Federal Emergency Management Agency

Region IX
Building 105
Presidio of San Francisco
San Francisco, California 94129

APR 14 2000

Mr. Ellis Merschoff
Regional Administrator
U.S. Nuclear Regulatory Commission Region IV
611 Ryan Plaza, Suite 400
Arlington, Texas 76011-8064

Dear Mr. Merschoff:

We are enclosing the Final Evaluation Report for the Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999, and the Off-site Medical Drill on August 18, 1999, for the Diablo Canyon Power Plant (DCPP). The report addresses the evaluation of the plans and preparedness for the public in the Emergency Planning Zone. We identified seven issues during these drills. We will provide a copy of the report to the State of California and monitor the correction of the identified issues.

The level of preparedness and the adequacy of the off-site radiological emergency response plans for the State of California and the jurisdictions site-specific to DCPP, together with the ability to implement these plans, were demonstrated in the referenced drill. Based on the results of this drill, we have determined that there is reasonable assurance that appropriate measures can be taken off-site to protect the health and safety of the public in the event of a radiological emergency at DCPP. Therefore, the Code of Federal Regulations, Title 44, Part 350 interim approval of the off-site radiological emergency response plans and preparedness for the State of California site-specific to DCPP will remain in effect.

Please contact me directly at (415) 923-7100, or your staff may contact Mr. Tom Ridgeway, Regional Assistance Committee Chair, at (415) 923-7277, if you have any questions or need additional information

Sincerely,

Martha Whetstone
Regional Director

Enclosure

cc: Ms. Vanessa Quinn, FEMA HQ
Mr. Charles L. Miller, NRC HQ

Final Report
Emergency Worker Monitoring and Decontamination Drill
Annual Medical Drill

DIABLO CANYON POWER PLANT

Licensee:	**Pacific Gas and Electric Company**
Drill Dates:	**June 16, 1999** **August 18, 1999**
Report Date:	**April 5, 2000**

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION IX
Building 105, P.O. Box 29998
Presidio of San Francisco, California 94129

I. EXECUTIVE SUMMARY

The Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Off-site Medical Drill on August 18, 1999, were evaluated for the emergency planning zone (EPZ) around the Diablo Canyon Power Plant by the Federal Emergency Management Agency (FEMA), Region IX. The purpose of the drills was to assess the level of State and local preparedness in responding to a radiological emergency. These drills was held in accordance with FEMA's policies and guidance concerning the exercise of State and local radiological emergency response plans (RERP) and procedures.

The most recent biennial exercise at this site was conducted on November 4, 1998. Previous to these drills, the most recent emergency monitoring and decontamination drill at El Chorro Regional Park was held on August 20, 1991, and the most recent medical drill for French Hospital was held July 10, 1996. The qualifying emergency preparedness exercise was conducted on August 19, 1981.

FEMA wishes to acknowledge the efforts of the many individuals who participated in these drills.

Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still, others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants were evident during these drills.

This report contains the final evaluation of these drills.

The local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were six Areas Requiring Corrective Action (ARCA) identified as a result of these drills. Ten ARCAs from previous drills were corrected and one ARCA remains unresolved.

REPORT CREDITS

Document Preparation	Elena Joyner FEMA Region IX
Document Editing	Richard Converse Argonne National Engineering Laboratory
Document Research and Editing	Richard Echavarria FEMA Region IX
Chief Editor	Thomas Ridgeway Chair, Regional Assistance Committee Region IX

TABLE OF CONTENTS

List of Appendices and Tables

II. INTRODUCTION

On December 7, 1979, the President directed FEMA to assume the lead responsibility for all off-site nuclear planning and response. FEMA's activities are conducted pursuant to 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352. These regulations are a key element in the Radiological Emergency Preparedness (REP) Program that was established following the Three Mile Island Nuclear Station accident in March 1979.

FEMA Rule 44 CFR 350 establishes the policies and procedures for FEMA's initial and continued approval of State and local governments' radiological emergency planning and preparedness for commercial nuclear power plants. This approval is contingent, in part, on State and local government participation in joint exercises with licensees.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

- Taking the lead in off-site emergency planning and in the review and evaluation of RERPs and procedures developed by State and local governments;

- Determining whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the plans and procedures conducted by State and local governments;

- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and

- Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:

  - U.S. Department of Commerce,
  - U.S. Nuclear Regulatory Commission,
  - U.S. Environmental Protection Agency,
  - U.S. Department of Energy,
  - U.S. Department of Health and Human Services,
  - U.S. Department of Transportation,
  - U.S. Department of Agriculture,
  - U.S. Department of the Interior, and
  - U.S. Food and Drug Administration.

Representatives of these agencies serve on the FEMA Region RIX Regional Assistance Committee (RAC) which is chaired by FEMA.

Formal submission of the RERPs for the Diablo Canyon Power Plant to FEMA Region RIX by the State of California and the involved local jurisdictions occurred on May 31, 1988.

State and local Radiological Emergency Preparedness plans are required, in NUREG-0654/FEMA REP 1, Rev. 1 (November 1980), to designate primary and back-up medical facilities capable of providing appropriate care to injured/contaminated individuals originating from the off-site effects of an incident at a nuclear power plant. One or more of these facilities are usually exercised as part of the biennial State/Local REP exercise. Others may be exercised during the off-year period. At least one evaluated medical drill must be held biennially at each nuclear facility.

An emergency worker monitoring and decontamination drill was evaluated on June 16, 1999 and an off-site medical drill was evaluated on August 18, 1999 by FEMA Region RIX to assess the capabilities of local emergency preparedness organizations in implementing their RERPs and procedures to protect the public health and safety during a radiological emergency involving the Diablo Canyon Power Plant. The purpose of this report is to present the results and findings on the performance of the off-site response organizations (ORO) during a simulated radiological emergency.

The findings presented in this report are based on the evaluations of the Federal evaluator team, with final determinations made by the FEMA Region RIX RAC Chairperson, and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in :

- NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;

- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991; and

- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991.

- FEMA Guidance Memoranda MS-1, "Medical Services," November 1986.

Section III of this report, entitled "Overview," presents basic information and data relevant to these drills. This section of the report contains a description of the plume pathway EPZ, a listing of all participating jurisdictions and functional entities which were evaluated.

Section IV of this report, entitled "Evaluation and Results," presents detailed information on the demonstration of applicable objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based, issues-only format. This section also contains: (1) descriptions of all Deficiencies and ARCAs assessed during this drill, recommended corrective actions, and (2) descriptions of unresolved ARCAs assessed during previous drills and the status of the OROs' efforts to resolve them.

III. OVERVIEW

Contained in this section are data and basic information relevant to the Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Medical Drill on August 18, 1999, to test a portion of the off-site emergency response capabilities for the area surrounding the Diablo Canyon Power Plant. This section of the report includes a description of the plume pathway EPZ, and a listing of all participating jurisdictions and functional entities which were evaluated.

A. Plume Emergency Planning Zone Description

The State of California has designated a Basic Emergency Planning Zone (BEPZ) which extends beyond from a 10-mile circle around the plant to include surrounding cities. The BEPZ includes the following areas:

Towns and cities: Arroyo Grande; Grover Beach; Morro Bay; Pismo Beach; and San Luis Obispo.

Unincorporated areas of San Luis Obispo County: Avila Beach; Baywood Park; Cayucos; Cienega Valley; Clark Valley; Indian Knob; Los Osos; Los Osos Valley; northern Nipomo Mesa; Oceano; Port San Luis; Prefumo Canyon; Price Canyon; San Luis Bay Estates; See Canyon; Squire Canyon; and Sunset Palisades.

Institutions: California Men's Colony; California Polytechnic State University; Camp San Luis Obispo; and Cuesta College.

Parks and Recreational Areas: Cayucos State Beach; Los Osos Oaks State Reserve; Montaña de Oro State Park; Morro Bay State Park; Morro Strand State Beach; Oceano Dunes State Vehicle Recreational Area; Pismo State Beach; Pirate's Cove; and Whale Rock Reservoir Recreational Area.

B. Participants

The following agencies, organizations, and units of government participated in the Diablo Canyon Power Plant Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Off-site Medical Drill on August 18, 1999.

Emergency Worker Monitoring and Decontamination Drill

RISK JURISDICTION

San Luis Obispo County
- Health Care Agency, Public Health Nursing Division
- Office of Emergency Services

STATE OF CALIFORNIA

California Department of Forestry and Fire Protection
California Department of Health Services

PRIVATE/VOLUNTEER ORGANIZATIONS

Pacific Gas & Electric Company

Medical Drill

PRIVATE/VOLUNTEER ORGANIZATIONS

French Hospital Medical Center
Pacific Gas & Electric Company
San Luis Ambulance Service

IV. EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities which participated in the June 16, 1999 emergency worker monitoring and decontamination drill and the medical drill to test the off-site emergency response capabilities of local governments in the EPZ surrounding the Diablo Canyon Power Plant.

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in exercise objectives contained in FEMA-REP-14, REP Exercise Manual, September 1991. Detailed information on the objectives and the extent-of-play agreement used in this drill are found in Appendix 3 of this report.

A. Summary Results of Evaluation - Table 1

The matrix presented in Table 1, on the following page, presents the status of all objectives from FEMA-REP-14 which were scheduled for demonstration during this drill by all participating jurisdictions and functional entities. Drill objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior drills)

D - Deficiency assessed

A - ARCA(s) assessed or unresolved ARCA(s) from prior drill(s)

N - Not Demonstrated (Reason explained in Subsection B)

Table 1. Summary Results of Evaluation

Dates and Site: June 16, 1999 and August 18, 1999-Diablo Canyon Power Plant

JURISDICTION/FUNCTIONAL ENTITY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
El Chorro Regional Park Emergency Worker Monitoring and Decontamination Center					M																	A											
San Luis Ambulance					A															A													
French Hospital					M																A												

LEGEND:

M = Met (No Deficiency or ARCAs assessed
A = ARCA(s) assessed and/or unresolved prior ARCAs and no unresolved prior ARCAs
N = Not Demonstrated
D = Deficiency(ies) assessed
Blank = Not scheduled for demonstration

B. Status of Jurisdictions Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity, in a jurisdiction-based, issues-only format. Presented below is a definition of the terms used in this subsection relative to objective demonstration status.

- **Met** - Listing of the demonstrated objectives under which no Deficiencies or ARCAs were assessed during this drill and under which no ARCAs assessed during prior drills remain unresolved.

- **Deficiency** - Listing of the demonstrated objectives under which one or more Deficiencies was assessed during this drill. Included is a description of each Deficiency and recommended corrective actions.

- **Area Requiring Corrective Actions** - Listing of the demonstrated objectives under which one or more ARCAs were assessed during the current drill or ARCAs assessed during prior drills remain unresolved with a description of the ARCAs assessed during this drill.

- **Not Demonstrated** - Listing of the objectives which were not demonstrated as scheduled during this drill and the reason they were not demonstrated.

- **Prior ARCAs - Resolved** - Descriptions of ARCAs assessed during previous drills that were resolved in this drill and the corrective actions demonstrated.

- **Prior ARCAs - Unresolved** - Descriptions of ARCAs assessed during prior drills which were not resolved in this drill. Included is the reason the ARCA remains unresolved.

The following are definitions of the two types of issues that are discussed in this report.

- A **Deficiency** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance that could cause a finding that off-site emergency preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken in the event of a radiological emergency to protect the health and safety of the public living in the vicinity of a nuclear power plant."

- An **ARCA** is defined in FEMA-REP-14 as "...an observed or identified inadequacy of organizational performance that is not considered, by itself, to adversely impact public health and safety."

FEMA has developed a standardized system for numbering issues (Deficiencies and ARCAs). This system is used to achieve consistency in numbering issues among FEMA Regions and site-specific drill reports within each Region. It is also used to expedite tracking of issues on a nationwide basis.

The identifying number for Deficiencies and ARCAs includes the following elements, with each element separated by a hyphen (-).

- **Plant Site Identifier** - A two-digit number corresponding to the Utility Billable Plant Site Codes.

- **Year** - The last two digits of the year the drill was conducted.

- **Objective Number** - A two-digit number corresponding to the objective numbers in FEMA-REP-14.

- **Issue Classification Identifier** - (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in drill reports.

- **Issue Identification Number** - A separate two (or three) digit indexing number assigned to each issue identified in the drill.

TABLE 2
EXERCISE ISSUES

LOCATION	NEW ISSUES	PREVIOUS ISSUES RESOLVED	PREVIOUS ISSUE UNRESOLVED
El Chorro Regional Park Emergency Worker Monitoring and Decontamination Center	19-99-22-A-6	ARCA #7 (1991)	NONE
San Luis Ambulance	19-99-20-A-7	NONE	19-96-5-A-1
French Hospital	19-99-21-A-8 19-99-21-A-9 19-99-21-A-10 19-99-21-A-11	19-96-5-A-2 19-96-5-A-3 19-96-5-A-4 19-96-5-A-5 19-96-5-A-6 19-96-5-A-7 19-96-5-A-8 19-96-21-A-9 19-96-21-A-10	NONE

o EMERGENCY WORKER MONITORING AND DECONTAMINATION DRILL

The County of San Luis Obispo, in support of the Diablo Canyon Power Plant (DCPP) off-site response organization, held a drill at El Chorro Regional Park on June 16, 1999, to demonstrate the adequacy of the radiological monitoring, and decontamination of Emergency Workers. In response to a radiological event at DCPP, emergency response plans provide for emergency workers and their vehicles to be directed to the Emergency Worker Monitoring and Decontamination Center at El Chorro Regional Park off Highway 1. There the vehicles and their passengers will be monitored and decontaminated, if necessary.

o DETAIL

There were two objectives established for demonstration, observation and evaluation at the El Chorro Regional Park Monitoring and Decontamination Center (Objectives 5 and 22). One objective was met and one ARCA was identified. One ARCA from the 1991 exercise was corrected.

The emergency worker (EW) monitoring and decontamination facility in the El Chorro Park was activated in an out-of-sequence demonstration. Staff and equipment were pre-positioned at the facility in accordance with the extent-of-play agreement. After an initial situation briefing and a safety briefing by controllers, staff started facility set up at 0840. The facility was declared operational at 1005.

The capability to continuously monitor and control radiation exposure to emergency workers was demonstrated at the El Chorro Park Emergency Worker Monitoring and Decontamination Center. All staff that could potentially come in contact with contamination that was brought to the center by the emergency workers who were to be monitored, were issued a thermoluminescent dosimeter (TLD) and one 0-200 mR direct-reading dosimeter (DRD). The serial numbers of both the TLD and the DRD were recorded as the dosimetry was issued. There was no indication at the center that the DRDs had been checked for electrical leakage and at least one of the DRDs exhibited leakage during the evaluation. Prior to issuing the dosimetry, all DRDs were zeroed. When the dosimetry was issued, the center staff recorded the initial DRD readings on their dosimetry card. Some of the staff were unclear on how to read the DRDs. EWs need to be reminded that the hairline must be visible. Most staff were aware of their mission limit of 1.25 rem as specified in the procedures. The few who were unaware of the limit consulted the Health Physicist from the State Department of Health Services (DHS) who in turn consulted the procedure to obtain to appropriate mission limit. The staff were also aware of, or obtained, the DRD readings that required a report to their supervision.

The adequacy of facilities, equipment, supplies, personnel, and procedures for the decontamination of emergency workers was demonstrated. The initial vehicle monitoring area was setup according to the procedure and limitations of the pre-exercise extent-of- play. The initial vehicle monitoring area was staffed by personnel from Pacific Gas and Electric (PG&E). The monitoring personnel had

appropriately conducted battery and source checks of the instrumentation. Vehicle monitoring checklists were followed explicitly by the vehicle monitoring team. One individual read the checklist and recorded the survey results, while the other individual performed the contamination surveys. All initial vehicle monitoring was conducted in accordance with the procedures and good monitoring and contamination control techniques were demonstrated. The vehicle monitors wore protective clothing, which consisted of shoe covers, Anti-C coveralls and double gloves. The survey instrument's detector was covered with a plastic baggie for contamination control. There were adequate containers for receipt of contaminated waste, i.e., used wipes from large area surveys, etc.

Two vehicles were monitored. The first vehicle was found to have less than the 200 counts per minute (cpm) action limit, so the vehicle monitors asked the DHS health physicist (a Depatment of Energy employee who was representing the State of California) about what to do with the vehicle. The DHS health physicist requested that the vehicle monitors survey the feet of the vehicle occupants and if the vehicle occupant's feet were clean they could be sent to a clean parking area or they could be released. The occupants of the clean vehicle were not directed to the emergency worker monitoring station. The second vehicle was found to have contamination levels that exceeded the 200 cpm action level. The surveys were properly documented and the passenger was provided shoe covers to use to walk from the vehicle monitoring area to the emergency worker monitoring and decontamination area. The driver of the contaminated vehicle was then asked to drive the vehicle to the vehicle decontamination area and he was also given shoe covers to wear as he walked back to the personnel monitoring and decontamination area.

One member of the vehicle monitoring team accompanied the contaminated vehicle to the vehicle decontamination area and briefed the decontamination personnel on the location and levels of contamination found on the vehicle. At the conclusion of the vehicle monitoring, the vehicle monitor and the recorder conducted a self-frisk before exiting the vehicle monitoring area. The technique demonstrated during this self-frisk was somewhat questionable, at a one point, while the recorder was frisking the monitor, it was observed that the monitor was still wearing the instrument earphones while the recorder was using the instrument for the exit contamination survey. It did not appear that a full body frisk was adequately performed as rquired by the Procedure III.06, HP-6, Checklist 3, step 10.

The vehicle decontamination area was staffed by personnel from the California Department of Forestry and Fire Protection (CDF) and a monitor from PG & E. The vehicle decontamination personnel demonstrated the proper use, donning and doffing of protective clothing. The protective clothing consisted of Anti-C coveralls, water proof shoe covers, hoods, dust masks, face shields and double gloves. The use of hoods and face shields corrected ARCA # 7 from the 1991 exercise. The CDF personnel did a very thorough job of vehicle decotamination. The contaminated vehicle was first washed by use of a low pressure hose, then CDF personnel used soapy water and brushes to thoroughly scrub the areas where they had been briefed that contamination had been found during initial vehicle monitoring. After the brush-scrubbing, the vehicle was then rinsed by use of the low-pressure hose and further scrubbed by use of cloth towels. The potentially-contaminated cloth towels were collected in contaminated waste containers. Waste-water from the vehicle decontamination flowed to a storm drain, which discharged into an area that did not impact surface water supplies.

The vehicle was then re-monitored by the PG & E vehicle decontamination monitor. The monitoring technique demonstrated was adequate with respect to instrument detector distance and rate of movement, but the areas of the vehicle that were surveyed were not consistent with the initial monitoring checklist procedure and consequently were not completely consistent with the areas found to be initially contaminated. No final survey records were kept at the vehicle decontamination area. Since the emergency vehicle was simulated to be essential for continued use, the vehicle's air filter was marked with a radioactive label, which identified the need for a replacement at a later date when a proper air filter replacement could be located.

The adequacy of facilities, equipment, supplies, personnel, and procedures for initial monitoring of emergency workers was demonstrated.

The facility was set-up in accordance with established procedures with the exception of addition of some barrier ropes to funnel EWs into the personnel monitoring and decontamination portion of the facility. In the decontamination area, contaminated clothing and personal articles were bagged and labeled. These bags were stored away from the area where monitoring was being accomplished.

EWs were initially monitored using a portal monitor. There were two instruments available, one for use and one for a spare. Four PG&E staff set-up the portal monitor. During the set-up the staff identified a missing cable which is required for operation of the instrument. The missing cable was replaced by using the cable from the spare instrument. There was no impact on the ability to perform the EW monitoring; however, the organization responsible for the portal monitor instrument maintenance should establish a program to ensure that all necessary parts are inventoried and replaced.

The PG&E staff carefully followed the instrument set-up checklist. A Cs-137 check source was available to verify adequate sensitivity of the instrument after it had been set-up on site. The check source was labeled as being 0.984 μCi as of 06/01/86. Staff verified that the portal monitor alarmed when the source was in the center of the frame by having a staff member carry the source when being monitored.

When EWs were being processed through the portal monitor, if an alarm sounded, the EW was re-monitored using hand-held instruments. The hand-held instrument used was a CDV-700 with a 30-50 mg/cm^2 window.

During the facility set-up, two PG&E staff checked all the CDV-700 instruments that were to be used throughout the facility. Batteries were installed and the all instruments were checked for appropriate response to the check sources attached to the individual instruments. One instrument failed to meet the required response range as specified in the procedures. The staff correctly removed this instrument from the pool of available instruments. All of the CDV-700 instruments were equipped with earphones. In the EW monitoring area, the earphones were always used when monitoring the EWs. After verifying adequate instrument response, all probes were adjusted to an open window condition and all probes were enclosed in thin plastic bags. The decontamination trigger level was

200 cpm above background. In the EW monitoring and decontamination areas, the PG&E staff demonstrated excellent probe movement speed. Since there is no target time limit to process EWs, the monitoring process was about 4-5 minutes.

The staff in the monitoring area wore gloves and booties in accordance with procedural specifications. Prior to the hand-held monitoring, personal information and information on the EW worker locations during various periods of the emergency response were documented in accordance with the procedures. A body map was prepared for each EW based on the hand-held monitoring. Locations of contamination above the trigger level were documented along with the contamination levels. During this hand-held monitoring process, the space available would not allow for additional EWs to be processed

The contaminated EWs were then processed in the restroom facilities that had showers and wash basins. Public Health nurses staffed the decontamination area along with a PG&E staff to re-monitor after decontamination. The nurses all wore full Anti-C clothing in accordance with checklist 8 of HP-9. All EW disrobing and decontamination steps were simulated. The evaluation of these activities was accomplished through interviews. When an EW was contaminated over large areas, a shower was recommended. When extremity contamination was the problem, decontamination was accomplished using the wash basins. After decontamination, the EWs were re-monitored by the PG&E staff. The results of the re-monitoring were documented on the body map. The staff was aware of the number of decontamination attempts to be made. They were also aware that if decontamination did not lower the levels below the trigger level, the County Health Officer should be contacted for a decision on what should be done.

All staff in the monitoring and decontamination area gave good information to the EWs on exactly what was being done. The Public Health nurses gave outstanding explanations and instructions to the EWs. Although there were major portions of the process that were simulated, all supplies – towels, replacement clothing, and cleaning supplies were available.

Clean EWs, either those that did not alarm the portal monitor or those that were successfully decontaminated, exited the monitoring and decontamination area and were told to return to work. The arrangement of the facility left these EWs on the outside of radiation ropes with their vehicles on the other side of the ropes and the potentially-contaminated road. The procedures should be revised to include some directions on exactly how the EWs are to get from one clean area across a potentially contaminated area to another clean area across the road.

Area Requiring Corrective Action

19-99-22-A-6. Vehicle monitoring area end-of-shift exit frisk

NUREG-0654 Reference: K.5.b

Objective #22
Demonstration Criterion #2

1. **Description:** At the conclusion of the vehicle monitoring, the vehicle monitor and the recorder conducted a self-frisk before exiting the vehicle monitoring area. The technique demonstrated during this self-frisk was somewhat questionable, as at one point, while the recorder was frisking the monitor, it was observed that the monitor was still wearing the instrument earphones while the recorder was using the instrument for the exit contamination survey. Only the hands and feet were surveyed. It did not appear that a full whole body frisk was adequately performed as required by the Procedure III.06, HP-6, Checklist 3, step 10.

2. **Recommendation:** Train the vehicle monitors on the proper end of shift survey for removing Anti-Cs when leaving the vehicle monitoring area. Alternatively, the procedures could be revised to require all monitoring and decontamination personnel to pass through the portal monitor at the end of their shift when exiting the El Chorro Emergency Worker Monitoring and Decontamination facility.

Prior Area Requiring Corrective Action-Corrected

ARCA # 7. Emergency Worker Protective Gear (1991)

NUREG-0654 Reference: K.5.b

Objective #22
Demonstration Criterion #1

1. **Description:** The fire department personnel are not issued head protection, and while decontaminating vehicles they would be splashed in the face with contaminated water.

2. **Recommendation:** Issue hoods and face shields for use during vehicle contamination.

o **MEDICAL DRILL**

As licensee for the DCPP, PG&E held the required annual medical drill on August 18, 1999. The drill scenario included simulated injuries to one on-site individual that required treatment at the participating medical facility. This drill demonstrated and exercised the response capability of the San

Luis Ambulance Service (SLAS) and French Hospital Medical Center (FHMC). FHMC, the primary hospital, has an agreement with PG&E to provide care and treatment for the general public sustaining injuries involving the complication of ionizing radiation or radioactive contamination.

o **DETAIL**

There were three objectives established for demonstration, observation, and evaluation during the DCPP Off-site Medical Drill in San Luis Obispo. (Objective Numbers 5, 20, and 21). No objectives were met, and five new ARCAs were identified for two objectives. Nine ARCAs from the 1996 medical drill were corrected, and one ARCA for one objective remains uncorrected.

The capability to continuously monitor and control radiation exposure to emergency workers was demonstrated by staff from the SLAS Region 85B. At 0752, the SLAS received a telephone call from the DCPP Dispatcher requesting off-site ambulance transportation for a contaminated-injured employee. The scenario required the SLAS ambulance to enter the DCPP property and meet the on-site ambulance at the Fire-Warehouse 'B' parking lot. The contaminated injured DCPP employee was transferred from the on-site ambulance to the SLAS ambulance at the parking lot. Since the SLAS ambulance was on-site and under the responsibility of DCPP, SLAS personnel would use dosimetry provided by DCPP and not the dosimetry contained in their emergency worker exposure control (EWEC) kits.

The issuance of radiation protection dosimetry to the SLAS personnel is the responsibility of the Diablo Canyon Watch Commander. According to DCPP Security Procedure No. SP 617, "ISSUANCE OF RADIATION PROTECTION DOSIMETRY TO OFF-SITE EMERGENCY RESPONSE PERSONNEL", a self-reading pocket ion chamber (PIC) and a TLD were supposed to be issued to each of the two members of the SLAS staff. Each member, however, received a TLD only and a tag attached to the TLD contained the person's name and social security number. The SLAS staff were not issued PICs and therefore they did not have the required dosimetry. Consequently, ARCA 19-96-5-A-1 identified in a previous exercise is a recurring issue.

The adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals was demonstrated by personnel from the SLAS Region 85B. At 0752 the SLAS received a telephone call from the DCPP and were requested to respond on-site to receive an contaminated-injured employee for transport to the FHMC in San Luis Obispo. At 0753 the ambulance departed their facility and at 0807 arrived at the main gate entrance to the plant. During transit at 0754 the SLAS paramedic called the FHMC and made them aware of the situation and that they should prepare for receiving a contaminated-injured person.

At the main gate the SLAS staff were instructed to proceed to the Warehouse "B" parking lot where they were to meet the on-site ambulance and receive the victim. Prior to arriving at the parking lot at 0825 both SLAS staff donned two pair of surgical gloves for contamination control. At the parking lot the SLAS staff received a briefing from the DCPP first responders on the physical and

radiological condition of the victim. The electrical arc burns entering the left arm and exiting the right leg were contaminated and covered with gauze. The contamination levels were 20K cpm on the leg and 50K cpm on the hand area. The gauze provided an additional barrier for the prevention of the spread of contamination. The facial lacerations were not contaminated and also were covered with gauze. Thus, the contamination was confined to and internal to the arm and leg wounds and there was no airborne contamination.

The victim, on the wood back brace and in the Stokes basket, was transferred to the SLAS gurney. The victim was covered with a blanket prior to being placed in the SLAS ambulance. Therefore, the victim was completely covered which provided additional barriers to prevent the potential spread of contamination. The ambulance left the parking lot at 0837 and arrived at the FHMC at 0911. A DCPP Radiation Protection Technician (RPT) rode in the ambulance with the patient to the hospital to provide health physics support to SLAS personnel.

The SLAS paramedic did not change gloves after touching the patient while taking vital signs and before making telephone calls or using equipment inside the ambulance. The DCPP RPT should have been more pro-active and advised the SLAS staff on the timeliness of when to change gloves or to not touch equipment unless they had changed gloves. All potentially-contaminated equipment including used bandages, dressings, and gloves were put in a plastic bag for additional contamination control measures.

The SLAS staff radioed the FHMC and provided them with the estimated time-of-arrival, the initial medical condition and radiation contamination levels of the victim. During the ride, the FHMC was kept apprized by radio of the medical condition of the victim and the FHMC was advised the SLAS staff was not decontaminating the victim.

Upon arrival at the FHMC at 0911, the victim was transferred to the FHMC staff. A Nuclear Medicine Technician (NMT) from the FHMC was prepared to survey the SLAS staff and ambulance prior to release for further duty. However, the task was deferred to the DCPP RPT. The SLAS staff and the ambulance were monitored by the RPT using a DCPP Eberline E-120 survey meter with a pancake probe. The staff and equipment were determined to be uncontaminated since the survey meter read less than 100 cpm. If they, their equipment, or the ambulance were contaminated they would be decontaminated before being released. At the termination of the assignment, the issued dosimetry was collected by the RPT for return to DCPP for processing the TLDs.

FHMC staff demonstrated the capability to continuously monitor and control radiation exposure to emergency workers. The emergency workers assigned in the Radiation Emergency Area (REA) or the Buffer Zone were issued a TLD, a DRD with a range of 0-200 mR and an extremity monitoring device (finger ring). The serial numbers of the devices and pertinent personnel information was entered on the "Dosimetry Issue Log" for later assignment of dose for each individual. The emergency workers were aware of when and to whom to turn in the dosimetry devices at the end of the mission. The above actions corrected ARCAs 19-96-5-A-3, 19-96-5-A-4, and 19-96-5-A-6 from the 1996 medical drill.

DRDs were zeroed prior to issuance using a DRD charger that had been checked for proper operation. Initial readings were recorded on the "Dosimetry Issue Log." The above actions corrected ARCA 19-96-5-A-7 from the 1996 medical drill. Emergency workers were instructed on how to use the DRDs and to read them at 15-minute intervals. This action corrected ARCA 19-96-5-A-5 from the 1996 medical drill.

The DRDs were inspected for electrical leakage on June 19, 1999, which is within the time frame stated in the plan. This corrected ARCA 19-96-5-A-2 from the 1996 medical drill.

Procedures were followed to manage radiological exposure so that EWs did not incur excess dose. This corrected ARCA 19-96-5-A-8 from the 1996 medical drill.

A planning issue from the 1996 medical drill regarding the processing of non-direct-reading dosimeters was not resolved. The protocol has not been revised to specify who is responsible for processing non-direct-reading dosimeter when treatment is given to contaminated, injured DCPP employees versus public or emergency workers who are contaminated and injured.

FHMC staff demonstrated the adequacy of equipment, procedures, supplies, and personnel responsible for treatment of contaminated, injured, or exposed individuals. Trained personnel, doctors, nurses, health physics technicians and other support personnel were available to perform radiological monitoring, contamination control and decontamination functions in treating an injured patient contaminated with radioactive material.

The REA was setup in accordance with "Procedures for Emergency Management of Radiation Accident Casualties," French Hospital Medical Center Medical Center, San Luis Obispo, California revised July 1999, (the protocol). This was accomplished in a timely and efficient manner. The protocol requires that all personnel in the "Decontamination Suite" wear a repellant gown mask and double gloves. Although the medical staff was dressed in the required protective clothing and equipment, the Utility Health Physics Technician (HPT) did not wear a repellant gown.

The "Radiation Accident Casualty Status Report Form" was not used when the report of a radiation accident was received in the Emergency Room.

Monitoring of the patient was accomplished with an appropriate monitoring instrument equipped with a speaker and a thin-window Geiger-Müller (GM) pancake probe. A check source of unknown value was available only to check the instrument's response to radiation, and a background reading was made. The speaker on the instrument used in the REA was not turned on, and it was necessary to watch the meter when monitoring. This had the potential to result in contamination of the probe that was not covered with thin plastic.

The REA staff was aware of the need to dispense with radiological monitoring and contamination control if the patient had a life threatening medical condition.

Contamination control in the REA was generally good, however there was infrequent monitoring and changing of gloves by a staff member. Contaminated items were placed in marked containers for disposal at the end of the mission.

Samples were collected from the patients nose and mouth, placed in an appropriately labeled container and sent for analysis. This action corrected ARCA 19-96-21-A-10 from the 1996 medical drill. A record of initial contamination levels and levels during subsequent decontamination efforts was maintained on the "Initial and Post Decon Contamination Readings" form. This action corrected ARCA 19-96-21-A-9 from the 1996 medical drill.

Several discussions were held prior to arrival of the patient with staff and with the Utility Radiation Protection Foreman concerning patient injuries and contamination.

Personnel were monitored out of the REA by the utility HPT. During the monitoring the probe was frequently in contact with the surface being monitored. Exiting personnel immediately removed both pair of gloves instead of leaving the inner pair on until removal of all protective clothing and equipment was completed.

After the patient and personnel had exited the REA, the utility HPTs stated that they were responsible for monitoring and decontamination as necessary of the REA and equipment and disposal of radioactive waste. They correctly described how this would be accomplished.

Areas Requiring Corrective Action

19-99-20-A-7. Changing Gloves.

NUREG-0654 Reference L.1.3

Objective #20
Demonstration Criterion #2

1. **Description:** The paramedic did not change gloves after touching the victim while taking vital signs and before using the communication equipment or other medical electronic equipment inside the ambulance.

2. **Recommendation:** The ambulance personnel should be trained to change gloves often and the DCPP RPT should be more pro-active to advise the ambulance personnel of good health physics practices.

19-99-21-A-8. Protective Clothing

NUREG-0654 Reference L.1.1

Objective #21
Demonstration Criterion #4

1. **Description:** During the drill, a repellant gown was not worn by the Utility HPT. The protocol requires the personnel in the "Decontamination Suite" wear a repellant gown.

2. **Recommendation:** Ensure that all personnel are aware of and comply with the protective clothing requirements.

19-99-21-A-9. Contamination Control

NUREG-0654 Reference L.1.1

Objective #21
Demonstration Criterion #4

2. **Description:** During patient monitoring and monitoring of the staff out of the REA the uncovered probe came in contact with potentially-contaminated surfaces. There was infrequent monitoring and changing of gloves by one staff member in the REA. Exiting personnel immediately removed both pair of gloves. The procedure, page 33, "Post Accident Procedures" paragraph 3 items a, b, c. requires that the gloves are not to be removed until all other items of protective clothing and equipment have been removed.

2. **Recommendation:** Ensure that the probe does not come in contact with any surfaces, while monitoring. Cover probe with thin plastic as required by the protocol, page 47 "duties" paragraph a). Ensure that all participants understand the need to have gloves monitored and to change gloves to prevent the spread of contamination. Follow the protocol to prevent cross- contamination when exiting the REA

19-99-21-A-10. Radiation Accident Casualty Status Report Form

NUREG-0654 Reference L.1.,3.

Objective #21
Demonstration Criterion #3

3. **Description:** The "Radiation Accident Casualty Status Report Form" was not used to record the report when the radiation accident was received in the Emergency Room.

2. **Recommendation:** Ensure that all forms described in and required by the protocol are used as appropriate.

19-99-21-A-11 Check Source Value.

NUREG-0654 Reference H.10., L.1.3

Objective #21
Demonstration Criterion #3

1. **Description:** A check source of known value was not available to perform a single point calibration check of the monitoring instruments.

2. **Recommendation:** Obtain a check source of known value, and perform a one point calibration check of the monitoring instrument as required by NUREG-0654 H.10. and L.1.,3.

Prior Area Requiring Corrective Action-Uncorrected

19-96-5-A-1. Inadequate Dosimetry.

NUREG-0654 Reference K.3.a.

Objective #5
Demonstration Criterion #1

1. **Description:** The San Luis Ambulance Service staff were not issued pocket ion chambers as required in DCPP Security Procedure No. SP 617, "ISSUANCE OF RADIATION PROTECTION DOSIMETRY TO OFF-SITE EMERGENCY RESPONSE PERSONNEL". Therefore, ARCA 19-96-5-A-1 identified in a previous exercise is a recurring issue.

2. **Recommendation:** Provide both SLAS Regions 85A and 85B with a copy of the DCPP Security Procedure SLAS for responding to an on-site assignment to ensure they understand the requirements of the procedure and to ensure they have been issued all the equipment required by the procedure. Also, ensure on-site personnel are familiar with this procedure.

Prior Areas Requiring Corrective Action-Corrected

19-96-5-A-2. No Evidence of DRD Inspection for Electrical Leakage

NUREG-0654 Reference K.3.a.

Objective #5
Demonstration Criterion #1

1. **Description:** The DRDs issued by the NMT were last calibrated on 2/28/95. There was no documentation of subsequent quarterly inspections for electrical leakage as required by FEMA REP-14 (p. D.5-6).

2. **Recommendation:** Perform a quarterly inspection for electrical leakage of DRDs in the mR range per FEMA REP-14, page D.5-6. Document the inspection and have the documentation available to present as evidence of the inspection. Revise the hospital protocol to reflect the inspection requirement. Train appropriate staff to the revised protocol.

19-96-5-A-3. Non-direct-reading Dosimeters Not Assigned to Hospital Staff

NUREG-0654 Reference H.10.,K.3.a.

Objective #5
Demonstration Criterion #1

1. **Description:** Although the protocol calls for hospital staff in the treatment room to wear "TLD badges," neither TLDs nor film badges were issued.

2. **Recommendation:** Ensure that a TLD or film badge is issued to hospital staff who will work in the treatment room. Provide for a record to be made of the dosimeter number assigned to each person. Revise the hospital protocol to contain a sample of the issue record. Train appropriate staff to the revised protocol.

19-96-5-A-4. Finger Ring Serial Numbers Not Recorded

NUREG-0654 Reference H.10.,K.3.a.

Objective #5
Demonstration Criterion #1

1. **Description:** Although finger rings were issued to treatment room hospital staff and the NMT, no records were made of the serial numbers of the finger rings.

2. **Recommendation:** Provide for a record to be made of the serial numbers of the finger rings issued to each person. Revise the hospital protocol to contain a sample of the issue record. Train appropriate staff to the revised protocol.

19-96-5-A-5. No Instructions on How To Use, Read, or Wear Dosimetry

NUREG-0654 Reference K.3.b.

Objective #5
Demonstration Criterion #2

1. **Description:** There were no written instructions available about how to use or read the DRDs or about how to wear the finger rings. No verbal instructions were given when dosimetry was issued. Some hospital treatment room staff wore their finger rings with the chip toward the back of the hand rather than toward the palm.

2. **Recommendation:** Revise the hospital protocol to contain written instructions about how to use, read, and wear dosimetry including TLDs or film badges, finger rings, and DRDs. Train appropriate staff to the revised protocol. Ensure that when dosimetry is issued, either verbal or written instructions are given to hospital staff on how to use, read, and wear dosimetry.

19-96-5-A-6. Protocol Not Followed for Dosimetry Issue and Collection

NUREG-0654 Reference N.1.a.

Objective #5
Demonstration Criterion #4

1. **Description:** The NMT issued dosimetry to treatment room staff and to herself. The secondary RPT issued a DRD to the buffer zone nurse. The DRD issued to the buffer zone nurse was not recorded on the NMT's issue record. The protocol calls for the secondary RPT to "assign by name and number all ring, pen, and badge dosimeters" (p. 44) with assistance from the NMT (p. 46) when the patient is from DCPP. At the end of the "mission," the NMT collected finger rings and DRDs. The protocol calls for the secondary RPT to "pickup personnel dosimeters - be sure they are recorded properly" (p. 44) when the patient is from DCPP.

2. **Recommendation:** Train appropriate hospital staff on the current protocol. Alternately, revise the protocol to reflect that dosimetry will be issued to hospital staff by the NMT from hospital radiology supplies. Train appropriate staff to any revisions of the protocol.

19-96-5-A-7. Zeroing DRDs and Recording DRD Readings

NUREG-0654 Reference K.3.a.

Objective #5
Demonstration Criterion #2

1. **Description:** The NMT demonstrated the use of the charger by zeroing one of the five dosimeters that she issued. The other dosimeters that she issued were not zeroed nor were initial readings recorded. At the end of the "mission" the NMT recorded DRD readings on the issue record in counts per minute (cpm) rather than in Roentgens.

2. **Recommendation:** Revise the protocol to include zeroing DRDs if possible, and to require that initial and end-of-mission DRD readings be recorded. Revise the issue record to include a column for entering initial and end-of-mission readings. Include a sample of the issue record in the protocol. Train appropriate staff to the protocol and the correct units of measure for dosimeters.

19-96-5-A-8. Overall Hospital Emergency Worker Exposure Control

NUREG-0654 Reference K.3.b., K.3.b., K.4.

Objective #5
Demonstration Criterion #2

1. **Description:** Because initial DRD readings were not recorded, ending DRD readings were not recorded in proper units, finger ring serial numbers were not recorded, and TLDs or film badges were not issued, there would be no way to determine individual exposures to treatment room hospital staff. This issue is complicated by the fact that, because of the drill scenario, hospital staff were technically not emergency workers.

2. **Recommendation:** Provide these issues to French Hospital Medical Center for correction. Ensure that the next scenario for French Hospital Medical Center includes an evaluation of emergency worker exposure control.

19-96-21-A-9. No Permanent Record of Readings

NUREG-0654 Reference L.1. & L.3.

Objective #21
Demonstration Criterion #3

1. **Description:** Although both the hospital protocol and the radiological kits supplied by the utility contained a "contaminated patient body chart," readings were recorded on a body-sized chart that was made of Kraft paper and taped to a wall in the treatment room. While this was a good display for treatment room personnel, no permanent record of readings before and after decontamination was established.

2. **Recommendation:** Establish a method for recording initial readings and readings after each decontamination attempt, in addition to the body-sized chart displayed in the treatment room. This could be done by the secondary treatment room nurse relaying the readings to the buffer zone nurse who would relay the readings to the NMT for recording on a permanent record. Modify the "contaminated patient body chart" to show full-body front and back, and to contain room for entering readings after successive decontamination attempts. Include the new body chart in the hospital protocol and in the radiological kits supplied by the utility. Train appropriate staff on the record-keeping method and use of the modified form.

19-96-21-A-10. No Samples for Radiological Analysis

NUREG-0654 Reference L.1. & L.3.

Objective #21
Demonstration Criterion #3

1. **Description:** Despite patient contamination by immersion, general skin contamination levels of 50 mR, a "hot spot" on the back of the neck, an open wound, and the recommendation of the primary nurse in the treatment room, the RSO directed that no samples for radiological analysis be taken from the patient. The nature of the contamination warranted taking oral and nasal samples at a minimum to ensure that the patient had not swallowed or inhaled material that could cause internal radiation exposure. In the hospital protocol under "General Information About Sample Taking" it states that specimens routinely collected include sputum. Under "Sample Taking Techniques and Indications", directions are presented for obtaining samples from body orifices including asking the "patient to blow nose into tissue and place in sample tube or container." In the detailed job description for the primary treatment room nurse there is a direction to "sample skin, orifices, any areas known to be contaminated, label all containers." In the job description for the decontamination physician, there is a direction to "direct and assist with preliminary and final sampling for radioactivity."

2. **Recommendation:** Train hospital radiological safety officers in the need and the procedures for taking samples as presented in the hospital protocol.

APPENDIX 1

ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations that were used in this report.

anti-Cs	anti-contamination clothing
ARCA	Area Requiring Corrective Action
BEPZ	Basic Emergency Planning Zone
CDF	California Department of Forestry and Fire Protection
CD-V	Civil Defense - Victoreen
CFR	Code of Federal Regulations
cpm	counts per minute
DCPP	Diablo Canyon Power Plant
DHS	Department of Health Services, State of California
DRD	Direct-Reading Dosimeter
EEM	Exercise Evaluation Methodology
EOC	Emergency Operations Center
EW	Emergency Worker
EWEC	Emergency Worker Exposure Control
FEMA	Federal Emergency Management Agency
FHMC	French Hospital Medical Center
FR	Federal Register
GM	Geiger-Müller
HPT	Health Physics Technician
NMT	Nuclear Medical Technician
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, *"Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980*
OES	Office of Emergency Services
ORO	Off-site Response Organization

PG&E	Pacific Gas and Electric Company
PIC	Pocket Ion Chamber
R	Roentgen
RAC	Regional Assistance Committee
REA	Radiological Emergency Area
rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
RIX	Region 9
R/h	Roentgen(s) per hour
mR	milliroentgen (10^{-3} Roentgen)
mrem	millirem (10^{-3} Rem)
RPT	radiation protection technician
SLAS	San Luis Ambulance Service
SOP	Standard Operating Procedure
TLD	Thermoluminescent Dosimeter

APPENDIX 2

DRILL EVALUATORS

The following is a list of the personnel who evaluated the Diablo Canyon Power Plant Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Off-site Medical Drill on August 18, 1999. The organization that each evaluator represents is indicated by the following abbreviations:

ANL - Argonne National Engineering Laboratory
INEEL - Idaho National Engineering and Environmental Laboratory
FEMA - - Federal Emergency Management Agency

EMERGENCY WORKER MONITORING AND DECONTAMINATION DRILL

EVALUATION SITE	EVALUATOR	ORGANIZATION
Vehicle Monitoring and Decontamination	Brad Salmonson	INEEL
Emergency Worker Monitoring & Decontamination	Joe Keller	INEEL

Richard Echavarria, FEMA RIX, Evaluation Team Leader

MEDICAL DRILL

EVALUATION SITE	EVALUATOR	ORGANIZATION
San Luis Ambulance	Bill Serrano	ANL
French Hospital	Frank Bold	ANL

Richard Echavarria, FEMA RIX, Evaluation Team Leader

APPENDIX 3.

OBJECTIVES AND EXTENT-OF-PLAY AGREEMENT

This appendix lists the objectives which were scheduled for demonstration in the Diablo Canyon Power Plant Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Off-site Medical Drill on August 18, 1999, and the extent-of-play agreement approved by FEMA Region IX.

The objectives, contained in FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

Because the objectives are intended for use at all nuclear power plant sites, and because of variations among off-site plans and procedures, an extent-of-play agreement is prepared by the State and approved by FEMA to provide evaluators with guidance on expected actual demonstration of the objectives.

A. Objectives

Listed below are the specific radiological emergency preparedness objectives scheduled for demonstration during these drills.

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

OBJECTIVE 20: MEDICAL SERVICES - TRANSPORTATION

Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured, or exposed individuals.

OBJECTIVE 21: MEDICAL SERVICES - FACILITIES

Demonstrate the adequacy of equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

OBJECTIVE 22: EMERGENCY WORKERS, EQUIPMENT, AND VEHICLES - MONITORING AND DECONTAMINATION

Demonstrate the adequacy of procedures for the monitoring and decontamination of emergency workers, equipment, and vehicles.

B. Extent-of-Play Agreement

The extent-of-play agreement on the following pages was submitted by San Luis Obispo County, and was approved by FEMA Region IX, in preparation for the Diablo Canyon Power Plant Off-site Emergency Worker Monitoring and Decontamination Drill at El Chorro Regional Park on June 16, 1999 and the Off-site Medical Drill on August 18, 1999. The extent-of-play agreement includes any significant modification or change in the level of demonstration of each exercise objective listed in Subsection A of this appendix.

Echavarria, Richard

rom: vmorici@co.slo.ca.us
Sent: Wednesday, June 09, 1999 4:32 PM
To: richard.echavarria@fema.gov
Cc: gbrown@co.slo.ca.us; DBM2@pge.com
Subject: Clarifications of Comments on the Emergency Worker Monitoring and Decontamination Drill

Richard:

Per our conversation earlier today, I am providing clarification of several issues associated with the El Chorro Emergency Worker and Decontamination Drill.

Issue 1: POR 5.8. The bold language on page 31 of SOP III.6 HP-11 is intended to reflect the SOP direction to contact the EWEC Desk when an emergency worker reaches a 1000mR . The intent of contacting the EWEC desk is to assure that the request for authorization to exceed the mission limit of 1250 mR is made ahead of actually reaching the limit. However, the bold language could be misinterpreted as meaning that 1000 mR is the mission limit. This language will be revised to be more clear in the next update of the SOP.

Issue 2: POR 22.20. As discussed, we do not object to having to having the FEMA evaluator ask a question specific to this POR during the exercise. We ask that the evaluator be clear that the question is being asked as part of an interview and that the evaluator is not adding to the extent of play. The question may be asked as an individual is being processed through the monitoring and decon center. We request that the evaluator stick to the POR and not digress into other areas or issues.

Issue 3: The set up of the facilities will be done by the participants. FEMA is welcome to observe the set up. The formal evaluation should focus on the facilities as set up rather than the process of setting up. Should FEMA have comments on the process for setting up the facilities, we would welcome these comments as informal suggestions outside of the formal evaluation.

I believe that you and I are in agreement with the above. I appreciate your willingness to work out the details of this drill so that the needs of both our respective organizations are met.

Please feel free to give me a call if you have questions.

Vince Morici

Echavarria, Richard

rom: vmorici@co.slo.ca.us
Sent: Monday, June 07, 1999 8:17 AM
To: Echavarria, Richard
Cc: DBM2@pge.com; "Paul_Skiermont%oes.ca.gov"@co.slo.ca.us; gbrown@co.slo.ca.us
Subject: Re: El Chorro Drill Extent-of-play

ATT21876.txt

Your comments on the Draft Extent of Play are as follows.

COMMENTS ON THE EXTENT-OF-PLAY
EL CHORRO DRILL-JUNE 16, 1999

Is not SOP III.06, HP-14, also applicable for this drill?

Exception 1: FEMA will be present to observe the set-up by the players.

Exception 4: We can't find any mention of security for El Chorro in the SOPs.

POR 5.8: Is not 1000mR the limit without approval by the County Health Officer through
the EWEC desk? (HP-11, page 31, HP-9, page 47)

POR 22.6: Eight portal monitors aren

?t enough. There were 3 portals used at the
1997 Drill in Santa Maria, and 4 portals at the Camp Roberts Drill.

POR 22.7: We assumed this list was only for Camp Roberts. Is this pool sufficient for staffing all 3 locations simultaneously?

POR 22.20: The drill is very limited in scope and the appropriate and more realistic time for the interview (as specified in REP-15) is as the emergency worker is being processed. The interview should consist of "what if" questions. The County proposal for part "a" of this POR indicates that will be no speculative answers, all workers with fixed contamination "are" referred to a medical facility. The answer should be ?to contact the County Health Officer and follow his or her instructions.? There should be no limitations allowed.

POR 18.9: Does the list of trained monitors include those available for only Camp Roberts, or for both Camp Roberts and Santa Maria?

We have the following comments in reply to your questions:

SOP III.06 HP-14 is also apllicapble to the drill.

FEMA will be present to observe but not evaluate the set up of the facility. We welcome FEMA suggestions for the facility set-up, but do not expect to incur findings related to the method that players set up the facility.

Security is not needed at El Chorro Regional Park. The Park area would be closed and any campers at this facility would be required to move prior to activation of the facility during an emergency. Since this is a Drill that is being run with the intent to have minimal disruption to day to day activities, campers and visitors will not be relocated during the drill. A PIO will be available to answer questions from campers, park visitors and the media during the drill.

POR 5.8 The Limit as stated on page 31 of SOP III.6 HP-11 is 1250mR without Health Officer approval. The limit is the same for all emergency workers. The item on page 47 of SOP III.06 HP-9 allows the Decon Center Manager to reassign people to other duties with less exposure potential when they reach 1000mR. It does not require Health Officer approval if the Decon Center Manager allows them to exceed 1000 mR, but receive less than 1250 mR. The limit for Health Officer approval is the same, that being 1250 mR.

POR 22.6 We disagree that eight portal monitors are not enough. During a normal weekday (including transient population) the following figures are relevant:

PAZs 1-5 a population base of 24,769. Twenty percent of this number is 4,954. A portal monitor operating at for sixty minutes with an evacuee throughput of one evacuee each eight seconds can accommodate 4,500 people per hour. Twenty percent of the population in PAZs 1-5 can be handled by a single portal monitor in Santa Maria and another portal monitor at Camp Roberts.

Looking at the larger picture, if all 12 PAZs are involved (a scenario that some experts consider highly unlikely), the population (including transient population on a normal weekday is 149,578. Twenty percent of this number is 29,916. Using the above calculated ratio for portal monitor throughput, a total of seven portal monitors is needed.

Using one portal monitor at the Emergency Worker Decon Center, the eight working portal monitors are sufficient. The total population figures are slightly higher as we have counted PAZ 3 twice as per FEMA direction in the portal monitor calculation. Basically, the direction received from FEMA as part of the Camp Roberts Drill was to assume that all of PAZ 3 would go to the north. Similarly, if the evacuation were to the south, all of PAZ 3 would head south to Santa Maria. While we are uncertain as to what FEMA requirement forces us to double count PAZ 3, we have included it in the total population figures.

The above indicates that eight portal monitors are sufficient. If this is incorrect, please provide us with written calculations and rational for your assertion that eight are insufficient. We will then take this matter up with utility that purchased and maintains the portal monitors.

POR 22.7. The list of trained monitors varies with time. The current list is for all three locations and is sufficient to accommodate the population for all three locations when using 20% of the population for PAZs 1-5. Twenty percent of the population for PAZs 1-5 is 4,954. This would take eight staff for personnel for monitoring and 5.1 (6) staff for vehicle monitoring.

POR 22.20. We disagree with there being no limitations. The POR is very specific. We will require that the questions pertain solely to the POR and not go into areas beyond that identified by the POR. This has been problematic with FEMA interviews. We agree that the interview can be conducted during the processing of the evacuee. However, open ended "what if" questions can be phrased so as to confuse the participant and this will not be permitted. As a practical matter, the only "what if questions" that are appropriate will relate precisely to what the POR states. The POR States "Were individuals with fixed contamination, above the action level established in the plan, referred to a medical facility? (This information may be obtained through an interview, if not demonstrated)." From a practical standpoint, the "What if" question that should be asked is, "What if this individual had fixed contamination above the action level specified in your plan?" If FEMA can provide additional examples of "What if" questions, along with a rational based in FEMA REP 15 Guidance, as to how these questions will help to answer the question posed POR 22.20, we will reevaluate this position.

Echavarria, Richard

rom: Echavarria, Richard
Sent: Wednesday, May 26, 1999 3:27 PM
To: Dale MaGee (E-mail)
Cc: Paul Skiermont (E-mail); Ridgeway, Tom; Vince Morici (E-mail)
Subject: El Chorro Drill Extent-of-play

Attached in a WORD file are our comments. Please contact me if you can't read it, and for discussion. We assume this is the E-O-P for all players, i.e., both State and County.

EL CHORRO
EXTENT-OF-PLAY COMM...

Thanks.
Richard

COMMENTS ON THE EXTENT-OF-PLAY
EL CHORRO DRILL-JUNE 16, 1999

Is not SOP III.06, HP-14, also applicable for this drill?

Exception 1: FEMA will be present to observe the set-up by the players.

Exception 4: We can't find any mention of security for El Chorro in the SOPs.

POR 5.8: Is not 1000mR the limit without approval by the County Health Officer through the EWEC desk? (HP-11, page 31, HP-9, page 47)

POR 22.6: Eight portal monitors aren't enough. There were 3 portals used at the 1997 Drill in Santa Maria, and 4 portals at the Camp Roberts Drill.

POR 22.7: We assumed this list was only for Camp Roberts. Is this pool sufficient for staffing all 3 locations simultaneously?

POR 22.20: The drill is very limited in scope and the appropriate and more realistic time for the interview (as specified in REP-15) is as the emergency worker is being processed. The interview should consist of "what if" questions. The County proposal for part "a" of this POR indicates that will be no speculative answers, all workers with fixed contamination "are" referred to a medical facility. The answer should be "to contact the County Health Officer and follow his or her instructions." There should be no limitations allowed.

May 20, 1999

Mr. Tom Ridgeway
Preparedness, Training, & Exercises Division
Building 105
Presidio of San Francisco, CA 94129-1250

RE: Draft Objectives and Extent of Play for the Emergency Worker, Vehicle and Equipment Monitoring and Decontamination Drill, El Chorro Regional Park.

Dear Mr. Ridgeway:

Enclosed are the draft Objectives and Extent of Play for the El Chorro Regional Park Drill.

Due to the compressed time frame, a copy of these documents is also being forwarded to you via E-mail. We would be happy to meet with you or your staff to discuss any questions or clarifications needed to reach agreement on this document.

The drill is scheduled for June 16, 1999. The scenario information will be limited to the identification of contamination on individuals and vehicles. This information will be forwarded to FEMA under separate cover within ten days of the date of this letter. This will be a small scale drill that is oriented to demonstrating the procedures for monitoring and decontamination of emergency workers and vehicles.

Please contact me if you have any questions.

Sincerely,

Dale Magee
Emergency Services Coordinator

COPY: Dave Marsh, PG&E

SECTION 2.0 - OBJECTIVE 22:
EXENT OF PLAY
EMERGENCY WORKERS, EQUIPMENT AND VEHICLE MONITORING AND DECONTAMINATION
SAN LUIS OBISPO COUNTY - EL CHORRO REGIONAL PARK DRILL 1999

LOCATION AND DATE:

The Emergency Worker Monitoring and Decontamination Drill will be held at the El Chorro County Regional Park on June 16, 1999. The park is off of Highway 1, between the City of Morro Bay and the City of San Luis Obispo (see attached map). El Chorro Regional Park is operated by the County of San Luis Obispo Department of General Services. This park is designated as the primary emergency worker and vehicle monitoring and decontamination area for emergencies involving the Diablo Canyon Power Plant.

The park areas that will be utilized for this drill include the following:

FACILITIES

Campground Restroom/Shower Building:

This building contains separate male and female facilities. Each facility has three shower stalls. This building is the primary personnel decontamination facility.

Personnel Monitoring Area:

This is an exterior area in the immediate vicinity of the campground restroom/shower facility. A single portal monitor will be set up and operating during the drill.

Vehicle Monitoring/Contaminated Vehicle Parking/Clean Vehicle Parking Areas

This is an exterior area where arriving vehicles are monitored for contamination. Based on the monitoring results, vehicles determined to contain greater than 200 counts per minute above background levels (based on the readings of a CDV-700 instrument) are directed to a contaminated vehicle parking area, or directly to the vehicle decontamination area. Vehicles that are clean are directed to a clean vehicle parking area. See Figure 3 in Standard Operating Procedure III.06 HP-9 for the layout of the clean and contaminated vehicle parking areas.

Standard Operating Procedures:

The County of San Luis Obispo Standard Operating Procedures applicable to this exercise include the following:

SOP III.06, HP-6 Vehicle Monitoring;
HP-8 Equipment, Vehicle and Area Decontamination;
HP-9 Emergency Worker Monitoring and Decontamination;
HP-11 Emergency Worker Exposure Control.

EXENT OF PLAY
EMERGENCY WORKERS, EQUIPMENT AND VEHICLE MONITORING AND DECONTAMINATION
SAN LUIS OBISPO COUNTY - EL CHORRO REGIONAL PARK DRILL 1999

EXCEPTIONS TO EXTENT OF PLAY:

The following exceptions are proposed to be incorporated into the Extent-of Play by agreement with FEMA Region IX staff.

Exception 1. SET UP

The exercise will begin with facilities pre-set up. Set up of Decontamination area facilities will be done prior to the commencement of the Monitoring and Decontamination Drill. FEMA may observe the set up of the facilities prior to commencement of the evaluated drill; however, this will not be part of the evaluated drill.

Exception 2. EXERCISE TIME LINE

The exercise scenario time line from the November 4, 1998 exercise has been modified to accommodate the start time of this Emergency Worker, Equipment and Vehicle Monitoring and Decontamination exercise.

Exception 3. OFF SITE SIGNING

No Off-site signing will be demonstrated during this exercise.

Exception 4. VEHICLE MONITORING

Vehicle monitoring at the El Chorro Regional Park will be in accordance with procedures. At least two vehicles will be monitored. Procedures for vehicle monitors identify large area swipes for screening of contaminated vehicles. Vehicle monitors will monitor air filters, engine compartments or other areas of the vehicle in accordance with HP-6. No vehicles will be identified with fixed contamination. Security for contaminated vehicles will not be demonstrated in this drill.

Exception 5. PERSONNEL MONITORING

Exception 5.1

One portal monitor will be established for this site in accordance with procedures. A second monitor will be in stand by. SOP III.06, HP-9 calls for establishing separate male and female decontamination. Only one facility will be set up. The facility used will be the male decontamination area. FEMA may view the female restroom/shower area to assure that the set-up of the female would be identical.

Exception 5.2

Four individuals will be monitored for this drill. Two people will be identified as contaminated. No individual will have fixed contamination.

Exception 6. DECONTAMINATION CENTER

Procedures call for establishing separate male and female restroom/shower for decontamination. One restroom/shower facility will be established and in use during the exercise. One contaminated individual will have minor contamination on an extremity and will simulate washing in a sink. The other person will have larger area contamination and will simulate showering. No disrobing, washing, or showering will take place during the drill. No personnel simulating contaminated workers will be directed to don alternate clothing during this exercise.

Nasal swabs are required to be implemented only at the discretion or direction of the County Health Officer. This will not be demonstrated during this exercise.

Exception 7. EMERGENCY WORKER EXPOSURE CONTROL (EWEC)

Only personnel in monitoring and decon functions are required to use exposure control equipment and procedures. These workers have and will use Exposure Control Equipment in accordance with their procedures. Exposure control tracking was successfully demonstrated in the November 4, 1998 exercise and will not be demonstrated in this exercise. Knowledge of the use of dosimeters and exposure log forms will be demonstrated.

Exception 8. SUPPLEMENTAL RESOURCES

Standard emergency management protocols allow for the procurement of supplemental resources. During times of emergencies, local governments can make requests for supplemental assistance from the State and federal governments. Mutual Aid systems exist in the State of California. These systems allow for the procurement of additional resources from state, local and federal sources. If shortfalls of resources occur or are identified during the conduct of the exercise, the mutual aid systems will not be implemented during this exercise.

Exception 9. SET UP OF FACILITIES

FEMA will be welcome to observe the set up of El Chorro Park facilities. Minor exceptions to setup include:

1. Propositioning of Monitoring and Decon Supplies at the appropriate stations
2. Communications necessary for the drill will be propositioned.
3. Drill participants will not be called out but rather will be given a specific time to report to El Chorro Regional Park.
4. Communication with off-site agencies, facilities, etc. will be simulated.

Exception 10. TERMINATION OF EXERCISE FOR REAL EMERGENCY EVENTS

The Drill Director may terminate the exercise, or any component/portion of the exercise,

should emergency conditions occurring in San Luis Obispo County require the attention of emergency response personnel participating or controlling the exercise.

EXTENT OF PLAY AGREEMENT

The Objectives and Extent of Play will be reviewed by FEMA Region IX staff. The Extent of Play identifies the extent of demonstration by Point of Review. This Objectives and Extent of Play package constitutes the FEMA REP Objectives and the level of participation and demonstration for this exercise. Upon approval of this Extent of Play and Objectives, any subsequent FEMA or FEMA contractor requests to modify this Extent of Play and Objectives must be made in writing and must be received by San Luis Obispo County OES no later than twenty days prior to the date of the drill.

SECTION 2.0

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL
SAN LUIS OBISPO COUNTY - EL CHORRO REGIONAL PARK DRILL 1999

NUREG REF POINTS OF REVIEW

Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.

H.10., K.3.a.,b **5.1. Identify which group(s) of emergency workers (e.g., radiation monitoring teams and traffic control personnel) demonstrated this objective at this location.**

Extent of Play Dosimetry must be worn by the following persons:

All persons performing monitoring or decontamination of persons or property.

All persons handling or guarding contaminated property or waste.

5.2. Was a non-self-reading dosimeter assigned to each emergency worker?

(a) If yes, specify the type.

Extent of Play TLD used in Drill

(b) Was a record made of the non-self-reading dosimeter number assigned to each emergency worker?

Extent of Play Records of dosimetry are kept in accordance with SOPs HP-9, Guide # 2 and HP-11 EWEC

(b) Where and when would the non-self-reading dosimeter be turned in for processing?

Extent of Play At the end of the shift/incident to "Command Center"

5.3. Did each emergency worker or team have a direct-reading dosimeter(s)?

(a) If yes, identify the number and the full-scale range(s) of the direct-reading dosimeter(s).

NUREG REF	POINTS OF REVIEW
	Demonstrated during the drill. DRDs are 0-200 mR. High range dosimetry are not used.
	(b) Was a record made of the dosimeter number(s) assigned to each emergency worker or team for each mission?
Extent of Play	Not done per SOP
	5.4. Is there evidence that the direct-reading dosimeter(s) was inspected for electrical leakage?
	(a) If yes, what is the most recent inspection date indicated?
Extent of Play	This information has been provided to FEMA Region IX under separate cover.
	(b) Were all inspection dates within the time frames as stated in the plan?
Extent of Play	This information has been provided to FEMA Region IX under separate cover.
J.10.e., K.3.a.,b.,4	**5.5. Were instructions available on how to use the dosimeter(s) and perform periodic readings on the direct-reading dosimeter(s)?**
Extent of Play	Demonstrated during the drill, per HP-11.
	5.6. Did each emergency response team have access to a dosimeter charger?
Extent of Play	Demonstrated during the drill.
	(a) Was the charger checked for proper operation?

SECTION 2.0
OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL
SAN LUIS OBISPO COUNTY - EL CHORRO REGIONAL PARK DRILL 1999

NUREG REF	POINTS OF REVIEW
Extent of Play	Demonstrated during the drill.
	5.7. Were the direct-reading dosimeters zeroed and/or the initial readings recorded prior to deployment?
Extent of Play	Demonstrated during the drill.
	5.8. Were emergency workers aware of their maximum authorized mission exposure limit?
Extent of Play	Demonstrated during the drill. Mission limit is 1250 millirem per SOP III.06, HP-11.
	(a) If yes, what exposure limit did they indicate?
Extent of Play	Demonstrated during the drill.
	(b) Were emergency workers authorized to terminate their mission by their own decisions if a turn-back value was reached?
Extent of Play	The Decontamination Center Manager oversees the exposure logs for Decontamination Center Staff and provides reassignment when Decon Center Staff approach Mission Limits.
	(2) What turn-back value(s) did they use?
Extent of Play	1250 mR
	(d) Whom would they contact? Specify individual by title and organization.
Extent of Play	Decontamination Center Manager, SLO County Fire Department.

NUREG REF	POINTS OF REVIEW
	5.9. Were the direct-reading dosimeters periodically read?
	(a) If yes, at what time intervals?
Extent of Play	Self reading dosimeters should be read at least once per hour.
	5.10. Did each emergency worker have an exposure record or chart?
	A radiation exposure record log (3X6" card) (see SOP HP-11) is used.
	(a) Were individual exposures in Roentgens recorded at the end of each mission?
Extent of Play	Exposure is recorded in mR.
	(b) Were emergency worker exposure records given to a designated individual?
Extent of Play	Exposure records are given to the Command Center and then to the EWEC Desk at the end of the individual's mission.
	© If yes, identify this individual by title and organization.
Extent of Play	Command Center and EWEC desk, and County Health Officer per HP-11.
	5.11. Were emergency workers made aware of the potential need to take potassium iodide (KI) for thyroid blocking?
Extent of Play	KI is not likely to be issued due to the location of the decontamination facilities in relation to the plant. The Decontamination Center Manager addresses the issue of Emergency Worker Exposure Control as part of the operational briefing for activation of the Decontamination Center.
K.3.,4	**5.12. Were emergency workers, who were assigned special missions, briefed regarding higher dose limits authorized for**

NUREG REF	POINTS OF REVIEW
	these assignments?
	(a) If so, what limit was authorized for what type of assignment? **ASSIGNMENT _____ LIMIT_____**
Extent of Play	Due to the extremely low probability that the mission limits would be exceeded by staff at El Chorro Regional Park this will not be demonstrated.
	(b) Was any special administrative approval required for these higher dose limits?
Extent of Play	Not demonstrated. Approvals for exceeding exposure are clearly defined in HP-11. This was demonstrated during the November. 4, 1998 exercise.
N.I.a	**5.13. In the implementation of the activities associated with this objective, did the organization follow its plans and procedures?**
Extent of Play	To be determined as part of the exercise evaluation.
	5.14. Specify whether or not the following demonstration criteria were successfully demonstrated during this exercise using YES, NO, N/A, or N/O.
H.10., K.3.a.,b	**_____ 1. The response organization utilized appropriate dosimetry for emergency worker radiation exposure control. (PORs 5.1-5.4)**
Extent of Play	To be determined as part of the exercise evaluation only for the monitoring and decontamination Center Staff that are identified in POR 5.1 .

SECTION 2.0

OBJECTIVE 5: EMERGENCY WORKER EXPOSURE CONTROL
SAN LUIS OBISPO COUNTY - EL CHORRO REGIONAL PARK DRILL 1999

NUREG REF	POINTS OF REVIEW
J.10.e., K.3.a.,b.,4	_____ **2. Emergency workers periodically read and, at the end of each mission, recorded their dosimeter readings on the appropriate exposure record or chart. Procedures were followed to manage radiological exposure so that emergency workers did not incur excess dose. (PORs 5.5-5.11)**
Extent of Play	To be determined as part of the exercise evaluation only for the monitoring and decontamination Center Staff that are identified in POR 5.1.
K.3.,4	_____ **3. Appropriate decisions were made to send emergency workers into areas within the plume exposure pathway emergency planning zone where special missions required higher dose limits. (POR 5.12)**
Extent of Play	This POR is not applicable to this drill. This POR was demonstrated as part of the November 4, 1998 exercise.
N.I.a	_____ **4. All activities described in the demonstration criteria for this objective were carried out in accordance with the plan, unless deviations were provided for in the extent-of-play agreement. (POR 5.13)**
Extent of Play	To be determined as part of the exercise evaluation only for the monitoring and decontamination Center Staff that are identified in POR 5.1 .

NUREG REF	POINTS OF REVIEW
K.5.a.,b H.10	**22.1 Where was the facility(ies) for vehicle monitoring and decontamination of emergency workers, equipment and vehicles located?**
Extent of Play	El Chorro Regional Park is used for Emergency Worker Monitoring and Decontamination. The park has sufficient area for emergency worker vehicles and personnel. The park has a building with separate male and female restrooms and shower facilities.
	(a) Were emergency workers advised of this location?
Extent of Play	This point of review was demonstrated during the November 4, 1998 Exercise and is not applicable to this drill.
	(b) When was the facility(ies) activated?
	During the November 4, 1998 exercise.
K.5.b.	**22.2 Was there adequate space for the following?**
	Monitoring
	Emergency Workers
Extent of Play	El Chorro Regional Park provides sufficient area for emergency workers.
	Vehicles and equipment
Extent of Play	The park has sufficient area for emergency vehicles. The park has 44 campground spaces with an overflow area capable of handling an additional 50 camp sites. The park and adjacent areas can accommodate several hundred vehicles, depending upon the type of vehicle.
	Decontamination
	Emergency Workers
Extent of Play	El Chorro Regional Park has both male and female shower facilities. Each facility has three shower stalls. Standard Operating Procedure III.06 SLO HP-9 identifies Camp San Luis

NUREG REF	POINTS OF REVIEW
	Obispo and the PG&E Community Center as potential alternative sites.
	El Chorro Regional Park provides adequate space and facilities for personnel decon.
	Vehicles and Equipment
Extent of Play	El Chorro Regional Park provides adequate space for decontamination of vehicles.
K5.b.	**22.3 Was the facility set up to separate contaminated and non-contaminated or clean emergency workers?**
Extent of Play	The facility set up will demonstrate separation of clean and contaminated workers.
K.5.b.	**22.4. Were procedures in place to minimize contamination of the facility?**
Extent of Play	County Standard Operating Procedure III.06, HP-9, identifies procedural steps that are intended to minimize contamination of the facility. It is important to note that the main focus of the procedure is the monitoring and decontamination of emergency workers and their vehicles. Minimizing contamination to prevent the spread to clean personnel is the primary focus. Clean up of the contaminated areas in the park is a lower priority and would be handled as part of the recovery process, not necessarily during the emergency phase.
K.5.b.	**22.5. Were adequate measures taken to prevent the build up of the background radiation level at monitoring locations due to the following?**
	(a) Contaminated clothing
Extent of Play	Guidance for handling contaminated clothing and personal articles is contained in HP-9. A contaminated waste container will be set up in the personnel Decontamination Center. The procedure calls for monitoring the waste container every thirty minutes to assure that there is no build-up of contamination levels. Bags that demonstrate readings greater than 2 mR/hr are to be sealed,

NUREG REF | POINTS OF REVIEW

labeled and removed from the Decontamination Center. The placement of a waste container and monitoring of waste will be demonstrated.

(b) Contaminated equipment and waste

Extent of Play

San Luis Obispo County Standard Operating Procedure III.06, HP - 8 provides the guidance for area, vehicle and equipment decontamination. As part of the demonstration for this drill, a County controller will select one vehicle as a demonstration of the decontamination techniques. Decontamination of the vehicle will be done by County Fire personnel, in accordance with SOP III.06, HP-8.

K.5.b. 22.6. **What types of survey instruments or portal monitors and how many of each were available for monitoring emergency workers?**

TYPE OF INSTRUMENT	NUMBER AVAILABLE

Extent of Play

Pacific Gas and Electric owns and maintains a total of 8 portal monitors. Seven of these are kept in the San Luis Obispo area, usually at the Pacific Gas and Electric Co. Service Center in the City of San Luis Obispo. One portal monitor is in the City of Santa Maria. SLO County has a cache of CDV-700 instruments made available from the State.

	Total Inventory Available for Emergency Worker & Evacuee Monitoring
Eberline PPM-1 portal monitor	5
SAIC PPM- 100 (or equivalent)	3
CDV 700 (or equivalent)	60

For the drill, there will be two portal monitors - one in use, one as stand by.

NOTE: Answer POR 22.7 only if **portal monitors** were used.

H.10 22.7. **How many personnel at this location were trained to set**

NUREG REF	POINTS OF REVIEW
K.5.b.	**up and operate the portal monitors?**
Extent of Play	A listing of trained monitors has been provided to FEMA Region IX as part of the April 28, 1999 Camp Roberts Evacuee Monitoring and Decontamination Drill. This listing provides the pool of monitors for evacuee and emergency worker monitoring functions. For this drill, two monitors will perform initial monitoring screening. These individuals will be setting up the portal monitor. Only one individual is needed to operate the portal monitor.
	(a) **Was a check source available to verify proper operation of the portal monitors?**
Extent of Play	The basic concept is that regular service and checks of the portal monitor is one means of assuring the proper operating condition of the equipment. If equipment is found to be in a non-operating condition, it is taken out of service and replaced with either another portal monitor, or a hand held monitor. A check source to verify functioning of portal monitors is brought and used by PG&E personnel.
	(b) **Was the proper reading (or range of readings) for a particular check source available for each unit?**
Extent of Play	This is done as part of the ongoing maintenance of the portal monitors.
	© **Were all portal monitors checked for proper operation, including reading of the check source?**
Extent of Play	Yes. The drill play will involve active use of one portal monitor. The second will be available as back up.
	(d) **Were all the portal monitors at this location operational?**
Extent of Play	To be determined during the drill.
	(e) **If any were not operable, explain.**
Extent of Play	To be determined during the drill.
	(f) **Were individuals, who were found to be contaminated, remonitored with a portable survey instrument prior to**

NUREG REF	POINTS OF REVIEW
	decontamination?
Extent of Play	Procedures require that individuals found to be contaminated are remonitored using a CDV-700. This will be demonstrated during the drill for at least two individuals.
K.5.b	**22.8. How many radiological monitors were present at this facility?**
Extent of Play	A total of six monitors are planned for this exercise. This includes the staff for the portal monitor. Six monitors comprise one shift of monitors for this location pers SOP III.06, HP-9.
	(a) Was this number consistent with the number of radiological monitors specified in the pre-exercise agreement for this facility? (Secure and attach a list of trained monitors for each shift.)
Extent of Play	The number of monitors for this facility is planned for six monitoring staff.
H.10.	**22.9. Were check sources available to verify property operation of portable survey instruments?**
Extent of Play	A check source exists on the CDV-700 instrument itself. The check source verifies that the instrument is functioning. If the instrument is not functioning properly, another instrument is used. Portal monitors are serviced by the utility (PG&E).
	(a) **Was the proper reading (or range of readings) for a particular check source available for each instrument?**
Extent of Play	Yes, in HP-9.
	(b) **Were all survey instruments checked for proper operation, including reading of the check source?**
Extent of Play	Instruments are checked for prior operation prior to their use for monitoring. The instrument is replaced if it is not functioning.
H.10.	**22.10. Were portable survey instruments equipped with earphones or speakers?**

NUREG REF	POINTS OF REVIEW
Extent of Play	All hand held monitors are equipped with earphones.

RADIOLOGICAL MONITORING AND DECONTAMINATION OF EMERGENCY WORKERS

H.10. **22.11. Were earphones or speakers used when monitoring individuals for contamination?**

Extent of Play: All hand held monitors are equipped with earphones. Portal monitors have a loud alarm sound that is easily heard. Earphones will be used in the demonstration of this drill.

H.10. **22.12. Was monitoring for contamination accomplished with the beta shield open?**

Extent of Play: Hand held monitoring devices are used with beta shields open (Procedure HP-9). This POR is N/A for portal monitor use.

K.5.a. **22.13. What action level was used to decide whether or not emergency workers required decontamination?**

	TYPE OF INSTRUMENT	ACTION LEVEL
Extent of Play	CDV - 700	200 Counts per minute above background

K.5.b. **22.14. Were the demonstrated monitoring procedures sufficient to detect radiological contamination?**

Extent of Play: Monitoring will be done in accordance with SOP III.06, HP-6 and HP-9.

K.5.b. **22.15. Were contamination control measures employed at this facility?**

Extent of Play: Contamination control procedures are identified in SOP III.06-HP-6, HP-8, and HP-9. These procedures will be demonstrated within

NUREG REF	POINTS OF REVIEW

the context of the extent of the play for this drill.

(a) **If yes, check those measures used.**

YES Monitors wore gloves
YES Covered survey instrument probes with thin plastic
YES Separation of contaminated and uncontaminated individuals

K.5.b. **22.16. Check the decontamination measures that were simulated or demonstrated. (Indicate YES, NO, N/A, N/O in the space provided for each item. Use S for simulated and D for demonstrated.)**

YES, NO N/A, N/O		S/D
YES	Removal of contaminated clothing	S
YES	Use of shower facilities	S
YES	Use of sink or wash basin if only extremities were contaminated	S
YES	Re-monitoring of decontaminated individual	D
YES	Provision of changes of clothing for individuals after decontamination	D
YES	Method for separating and containing contaminated Clothing and other materials (e.g., plastic bags)	D

K. **22.17. Were provisions or procedures for separate male and female showers available?**

Extent of Play YES, the campground restroom facilities include male and female restroom facilities. Each restroom includes three shower stalls. For this demonstration, only the male restroom facility will be set up and utilized so as to minimize the impact to the campground.

K.5.b. **22.18. Were provisions made (e.g., signs or handouts) to advise emergency workers who were monitored and found not contaminated to bathe and change clothes?**

Extent of Play YES, signing advising personnel to bathe or shower within three days will be present during the drill.

H.10. **22.19. Were portable survey instruments used to re-monitor**

NUREG REF	POINTS OF REVIEW
	individuals after they were decontaminated?
Extent of Play	YES, one monitor will be stationed within the decontamination facility to remonitor individuals who have simulated decontamination.
K.5.b.	**22.20. Were individuals with fixed contamination, above the action level established in the plan, referred to a medical facility? (This information may be obtained through an interview, if not demonstrated.)**
Extent of Play	SOP III.06, HP-9 includes guidance on handling personnel with fixed contamination. Fixed contamination is identified as contamination that remains above the 200 cpm above background, measured by a CDV-700, after several attempts at decontamination. This POR will be evaluated by interview with the Decontamination Specialist Coordinator, outside of the scenario for this drill. The interview will focus on the steps that are contained in SOP III.06, HP-9. This SOP guides the Decontamination Specialist Coordinator to contact the County Health Agency Department Operations Center (CHADOC) to receive guidance on subsequent actions related to handling fixed contamination. CHADOC will not be operational during the drill. Consequently, the interview will not involve speculative questions about the possible outcomes of discussions with CHADOC. The interview will be at a time mutually agreed to by the drill Controller and FEMA evaluator.
	(a) For individuals not referred to a medical facility, describe procedures followed?
Extent of Play	N/A. All individuals are referred to a medical facility per SOP III.06, HP-9.
K.5.b.	**22.21. Was a record made for each contaminated individual? (If available, attach sample form.)**
Extent of Play	SOP III.06, HP-9 includes record keeping for each contaminated individual. This will be demonstrated in accordance with the procedure. FEMA has copies of HP-9.

RADIOLOGICAL MONITORING AND DECONTAMINATION

NUREG REF	POINTS OF REVIEW
	OF VEHICLES AND EQUIPMENT
H.10.	**22.22. What types of survey instruments were used to monitor vehicles and equipment at this facility?**
Extent of Play	CDV-700 instruments are used to monitor vehicles. This will be demonstrated in accordance with SOP III.06, HP-6.
H.10.	**22.23. Were check sources available to verify proper operation of survey instruments?**
Extent of Play	YES, see POR 22.9 above.
	(a) Was the proper reading (or range of readings) for a particular check source available for each instrument?
Extent of Play	See POR 22.9
	(b) Were all instruments checked for proper operation, including reading of the check source?
Extent of Play	Instruments are checked for proper operation prior to their use for monitoring. The instrument is replaced if it is not functioning.
H.10.	**22.24. Were portable survey instruments equipped with earphones or speakers?**
Extent of Play	All hand held monitors are equipped with earphones.
	(a) Were earphones or speakers used when monitoring for contamination?
Extent of Play	Earphones will be used in the demonstration of this drill.
	(b) Was monitoring accomplished with the beta shield open?
Extent of Play	Hand held monitoring devices are used with beta shields open (Procedure HP-6).
K.5.b.	**22.25. Did the vehicle monitoring procedure include monitoring the**

NUREG REF	POINTS OF REVIEW
	following areas? (Indicate YES, NO, N/A, N/O in the space provided for each item.)
Extent of Play	YES Air intake filter NO Grills YES Wheel areas NO Bumpers YES Tires YES Other - Engine compartment, trunk, interior
K.5.b.	**22.26. Were the demonstrated monitoring procedures sufficient to detect radiological contamination at the level specified in the organization(s) plan?**
Extent of Play	TBD during the drill
K.5.a.	**22.27. What action level was used to initiate decontamination of equipment and vehicles?**
Extent of Play	SOP III.06, HP-6 identifies 200 cpm above background, measured by a CDV -700 instrument, as the action level used to initiate decontamination of equipment. One vehicle will be identified as having this action level. A drill controller will select a vehicle and advise the FEMA evaluator as to levels and locations of contamination.
K.5.b.	**22.28. Were contaminated vehicles separated from uncontaminated vehicles and moved to an isolated area?**
Extent of Play	SOP III.06, HP-9 identifies separate areas for contaminated vehicles and vehicles determined to be clean. The contaminated vehicle parking area will be identified by signs. Due to the limited scope of this drill, vehicles will not be staged in the contaminated vehicle parking area.
K.5.b.	**22.29. Were uncontaminated individuals kept away from vehicles and equipment that required decontamination?**
Extent of Play	Security for the contaminated vehicle area will not be demonstrated for this drill.
K.5.b.	**22.30. Were vehicles and equipment with fixed contamination above the action level established in the plan for initiating**

NUREG REF	POINTS OF REVIEW
	decontamination released?
Extent of Play	SOP III.06, HP-8 identifies that if important equipment cannot be lowered below 200 cpm above background, the County Health Officer is to be notified. Based on the nature and immediacy of the need for the equipment, the County Health Officer will determine whether or not to release the equipment for use and any restrictions associated with use of the equipment. For this drill, no vehicles will be identified with fixed contamination above the threshold levels.
	(a) For such vehicles released, describe procedures followed.
Extent of Play	See discussion immediately above. Evaluation of this POR will be done with an interview with the Center Manager, a County Fire employee. The focus of the interview will be limited to the steps in the procedure which advises contact with County Health Officer. The County Health Officer is not participating in this drill and speculative discussions associated with release of equipment or vehicles will not be a part of the FEMA interview process. The interview will be out of sequence from the actual drill participation, and at time mutually agreed to by the drill Controller and FEMA evaluator.
H.10.	**22.31. Was adequate equipment available to decontaminate vehicles and equipment that were found to be contaminated? (This information may be obtained through an interview, if equipment not available or activity not demonstrated.)**
Extent of Play	SOP III.06, HP-8 contains an inventory of initial supplies necessary for initiating decontamination. This list can be supplemented through requests for additional supplies made through standard resource request channels. The supplies demonstrated during the drill will be sufficient to accommodate the limited scope of this drill and these supplies will be in accordance with the supplies listed in the inventory identified above.
N.1.a.	**22.32. In the implementation of the activities associated with this objective, did the organization follow its plan and procedures?**
Extent of Play	To be determined during the drill and in accordance with the limitations specified in this extent of play.