creating an emergency condition. Referred to in this Annex as an "incident, or accident"

Airborne radioactive material: Any radioactive material dispersed in the air in the form of dusts, fumes, mists, vapors, or gases.

Air Sampling: The collection and analysis of samples of air to measure its radioactivity or to detect the presence of radioactive substances.

Alert: An emergency classification. Alerts are events which indicate an actual degradation in the level of safety of the facility. Offsite protective actions are unnecessary.

Alpha Particles : Positively charged particles identical with the nuclei of helium atoms. They penetrate tissues to usually less than 0.1 mm (2/250 inch) but create dense ionization and heavy absorbed doses along these short tracks.

Annual Coordinating Exercise: An annual exercise testing the integrated capability and a major portion of the basic elements of emergency preparedness plans and organizations.

Area Radiation Monitoring System: The instrumentation system at SONGS-1 which measures radiation levels in work areas and alarms if abnormal radiation levels occur.

Assembly area: The area at SONGS designated for the assembly of specific groups of individuals during an evacuation.

Assessment actions: Actions taken during or after an incident to evaluate the severity, and/or the possible offsite consequences of the incident. Information obtained from assessment actions is used to make decisions to implement specific emergency measures.

Background radiation: Radiation arising from material other than the one directly under consideration. Cosmic rays and natural radioactivity are always present, and manmade sources may also contribute to the background radiation level.

Beta Particles : Electrons ejected from the nuclei of atoms extremely tiny bits of matter traveling at roughly a quarter the speed of light. Their range in air can be several feet.

In heavier material, such as the human body, they expend their energy within about 2mm (1/10 inch).

Companies: The Southern California Edison Company and the San Diego Gas and Electric Company, owners of the Station. (SCE and SDG&E)

Construction Personnel: All contractors and SCE personnel engaged in onsite construction work on SONGS 1,2,3.

Construction Site, Units 2 and 3: The area at SONGS immediately southeast of Unit 1 where Units 2 and 3 are under construction.

Contamination (Radioactive): Deposition of radioactive material in any place where it may harm persons, spoil experiments, or make products or equipment unsuitable or unsafe for some specific use. The presence of unwanted radioactive matter.

Continuous Air Monitor: An instrument designed to detect airborne particulate and gaseous radioactivity and alarm at specified concentrations.

Control Operator: The individual at SONGS-1 directly operating and controlling the nuclear reactor and associated equipment at the Station.

Control Room: The location at SONGS-1 from which the reactor and its auxiliary systems are remotely operated.

Control Room Personnel: Control Operator, Assistant Control Operator, Shift Technical Advisor, and Watch Engineer.

Controlled Area: Any area to which is controlled by the user for purposes of radiation safety. Airborne radioactivity areas, high radiation areas, and radiation safety. Airborne radioactivity areas, high radiation areas, and radiation areas used as residential quarters.

Corporate Emergency Support Organization: The personnel dispatched from SCE Corporate Headquarters at Rosemead in an emergency to provide offsite administrative and technical support, communications support, and public relations.

Corrective Actions: Emergency measures taken to mitigate or terminate an emergency condition at the reactor site. Corrective actions are taken by the facility operator.

Decay: Disintegration of the nucleus of a radionuclide in a radioactive process.

Decay Product: A nuclide, either radioactive or stable, resulting from the disintegration of a radioactive material.

Decay Rate: The decrease in activity of a radioactive material within a given time. The decay rate is usually expressed in terms of the period during which half of the atoms will disintegrate, i.e. the half-life.

Decontamination: The reduction or removal of contaminating radioactive material from a structure, area, object, or person.

Dose: See Absorbed Dose

Dose Projections: A calculated estimate of the potential dose to individuals at a given location, normally offsite. (The projection is determined from the quantity of radioactive material released at SONGS-1 and the appropriate meteorological transport and dispersion parameters.)

Dose Equivalent: A quantity that expresses all types of nuclear radiation on a common scale to indicate relative biological effect. The rem is the unit of dose equivalent.

Dose Rate: Absorbed dose delivered per unit time, as rads per second or rads per hour.

Dosimeter: A device that measures radiation dose, such as a film badge or ionization chamber.

Drill: A pre-planned training activity in which the participants are "walked" or "talked" through one or more procedures, or aspects of the Emergency Plan.

Elevated Release: A release of radioactive effluents from SONGS-1 via the ventilation release point on the Reactor Containment Building. This includes effluents from the containment building and the Supplementary Leak Collection and Release System. For the purposes of dose projection and accident analyses, releases from this effluent pathway are considered as ground level, or mixed mode, releases.

Emergency: Situations or conditions which have the potential for causing damage to property and/or which may lend to offsite radiological consequences.

Emergency Action Levels: Operational or radiological parameters, at SONGS-1 which, when exceeded, require the implementation of portions of this Plan. EALs for various emergency conditions are specified in Section 4.

Emergency Actions: A collective term encompassing the Assessment, Corrective, and Protective Actions taken during the course of an emergency.

Emergency Classification: An emergency condition at SONGS-1 which falls into one of the four following classifications:

- o Unusual event-Off-normal events which do not, by themselves, constitute significant events, but some of these events could indicate a potential degradation in the level of safety of the plant.
- o Alert-Events which are occurring or have occurred that involve actual or potential substantial degradation of the level of plant safety.

- o Site Emergency - Events involving actual or probable major failures of plant functions needed for protection of the public.
- o General Emergency- Events that have occurred or are occurring involving actual or imminent substantial core degradation or melting with potential for loss of containment integrity.

Emergency Coordinator: The individual at SONGS-1 responsible for direction of the onsite actions during an emergency at the Station. A position occupied by the Watch Engineer until the arrival of the Nuclear Plant Manager or designated alternate.

Emergency Dose Limit: A level of projected absorbed dose following a nuclear incident above which the total risk to health of an individual is considered excessive.

Emergency Implementing Procedures: The detailed SONGS-1 procedures which carry out the guidance of the SONGS-1 Emergency Plan.

Emergency Kit: A case of equipment and supplies needed during a serious emergency and reserved exclusively for that purpose.

Emergency Measures: A collective term encompassing the Assessment, Corrective, and Protective Actions taken during the course of the emergency condition.

Emergency Operations Center (EOC): A location at the headquarters of each offsite response agency from which control and/or coordination of offsite emergency actions are directed.

Emergency Operations Facility (EOF): The near-site facility designated by Southern California Edison for providing overall coordination over the offsite disaster operations of the jurisdictions for the protection of the general public. Space is provided for Federal, State and local liaison officials. As an interim measure the San Clemente Emergency Operations Center and the SCE Emergency Support Center will constitute the EOF.

Emergency Plan (The Plan): The San Onofre Nuclear Generating Station Unit 1 Emergency Plan. (response to NUREG-0654)

Emergency Planning Zone (EPZ): A geographic area around the SONGS site for which planning consideration has been given in order to ensure that appropriate emergency measures can be implemented to mitigate the consequence of the incident. There are two emergency planning zones. One, within an approximate ten mile radius of the SONGS site for prompt notification and protective actions, such as sheltering or evacuation. The second, a fifty mile radius for protective actions necessary to minimize the ingestion of radioactivity from potential contaminated foodstuffs and water supplies.

Emergency Radiation Monitoring System (ERMS): The instrument system at SONGS designed to detect and alarm if high level radiation emanates from the containment building. The system consists of three detectors, mounted externally, approximately 120 feet from the center of the containment

Emergency Siren-(SONGS-1): A self-oscillating signal generator coupled to a horn and triggered either manually or by initiation of the Safety Injection System, used to alert SONGS personnel of the existence of a potential or actual radiological emergency.

Emergency Support Center: An assembly area at SONGS in the Administration and Warehouse Building Conference Room where Southern California Edison and San Diego Gas & Electric personnel will provide corporate level support in the event that a Site or General Emergency is declared at the SONGS.

Exclusion Area- That area surrounding SONGS-1 in which the reactor licensee has the authority to determine all activities including exclusion or removal of persons and property from the area.

Exercise: A realistically planned simulation of an accident, designed and coordinated in such a manner that the response of the emergency organization and other station personnel closely approximates the response to an actual incident. An exercise may involve participation of offsite organization.

Exposure: A measure of the ionization produced in air by X or gamma radiation. The roentgen (R) is the unit of exposure. The term "dose", sometimes used interchangeably with exposure, actually refers to absorbed radiation.

Extended Planning Zone: An area beyond the emergency zone and out to approximately twenty miles in which extensive planning (but not evacuation) for public protection is accomplished.

Film Badge: A light-tight package of photographic film worn like a badge by workers in nuclear industry or research, used to measure possible exposure to IONIZING RADIATION. The absorbed dose can be calculated by the degree of film darkening caused by the irradiation.

FSAR: Final Safety Analysis Report, San Onofre Nuclear Generating Station, Unit-1.

Gamma Rays : Electromagnetic radiation. They are similar to X-rays except for their origin. They are emitted with the energies characteristic of each nuclide, and most are highly penetrating. Although their intensity decreases exponentially with thickness of the absorbing material, they can travel hundreds of feet in air and penetrate the body, causing deep tissue injury.

Geiger-Mueller Counter (Geiger-Muller Tube): A radiation detection and measuring instrument. It consists of a gas-filled (Geiger-Muller) tube containing electrodes, between which there is an electrical voltage but no current flowing. When ionizing radiation passes through the tube, a short intense pulse of current passes from the negative electrode to the positive electrode and is measured or counted. The number of pulses per second measures the intensity of radiation. It is also often known as a Geiger Counter.

General Emergency: An event which involves actual or imminent substantial core degradation or melting with potential for loss of containment integrity and with subsequent release of significant radioactivity to the environment. Offsite protective actions may be necessary.

Genetic Effects of Radiation: Radiation effects that can be transferred from parent to offspring. Any radiation-caused changes in the genetic material of sex cells.

Implementing Procedures: Step-by-step procedures which implement the provisions of the SONGS Emergency Preparedness Plan.

Incident: An occurrence that results in the loss of control of radioactive materials and involves an immediate or likely hazard to life, health, or property.

Ingestion Pathway: A possible route by which radioactive material from a nuclear facility, including nuclear generating stations, is introduced into the environment and is subsequently ingested by members of the population. Principle exposure from this pathway would be from ingestion of contaminated water or foods.

Initiating condition: The occurrence at SONGS-1 of conditions or events which require the Watch Engineer to establish the existence of an emergency classification and requires specific action according to the Emergency Plan and Emergency Procedures. Including notification of offsite governmental jurisdictions.

Internal Radiation: Radiation (including alpha and beta particles and gamma radiation) resulting from radioactive substances within the body. Usually deposited in the body by inhalation or ingestion of a radioactive contaminant.

Ionization Chamber: An instrument that detects and measures ionizing radiation by measuring the electrical current that flows when radiation ionizes gas in a chamber, making the gas a conductor of the electricity. Similar to a Geiger counter, but using less voltage.

Isotopes: Forms of the same element having identical chemical properties but differing in their atomic masses. Radioisotope is the unstable isotope of an element that decays or disintegrates spontaneously, emitting radiation.

Irradiation: Exposure to radiation, as in a nuclear reactor or fallout field.

Long Term Exposure: Exposure lasting more than four days.

Low population Zone: The area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a reasonable probability that appropriate protective measures could be taken in their behalf in the event of a serious accident.

Milliroentgen(mR): One-thousandth (1/1000) of a roentgen.

Monitoring, Radiological: The operation of locating and measuring radioactive contamination by means of survey instruments that can detect and measure (as dose rates) ionizing radiations.

MWE: Megawatts of electricity, a rating of power output of a generating station.

Nuclear: Technically, an adjective referring to the atom's nucleus, as in "nuclear radiation, "nuclear particles," and "nuclear energy".

Nuclear Power Plant: Any device, machine, or assembly that converts nuclear energy into some form of useful power, such as mechanical or electrical power. In a nuclear electric power plant, heat produced by a reactor is generally used to make steam to drive a turbine that in turn drives an electric generator.

Nuclear Reactor: A device in which a fission chain reaction can be initiated, maintained, and controlled. Its essential component is a core with fissionable fuel. It usually has a moderator, a reflector, shielding, coolant, and control mechanisms. Sometimes called an atomic "furnace", it is the basic machine of nuclear energy.

Offsite: Any area outside of SONGS property line.

Onsite: Any area within the property upon which SONGS is located, and over which the Southern California Edison Company exercises access control. Includes the exclusion area.

Operational Radiation Monitoring System (ORMS): The instrumentation system at SONGS designed to detect and alarm abnormal radiation levels in process and effluent streams.

Onsite Operations Support Center: The assembly area at SONGS located inside the plant where a pool of trained personnel will be maintained in event of an emergency.

Onsite Technical Support Center: The area at SONGS adjacent to the Control Room which is activated in emergency situations and from which directions for response actions are given, dose projections are made, and offsite communications occur.

Plume: The airborne radioactive material released from a Nuclear Power Plant and carried by the prevailing winds, which may affect radiologically those downwind areas over which it passed.

Plume Exposure Pathway: The route by which the radioactive material released from the facility (plume) may expose the population-at-risk to radiation. This exposure may be external exposure from the passing plume, from contaminated surfaces, or may be from inhalation of the passing plume.

Population-at-Risk: Those persons for whom protective actions are being planned, taken, or would be taken.

Primary Assembly Area: The area at SONGS-1 designated for the assembly of specific groups of individuals during a Plant Evacuation.

Procedures: Detailed SONGS-1 procedures for dealing with specific occurrences; comprised of existing Station Orders, Maintenance Instructions, and Security, Operating, and Emergency Procedures.

Projected Dose: A calculated or estimated radiation dose which the population-at-risk may potentially receive as a consequence of an incident at SONGS.

Protected Area: The fenced area at SONGS-1 containing the nuclear steam supply system, turbine-generator, and the Administration and Control Building.

Protective Actions: Actions taken during or after an incident for the protection of the general public from excessive radiation exposure which may occur as a consequence of the incident.

Protective Action Guides: Projected general public radiological dose rate or dose commitment criteria which provide guidance to local, county and/or State officials for the implementation of protective actions for the protection of the general public from excessive radiation exposure following a nuclear incident.

Protective Clothing: Special clothing worn by a radiation worker to to prevent contamination of his body or his personal clothing.

Rad: The unit of absorbed dose in body tissue or other material

$$1 \text{ rad} = 100 \text{ erg/gram}$$

Radiation: As used in nuclear terminology, refers to energy propagated in the form of high frequency electromagnetic waves such as X-rays and gamma rays, or in the form of nuclear particles such as alpha and beta radiation.

Radiation Area: Any accessible area in which the level of radiation is such that a major portion of an individual's body could receive in any one hour a dose in excess of 5 millirem, or in any 5 consecutive days a dose in excess of 150 millirem.

Radiation Protection Guide: The officially determined radiation doses which should not be exceeded without careful consideration of the reasons for doing so. These standards established by the Federal Radiation Council, are equivalent to what was formerly called the maximum permissible dose or maximum permissible exposure.

Radioassay: The analysis of any substance (food, water, soil, etc.) to determine the presence and magnitude of radioactive contamination.

Radioactive: A material or substance which is exhibiting radioactivity.

Radioactivity: The property of certain nuclides of spontaneously emitting nuclear particles of gamma or X-ray radiation, or of undergoing spontaneous fission.

Radiological: A general term referring to processes that involve nuclear radiation.

Radionuclide: A radioactive element.

Recovery Actions: Actions taken after the emergency to restore the affected area, as nearly as possible, to the pre-emergency condition.

Release: Escape of radioactive materials into the noncontrolled environment.

Rem: The unit of dose equivalent in body tissue. It is equal to the absorbed dose (measured in rads) multiplied by the quality factor, which takes into account the effectiveness of different types of radiation, and by other multiplying factors. For gamma and most beta radiation the quality factor is one.

Remote Assembly Area: A designated area (or areas), outside the SONGS-1 site, for the assembly of evacuated plant personnel.

Resources: Equipment, material, and personnel available for use in an emergency.

Roentgen(R): The unit of radiation exposure in air. Roentgens are the units for quantities of x-ray or gamma radiation measured by detection and survey meters.

Scaler: An electronic instrument for rapid counting of radiation-induced pulses from Geiger counters or other radiation detectors. It permits rapid counting by reducing (by a definite scaling factor) the number of pulses entering the counter.

Shelter: A structure or other location offering shielding from nuclear radiation in the environment.

Shielding: Any material or barrier that attenuates radiation.

Shift Technical Advisor: An individual at SONGS on-duty in the Control Room responsible for advising the Watch Engineer of plant and systems status.

Site Emergency: An event which involves actual or likely major failures of plant functions needed for the protection of the public. Offsite protective actions unlikely.

Source Term: A particular type or amount of radionuclide originating at the source of a nuclear incident. In its broadest sense, the source term also describes the conditions and mode of emission.

Standard Operating Procedures (SOP's): Detailed instructions for implementation of emergency plans by the various offsite response agencies (governmental jurisdictions).

State Beach: The San Onofre State Beach, located on land adjoining SONGS property, both up coast and down coast.

SONGS-1: The San Onofre Nuclear Generating Station, Unit 1

Survey Meter: A portable instrument used in radiological monitoring to detect and measure ionizing radiation.

TLD (Thermoluminescent Dosimeter): A dose measuring device for general personnel and environmental monitoring of X and Gamma radiation. The principle of operation is that the energy absorbed from the radiation raises the molecules of the material in the TLD to excited states. The material remains in the excited state until it is heated at which time it gives off an amount of light which is proportional to the dose. The light is measured with a photomultiplier tube.

Thyroid Blocking Agent: Or thyroid phophvlaxis, stable (non-radioactive) iodine or iodine substitute administered to limit the uptake of ingested or inhaled radioiodine by the body.

Transient: Rapid change of a plant operating parameter such as temperature, pressure, or steam generator water level.

Unusual Event: Unusual events are off-normal events which do not, by themselves, constitute significant events, but some of these events could indicate a potential degradation in the level of safety of the nuclear facility. Offsite protective actions unnecessary.

Visitor's Center: A visitor's and tourist's center adjacent to SONGS which provides information about the SAN Onofre Nuclear Generating Station.

Watch Engineer: The individual at SONGS in charge of plant operations during each shift.

Whole Body Exposure: Exposure of the whole body to radiation.

Whole Body Counter: A device used to identify and measure the radiation in the body (body burden) of human beings and animals; it used heavy shielding to keep out background radiation and ultrasensitive scintillation detectors and electronic equipment.

Abbreviations

CHP	California Highway Patrol
DOE	Department of Energy
EAL	Emergency Action Level
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPZ	Emergency Planning Zone
ESD	Emergency Services Division (Orange County)
FEMA	Federal Emergency Management Agency (U.S.)
FSAR	Final Safety Analysis Report
LCO	Limiting condition for Operation
LOCA	Loss of Coolant Accident
NRC	Nuclear Regulatory Commission
ODP	Office of Disaster Preparedness (San Diego, Ca.)
OES	Office of Emergency Services (California)
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric
SONGS	San Onofre Nuclear Generating Station
TSC	Technical Support Center

E. EVENTS LOG

TIME OF RECEIPT OF HARD COPY OR HOT LINE MESSAGE

TIME	EVENT	ORANGE COUNTY	SAN DIEGO COUNTY	SAN CLEMENTE	USMC CAMP PENDL.	SAN JUAN CAPISTRANO	STATE PARK AND BEACHE
0630	Alert status attained	0642-0647	0643	0642	0637	0830	0637
	Alert notification	0920	0651	0647	0651	0830	0652
0648	All jurisdictions notified except San Juan Capistrano	0651-0723	0650	0708			
0723	TSC/OSC manned	N/A	N/A	N/A	N/A	N/A	N/A
0731	All jurisdictions received follow-up notification standby message	0732	0732	0734	0732	0732	0732
0827	Status of events update	0827	0827	0828	0828	0828	0828
0846	Offsite notification regarding injured person	0847	0847	0849	0849	0849	0850
0906	Notification to jurisdictions of destination of injured person	0906	0906	0925	0907	0906	0906
0920	Declaration of Site Emergency	0921	0923	0925	0923	0923	0920
0939	Wind direction message	1010	1011	0942	0948		
1002	Puff release message	1011	1011	1003	1003	1002	1003
1045	Message wind direction Sheltering in areas F, G, H out to 5 miles recommended.	1102	1102	1100	1020	1047	1047
1117	Sectors D, E, F, G, & H recommended sheltering out to 5 miles	1120	1122	1123	1124	1122	1117

TIME	EVENT	ORANGE COUNTY	SAN DIEGO COUNTY	SAN CLEMENTE	USMC CAMP PENDL.	SAN JUAN CAPISTRANO	STATE PARK AND BEACHES
1135	Due to wind shift recommend sheltering in Sectors B, C, D, E, F, G, & H out to 5 miles	1137	1143	1147	1130	1136	1136
1220	General Emergency	1227	1230	1223	1228	1222	1222
1248	Evacuate Sections P, Q & R to one mile. Shelter- ing recommended from one to 10 miles.	1254	1250	1305	1236	1250	1317
1317	Follow-up message	1320	1321	1320	1322	1325	1327
1341	Request for Marine helicopters	Not recd	Not recd	Not recd	1342	Not recd	1304
1332	Sheriff report San Juan Capistrano & San Clemente evacuation recommended. Traffic control in support of evacuation.	1345	1345	1345			1350
1414	Made decision to relo- cate EOC to Saddle Back by City Manager	1458	1433	1433	1454	1454	1504
1445	Evacuation of senior citizens to Cal/State Irvine.	1445					
	Exercise Termination						

PART II

EXERCISE EVALUATION FINDINGS AND RECOMMENDATIONS

A. INTRODUCTION

The findings resulting from this evaluation were based upon the objectives of the exercise and the general criteria of NUREG 0654/FEMA REP-1. Findings noted as "not observed" resulted from scenario development and controller imposed limitations. Resolution of proficiency of jurisdictions regarding these areas will require subsequent drills or exercises observed by FEMA/RAC.

B. GENERAL FINDINGS AND RECOMMENDATIONS

The following findings were developed through review and cross examination of all FEMA evaluators during the debriefing process. Issues were found to be prevalent in many or all points monitored by the evaluation teams. Jurisdictional exceptions are identified where appropriate.

a. FINDING:

Overall, each jurisdiction demonstrated an active, dynamic, and highly enthusiastic effort during the exercise. General disaster response procedures and participant play were found to be very good, demonstrating a capability to handle all play related to the exercise. The specific areas dealing with radiological issues, however, reflected areas of concern and a need for further training and drills to improve proficiency and assure an ongoing capability to respond to the needs of an off-site nuclear emergency.

RECOMMENDATION:

That jurisdictions and Southern California Edison (as primary operator of San Onofre NGS) establish an ongoing program of training, drills, and related material and manpower support to provide necessary, required capability to respond to an off-site radiological emergency. This effort is suggested to be integrated with the programs of other utilities operating nuclear generating stations in California and with the State of California Office of Emergency Services, Nuclear Power Plant Planning Section, training program. The development of this program should be reflected through a milestone depiction indicating proposed meetings, training, drills, and exercises both within the next year and over a five-year period.

b. FINDING:

There appeared to be at the least limited development of Emergency Broadcast System (EBS) or other news releases directed to providing the public with information relating to the emergency. This was also reflected relating to advance development, approval, and release of EBS announcements prior to the simulated activation of alert sirens in each jurisdiction. (San Diego Counties not directly required to support this action due to its location being outside the 10 mile EPZ. Although they stated that EBS releases were prepared, the evaluator did not observe such actions.) In another instance, the EBS message was sent out subsequent to the simulated activation of sirens. This creates a likelihood for confusion by the public who would not receive immediate follow-up information from EBS stations.

RECOMMENDATION:

That all jurisdictions review and drill their procedures regarding coordination of siren activation and EBS releases.

c. FINDING:

With the exception of Orange County, evaluators did not observe any implementation of rumor control systems. Orange County had a system of 10 phones established but the information release did not specifically reflect a "for exercise release only" caption until identified by an evaluator.

RECOMMENDATION:

That all jurisdictions review and drill their procedures regarding rumor control and assure that specifically identified personnel and equipment are dedicated to handling rumor control. Releases regarding drills and exercises should be specifically identified as being "for exercise purposes only."

d. FINDING:

There was a perception of a lack of telephone or communications discipline in all observed areas. Telephones identified for specific use such as for coordination or radiological information relay were used without regard to planning and were not staffed by an "identified" or dedicated communicator for "message" dissemination to internal staff members.

RECOMMENDATIONS:

(1) That all jurisdictions review their plans and procedures to develop more disciplined handling of internal and interjurisdictional communications.

(2) That the presently used hot line (yellow phone) be identified as to the specific nature of communications that are to be carried out.

(3) That additional phone lines similar to the hot line be considered for specific pre-identified use as follows:

(a) ODAC coordination of information.

(b) Interjurisdictional coordination and decision-making by decision makers.

(4) That EOC communications equipment be staffed by communicators and serviced by runners to handle dissemination of messages to EOC personnel.

(5) That communications equipment areas be isolated from decision-making areas so as to not interfere with each other. Areas should be developed with acoustical materials to reduce sound interference with other operations.

(6) That interjurisdictional (including Utility) hard copy communications be improved to provide more timely distribution of information to all participants.

(7) That use of speaker phones be considered for each EOC to aid in handling of information within EOC's.

(8) That Standing Operating Procedures (SOP's) be written to identify communications operations.

e. FINDING:

There was a general observation that meteorological data and sources such as National Weather Services (NWS) were not used effectively in most instances. Weather status boards were not maintained, where established in EOC's, and weather information was not considered regarding all actions.

RECOMMENDATIONS

(1) That all jurisdictions review plans and procedures to factor in weather information to all phases of planning.

(2) That the Utility and jurisdictions establish a line of communication with NWS (Los Angeles or as appropriate) by formal agreement to assure adequate coverage and response to off-site emergencies.

f. FINDING:

With the exception of the San Clemente Team, radiological field team procedures and applications were found to require further training and standardization. Understanding and application of basic Radiological Defense (RADEF) principles were not considered to be sufficient to provide the type of monitoring necessary for dose assessment and resultant decision making required to Radiological Emergency Preparedness (REP). No monitoring of doses received by field teams was observed. Teams lacked maps for flexible monitoring by EOF direction. Reporting procedures were varied and in some cases communications posed problems.

Generally, all field teams require additional training, written operation procedure and proper direction from a coordinated health physics center. None of the jurisdictions had the capability to conduct radio-iodine air sampling.

Specifically, San Clemente City response was rated good by its evaluator. It was observed that the MSA filters on gas masks should have been activated carbon with a particulate filter. The air sample filter paper should not have been handled to minimize cross contamination. Sample deposition at the fire house should have been separate from the decontamination facility. Survey meters should be left on during transit in and out of contaminated areas.

The Marine Corps need not carry alpha survey meters for a nuclear power plant accident. The most forward team, whose areas are closest to SONGS, found their high level meter inoperable due to low batteries. This forward team was headed by an individual who attended a 3-day NBC course and was a member of this team for 2 weeks. The evaluator found the team to be inadequately prepared to handle the problems encountered.

The Orange County teams had meters which were last calibrated in July 1978. The pocket dosimeters were not leak tested, nor was the team knowledgeable on leak testing of pocket dosimeters. They did not have any other dosimetry devices (TLD's or film badges). Scott air packs (SCBA) were used, but with only one-half hour air supply. Filtered canisters with carbon cartridges in a mask are suggested. All radiological equipment was stored in one firehouse. It is recommended that the equipment be distributed to the firehouses where the team originates. Potential closing of that one firehouse could eliminate the use of all radiological equipment.

The San Diego County evaluator reported a significant lack of understanding of procedures and teams requested further training, SOP's, and drills.

RECOMMENDATIONS:

(1) That Southern California Edison establish, sponsor, and coordinate with local jurisdictions a training program to provide the required level of radiological monitoring, dose assessment, and related training for assigned personnel. Training should be designed for the following personnel:

- (a) Field Monitoring Teams.
- (b) Dose Assessment Personnel.
- (c) Decision Makers.
- (d) PIO Personnel.
- (e) News Media Personnel.
- (f) Communications Personnel.

(2) That training be developed to provide the various specific types of training necessary to support off-site emergency response.

(3) That all jurisdictions and the Utility take action to develop a unified radiological response team capable of flexible joint response at the direction of the unified (or "off-site") dose assessment center.

(4) That communications between Field Monitoring Teams and the Uniform (Off-Site) Dose Assessment Center be reviewed and developed to allow for timely effective radio communications.

(5) That teams be kept updated by EOC/EOF on the general situation, plant condition, and protective actions being recommended to the public.

(6) That ingestion pathway sampling be demonstrated or discussed along with State and county procedures for ingestion pathway problems.

(7) That procedure be formalized for the various types of monitoring required including: plume; deposition; egress to prevent contamination of personnel and equipment; airborne material; sampling of soil, vegetation and water, and swipes.

(8) That dosimeter leak check programs be established and demonstrated.

(9) Decentralization of monitoring equipment to each team's normal work place and regular maintenance by each team to be planned and tested.

(10) That a system for acquisition of TLD's from EOC or Utility be considered.

(11) That aerial monitoring should be factored into exercises and drills.

g. FINDING:

No ingestion pathway sampling and no laboratory analytical capability were observed.

RECOMMENDATIONS:

(1) That all jurisdictions and Southern California Edison include ingestion pathway sampling and related analytical support in planning and future drills and exercises. Teams should be identified and procedures established to meet requirements.

(2) That future exercise scenarios include testing of ingestion pathway sampling procedures.

(3) That the State of California Office of Emergency Services and the State Radiological Health work with local jurisdictions to identify responsibilities regarding ingestion pathway sampling and related procedures.

h. FINDING:

Limited coordination was observed between jurisdictions regarding decisions made by each EOC.

RECOMMENDATIONS:

(1) That all jurisdictions review and revise their plans, as appropriate, to include coordination between jurisdictions regarding at least decision-making, public information releases, evacuation activities, highway closures, and other actions affecting other jurisdictional areas.

(2) That all jurisdictions cooperatively drill their personnel and procedures to effect satisfactory coordination.

i. FINDING:

There was no demonstration of a flexible monitoring response capability to plume tracking through use of sector and zone designators as depicted in Table J-1 of NUREG 0654/FEMA REP-1 or some similar alternative. Additionally, no cooperative interjurisdictional monitoring team response capability was observed, limiting available teams and standardized procedures.

RECOMMENDATION:

That the Utility and all jurisdictions apply the zone designation system identified in their plans to field monitoring and sampling activities and that both are extensively drilled to assure familiarity with procedures.

j. FINDING:

Traffic control/highway access was hampered by an apparent lack of coordination between counties. Procedures differed as to initiation of roadblocks and traffic evacuation. Procedures were not followed according to planning or exercise guidelines as determined by controllers.

RECOMMENDATION:

(1) That counties coordinate to align highway traffic control procedures and establish flexible control so as to be responsive to varying situation and alternative evacuation events.

(2) That highway and road control planning be drilled and exercised to assure an effective, coordinated response to emergency events.

k. FINDING:

A number of operational level team activities lacked Standing Operating Procedures (SOP's) or checklists that would have assisted in team response and standardized actions where, for example, personnel turnover (shift changes) might occur and limit team proficiency.

RECOMMENDATIONS:

(1) That all jurisdictions develop SOP's and/or checklists for all critical operational functions within the planning effort.

(2) That copies of those SOP's and/or checklists be provided to FEMA Region IX and California OES for record purposes.

(3) That SOP's and/or checklists be drilled and exercised to assure/attain proficiency in carrying out operational requirements.

C. SITE SPECIFIC FINDINGS AND RECOMMENDATIONS

1. STATE OF CALIFORNIA OFFICE OF EMERGENCY SERVICES (OES)

a. FINDING:

The State of California OES demonstrated a good ability to alert, notify and mobilize emergency response personnel.

RECOMMENDATION: None.

b. FINDING:

The State demonstrated that their EOC can be staffed in a timely fashion.

RECOMMENDATION: None.

c. FINDING:

The State demonstrated that decisions could be made regarding protective actions for plume exposure pathway. Ingestion pathway decision-making was not observed as it was not included in the scenario. A joint decision-making process was carried out as part of the EOF. Further refinement of procedures and facility are necessary.

RECOMMENDATIONS:

(1) That all participants coordinate and resolve responsibilities for ingestion pathway sampling and handling of related duties.

(2) That protective measures are reevaluated through drill and exercise to assure an effective capability for both plume and ingestion pathway actions exists.

d. FINDING:

The State OES radiation control staff demonstrated an ability to assess an accident and make appropriate recommendations to decision-makers.

RECOMMENDATION: None.

e. FINDING:

No observation nor demonstration was made regarding ingestion pathway analysis.

RECOMMENDATION:

That future exercise scenarios include a test of ingestion pathway actions.

f. FINDING:

The State OES demonstrated an ability to coordinate releases of information to the media, although this was on a limited basis due to the nature of the exercise scenario. The PIO operated from the News Media Center and was generally autonomous in operation.

RECOMMENDATION: None.

g. FINDING:

There was a limited demonstration of support or action by elected or appointed officials due to the limited nature of State play in the exercise scenario.

RECOMMENDATION:

(1) That future exercise scenarios incorporate greater degrees of play for State level personnel.

(2) That elected and appointed officials become more actively involved in future exercise play.

h. FINDING:

The State OES demonstrated adequate communications capability both inside the EOC and in field communications with local jurisdictions. Scenario involvement was limited. Status boards, maps and displays were adequate and were used.

RECOMMENDATION:

That scenario development provide a greater degree of play relating to communications between State and local jurisdictions.

i. FINDING:

The State demonstrated a basic ability to execute emergency response plans to protect the public. The State plan is only partially complete and lacked necessary detail to factor significant play into the scenario.

RECOMMENDATIONS:

(1) That State offices complete, test, drill, and exercise their annexes to the State Plan and that those actions are reviewed and evaluated by FEMA Region IX.

(2) That future exercises be developed so as to task State level play to provide a thorough evaluation of plans, procedures, and personnel.

C.2 ORANGE COUNTY

a. FINDING:

Orange County demonstrated an excellent ability to alert, notify and mobilize emergency personnel. The communications staff reacted to the alert notification in a competent and professional manner.

RECOMMENDATION: None.

b. FINDING:

Orange County demonstrated a very good capability to staff the EOC in a timely fashion. Based on an order from the Chairman of the Board of Supervisors during the notification of key emergency personnel, the EOC was staffed and activated by 8:10 a.m. The EOC setup was well done with pre-arranged operations room layouts, signs indicating agency names and titles for the various desks and rooms, plug-in telephone arrangements, rapid security response by four sheriffs deputies and an excellent system for promptly identifying and issuing badges for authorized EOC staff. A very good general status briefing was given to the EOC staff when they were all assembled.

RECOMMENDATIONS:

(1) That the number of people in the operations room be reduced during an actual emergency. It was assumed that the large number of people present was due to the need for back-up staff training although no second shift capability was discussed or demonstrated.

(2) That a 24-hour per day staffing capability should be demonstrated with shift change procedures in future drills or exercises.

c. FINDINGS:

The Orange County EOC decision-making process for protective actions was generally considered to be a good operation with a few serious but correctable problem areas. There is a very good basic capability to respond to an emergency, but they are weak in demonstrated capability to deal with the unique hazards of a radiological emergency. Many of these specialized problem areas such as monitoring, assessment, wind data, coordination of public instructions and awareness of evacuation times are discussed in other sections. The exercise scenario did not delve far enough into the protective action process (shelter and evacuation) to demonstrate the level of capability desired by the team. The sheltering for the county population only involved a small area with a few isolated populations. The decision to evacuate came near the end of the exercise allowing little development of that aspect. The protective action decisions made by the county staff were good considering the information they had available to them. The conservative approach to response, through careful verification of the situation, was excellent, especially in the Health Officer and Sheriff's activities.

RECOMMENDATIONS:

- (1) That the process of making judgements on high exposure to emergency workers should be addressed in future drills.
- (2) That current wind data and plume release information must be made available from the EOF. Lack of this information hampered the decision-makers.
- (3) The ability to evaluate projected evacuation times against expected arrival of a plume and eventual containment failure should be demonstrated.
- (4) That ingestion pathway decisions and coordination with the State should be demonstrated.
- (5) That better coordination among decision-makers at the various jurisdictions is needed when deciding on protective actions and public instructions. More effective use of the hot line phone would be very useful here.
- (6) That a interjurisdictional SOP be developed reflecting a need for regular discussion by the decision-makers using the hot line telephone system.

d. FINDING:

The ability of the Orange County radiation control staff to assess the accident and make appropriate recommendations to the decision-makers was judged to be weak. The County Health Officer did maintain contact with his representative at the EOF and made a regular practice of verifying recommendations from SONGS and the State (e.g. recommendations for putting animals on stored feed) which allowed him to correct several potential errors in the information coming into the EOC. He authorized KI to emergency workers at an appropriate time and provided regular counsel to the decision-makers. However, poor and limited technical information coming from the EOF and lack of information from the field monitoring teams in this exercise provided the Health Officer with too little adequate information with which to deal.

RECOMMENDATIONS:

- (1) That wind and weather data should be supplied from the EOF at least hourly.
- (2) That exposure control problems for emergency workers be demonstrated in a drill.
- (3) That capability to control and obtain regular readings from field team should be demonstrated through drills.
- (4) That the County Health Officer should participate in drills with the EOF staff so that a better understanding of technical data needs and useable formats can be developed.

(5) That radio and TV monitoring be part of the EOC operations to insure the public is receiving the correct information.

(6) That additional coordination discussion and technical review of press releases is needed prior to release.

(7) That personnel monitoring and decontamination be addressed in future drills and exercises.

(8) That general announcement to the EOC staff on very critical information be made over a loudspeaker to supercede telephone and interpersonal conversations.

(9) That pre-established actions and public release formats related to countermeasures for livestock and agriculture products should be based on PAG's and maintained at the County EOC.

(10) That incoming hot line information be posted promptly for all to see through use of an overhead projector or alternative method.

e. FINDING:

The ability of the Orange County radiation control staff to respond to and analyze a simulated airborne release with collection of sample media and routing to laboratories was not fully demonstrated. After the teams received notification to activate, an expedited, comprehensive preparation to become ready for field monitoring was undertaken. Personnel were equipped with protective clothing and KI and record keeping was initiated. The exercise called for teams to read cue cards at a specific location and not proceed through the area or across a plume trail. As a result, no reflection of an ability to respond with flexibility was observed.

RECOMMENDATIONS:

(1) That the ability of the EOC or EOF to control field monitoring teams for plume tracking be demonstrated through further drills.

(2) That equipment and training for an air sampling capability be provided and, resultantly, tested.

f. FINDING:

Orange County has a very good capability to dispatch personnel to all appropriate access control points that the simulated evacuation would call for. The Sheriff has an excellent procedure to put his staff on alert in the area and split operational control between the north and south ends of the county when mobilizing the control points. They can be in place within 10 minutes from the alert status. The County Environmental Management Agency also had a very good alert and response procedure for barricades. It was also apparent that cooperation with the CHP and Caltrans in Orange County was good. However, confusion and delays were observed regarding contact between county

law enforcement (both Orange and San Diego) and local law enforcement (in San Clemente, Oceanside, and San Juan Capistrano).

RECOMMENDATIONS:

(1) That additional work be conducted to coordinate traffic control and evacuation measures and timing between Orange and San Diego Counties and city law enforcement offices.

(2) That all jurisdictions establish, coordinate, and drill procedures to assure cross-contact of law enforcement activities.

(3) That all traffic closure and roadblock procedures be reviewed to incorporate lessons learned during the exercise, especially regarding traffic backup in hazardous areas and assignments of manpower and equipment to roadblocks.

(4) That drills be conducted to validate corrective measures, and findings be coordinated as appropriate.

g. FINDING:

Orange County showed a generally good ability to coordinate news releases to the public from the EOC. The PIO at the EOC had an effective working relationship with the press and worked closely with the decision-makers. A media room was provided at the EOC with a press room "hot line" available to the PIO to reach several media outlets including EBS. A major strength not noted in other jurisdictions was the activation of a rumor control telephone system. Some lack of standardization in terminology was observed.

RECOMMENDATIONS:

(1) That the county develop a capability to monitor the media and the EBS stations during an emergency to insure that the flow of public information and emergency instructions is correct and be able to take corrective action, if needed.

(2) That standardized terminology be used when referring to actions being taken. PIO's and media must be clear as to whether an evacuation is being ordered, recommended, or suggested and with whom proper authority rests for such decisions.

(3) That releases be typewritten before making them available to the media. The releases were at times difficult to read after being copied by hand.

(4) That the information provided in releases be of such depth as to include, where necessary, general background material on protective action guidance.

(5) That EBS stations tape all messages received simulating how they would handle the messages, filler material, timing and sequence of emergency instructions from the various jurisdictions in future drills or exercises.

h. FINDING:

Orange County was observed to only limited success in coordinating protective measures to the public. There was excellent effort displayed in verifying reported conditions before taking action. The sheltering action in the county was limited to a small, generally unpopulated area. The response of telephoning the few testing sites and one ranch in that area rather than sounding sirens throughout the 10 mile zone was good. However, the decision by the cities of San Clemente and San Juan Capistrano to evacuate before the county decided on that action was awkward.

RECOMMENDATIONS:

(1) That all public protective actions directed by any jurisdiction should be coordinated among the decision-makers over the "hot line" before those instructions are issued publicly.

(2) That all Orange County jurisdictions participate in further coordination, training, and drills to develop and demonstrate an ability to effectively coordinate decision-making prior to executing protective actions. This ability should be monitored by Region IX and California OES.

i. FINDING:

There was very little opportunity for Orange County to carry out free play per decision-making with regard to plume and ingestion pathway zones due to the limitations of the exercise scenario. The consistent action by county officials to verify conditions before taking action and the modification of the State suggestion to feed livestock on stored food into directing this to dairy animals showed a basic ability to deal with free play situations.

RECOMMENDATION:

That drills and exercises be conducted to allow Orange County to demonstrate decision-making.

j. FINDING:

Orange County demonstrated excellent support and action by responsible elected officials, department heads and senior staff during the exercise. The county staff participated in the exercise both seriously and realistically.

RECOMMENDATION: None.

k. FINDING:

Orange County demonstrated a good capability for communications between key facilities. The communications capability to the radiological monitoring field teams was not well demonstrated primarily due to the exercise scenario. The county communications staff reflected a competent professional operation, reacting in accordance with the plan. However, concern was observed regarding timely release of information relative to use of alerting equipment. Further, some delays between verbal and hard copy receipt of EOF messages occurred.

RECOMMENDATIONS:

(1) That the sirens not be sounded until the decision-makers have a public instruction disseminated for public release.

(2) That the "hot line" be augmented with an instant hard copy print capability.

(3) That communications with the field monitoring teams should be controlled more directly by either the EOF or the County Health Officer and the teams should be kept regularly updated on the county situation.

(4) That field monitoring communications be reviewed, revised and tested to assure effective handling of all data flow.

l. FINDING:

Orange County reflected generally satisfactory displays in the EOC for maintaining an awareness of the status of events. There was an effort to develop and maintain status boards but the decision-makers did not provide strong direction on what information to post.

RECOMMENDATIONS:

(1) That an announcement of the current emergency status (Unusual Event, Alert, Site Emergency or General Emergency) be kept in a prominent place.

(2) That a message or status log should be kept with assistance from the decision-makers on what key events should be posted.

(3) That the radial sector map used to initiate protective actions be enlarged and clearly show the county and city boundaries. The radial sector map should also show isolated facilities such as the ranch and test sites located in Sector B as they may require special alerting procedures.

(4) That maps showing the emergency planning subsectors identical to those in the plan be posted in the EOC with population figures and evacuation times shown.

(5) That puff and plume releases with wind data should be developed and maintained as a part of the maps reflecting subsector markings.

m. FINDING:

Orange County demonstrated an acceptable ability to execute their emergency response plans to protect the public. The county staff was generally familiar with the existing plan and followed their plans and SOP's.

RECOMMENDATIONS:

(1) That plans and SOP's be modified based on the review comments from this exercise and the plan review comments prepared by FEMA and the Regional Assistance Committee.

(2) That the county take action to effect a more coordinated and cooperative response capability amongst both San Diego and the cities within Orange County, and demonstrate a coordinated response capability regarding protective actions through drill and exercises monitored by FEMA Region IX and California OES.

C 3 SAN DIEGO COUNTY

a. FINDING:

San Diego County demonstrated an excellent ability to alert, notify, and mobilize emergency personnel. Communications Center personnel were very familiar with procedures and executed them in a timely fashion.

RECOMMENDATION: None.

b. FINDING:

San Diego County demonstrated that their emergency operating center could be set up and staffed in a timely fashion.

RECOMMENDATION: None.

c. FINDING:

Decisions regarding protective measures for plume and ingestion pathway EPZ's were not observed. Scenario parameters did not task the County to deal with protective measures for plume exposure EPZ's and there was no ingestion pathway play scripted. San Diego County depends upon the Orange County Health Physicist and Utility assessment personnel for protective action recommendations and resultant information from the EOF. San Diego County essentially has no population within the plume exposure EPZ.

RECOMMENDATION:

That San Diego County be tasked (in future drills and exercises) with protective measures decision making and the execution of measures thereto, for both plume and ingestion pathway EPZ's.

d. FINDING:

The County demonstrated an ability to dispatch personnel to all appropriate access control points; however, coordination of road closures with adjacent county highway and law enforcement agencies was limited at best.

RECOMMENDATIONS:

(1) That the County establish a cooperative study with Orange County to develop procedures regarding highway/road control/closure and standardize those procedures so as to uniformly limit access to the threatened area.

(2) That procedures established be clear and concise as to the authority for traffic control and/or closure, and appropriate maps, SOP's, and communications be standardized to eliminate confusion and time delays.

e. FINDING:

The County demonstrated good ability to coordinate information releases to the media. Further study of operations and support of the News Media Center is required.

RECOMMENDATION:

That the San Diego County PIO and related staff participate in the development of the News Media Center procedures in conjunction with other jurisdiction personnel.

f. FINDING:

San Diego County's ability to demonstrate coordination of information regarding protective measures was not observed, other than to advise the public through general information press releases.

RECOMMENDATION:

Scenario development and jurisdictional play should incorporate County tasking that will test their ability to advise the public of protective measures actions.

g. FINDING:

San Diego County was not observed to demonstrate an ability to "free play" decision making regarding protective measures for plume or ingestion pathway EPZ's other than identification of areas involved and making preparations to act according to developments. This was due to the nature of the scenario.

RECOMMENDATION:

That the County be tasked within future drills or exercises to demonstrate such free play.

h. FINDING:

The County demonstrated good support and action of responsible elected public officials.

i. FINDING:

The County reflected good communications abilities both within and without the EOC. Internal displays and status boards were limited. Plans for future development of EOC combined with communications center will correct this deficiency. Contact with field monitoring teams was accomplished by telephones. This play was limited in San Diego because exercise scenario did not provide for it.

RECOMMENDATION:

That an effective radio net be established for use by field monitors. Future exercises should include requiring San Diego County field team involvement.

j. FINDING:

The County, where observed, demonstrated an acceptable ability to execute emergency response plans to protect the public. This reflection was hampered by only limited play regarding assessment and protective measures due to the nature of the scenario. General operations by EOC staff and related personnel was good.

RECOMMENDATION:

That the County be tasked more thoroughly in future drills and exercises so as to allow the demonstration of this ability to handle decision making and implementation of radiological issues.

C 4 SAN CLEMENTE EMERGENCY OPERATING CENTER

a. FINDINGS:

San Clemente demonstrated that its response organizations can alert, notify, and mobilize emergency response personnel in an excellent manner.

RECOMMENDATIONS: None.

b. FINDINGS:

The EOC was staffed in a timely manner, although some of the liaison representatives were unaware of to whom to report or what their functions were. There was a general lack of telephone discipline; overloading the dedicated line, message forms were not used, although available, and message handling was cumbersome.

RECOMENDATIONS:

(1) That an SOP be developed for liaison representatives, i.e., State Parks and Beaches, Marine Safety, Sante Fe Railroad, etc., describing their functions in the EOC.

(2) That dedicated line to the Technical Support Center (TSC) would be more efficient if individuals were assigned specifically to answer it, take messages, and use prepared forms for recording the messages.

(3) That a speaker-phone system for the TSC "hot line" in the EOC would be an asset in that all of the decision makers could hear the information at once, when necessary.

(4) That the dedicated telephone between and among EOC's be limited to specific use, and an additional dedicated telephone and/or radio capability to alleviate this situation be installed.

(5) That an SOP be developed for message-runners, i.e., number of copies required, distribution, handling of outgoing messages for EOC staff, etc.

(6) That a numbering system for incoming and outgoing messages be developed to assist in identifying messages when questions arise or staff discussion is necessary.

c. FINDINGS:

It was adequately demonstrated that decisions could be made with regard to protective measures for the plume exposure pathway emergency planning zone (EPZ) with information provided by the utility and radiological monitoring teams. It was not observed whether or not decisions could be made with regard to protective measures for the ingestion pathway EPZ since it was not part of the exercise scenario.

RECOMMENDATION:

Meaningful ingestion pathway EPZ data should be included and tested in drills/exercises in the future.

d. FINDING:

It was observed that the San Clemente Radiation Control staff could assess the accident and make appropriate recommendations to the decision makers at the EOC. The decision makers were able to make strong, prompt, and effective decisions based on sound technical advice and guidance. Although the decisions were made there was no follow through observed to implement the decisions.

RECOMMENDATION:

That decision makers follow through with the execution of decisions and task individuals to see that decisions are implemented.

e. FINDING:

The San Clemente radiological field monitoring teams demonstrated they could respond to and provide analysis of a simulated airborne release. Monitors knew their assignment and competently performed their respective tasks. Improvements are needed in sample recovery techniques to document the radiological conditions existent during an emergency. For example, no charcoal cartridges were available for air sampling (filter paper only) and no water or vegetation sampling ability. Cross contamination of samples taken could be a major problem because of sample handling methods (samples picked up with bare hands or gloves). The monitoring teams were not provided with frequent updating on the status of the emergency.

RECOMMENDATIONS:

(1) That appropriate air, water, and soil sampling devices be procured for the monitoring teams.

(2) That samples collected should be deposited in isolated containers without cross contamination by exposed clothing and other materials. To reduce further contamination, samples should be picked up with tongs or some other like device.

(3) That frequent updating on the status of the emergency to the field monitoring teams be provided.

(4) That teams accomplish monitoring while enroute to fixed stations to keep current with changing levels of radiation.

(5) That monitoring be dynamic so as to allow for redirection of teams should the plume change directions.

f. FINDING:

San Clemente demonstrated an ability to dispatch personnel and equipment to all appropriate access control points; however, coordination of road closures with adjacent jurisdictions was limited. There was a lack of coordination between San Clemente and San Juan Capistrano regarding the decision to evacuate.

RECOMMENDATIONS:

(1) That San Clemente establish a cooperative study with adjacent jurisdictions and the County to develop procedures regarding highway road control and standarize procedures so as to uniformly limit access to the threatened area.

(2) That the jurisdiction decision makers coordinate on evacuation procedures outlined in the Interagency Agreement and Evacuation Plan.

(3) That procedures established be clear and concise as to the authority for traffic control and/or closure, appropriate maps, SOP's, and communications standardized to eliminate confusion and time delays.

g. FINDING:

The capability was available for San Clemente to coordinate all releases of information to the media, although there was very little public information originating from the EOC. Further study of the operation and support of the News Media Center is required.

RECOMMENDATIONS:

(1) That an SOP be developed for the San Clemente public information activity in the EOC.

(2) That San Clemente Public Information and related staff participate in the development of the News Media Center

(3) That the PIO assigned have no other functions (such as Assistant City Manager!) during the emergency; or, that a new PIO be assigned.

h. FINDING:

San Clemente's ability to demonstrate coordination regarding protective measures to the public (warning notices and recommendation for protective measures per plume EPA) were not clearly demonstrated due in

in part to the lack of play of this scenario. Simulated response actions to place the system in motion did not occur. No announcements or bulletins were observed during the exercise originating from San Clemente. There was no advice to the public to reread their emergency instructions. One taped TV news bulletin advising the public of a serious nuclear accident and to stay tuned for further news bulletins was observed but it was not identified as an exercise bulletin.

RECOMMENDATIONS:

(1) That scenario development and jurisdictional play should incorporate drills that will test and demonstrate the ability to advise the public of protective measures to be taken.

(2) That the taped TV news bulletin be identified continuously as an "exercise" bulletin.

i. FINDING:

Free-play decision making was demonstrated with regard to protective measures for the plume EPZ by the San Clemente decision makers. As previously noted, there was no ingestion EPZ scripted play.

RECOMMENDATION:

None.

j. FINDING:

The fact that the Mayor and two councilmen were at the EOC during most of the exercise reflects the excellent support by elected officials in San Clemente.

RECOMMENDATION:

None.

k. FINDING:

Communications between all facilities and field teams were good. The two County Liaison Representatives (Orange and San Diego) were in frequent contact with their respective County EOC's. The San Clemente City area map was excellent and other display boards (weather, manpower, etc.) were on hand and utilized. A "Condition" or "Status" Board was initially used but during

the exercise the "Condition" information was posted to the city map and the condition display board removed. The Condition/Status information posted to the city map was numbered but did not reflect time of receipt, and jumped from one place to another on the map and was difficult to follow the sequence of events. Weather information, specifically wind direction, was posted on the Weather Status Board and also on the city map. The wind information did not always agree. Displays were not visible to all decision makers. Assigned staff was not able to keep status displays updated in a timely manner.

RECOMMENDATIONS:

- (1) That an additional dedicated telephone and/or radio capability between and among EOC's be installed.
- (2) That a separate Condition or Status display board be manned and used to record update of the emergency and not posted to the city map.
- (3) That the Weather Status Board be the only place where weather is posted.
- (4) Displays in the EOC placed at locations where they will be visible to all decision makers.
- (5) Assign additional staff to log and post information on display boards and keep it current.

1. FINDING:

San Clemente demonstrated, where observed, an acceptable ability to execute emergency response plans to protect the public. The exercise scenario did not address the ingestion pathway EPZ, medical support, or reentry and recovery.

RECOMMENDATION:

That further drills/exercises be conducted to test all emergency response capabilities necessary to protect the public.

a. FINDING:

It was observed that San Juan Capistrano's procedures for alert and notification of its EOC staff failed to operate. Backup systems using San Clemente and Orange County systems also did no work.

RECOMMENDATIONS:

(1) That specific identification of the City's responsibility and participation in evacuation operations, beyond continuity of government, be established and planned for accordingly.

(2) That San Juan Capistrano establish a viable alerting system and incorporate it into their plan.

(3) That alerting procedures established be clearly understood and coordinated among all parties involved; i.e., San Juan Capistrano, Orange County EOC and Fire Department, and San Clemente Police Department.

(4) That these procedures be demonstrated through drills or exercises so as to reflect a capability to alert and notify its personnel.

b. FINDING:

San Juan Capistrano determined that their existing emergency plan was inadequate based on an exercise conducted January 1981. A checklist was developed to serve as an interim measure and for purposes of this exercise. While city staff actively demonstrated interest and dedication throughout the exercise, there was a clear (and under the circumstances, obvious) lack of familiarity with plans or procedures. There was demonstrated an ability to respond to and competently address the nature of the emergency.

RECOMMENDATIONS:

(1) That San Juan Capistrano update/review the existing emergency plan (which is now in process as a result of January exercise) and coordinate it with other local agencies involved. This should include assurances as to actual use of law enforcement and fire services provided by Orange County through agreements and procedures processes identified in the plan.

(2) That checklists or SOP's be developed for specific staff assignments and staff assignments made, including alternate personnel.

(3) That assigned emergency response staff establish and execute full coordination with other local agencies.

d. FINDING:

Communications systems within the City were adequate. Public Works communications frequencies are the only City-owned radios and are only designed for contacting the field crews for this department. The telecommunications van supplied by Orange County Fire Department (contracted) is the primary communications system for the City should land lines fail.

RECOMMENDATION:

Suggest that better communications equipment be obtained or further coordinate, review, and test Orange County Fire Department communications to assure the city response capability.

e. FINDING:

San Juan Capistrano assigned emergency staff accomplished emergency tasks with a minimum of problem. However, it was observed that no provision was made for relief crews.

RECOMMENDATION:

That San Juan Capistrano assign and train alternate key personnel.

f. FINDING:

San Juan Capistrano relied heavily on protective measures recommendations provided, but had difficulty in effecting desired evacuation implementation at a specific time due to City of San Clemente's refusal to meet established time.

RECOMMENDATION:

Suggest that Cities of San Juan Capistrano and San Clemente and Orange County coordinate evacuation planning to establish cooperative procedures.

g. FINDING:

The City of San Juan Capistrano does not have a separate EOC. In an emergency, space has been designated in the Public Works Office.

RECOMMENDATION:

That the City develop a more viable form of EOC operations (such as use of the conference room for decision-making operations), equipped with SONGS and regular land line communications, or establish an operations EOC function (retaining appropriate authority and decision making powers) within the Orange County or San Clemente (future) facility.

h. FINDING:

It was observed that no security system exists in the EOC. A representative of GUARD was permitted to observe all EOC activities.

RECOMMENDATION:

Suggest that San Juan Capistrano institute a security system to limit personnel entries to only those authorized during emergency operations.

j. FINDING:

The City demonstrated a limited ability to coordinate information releases to the public. Use of media for public dissemination was reflected as weak. PIO actions were considered good and reflected a positive open manner.

RECOMMENDATIONS:

(1) That further training and drills be conducted regarding media coordination and provision of information to population. Assistance through coordinated planning from Orange County is recommended.

(2) That the City PIO attend all future PIO coordination activities.

C 6 U. S. MARINE CORPS, CAMP PENDLETON, CA (USMC)

a. FINDING:

The USMC demonstrated that they could alert, notify, and mobilize emergency response personnel in a timely and orderly process.

RECOMMENDATION: None.

b. FINDING:

Marine personnel demonstrated that their EOC could be staffed in a timely and organized fashion. Personnel knew their assigned functions and performed them competently.

c. FINDING:

The USMC generally demonstrated that decision could be made regarding protective measures, however, the coordination and execution of these decisions was weak. Evacuation of certain areas of the Marine facility was done prematurely due to some apparent confusion as to directions and contrary to plan direction. An order to "prepare for evacuation" was carried out as an order "to evacuate". No ingestion pathway actions or decisions were made as the scenario did not include such actions. No simulated use of KI was observed for either response personnel or general population.

RECOMMENDATION:

That personnel carefully validate directives so as to assure decisions are correctly implemented. Procedures should be reviewed to assure adequate preparatory time and measures are considered prior to implementation of evacuation.

d. FINDING:

The USMC did not demonstrate that their radiation monitoring teams could respond to and provide analysis of simulated airborne releases. Field to EOC communications were weak and teams were unfamiliar with radio procedures thereby interrupting input of information. Teams were untrained (three out of four personnel), had inappropriate equipment and when used, were incorrectly used. No operations checks were made, and equipment (2 out of 3 units) lacked functional capability. Aerial radiological sampling teams reportedly lacked proper equipment (crews didn't bring instruments) to effect desired tests. It was observed that basic NBC/CBR training was inadequate to meet the requirements of an offsite accident/release. Further, personnel indicated the use of potassium permanganate as an alternate to potassium iodide (KI) reflecting a significant lack of understanding regarding protective action alternatives.

RECOMMENDATIONS:

(1) That the utility provide access to or supply of correct equipment for conduct of both surface and aerial radiological monitoring and sampling.

(2) That the USMC Camp Pendleton coordinate with the utility to train response personnel in offsite radiological monitoring techniques and that training and drills be conducted to assure proficiency.

(3) That the utility provide necessary training and drills for the USMC to allow development of an adequate response capability.

(4) That procedures be developed and followed for conduct of operations checks of equipment prior to deployment to field activities by monitoring teams.

(5) That a review and reassessment of field communications be conducted and plans revised to assure field monitoring teams can communicate with the EOC or EOF.

(6) That USMC take action to gain access to a health physics qualified technician who can provide necessary guidance regarding protective actions and field assessment. This person could be assigned from the utility in case of emergencies, but should assist in plan/SOP development as well.

(7) That Marine monitoring teams become a part of the total unified field monitoring capability and standardize response and communications procedures in accordance with the dose assessment plan.

e. FINDING:

Access control and general facility security was judged excellent.

RECOMMENDATION: None.

f. FINDING:

The Marine unit demonstrated an excellent ability to coordinate releases of information to the media. The PIO at the News Media Center acted in an excellent fashion providing timely coordinated information on Marine activities. His actions and support of the total operation were commendable. The facility PAO also was rated excellent.

RECOMMENDATION: None.

g. FINDING:

The Marine Corps was found to have only limited communications between all facilities. The Marine liaison at the EOF failed to maintain an awareness of ongoing events, and was not an active participant in events occurring throughout the exercise.

RECOMMENDATION:

The USMC liaison take a more active participatory role in EOF activities and maintain an ongoing awareness of events as well as support the total response needs of the activity.

h. FINDING:

The USMC facility lacked the capability for independent dose assessment. In light of the relative proximity of the Marine housing to the San Onofre plant; the time delays in obtaining dose assessment from other agencies offers potential hazard otherwise unnecessary.

RECOMMENDATIONS:

(1) That USMC commander take actions to develop a dose assessment capability to provide rapid response protection to Marine personnel.

(2) That monitoring team personnel be trained so as to provide accurate input for dose assessment actions.

i. FINDING:

The USMC unit generally demonstrated an ability to execute emergency response plans to protect the public. Significant improvement is necessary in the areas of interjurisdictional cooperation and radiological response.

RECOMMENDATIONS:

(1) That the USMC actively cooperate and participate in training and response actions.

(2) That the USMC identify, equip, and train radiological response teams through cooperative training and equipping by the utility.

(3) That USMC effect a more active liaison overall with local jurisdiction efforts in development of an emergency response capability.

C 7 STATE PARKS AND BEACHES

a. FINDING:

State Parks and Beaches demonstrated a good ability to alert, notify, and mobilize emergency response personnel.

RECOMMENDATION:

That personnel should activate the recall notification immediately after word is received that a "Site Emergency" has been declared. In addition, all Parks personnel should review the contents of Attachment "C" to the Plan as part of a Parks recurring training program. (Attachment "C" is the Supervisor's Emergency Checklist which covers all necessary actions to be taken in the event of an emergency at SONGS.)

b. FINDING:

State Parks and Beaches demonstrated a good ability to staff their emergency operating center in a timely fashion. The EOC at the Pendleton Coast Area Office, 3030 Avenida Del Presidente, San Clemente, California, is small but adequate. Facility access control and security is difficult to maintain.

RECOMMENDATIONS:

(1) That consideration be given to moving the EOC to Doheny State Beach Park where facility access or control and security could be better maintained. This move would also give Parks and Beaches a 10-mile advantage in the event of plume release and would negate the need to move the EOC early on during the time of beach evacuation when direction and control are critical.

(2) That at a minimum, a dedicated "yellow" phone should be installed at Doheny to give Parks and Beaches additional flexibility.

(3) That consideration be given to use of display board large enough to view both aerial photos of all beach areas (which should be procured) as well as the 1:24,000 scale map of the San Onofre area. This would allow someone unfamiliar with the beach geography layout to grasp the evacuation problem and process as it occurs.

c. FINDING:

State Parks and Beaches personnel demonstrated an outstanding ability to take protective measures within the plume exposure pathway (evacuation). Strong leadership and familiarity with the Plan's critical evacuation steps was demonstrated by both the emergency coordinator in the EOC and by rangers and lifeguards on the beaches. Outstanding beach alert work by rangers and lifeguard who knew what to do was clearly demonstrated.

RECOMMENDATION:

That a helicopter be identified and dedicated for use in sweeping beaches following evacuation. These prior arrangements should be incorporated into the Plan.

d. FINDING:

State Parks and Beaches personnel demonstrated a marginal ability to provide analyses of a simulated airborne release. There exists a chronic problem of understaffing at the Pendleton Parks and Recreation Facility because of high turnover losses to other parks in the California system. Until this condition is corrected, the local organization will have problems in augmenting the on-duty staff during emergency and in retaining personnel trained in RADEF. RADEF training of Parks and Beaches personnel has been infrequent. The small staff of rangers and lifeguards have enough to do in the event of an emergency in alerting, evacuating, sweeping and securing the several beach areas without having the additional responsibility of monitoring a plume release. Parks personnel should, however, maintain a general working knowledge of the monitoring process.

RECOMMENDATION:

(1) That the primary RADEF monitoring function for beaches adjacent to the nuclear power plant be given to SONGS technical personnel or to a local government having a trained staff thoroughly familiar with RADEF.

(2) That lifeguards and rangers participate in RADEF training classes which should be scheduled on a semi-annual basis and be conducted by SONGS or County RADEF personnel. RADEF equipment should be retained and maintained by Parks and Beaches personnel for back-up.

(3) That agency plans be revised or consolidated into local plans and identify primary and back-up responsibilities and methodology of training.

e. FINDING:

The State Parks and Beaches demonstrated an acceptable ability to dispatch personnel to access control points. All but two security posts were observed to be manned. No contact with SCE personnel on the beach was observed in accordance with the Plan regarding evacuation of Section 2 (Surfing Beach).

RECOMMENDATION:

(1) That State Parks and Beaches develop a back-up capability to man access control points using county manpower resources.

(2) That State Parks and Beaches clarify Section 2 (Surfing Beach) evacuation responsibilities relative to SONGS.

f. FINDING:

Decisions regarding State Parks and Beaches coordination of all releases of information to the media were not observed. The EOC emergency coordinator maintained telephone contact with the State Parks and Beaches PIO who was in the EOF. Evacuation information was passed to her in a timely manner.

RECOMMENDATIONS:

That future drills or exercises be conducted to reflect information activities by State Parks and Beaches staff.

g. FINDING:

State Parks and Beaches interface with responsible elected or appointed public officials was not observed.

RECOMMENDATION:

(1) That elected or appointed officials should be made aware of Parks and Beaches personnel shortage which may require augmentation by local government staffs.

(2) That Regional and State level officials participate in future exercises and demonstrate an awareness of plans and procedures related thereto.

h. FINDING:

Communications between Parks and Beaches and other agencies were demonstrated to be generally very good. At all times, the emergency coordinator was in contact with SONGS and the EOF by dedicated conventional telephone. Contact with beach evacuation teams by walkie-talkie was outstanding. Some difficulty was experienced with walkie-talkie communications from EOC to EOF because of wall thickness at both locations. Within a few minutes of warnings and notifications, emergency response personnel were informed both in the EOC and in all beach areas.

RECOMMENDATION:

That radio communications between EOC and EOF be reviewed and the capability identified within plans.

i. FINDING:

Parks and Beaches overall capability to execute its emergency response plan to protect the general public was generally demonstrated to be good. Both rangers and lifeguards performed their tasks with dispatch demonstrating familiarity with their emergency responsibilities. The emergency coordinator and staff were familiar with the existing plan (December 1980) and carried out their tasks in nearly all instances in accordance with the objectives and planning assumptions of the plan.

RECOMMENDATIONS:

(1) That all assigned personnel be provided radiological monitoring and decontamination training so as to provide a minimally acceptable level of proficiency.

(2) That the plan be reviewed and coordination effected to provide cooperative response where internal capability is non-existent or incapable of meeting the demands of the emergency.

C 8 EMERGENCY OPERATING FACILITY (EOF) - GENERAL OPERATIONS AND
 OFFSITE DOSE ASSESSMENT CENTER, SAN CLEMENTE, CA

a. FINDING:

EOF personnel demonstrated a good ability to make recommendations regarding protective measures for the plume exposure pathway. Protective measures for the ingestion pathway were not demonstrated.

The interim EOF facility is collocated with the San Clemente EOC and presents some impedance therein to efficient and timely operations. The fragmentation of the utility staffed operations to an on-site EOF at the administrative offices lent confusion and delay to the overall operation. The News Media Center was located at the San Clemente Boys and Girls Club about one mile from the offsite EOF location. While the EOF/EOC concept has some merit, the combination (versus collocation) does not lend itself to efficient operation. Square footage was well below requirements of NUREG 0696. Communications were difficult to deal with at best due to positioning and general lack of discipline in use. The "Offsite" Dose Assessment Center (ODAC) activity was cramped for space, had no isolation from noise, and lacked access to communications. No support staff was present from the utility to handle communications, relay messages, or provide status board recording. Utility staff (3) consisted of management personnel who spent extensive portions of their time staying abreast of events and moving continuously through the melange of personnel attempting to function as an EOC. Their function and specific location of operation was undefinable. No procedures for their function were evident. No communications were effected between the EOF and field monitoring teams. The TSC rendered dose projections and dose assessments without coordination or feedback from the three health physicists present in the EOF. They (ODAC) subsequently confirmed or passed information to EOC's but had little input to the total procedure other than to verify utility actions. No recording or plotting of monitoring data was observed.

RECOMMENDATIONS:

(1) That the interim EOF be located in rooms or facilities separate from the San Clemente EOC with sufficient square footage to meet at least NUREG 0696 standards.

(2) That the interim EOF be restructured to be one facility housing utility management decision making, dose assessment, and coordination/liaison functions. News Media Center operations are satisfactory where located.

(3) That utility management provide sufficient staffing to provide a liaison (senior level manager), communicators (for in/out communication of hot line messages), and other necessary support staff personnel to meet requirements.

(4) That at least two more "hot" lines be established with personnel to support team between EOF and EOC's to assure timely handling of critical communications. Procedures to identify and support use of these phones should be developed.

(5) That a separate room be identified for ODAC activity and appropriate communications and support materials be provided.

(6) That utility and jurisdictional personnel meet and establish desired EOF plans, facilities, and related supportive direction to ensure a fully operational and effective EOF.

(7) That communications facilities be somewhat isolated by acoustic materials to limit interference to/ from adjoining activities.

(8) That liaison representatives from all jurisdictions actively participate in EOF activities and coordinate appropriate information as necessary.

(9) That ODAC personnel actively integrate with utility personnel in development of dose projection and assessment information.

(10) That field monitoring teams be controlled from the ODAC and provide direct radio communication input to the ODAC staff.

(11) That information be recorded and plotted so as to have a total assessment of actions/events at any time.

(12) That once developed procedurally, the interim EOF and ODAC operations are drilled and exercised to evaluate their capability to meet requirements related to protective measures and assessment.

b. FINDING:

State Radiation Control staff reflected an ability to assess the accident and make appropriate recommendations to decision makers.

RECOMMENDATION: None.

c. FINDING:

There was no radioiodine air sampling ability demonstrated by the monitoring teams nor was there ingestion pathway sampling accomplished. This was as a result of scenario design. Ground analysis of releases were controlled by EOC's and personnel were sent to pre-identified locations without any option for flexible response.

RECOMMENDATIONS:

(1) That the EOF/ODAC control field monitoring teams.

(2) That future exercise scenarios incorporate ingestion pathway sampling.

(3) That identified equipment for radioiodine air sampling be procured and provided to appropriate jurisdictions.

(4) That appropriate training be conducted to assure team proficiency and a general ability to meet monitoring requirements.

d. FINDING:

The EOF did not have a PIO or related individual assigned to answer questions regarding corporate releases. Some question existed as to who was representing the EOF PIO function at the News Media Center.

RECOMMENDATION:

That the issue of an EOF PIO representative and his location be discussed and resolved to the satisfaction of all PIO personnel.

e. FINDING:

A number of concerns over general EOF operations were observed. No capability for multiple shift staffing was observed. There were messages released from the EOF that were not completely clear or did not reinforce previous issuances. Maps were not provided to depict plume pathways or puff releases.

RECOMMENDATION:

(1) That multiple shift staffing be established for EOF operation.

(2) That messages sent from the EOF be clear, concise, and reflect the present status of events, including detail of existing/ongoing events.

(3) That maps be used within the EOF to plot plume and puff releases.

a. FINDING:

It was demonstrated that the jurisdictions could coordinate releases of information to the media. The News Media Center (NMC) had some difficulty obtaining detailed information from the EOF. The NMC did not open (by procedure) until declaration of a Site Emergency despite media personnel being at the facility at the Alert stage. Setup of the facility began at the Alert stage. General operations were considered good with some concern over a need for a manager to control overall operations.

RECOMMENDATIONS:

(1) That all jurisdictions and the Utility PIO's establish an SOP for the Media Center operation and management.

(2) That the Utility provide prearranged background information through video tape cassettes for use at the Media Center.

(3) That the Utility improve the degree of detail in their information releases (during exercises) and that definitive explanations exist or are provided by technical experts, so as to eliminate possible confusion or erroneous information distribution.

(4) That jurisdictional PIO's preposition necessary supplies and visual aids at the Media Center.

(5) That the Utility establish Media Center Operations at at least the "Alert" Stage, and that setup time for its operation be limited to no more than roughly 15 minutes.

b. FINDING:

That both PIO's and News Media personnel lack depth of knowledge in radiological issues.

RECOMMENDATIONS:

(1) That the utility coordinate and establish a number of orientation courses designed for PIO and News Media personnel.

(2) That a PIO familiar with technical jargon and general radiological matters be stationed at the EOF/News Media Center to serve as a liaison for clarification of issues that arise.

C 9' HOSPITAL CASUALTY HANDLING

a. FINDING:

The South Coast Community Hospital did not demonstrate an ability to alert, notify, and mobilize emergency response personnel due to the limited requirements of the scenario. Additionally, it was observed that Radiation Management Corp. staff was present and provided advance and concurrent direction and procedural guidance to hospital staff. This was not considered to be a true test of response to an otherwise unannounced event, but a training activity.

RECOMMENDATION:

(1) That all area hospitals be trained and drilled so as to reflect a capability to receive injury cases and handle them correctly.

(2) That future exercise scenarios include testing of at least one hospital's capability to respond.

(3) That agreements be reached and planning be effected to provide hospital handling capability for radiation affected injury patients.

(4) That play be realistic and not totally scripted.

C.10. EVACUATION AND RECEPTION AND CARE ACTIVITIES

a. FINDING:

The evacuation of Concordia School, San Clemente, California, was not added to the scenario until immediately prior to the exercise. It further was scripted to be evacuated at a predetermined time rather than where an evacuation decision was made. As such, and in light of the limited play, it failed to demonstrate any useful evidence of a evacuation capability. No reception and care actions were taken.

RECOMMENDATION:

That any future evacuation activities established by jurisdictions and occurring during an exercise of this nature be played to full value and evaluated for the benefit of the jurisdiction.

b. FINDING:

Orange County demonstrated only a limited capability to alert and mobilize an evacuation. There were no communications between the EOC and the evacuation site, and information given to the transit district was incorrect regarding a point of contact at the pickup point, and missing regarding ultimate destination (reception and care location). It was indicated that the Red Cross was to coordinate the evacuation which is contrary to the plan. Further, there was an appreciable time delay (1 hour 25 minutes) prior to actual evacuation of the evacuees.

RECOMMENDATION:

(1) That Orange County review and revise their plan and procedures regarding evacuation.

(2) That personnel be preidentified as to who will be responsible for directing transit district buses to their pickup and off-load points.

(3) That these procedures be drilled and exercised so as to demonstrate a capability to effectively evacuate personnel when required.

(4) That testing be done to assure that evacuation can be effected in a timely manner.

c. FINDING:

The alert and setup of a reception station by the Red Cross was excellent. However, communications between the County and Red Cross reflected a need for review and reevaluation.

RECOMMENDATIONS:

(1) That Orange County effect further review and testing of its procedures regarding the alert and coordination with the Red Cross, to include specific points of contact.

(2) That multiple evacuation and reception and care activities be exercised to assure a capability exists to meet requirements.

d. FINDING:

Radiation technicians at the reception and care facility conducted thorough and effective monitoring of all evacuees and the vehicle in which they arrived.

RECOMMENDATION: None.