FEB 2 3 1990

In Reply Refer To:
Dockets: 50-498
50-499

Houston Lighting & Power Company
ATTN: Donald P. Hall, Group
Vice President, Nuclear
P.O. Box 1700
Houston, Texas 77251

Gentlemen:

Attached is a copy of the December 22, 1989, Federal Emergency Management Agency's (FEMA) exercise evaluation report of the April 26, 1989, emergency preparedness exercise.

The report indicates that FEMA observed no deficiencies during this exercise.

If you have any further questions, please contact Mr. Nemen M. Terc at (817) 860-8129.

Sincerely,

/S/

Samuel J. Collins, Director
Division of Reactor Projects

Attachment:
As stated

cc w/out attachment:
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800 North Loop 288
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cc w/attachment:
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AI 90-020

*RIV:SEPS	*C:SEPS	*D:DRSS	D:DRP
Terc/slr	DPowers	BBeach	SCollins
/ /	/ /	/ /	2/23/90

*Previously concurred

IE35
A045 1/1

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Federal Emergency Management Agency

Washington, D.C. 20472

DEC 22 1989

Mr. Frank J. Congel
Director
Division of Radiation Protection
and Emergency Preparedness
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Congel:

Enclosed is a copy of the exercise report of the April 26, 1989, exercise of offsite radiological emergency preparedness plans site-specific to the South Texas Project Electric Generating Station. The State of Texas and Matagorda County fully participated in this exercise. This exercise report was prepared by the Region VI office staff of the Federal Emergency Management Agency.

There were no deficiencies identified as a result of this exercise; however, several areas requiring corrective action were identified. The State of Texas has assured the Region VI staff that the outstanding areas requiring corrective action will be corrected by the next scheduled exercise for the South Texas Project Electric Generating Station. Based on the results of this exercise, the offsite radiological emergency plans and preparedness for the South Texas Project Electric Generating Station remain adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency and the 44 CFR 350 approval granted on April 8, 1988, remains in effect.

If you should have any questions, please contact Craig S. Wingo, Chief, Technological Hazards Division, at 646-3026.

Sincerely,

Dennis H. Kwiatkowski

Dennis H. Kwiatkowski
Assistant Associate Director
Office of Natural and
Technological Hazards

Enclosure

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FINAL
RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE REPORT

Nuclear Power Plant: South Texas Project Electric Generating Station
Applicant: Houston Lighting and Power

Location of Plant: State of Texas
Matagorda County
Bay City, Texas

Date of Report: October 20, 1989

Date of Exercise: April 26, 1989

Participants: State of Texas
Matagorda County, Texas
Bay City, Texas
Palacios, Texas
Palacios VFD Ambulance Service
Wagner General Hospital

Federal Emergency Management Agency

Region VI

Federal Center
800 N. Loop 288, Denton, Texas 76201

FINAL
RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE REPORT

Nuclear Power Plant: South Texas Project Electric Generating Station
Applicant: Houston Lighting and Power

Location of Plant: State of Texas
Matagorda County
Bay City, Texas

Date of Report: October 20, 1989

Date of Exercise: April 26, 1989

Participants: State of Texas
Matagorda County, Texas
Bay City, Texas
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Palacios VFD Ambulance Service
Wagner General Hospital

Federal Emergency Management Agency

Region VI

Federal Center
800 N. Loop 288, Denton, Texas 76201

CONTENTS

TABLES

TABLES (Cont'd)

ABBREVIATIONS

ANL	-	Argonne National Laboratory
ARC	-	American Red Cross
ARCA	-	Areas Requiring Corrective Action
ARFI	-	Areas Recommended For Improvement
BRC	-	Bureau of Radiation Control
DEM	-	Division of Emergency Management
DHHS	-	Department of Health and Human Services
DOE	-	Department of Energy
DPS	-	Texas Department of Public Safety
EBS	-	Emergency Broadcast System
ECL	-	Emergency Classification Level
EEM	-	Exercise Evaluation Methodology
EOC	-	Emergency Operations Center
EPA	-	Environmental Protection Agency
EPZ	-	Emergency Planing Zone
ERF	-	Emergency Response Facility
FDA	-	Food and Drug Administration
FEMA	-	Federal Emergency Management Agency
HL&P	-	Houston Lighting and Power
INEL	-	Idaho National Engineering Laboratory
KI	-	Potassium Iodide
LCO	-	Limiting Condition for Operation
LOCA	-	Loss-of-Coolant Accident
MIC	-	Media Information Center
mR/h	-	Millirems per hour
NRC	-	Nuclear Regulation Commission
OSC	-	On-Scene Commander
PAG	-	Protective Action Guide
PAR	-	Protective Action Recommendation
PAS	-	Protective Action Section
PIO	-	Public Information Officer
RAC	-	Regional Assistance Committee
RADEF	-	Radiological Defense
RCS	-	Reactor Coolant System
REP	-	Radiological Emergency Preparedness
RO	-	Radiological Officer
SOP	-	Standard Operating Procedure
STPEGS	-	South Texas Project Electric Generating Station
TDH	-	Texas Department of Health
TLD	-	Thermo Luminescent Dosimeter
USDA	-	United States Department of Agriculture

INTRODUCTION AND AUTHORITY

On December 7, 1979, the President directed the Federal Emergency Management Agency (FEMA) to assume lead role responsibility for all off-site nuclear power facility planning and response.

FEMA's immediate basic responsibilities in Fixed Nuclear Facility Radiological Emergency Response Planning include:

- Taking the lead in off-site emergency response planning and in the review and evaluation of State and local government emergency plans ensuring that the plans meet the Federal criteria set forth in NUREG-0654 FEMA REP-1, Rev. 1 (November 1980).

- Determining whether the State and local emergency response plans can be implemented on the basis of observation and evaluation of an exercise conducted by the appropriate emergency response jurisdictions.

- Coordinating the activities of volunteer organizations and other involved Federal agencies. Representatives of these agencies listed below serve as members of the Regional Assistance Committee (RAC), which is chaired by FEMA.

  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (DHHS)
  - U.S. Department of Transportation (DOT)
  - U.S. Department of Agriculture (USDA)
  - U.S. Department of Interior (DOI)
  - U.S. Department of Food and Drug Administration (FDA)

1 EXERCISE BACKGROUND

The South Texas Project Electric Generating Station (STPEGS) exercise, April 26, 1989, was the second exercise designed to test the emergency response capabilities of off-site organizations. The facility's initial qualifying exercise was held on April 8, 1987.

The State of Texas and Matagorda County (the single county within the 10-mile Plume EPZ) fully participated in the April 26th exercise. A Federal Emergency Management Agency, Region VI (FEMA RVI) evaluation team evaluated the State and local off-site emergency response capabilities at this exercise. The results of this evaluation are contained in this report.

Exercise objectives of the STPEGS exercise for State and local off-site response were submitted to FEMA Region VI on February 14, 1989 and, after review and negotiations, revised objectives were approved on March 13, 1989. The exercise scenario was submitted to the Region on March 16, 1989 and, following review by the Region and Westinghouse Idaho Nuclear Company, Inc., a FEMA contractor, was approved on March 27, 1989.

Following the exercise, on April 26th, three review/critique meetings were held in Bay City, Texas on April 27. The first meeting, attended by the 22-member FEMA evaluation team, provided a detailed preliminary report of evaluator findings to the FEMA RAC Chairman. The second meeting, later that day, with Federal, State, local and utility representatives in attendance, presented a brief critique and preliminary findings resulting from the exercise. The third meeting, the same day, presented a critique for the general public from around the nuclear facility area and a synopsis of the preliminary findings.

All preliminary exercise findings have now been reviewed and are consolidated in this report.

Section 2 of this report provides detailed narratives of exercise events, any Deficiencies in exercise emergency response, any Areas Requiring Corrective Action (ARCAs) noted by the evaluators and Areas Recommended for Improvement (ARFIs) for each of the field activities tested in the exercise. Section 3 provides a tabular summary listing of any Deficiencies (that would lead to a negative finding) and any ARCAs, including those requiring priority action. The tabular summary provides space for State and local jurisdiction response and their schedule for corrective actions. The evaluators found no deficiencies in this exercise. Several ARCAs have been noted that will require action by the State and local participants.

Section 4 compiles, in tabular format, a listing of FEMA objectives yet to be met and a tracking table depicting the status of all objectives including those met, those not yet met and any Deficiencies or ARCAs related to those objectives.

The findings presented in this report were reviewed by the RAC Chairman of FEMA Region VI. FEMA suggests that State and local jurisdictions take remedial actions in response to each of the problems indicated in the report, and that the State submit a schedule for addressing these problems. The Regional Director of FEMA Region VI is

responsible for certifying to the FEMA Associate Director for State and Local Programs and Support, Washington, D.C., that any Deficiencies and ARCAs have either been corrected or scheduled for correction and that such corrections have been incorporated into State and local plans, as appropriate.

The following narrative summary provides a brief overview of the exercise performances of the State of Texas and Matagorda County. More detailed discussions of performances by individual agencies or response organizations are provided under the appropriate location in Sec. 2.

1.1 EXERCISE SUMMARY

State of Texas Operations:

The Texas Department of Health, Bureau of Radiation Control, and the Texas Department of Public Safety, Division of Emergency Management, together with selected representatives of other State departments and agencies, fully participated in the STPEGS exercise. State operating locations included: the State EOC in Austin, the State Disaster District EOC at Pierce, the BRC staging area in Bay City, the STPEGS EOC on the plant site, and various field locations within and near the 10-mile Emergency Planning Zone (EPZ) around the plant site.

With the exception of a few issues, mostly involving communications, detailed in the individual site narratives in Sec. 2 of this report, the State demonstrated an adequate level of readiness for responding to a radiological emergency at the STPEGS plant.

Local Government Operations:

Matagorda County, the only county within the 10-mile EPZ, fully participated in the exercise. The cities of Bay City and Palacios participated as described in the local plan. The county developed the Radiological Emergency Response Plan and procedures, and the elected county officials, emergency staff and volunteers participated in accordance with the plan. County participants demonstrated a high level of training, active interest and enthusiasm toward their role in the emergency response efforts. An outstanding demonstration of leadership, coordination and team effort was again exhibited by county participants.

Individual activities of county participants are described in Sec. 2 of this report.

1.2 FEDERAL EVALUATORS

Twenty-two (22) Federal evaluators participated in evaluating the April 26, 1989 STPEGS exercise. These individuals, their agenices and their evaluation assignments are listed below:

Evaluator	Agency	Evaluation Location
Gary Jones	FEMA	Overall Evaluator Coordination
Gary Kaszynski	ANL	Matagorda County EOC, Bay City
Nancy Culp	FEMA	Matagorda County EOC, Bay City
Carl McCoy	FEMA	State EOC, Austin
Travis Ratcliff	FEMA	State EOC, Austin
Dan Santini	ANL	Disaster District EOC, Pierce
Brad Salmonson	INEL	STPEGS EOC
Bill Gasper	ANL	STPEGS EOC
Dana Cessna	FEMA	Media Information Center, Bay City
John Benton	FEMA	Media Information Center, Bay City
Ernie Boaze	FEMA	BRC Staging Area, Bay City
Harry Harrison	FEMA	BRC Field Monitoring Team #1
Leon Zellner	FDA	BRC Field Monitoring Team #2
Leland Peyton	FEMA	BRC Field Monitoring Team #3
Frank Wilson	ANL	BRC Mobile Lab
Gene Nunn	FEMA	Access Control Point #1
Ed Hakala	ANL	Access Control Point #2
Phil Edgington	DHHS	Wagner General Hospital
Tom Carroll	ANL	Palacios VFD Ambulance Service
Al Lookabaugh	ANL	Palacios Reception/Care Center
Ed Robinson	ANL	Palacios Reception/Care Center
Marty Simonin	ANL	Palacios Monitoring/Decon Station

1.3 EXERCISE OBJECTIVES

1.3.1 STPEGS

The 1989 Graded Exercise will be conducted for the purpose of assuring proper emergency response by those personnel who are assigned responsibilities within the South Texas project Electric Generating Station (STPEGS) and those personnel who are assigned responsibilities as delineated in the State of Texas Emergency Management Plan and the Matagorda County Emergency Plan. Accordingly, the following objectives have been developed for the 1989 Graded Exercise.

A. General Objectives

1. Demonstrate the ability of emergency response personnel to implement and execute the STPEGS Emergency Management Plan and appropriate Emergency Plan Implementing Procedures.

2. Demonstrate the ability to alert, mobilize and augment Station emergency response personnel.

3. Demonstrate the ability to alert Federal, State and Local authorities within the specified time constraints.

4. Demonstrate the ability to activate the Technical Support Center (TSC), the Operations Support Center (OSC), the Emergency Operations Center (EOC), and the Media Information Center (MIC).

5. Demonstrate the functional and operational adequacy of the TSC, OSC, EOC, and the MIC.

6. Demonstrate the adequacy, operability and effective use of emergency communications equipment, and the adequacy of communications procedures and methods.

7. Demonstrate the ability to communicate and interface with the Nuclear Regulatory Commission (NRC) Headquarters Incident Response Center, and appropriate State and local governmental organizations in an emergency situation.

8. Demonstrate the ability to provide the proper information to Matagorda county to support the Prompt Notification System.

9. Demonstrate the ability to perform post exercise critiques.

B. Direction and control

1. Demonstrate the ability of each emergency response facility manager to maintain command control over emergency response activities conducted from his facility throughout the exercise.

2. Demonstrate the ability to initiate and coordinate emergency response activities in an efficient and timely manner.

3. Demonstrate the ability to call upon and utilize outside support organizations if Station capabilities are exceeded or if the additional assistance is warranted.

4. Demonstrate the ability of the STPEGS Security group to respond to an emergency situation.

5. Demonstrate the transfer of responsibilities from the Control Room to the TSC staff and EOC staff.

6. Demonstrate the ability of Corporate public information personnel to support the STPEGS Emergency Response Organization.

7. Demonstrate the ability of each emergency response facility manager to periodically brief personnel within his facility concerning the status of the emergency.

8. Demonstrate the ability to mobilize manpower and material to support protracted (long-term) operations to include recovery and re-entry activities.

C. Accident Assessment

1. Demonstrate the ability of the On-Shift Emergency Organization and the STPEGS Emergency Response Organization to evaluate the causes of incidents, and perform mitigating actions to place the affected unit(s) in a safe, stable condition.

2. Demonstrate the ability of the appropriate emergency response facility personnel to classify an emergency condition.

3. Demonstrate the ability of the appropriate emergency response facility personnel to analyze current plant conditions, identify projected trends and potential consequences, coordinate with radiological assessment teams, and provide recommendation actions.

D. Radiological Assessment

1. Demonstrate the ability to coordinate and conduct on-site, in-plant and offsite radiological monitoring activities.

2. Demonstrate the ability to assess and provide projections of off-site radiological conditions to support the formulation of protective action recommendations (regardless of the system used).

3. Demonstrate the ability to coordinate radiological data between the TSC and EOC.

4. Demonstrate the ability to coordinate STPEGS off-site radiological assessment activities with those conducted by the State.

5. Demonstrate the ability to direct and coordinate the deployment of on-site and off-site radiological monitoring teams, and coordinate with State radiological monitoring teams.

6. Demonstrate the ability of survey personnel to perform dose rate surveys, collect and analyze radiological samples and perform other prescribed on-site, in-plant and off-site radiological monitoring activities.

7. Demonstrate the ability to obtain and analyze samples from the in-plant normal or post-accident sampling systems, and assess the resultant data.

E. Protective Response

1. Demonstrate the ability to inform and update STPEGS, State and local emergency response personnel regarding the status of the emergency.

2. Demonstrate the ability to control the spread of contamination and emergency workers' exposure.

3. Demonstrate the ability to formulate and implement on-site protective action measures.

4. Demonstrate the ability to formulate protective action recommendations for the general public and emergency workers within the Plume Exposure Emergency Planning Zone.

5. Demonstrate the ability to communicate protective action recommendations to State and local authorities, and coordinate the Protective Action Recommendations with the Texas Department of Health, Bureau of Radiation Control.

6. Demonstrate the ability to continuously account for personnel assigned to, and operating out of, each emergency response facility.

7. Demonstrate the ability of on-site personnel to provide emergency first aid to an injured, contaminated individual prior to the arrival of the ambulance service.

F. Public Information

1. Demonstrate the capability to coordinate the preparation, review and release of information with Corporate personnel and Federal, State and local government agencies; and provide information releases to the media.

2. Demonstrate the ability of rumor control personnel to address questions concerning the status of emergency situations.

3. Demonstrate the ability of the Media Information Director or his designee to conduct media conferences.

1.3.2 STATE AND LOCAL OBJECTIVES

	FEMA EXERCISE OBJECTIVE NUMBER & TEXT	NUREG-0654 REFERENCE	JURISDICTIONAL RESPONSIBILITY State	Local	LOCATION (See Note A)
1.	Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario. The four ECLs are: Notification of Unusual Event, Alert, Site Area Emergency and General Emergency.	D.3, D.4	X	X	ALL
2.	Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions. (See note B). (1)	E.1, E.2	X	X	ALL
3.	Demonstrate the ability to direct, coordinate and control emergency activities. (3)	A.I.d, A.2.a	X	X	1,2,3,4
4.	Demonstrate the ability to communicate with all appropriate locations, organizations and field personnel. (5)	F.(not F.1.f)	X	X	ALL

	FEMA EXERCISE OBJECTIVE NUMBER & TEXT	NUREG-0654 REFERENCE	JURISDICTIONAL RESPONSIBILITY State	Local	LOCATION (See Note A)
5.	Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations. (4)	G.3.a, H.2.3	X	X	1,2,3,4,5
6.	Demonstrate the ability to continuously monitor and control emergency worker exposure. (20)	K.3.a, K.3.b	X	X	1,4,7,9,14, 16
7.	Demonstrate the appropriate equipment and procedures for determining field radiation measurements. (7)	I.8., I.11	X		7
8.	Demonstrate the appropriate equipment and procedures for the measurement of airborne radio iodine concentrations as low as 10^{7} microcurie per cc in the presence of noble gases. (8)	I.9	X		7,8
9.	Demonstrate the ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses. (New Objective)	I.10	X		7,8
10.	Demonstrate the ability, within the plume exposure pathway, to project dosage to the public via plume exposure, based on plant and field data. (10)	I.10	X		4

FEMA EXERCISE OBJECTIVE NUMBER & TEXT	NUREG-0654 REFERENCE	JURISDICTIONAL RESPONSIBILITY State	JURISDICTIONAL RESPONSIBILITY Local	LOCATION (See Note A)
11. Demonstrate the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAGs, availability of adequate shelter, evacuation time estimates and other relevant factors. (10)	J.10.m	X		4
12. Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local officials(s). (See note C). (13)	E.6		X	1
13. Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred. (14, 25)	E.5, G.4.b	X	X	1,2,4,5
14. Demonstrate the ability to brief the media in an accurate, coordinated and timely manner. (24)	G.3.a, G.4.a	X	X	2,5
15. Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion. (26)	G.4.c	X	X	5

FEMA EXERCISE OBJECTIVE NUMBER & TEXT	NUREG-0654 REFERENCE	JURISDICTIONAL RESPONSIBILITY State	Local	LOCATION (See Note A)
16. Demonstrate the ability to make the decision to recommend the use of KI to emergency workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases. (21, 22)	J.10.e, J.10.f	X	X	1,4,7
18. Demonstrate the ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population (including transit-dependant persons, special needs populations, handicapped persons and institutionalized persons). (15)	J.10.d, J.10.g, J.10.h		X	1
19. Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ. (19)	J.9,J.10.g		X	1
20. Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas. (16, 17)	J.10.j J.10.k		X	1,9

	FEMA EXERCISE OBJECTIVE NUMBER & TEXT	NUREG-0654 REFERENCE	JURISDICTIONAL RESPONSIBILITY State	Local	LOCATION (See Note A)
21.	Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees. (27)	J.12	X	X	16
22.	Demonstrate the adequacy of facilities, equipment and personnel for congregate care of evacuees. (28)	J.10.h		X	16
23.	Demonstrate the adequacy of vehicles, equipment, procedures, and personnel for transporting contaminated, injured or exposed individuals. (30)	L.4		X	14,17
24.	Demonstrate the adequacy of medical facilities equipment, procedures and personnel for handling contaminated, injured or exposed individuals. (31)	L.1		X	15
25.	Demonstrate the adequacy of facilities, equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal. (29)	K.5.a, K.5.b	X	X	16,17
33.	Demonstrate the ability to implement appropriate measures for controlled reentry and recovery. (35)	M.1		X	1

Notes:

A. The locations where various exercise objectives are to be demonstrated are indicated by numerical codes as follow:

CODE	TEAM ELEMENT OR FACILITY NAME	LOCATION
1.	Matagorda County EOC	Sheriff's Office, Bay City
2.	State EOC	DPS Headquarters, Austin
3.	Disaster District Sub 2A EOC	DPS District Office, Pierce
4.	STPEGS EOC	STPEGS Plant Site, Matagorda County
5.	Media Information Center	Holiday Inn, Bay City
6.	BRC Staging Area	Service Center, Bay City
7.	Various Field Monitoring Teams	10-Mile EPZ
8.	BRC ERV and Mobile Laboratory	Pad Adjacent to the STPEGS EOC
9.	Access Control Point(s)	10-Mile EPZ
10.	Reception Center, (Bay City)	McAllister Jr. High School, Bay City
11.	Matagorda General Hospital	Bay City
12.	Ambulance Service (Bay City)	Taylor Brothers Funeral Home, Bay City
13.	Vehicle Decontamination Facility	Designated Car Wash, Bay City
14.	Ambulance Service (Palacios)	Palacios Volunteer Fire Department
15.	Wagner General Hospital	Palacios
16.	Reception Center (Palacios)	Palacios High School Gymnasium
17.	Vehicle Decontamination Facility	Designated Car Wash, Palacios

B. Teams will be pre-positioned. Deployment will not be delayed to simulate travel time from normal duty stations.

C. Sirens and tone-alert radios will not be activated. EBS messages will be prepared, but will not be broadcast.

1.4 GUIDELINES

The 1989 Graded Exercise will be conducted for the purpose of assuring proper emergency response by those personnel who are assigned responsibilities within the South Texas Project Electric Generating Station (STPEGS), those personnel assigned responsibilities as delineated in the Matagorda County Emergency Plan, and those personnel who are assigned responsibilities as delineated in the State of Texas Emergency Management Plan. Accordingly, the following guidelines have been developed for the

conduct of the 1989 Graded Exercise to demonstrate the capabilities of the exercise participants to meet the objectives set forth in Section 1.3 of this report.

1. The Graded Exercise will be conducted on April 26, 1989 since exercise participants will not have prior knowledge of the exercise start time, all personnel should follow their normal routines for that day.

2. Following the establishment of initial conditions, the exercise will start with a postulated plant condition necessitating the declaration of an emergency at STPEGS.

3. The postulated accident conditions will result in a simulated radiological release which necessitates the consideration of protective actions for the general public. Meteorological conditions may be varied throughout the exercise.

4. Media centers will be manned and will perform their prescribed functions; however, no exercise press release will be made to the public.

5. Exercise participants will perform, as appropriate, radiological monitoring and dose assessment activities.

6. As appropriate to their exercise participation, State agencies will preposition themselves in the Matagorda County area so as to commence exercise participation at an appropriate point in the development of the exercise scenario.

7. STPEGS and BRC radiological monitoring field teams will be dispatched for the purpose of testing response time, communications, monitoring and sampling procedures. The field teams will gather sample media and route such sample to the appropriate laboratory facilities for analysis.

   Each radiological monitoring field team will be accompanied by a controller/evaluator team throughout the exercise. Each field team will rendezvous with it's controller/evaluator team at the location from which it is deployed. The rendezvous locations are as follows:

   a. For the STPEGS teams, the OSC.
   b. For the State Off-site Field Monitoring teams, the designated off-site staging area.

8. Participation by STPEGS onsite personnel directly involved in responding to an emergency situation shall be carried to the fullest extent possible, including the deployment of in-plant

radiological monitoring teams, and the use of protective clothing and respiratory protection equipment.

9. Use of protective clothing and respiratory protection equipment shall be simulated by personnel assigned to the offsite STPEGS radiological monitoring field teams.

10. As appropriate, Emergency Broadcast System (EBS) announcements should be prepared and passed to the appropriate stations; however, these announcements should not be released to the general public. Sirens will not be sounded.

11. The Palacios Fire Department will be involved in providing simulated on-site or off-site assistance.

12. On-site security personnel should exercise their procedures for restricting normal access to the STPEGS site without actually redirecting incoming and outgoing personnel.

13. All radio and written communications will be preceded and followed with the words "THIS IS A DRILL".

14. In the event an actual emergency occurs during the course of the exercise, participants in the affected area shall attend to the emergency situation. The Controller in the affected area shall advise the Lead Controller of the condition and the Lead Controller shall discuss with key participants the immediate course of the exercise.

15. On-site and off-site Emergency Response Facilities (ERFs), including State facilities in Pierce and Austin, will be manned and perform their prescribed functions as appropriate to the development of the exercise.

16. If the use of barricades is directed to assist in Traffic and Access Control, the barricades will be delivered to the T&A Control point and off-loaded. The barricades will not be placed to impede the flow of traffic. Placement will be simulated.

17. In order to demonstrate the capability to conduct an evacuation, the movement of people will be simulated. The organizational ability and resources necessary to manage the evacuation will be demonstrated. Evacuees are not essential to demonstrate shelter management.

1.5 SCENARIO SUMMARY

This exercise scenario is based upon a severe earthquake resulting in a design basis loss of coolant accident (LOCA) , a loss of off-site power and damage to two emergency diesels, leading to fuel failure and a radiological release.

Initial conditions establish that Unit I is operating at 100 percent and has been for the last 45 days. The unit is in its second fuel cycle near the end of core life and is operating under a limiting condition for operation (LCO) with Emergency Diesel Generator (EDG) #12 tagged out for an unscheduled fuel injector replacement. Unit 2 is in a BMI outage.

The initiating event for the scenario occurs before the morning shift change when a decontamination crew, transferring a large decon. vacuum from the 10' elevation to the 41' elevation storage area, attempts to transport the vacuum up several flights of stairs. The vacuum falls on one of the decon. crew, knocking him backwards down the stairs where he is seriously injured and highly contaminated. The victim is prepared for transport to Wagner General Hospital and a Notification of Unusual Event is declared.

Shortly after the shift change (approximately 8:30 a.m.), a small earthquake of magnitude .04g horizontal and .05g vertical strikes Matagorda County. Conditions are met to warrant the declaration of a Notification of Unusual Event. The earthquake has caused a loss of offsite power with an accompanying turbine and reactor trip. EDG #11 and #13 start and function as required. Inspection of the site will reveal that: The Unit 2 refueling machine has jumped it's track, a yard lighting pole has fallen across the security fences near the southeast corner of the administration building/machine shop, personnel performing a surveillance procedure on the personnel escape hatch report damage to the outer door, some seepage appears evident from the reservoir wall near the circ water outlet piping, and minor structural damage is evident on several buildings.

Approximately 30 minutes later, EDG #13 shows erratic voltage output readings and within minutes the diesel trips. Investigation will reveal that the earthquake has damaged the fuel oil supply line from the fuel oil supply tank and the tank contents have flooded the diesel cubicle. The cubicle is engulfed in flames. The fire brigade is dispatched to the scene but will encounter extreme difficulty in putting out the fire. Conditions warrant the declaration of an Alert.

At approximately 9:30 a.m. another shock of magnitude .13g horizontal and .07g vertical triggers the Safe Shutdown Earthquake Alarm and causes a double ended shear of the 'A' RCS Loop Pump Suction Line. Conditions are met to declare a Site Area Emergency and to implement Accountability/Evacuation. Further inspection of the Site Area will reveal that: a crane has tipped over and is leaning on the Unit #1 Auxiliary feedwater storage tank, the inner door on the Personnel escape hatch has been sprung and several small buildings and trailers have been shaken from their foundations. With no safety injection available, the core water inventory soon boils off and fuel damage occurs. With three fission product barriers breached, conditions are met to declare a General Emergency.

A second train of Safety injection and containment spray will be available when the tags are removed from EDG #12. The damage to the escape hatch doors necessitates utilizing containment spray to lower containment pressure and reduce the radiological release rate. Repair efforts will be effected on the hatch door when pressure and dose rate have been lowered to an appropriate level.

Meanwhile, severe road damage has occurred throughout Matagorda County and is particularly heavy around Bay City. Because of road damage, evacuees from the plume area will be routed to the Palacios Reception Center. Several county residents will be found contaminated upon arrival at access control points or as they are passed on to the Palacios Reception Center. Additionally, an injured, contaminated county resident will require transport to Wagner General Hospital via the Palacios Volunteer Fire Department ambulance.

1.5.1 Scenario Timeline

TIME	INITIATING MESSAGE NUMBER	PLANT EVENT SUMMARY
0715 T-00:15	1	Initial conditions established.
0730 T+00:00	2	The Control Room receives word a member of the decon crew has been injured in a stairwell by a falling decon vacuum and is probably highly contaminated.
0731 T+00:01		The Shift Supervisor dispatches a First Aid Team to the 41' level stairwell.
0745 T+00:15	3,4	The Control Room is informed that the injured technician has possible spinal injuries, lacerations to the head, neck and face and is contaminated. The stairwell is also contaminated. The victim will require transportation to a hospital.
0815 T+00:45	5,6	Injured Technician leaves the site bound for Wagner General Hospital. Conditions warrant the declaration of a Notification of Unusual Event.

TIME	INITIATING MESSAGE NUMBER	PLANT EVENT SUMMARY
0830 T+01:00	7,8c,9	An earthquake of magnitude .04g horizontal and .05g vertical strikes Matagorda County. Conditions warrant the declaration of a Notification of Unusual Event.
0830 T+01:00:30	10	The earthquake has caused a total loss of offsite power with accompanying reactor and turbine trips. Emergency Diesel #11 and #13 start and load as required.
0835 T+01:05 (Time Approximate)	11	Onsite inspections reveals: • The Unit #2 refueling machine has jumped it's track. • A yard lighting pole has fallen across the security fences near the southeast corner of the Admin. building/machine shop. • There is evidence of seepage from the reservoir dike near the circ water inlet piping. • Minor structural damage is evident on several buildings. • Personnel performing surveillance on the personnel escape hatch report damage to the hatch outer door.
0840 T+01:10	12c	Contingency Message: A Notification of Unusual Event should be declared, if not previously done.
0855 T+01:25	13	The Control Room receives an EDG Cubicle Fire Alarm.

TIME	INITIATING MESSAGE NUMBER	PLANT EVENT SUMMARY
0900 T+01:30	14,15	Emergency Diesel #13 indicates erratic output voltage and immediately trips. Investigation will reveal that the earthquake has damaged the fuel oil line from the fuel oil supply tank, and a large portion of the contents are in the lower level of the Diesel cubicle. Upon investigation it is found that the #13 EDG cubicle is engulfed in flames. Conditions warrant the declaration of an Alert.
0905 T+01:35 (Time Approximate)	16c	The Shift Supervisor dispatches the Fire Brigade to the EDG Cubicle.
0910 T+01:40	17c	Contingency Message: The Shift Supervisor should declare an Alert if not previously done.
0930 T+02:00 (Time Approximate)	18,19,20c,21,22 23s,25	A second shock of magnitude .13g horizontal and .07g vertical strikes, shearing the 'A' RCS Loop Pump suction line and triggering the safe shutdown earthquake alarm. Conditions warrant the declaration of a Site Area Emergency and conditions are met to implement accountability/evacuation.
After 0930 T+02:00	24	Further inspection of the on-site area will reveal that: • A crane has tipped over and is resting on the Unit #1 Auxiliary Feedwater storage tank. • Several trailer buildings have been knocked off their foundations.
0940 T+-2:00	25c	Contingency Message: The Emergency Director should declare a Site Area Emergency if not previously done.

TIME	INITIATING MESSAGE NUMBER	PLANT EVENT SUMMARY
After 0930 T+02:00	28	Inspection throughout the County will reveal: • FM 457 has been severely damaged where the Missouri Pacific Railroad crosses. It is impassable. • The Colorado River bridge on highway 35 has been badly damaged. It is impassable. • FM 1095 is badly damaged just north of FM 521. It is barely passible. • The Tres Palacios bridge on FM 521 has been badly damaged and it is barely impassable. • The intersection of Highway 60 and FM 2668 has been badly damaged and is blocked by a multi-vehicle accident. • Light damage has been reported from Cain and Celanese Chemical Plants. No chemical releases have been noted. • Several homes in Matagorda and along the river south of Matagorda have been damaged.
0945 T+01:15 (Time Approximate)	27	Core exit thermocouple average 790°F RCB Rad Monitors RT 8050 and 8051 read 1.46 E+4R. This is interpreted as positive indication of fuel failure.
0945 T+02:15 (Time Approximate)	27	Conditions warrant the declaration of a General Emergency.
0955 T+02:25	28c	Contingency Message: Emergency Director should declare a General Emergency if not previously done.

TIME	INITIATING MESSAGE NUMBER	PLANT EVENT SUMMARY
1005	29a	With the removal of tags from EDG #12, a second train of safety injection and containment spray will be restored.
after 1005 T+02:35	none	When a second train of containment spray is regained, containment pressure will be reduced at a slightly faster rate and the release rate reduced accordingly.
1030 T+03+05:00	31	The fire in the EDG cubicle is extinguished.
1230 T+05:00	45	Containment pressure has decreased to approximately 3 psig, allowing work on the outer escape hatch door.
1230 T+05:00	47	A county resident is injured and contaminated, requiring transport to Wagner General Hospital via the Palacios Volunteer Fire Department ambulance.
1330 T+06:00 (Time Approximate)	50	Repair work on the escape hatch door is completed. The door is (time shut and the release is terminated).
1400 T+06:30	51	On-site recovery operations begin. Off-site recovery and reentry operations will be conducted at the discretion of the State BRC.
1600 T+08:30	52	The exercise will be terminated when recovery and reentry procedures/operations have been demonstrated to the satisfaction of the Lead Controller.

1.6 EVALUATION CRITERIA

The STPEGS exercise evaluations that follow in Section 2 of this report are based on applicable planning standards and evaluation criteria set forth in Section II of NUREG 0654/FEMA REP 1, Rev. 1 (November 1980). Region VI evaluated the exercise using the Exercise Evaluation Methodology (EEM) format. Federal evaluators were instructed to mark those sections of the EEMs "not applicable" which did not correspond to the objectives of the exercise.

Following the narratives for each jurisdiction or off-site response activity, Deficiencies, Areas Requiring Corrective Action and Areas Recommended for Improvement are presented with accompanying recommendations. Any identified Deficiencies would cause a finding that off-site preparedness is not adequate to provide reasonable assurance that appropriate protective measures can be taken to protect the health and safety of the public living in the vicinity of the STPEGS plant in the event of a radiological emergency. At least one Deficiency in this category would necessitate a negative finding and require that a Remedial Drill, to demonstrate correction, be scheduled within 120 days. No deficiency was noted in this exercise.

Areas Requiring Corrective Action include those activities where demonstrated performance during the exercise was evaluated and considered faulty; corrective actions are considered necessary but other factors indicate that reasonable assurance could be given that, in the event of a radiological emergency, appropriate measures can and will be taken to protect the health and safety of the public. This category should be relatively easy to correct in comparison to those classified as Deficiencies, and correction must be demonstrated at the next regularly scheduled exercise.

Areas Recommended for Improvement are also listed, as appropriate, for each jurisdiction or off-site activity. These recommendations are advisory in nature and the appropriate jurisdiction may or may not act on them as they see fit.

2 EXERCISE EVALUATION

On the basis of general criteria set forth in NUREG 0654/FEMA REP 1, Rev. 1 (November 1980), and exercise objectives and observations, an evaluation has been performed of the April 25, 1989 exercise at the South Texas Project Electric Generating Station. This evaluation, including any Deficiencies, Areas Requiring Corrective Action and Areas Recommended for Improvement is presented herein. FEMA Region VI will maintain close liaisons with the State and local governments in determining the required corrective actions (including timeframes for accomplishing the corrections) in accordance with all established criteria and guidelines. There were no Deficiencies identified during this exercise.

2.1 TEXAS STATE OPERATIONS

The following includes evaluations of the Texas Department of Health, Bureau of Radiation Control (TDH/BRC) operations at various operating locations in Matagorda County. Operations of the State Emergency Management Council at their EOC in Austin and at the Disaster District EOC in Pierce are also included.

2.1.1 Division of Emergency Management (DEM) State EOC:

The DEM received notification at 8:27 a.m. of the declaration of an Unusual Event at the STPEGS plant at 8:03 a.m. At 8:30 a.m., a controller at DEM informed the State Department of Health, Bureau of Radiation Control of the event. The office of the Governor was informed of the NOUE at 8:50. Initial activation of the State EOC was ordered at 9:12 a.m. by the Senior Controller (State person in charge of State EOC operations) upon receipt of the message that an Alert had been declared at 8:46 a.m. by the utility. Activation was initiated by calling the Director of DPS and by simulating the calling of all other state agency representatives. The EOC was manned by ten personnel including three individuals representing the Bureau of Radiation Control. The State EOC serves as a backup to the Disaster District EOC in Pierce, Texas where primary State response management authority is assigned in the event of an STPEGS emergency. If a situation grows beyond the control of the Disaster District, the State EOC would call on resources outside the District for support.

The State EOC is located underground in the Department of Public Safety complex in Austin, TX. It is more than adequate to support all anticipated emergency operations, with appropriate space, power, lighting, furniture, and equipment. Maps and displays in the EOC are excellent providing sufficient summary and tracking information necessary for management decision making. A change in procedures has been implemented since the last exercise. Additional display boards and maps have been added, negating the requirement for the BRC representatives to bring their displays to the EOC.

State EOC communications equipment, systems and procedures are excellent. Telephones (12 lines), telex, hard-copy and/or radio systems connect the EOC with all appropriate locations, with multiple redundancies and back-ups in case of failure of one

or more systems. All incoming and outgoing communications are appropriately logged, duplicated and passed to EOC staff for action or information. Frequent reviews of action status were held to insure that no required actions or responses were overlooked.

The EOC staff, led by the DEM, demonstrated a thorough grasp of emergency operations, requirements, and procedures. The Senior Controller was very effectively in charge of the EOC. He held frequent briefings to insure that all present were knowledgeable regarding the status of events and he also involved the staff and other agency representatives in discussions prior to making decisions. He continually sought and found answers to problems that were not specifically required but which were extrapolations of scenario-caused events.

All exercise objectives (Numbers 1, 2, 3, 4, and 5) assigned to the State EOC were adequately met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** There is confusion by some EOC staff regarding zones and sectors. Some offices use maps identifying zones and sectors by numbers and others identifying these areas by letters.

  Recommendation: Insure additional training on use of maps.

2.1.2 STPEGS EOC (BRC Operations)

The functions of the Texas Department of Health, Bureau of Radiation Control at the STPEGS EOC include dose assessment, development of protective action recommendations, and direction of BRC radiological monitoring teams.

Emergency Classification Levels were received from the utility and confirmed as required. The ECLs were promptly announced to the staff and logged on the display board for a visual tracking of events. The BRC staff took the appropriate actions per the plan (i.e., dispatching of field monitoring teams, contamination control teams, hospital liaison, etc.) as the ECLs changed. This objective was properly demonstrated.

Actual mobilization of the BRC staff was not observed at the STP EOC in accordance with an agreement with FEMA that the BRC staff would be pre-staged at the staging area in Bay City and dispatched from there to the STP EOC when appropriate. Under these conditions the staffing objective was successfully demonstrated. The time required to dispatch from Austin would have been approximately three hours which would not have met constraints of the scenario.

The BRC Chief of Field Operations was effectively in control of emergency response actions and decisions. The utility gave periodic briefings over a public address system. In addition, the BRC Chief of Field Operations kept his staff apprised of the situation as conditions changed and included them in the decision making process. All decisions were effectively coordinated with all of the appropriate organizations and locations. The Direction and Control objective was properly demonstrated.

The communications systems used were commercial telephone (four lines), BRC radio, DPS radio, and facsimile machine. Organizations with which communication links were established were the State EOC in Austin, Tx., Matagorda County EOC, Disaster District EOC at Pierce, the BRC staging area in Bay City, and all field teams. The primary communication link to all locations except the field teams (radio) was telephone. As the result of an ARCA (87-1) in the last exercise, the field radiological monitoring teams used the DPS radios rather than the BRC handheld units, which are low powered (2 watts) and do not function well. However, the Contamination Control Teams attempted to use the handheld units and were not able to communicate with the staging area or the BRC staff at the STP EOC (see additional discussion regarding this under Contamination Control Teams section beginning on Page ~~36~~ 34).

The STP EOC is located adjacent to the plant in the utility's Training Center. The State's main operating area within the EOC is in a room next to the main EOC. The entire EOC is dedicated to emergency operations and remains set up and ready for use at all times. The State operations room was cramped and crowded, but adequate for the task. The communications equipment and staff are located in the same room assuring rapid transmission of messages. Based on a FEMA recommendation from the previous exercise, the State replaced the radio base station with a new one that has a headset, which reduced the noise level in the room. The State operations room is equipped with adequate furniture, telephones, supplies, and other material to perform it's designated function. Emergency power and other backup systems are available if needed. Utility support to the State includes clerical assistance, security, copying, message distribution, etc. Maps, status boards and activity displays are mounted in the State operations room and were properly utilized.

Emergency worker exposure control was effectively demonstrated during the course of this exercise. Each emergency worker in the EOC was issued two direct reading dosimeters (0-200 mR and 0-20 R), as well as a permanent record TLD identification badge. Each badge had a unique identification number. All dosimeters were read and zeroed as required when they were issued and periodically checked during the exercise. The field team coordinator maintained a status board with dosimeter readings reported by the field team members. All EOC staff were aware of the exposure limits as prescribed by the plan.

The BRC personnel gave a good demonstration of plume dose projection. Field team measurements provided a good definition of the plume boundaries and the field team coordinator plotted the location of the field team measurements. Plume dose projections were done on a Compaq Model 286 computer using a modified IRDAM program. The output of the program provided whole body dose rates (mrem/hr), child thyroid dose rates (mrem/hr) and a default eight-hour integrated dose for whole body and thyroid. Although the utility and the State programs are supposed to be the same, there

was a difference in results obtained. The utility provided BRC with the estimated release rates which were developed from utility field team measurements.

Plume protective action decisions were appropriately based on PARs, dose projection, and utility recommendations with respect to plant conditions. The initial decision was made at 10:00 a.m. to evacuate sectors P, Q, R, and A to 10 miles and all sectors to 5 miles. At 11:38 a.m. the recommendation was revised to shelter zones 11, 12, 13, and 14. This decision was made based on erroneous controller input that a bridge was out on the evacuation route and the only alternative route would have taken the evacuees through the plume. The controller error was apparently corrected at the county EOC but the information was not communicated to the STP EOC State staff. The revised PAR probably could not have been properly executed because of the time delay between messages of one hour and thirty eight minutes and the affected population was probably already in the process of evacuating.

The BRC Chief of Field Operations at the STP EOC made the decision to issue the PAR to authorize the use of KI for emergency workers.

All objectives (1, 2, 3, 4, 5, 6, 10, 11, and 16) demonstrated at this location were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-1 **Description:** The BRC handheld radios used by the contamination control teams were unable to communicate with the BRC staffs at the STP EOC and the BRC staging area. These same radios were a source of problems in a previous exercise because of a very limited range. (NUREG 0654, Rev. 1, F.1.d)

Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.

89-2 **Description:** The BRC and the utility use the same computer program to calculate dose projection. For some reason (one of the programs may not have had recent revisions incorporated or different input data may not have been used) the projected dose calculations gave different results, on the two computers. Conflicting results could have adverse effects on decision making. (NUREG 0654, Rev. 1, I.8)

Recommendation: Review the new program revision for accuracy, update both computers with the correct revision and develop procedures to insure compatability of input data.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.1.3 Disaster District EOC - Pierce, Texas

The Pierce Disaster District EOC is the initial line of response to any disaster affecting Matagorda County.

The Pierce staff, capably directed by the Disaster District Committee Chairman, demonstrated a thorough knowledge of plans and procedures for emergency response. The staff remained continuously aware of ECLs and was fully involved in the discussion of appropriate actions. During all ECL stages, the communications room first received messages via the hotline and then logged in the messages. A FAX message then verified the message had been received. The staff's keen awareness of this message system was reflected one time following receipt of the General Emergency notice. While the staff tried to resolve a proper course of response action, the Disaster District Chairman and the Radiological Liaison Officer quickly noticed some radiation level inconsistencies which were reported later in messages from the STP EOC.

The ability to mobilize was demonstrated by discussion of procedures, illustration of those procedures in writing, discussion of staff locations when off duty, and discussion of equipment used to notify the staff. The ability to acquire a back-up staff was demonstrated by producing a call-down list. The State provided a well trained Regional Liaison Officer (RLO) and a second staffer, who was being trained to fill that position in a back-up role.

The EOC facility, located in the Department of Public Safety Sub-District 2A headquarters in Pierce, has marginal space but is otherwise adequate to support all disaster response operations and has appropriate maps, status boards, and displays to support such operations. However, the placement of maps and status boards in the hallway outside the communications room obstructed movement and required all substantive discussions to be held while standing up. In a prolonged emergency, this could be tiring. An adjacent drivers' license renewal room could be used to store the maps and status boards providing the drivers' license operation was shut down. Emergency power, food, water, and other essential supplies are available.

Pierce EOC communications is capable of maintaining contact with all appropriate organizations, locations, and field personnel. Equipment in place includes: a dedicated hotline, two regular commercial phone lines, TELETS terminals, a telefax, NAWAS, a DPS radio system and a State Health Department radio system. The communications room is normally staffed by one person. Three staffers remained busy throughout the exercise. During a real emergency, two staffers should be adequate. The equipment performed adequately during the exercise.

Message logs were generally well kept. Several times, however, important times were not filled in on messages, resulting in several blank time entries on the message log. On one occasion, the communications officer was able to determine by keeping track of the numbering entry on Matagorda County press releases that a press release had not been received. A copy of the release was requested and received. Because of this incident, it is recommended that the message log include all message numbers

assigned by sending organizations. It should also be mentioned that, although the telefax records the time of receipt on incoming messages, the copying process often cuts off this information from the top of the page. When copying messages for internal circulation, the message runner should be sure the copy includes the time the message was received, if that information is near the top edge of the message original.

A separate DPS radio communications group at the STP EOC operating under the Pierce DEM Disaster District kept track of officers' locations relative to the plume. On one occasion, the group rejected a request for a trooper to drive through the plume without being accompanied by a trained radiological staffer to monitor exposure levels.

An ARCA from the previous exercise was resolved when the Disaster District Chairman demonstrated, by discussion, that the DEM Disaster sub-district office at Pierce would not issue any messages without prior coordination of those messages with the Media Information Center.

All FEMA exercise objectives (Nos. 1, 2, 3, 4, 5 and 13) assigned to the Pierce Disaster District EOC were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** Although the telefax records times on messages, the copying process often cuts off this information from the top of the page.

  Recommendation: When copying messages for internal circulation, make sure the copy includes the time the message was received, if that information is near the top edge of the original.

- **Description:** On several occasions, times on incoming messages were not filled in which resulted in a deletion of these times on the message log sheet. Also, message numbers assigned by the sending organization were not able to be recorded on the message log sheet.

  Recommendation: The message log should be made more complete by including the times for all messages and recording the designated message number as assigned by the sending organization.

- **Description:** The placement of maps and status boards in the hallway outside the communications room obstructed movement and required all substantive discussions to be held while participants

remained standing. In a prolonged emergency, this could become tiring.

Recommendation: Pursue plans to relocate maps and status boards to the drivers' license room in the event of a prolonged emergency.

2.1.4 Bureau of Radiation Control (BRC) Staging Area

The BRC Staging Area, located at the Bay City Service Center, was staffed by four people including the Staging Area Coordinator, a telephone communications person, a radio communications/radef person, and a clerical person, who doubled as a courier.

Knowledge of Emergency Classification Levels (ECLs) was properly demonstrated by the BRC staff throughout the exercise. As the ECL status changed, the staff took appropriate actions as outlined in their plan. All pertinent information was posted promptly on display boards. However, it seemed BRC EOC personnel were not keeping the staging area informed promptly enough about developing and changing events. On several occasions, staging area personnel appeared confused as to the time a release started and the status of the current situation. The staging area communications person telephoned the EOC several times to inquire about the status of the emergency situation. This procedure should have been done on a more timely basis.

The staging area was prestaged in the interest of time to meet scenario requirements. Consequently, the actual staffing of this location was not observable. However, because of a prior agreement between the State and FEMA to allow prestaging, the staffing objective is considered to be met.

Communications at the staging area consisted of a radio base station for communications with the STP EOC, field monitoring teams, and contamination control teams. Two telephones were available for communication with the State EOC, STP EOC, and other locations.

A problem developed when contamination control teams found they could receive messages but could not transmit. The staging area coordinator promptly dispatched a courier with a radio in her car to assist the contamination control teams in sending messages to the EOC and staging area. The contamination control teams were using two-watt radios furnished by the BRC. These same radios were used in a previous exercise and were found to be insufficient.

Emergency worker exposure control was properly demonstrated. The radef officer at the staging area issued proper equipment, explained its use and provided zeroing and calibration equipment if needed. All necessary equipment and dosage records were maintained as required by the plan.

Since the staging area operated only in support of the field teams as needed, the only function they performed relative to the use of KI was to relay messages to field teams. They adequately demonstrated this objective.

All FEMA exercise objectives (Nos. 1, 2, 4, 6 and 16) assigned to the staging area were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** The staging area was not kept informed of situation changes in a prompt and timely manner.

  Recommendation: Make sure the staging area receives situation updates in a more prompt and timely manner in order to perform a better job of briefing the field teams as they are dispatched.

2.1.5 Bureau of Radiation Control Mobile Lab

All sample preparation and coordination personnel demonstrated an adequate knowledge of ECLs and responded accordingly with each ECL change. A radio in the sample preparation and coordination van was monitored for updates on changes and/or ECL status reports.

All State staff assembled at the BRC staging area and were dispatched from there throughout the exercise. Because FEMA and the State of Texas agreed that the staff could be prestaged in order to meet required scenario time lines, this objective was adequately demonstrated. Dispatching of the staff in a real world crisis would be from Austin.

Primary means of communications consisted of commercial telephone, radio and a runner. The radio was difficult to hear most of the time and dose assessment personnel were telephoning them the necessary sampling information. There were no apparent problems with the telephone. There was a radio in the sample preparation and coordination van and it was monitored.

The field monitoring teams performed their sampling adequately for the presence of airborne iodine and sent their samples to the field laboratory for analysis. The sample preparation and coordination team received these samples, checked them for contamination, logged them, placed them in the proper container for counting, counted them and sent the results to dose assessment. All these tasks were efficiently and satisfactorily performed.

In accordance with State plans and procedures, the field monitoring teams collected air samples for both particulate and radioiodine species. The samplers were directed to either bring them to the laboratory or have a courier pick them up.

In the past, the mobile lab has been stationed at the training center just outside the exclusion boundary. However, in the future, the lab will be located in Bay City about 12 miles from the plant site. In this exercise, the mobile lab personnel counted field samples on a multichannel analyzer and either telephoned or hand carried the results to dose assessment. With the mobile lab relocated to Bay City, it will be necessary to use a fax machine to transmit hard copy results to dose assessment.

All FEMA objectives (Nos. 1,2,4,8 and 9) were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** Samples were not properly prioritized by dose assessment.

  Recommendation: Dose assessment should prioritize both collection and analysis of all environmental samples.

- **Description:** With the mobile lab located up to 12 miles from dose assessment, the only way to transmit lab results is to telephone them and/or send copies by courier. This is time consuming and could cause transmission errors.

  Recommendation: The mobile lab should acquire a facsimile machine for hard copy transmission to send results to dose assessment. The fax machine should also possess hard copy capability.

2.1.6 BRC Field Monitoring Team #1

Field monitoring teams were mobilized at and deployed from the BRC staging area in Bay City. The teams were comprised of BRC personnel from offices throughout Texas along with troopers from the Department of Public Safety's License and Weight Service. In agreement with FEMA, the team members were prepositioned in the Bay City area.

Before departing the staging area, Team #1 used a written checklist to make a thorough inventory of equipment. Team #1 departed the staging area at 9:58 a.m. and went immediately to the Matagorda County Sheriff's office to simulate picking up additional health physicist's equipment and supplies. The team then departed to its first assigned monitoring point.

The team was issued a BRC hand-held radio for use as a backup to the DPS radio that was used for field team communications. The DPS vehicle radio, a 32-channel unit, provided consistent, reliable communications to all appropriate locations throughout the exercise. The team was also issued appropriate dosimetry equipment including self-reading and permanent record (TLD) dosimeters.

At field locations, ambient radiation levels were adequately determined (simulated). Care was taken to prevent the possible spread of contamination to equipment, vehicle and personnel. Team #1 was able to locate and navigate in the field to find all preselected points. Maps were used and team members demonstrated an adequate familiarity with the geographic area.

Team #1 was directed to take one air sample during the exercise. An air pump was used to draw a measured sample of air through a particulate filter and a charcoal cartridge (silver zeolite cartridges were available but were not used). The air pump was properly calibrated for the appropriate flow rate. Sample cartridges were quickly screened with the GM to determine if shielding was required during transport to the lab. Sample cartridges and filters were then labelled and double-bagged prior to delivery.

Subsequent exercise activities required Team #1 to also take samples of water, soil and vegetation. The water sample was obtained from around a bayou bridge with a simulated bucket and cord; then transferred to a water sample container and bagged and labelled. The soil and vegetation samples were taken with appropriate equipment using proper techniques at locations from which the team would have been able to get representative samples.

Team #1 adequately demonstrated the ability to continuously monitor and control emergency worker exposure through the proper use of dosimetry equipment and procedures. Each member was provided with a dosimetry kit and record keeping cards. Team members read their dosimeters periodically and properly recorded dose readings. The team was aware that the maximum radiation field in which they were working was only 2 mR/hr and that frequent dosimeter readings were not required. Team members were aware of the maximum allowable dose without authorization and that the maximum allowable exposure dose was listed on their map. They were also aware that they should leave any radiation area if the authorized exposure dose level was reached and report to the Field Monitoring Team Leader for instructions. The team was equipped with full anticontamination suits and protective equipment (i.e., coveralls, boots, gloves, respirators, etc.).

At 10:35 a.m., the Field Monitoring Team Leader issued instructions that the use of KI was recommended. This decision was based on a projected dose to the thyroid. Team members said instructions for use of KI were not transmitted because these instructions had already been issued.

Team #1 demonstrated the ability to monitor Emergency Classification Levels (ECLs) continuously and implement appropriate procedures.

All FEMA exercise objectives (Nos. 2, 4, 6, 7, 8, 9 and 16) assigned BRC Field Monitoring Team #1 were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.1.7 BRC Field Monitoring Team #2

The actual mobilization of personnel was not observed. In the interest of time, FEMA agreed to have all State personnel pre-staged at the BRC staging area in Bay City. Dispatching of personnel from Austin was simulated by sending staff out from the staging area as required by the scenario. The mobilization of personnel objective is considered to be met.

The primary method of communication was the DPS vehicle radio. Communications were established with the DPS dispatcher at the STP EOC. The primary system functioned properly without any problems or undue delays. The backup procedure was to use BRC issued hand-held radios if needed. They were not utilized.

The team members were issued one direct reading dosimeter with a scale of 0-20 R, one dosimeter with a scale of 0-200 mR, and a uniquely identified TLD. The dosimeters were charged and zeroed. The Radef officer at the staging area dispensed the equipment and briefed the team members on the proper use and frequency of reading. Initial readings were logged on the appropriate forms prior to the team being dispatched to the field. While in the field, the team members demonstrated that they were knowledgable in the use and reading of the instruments by taking periodic readings.

The ability of the field monitoring teams to take ambient radiation readings was adequately demonstrated, thus reflecting the proper level of knowledge and training. Instruments were calibrated and the correct instruments were used in the monitoring activity. The team had all the necessary equipment for collecting all types of environmental samples and demonstrated satisfactorily the proper methods and procedures for collecting soil, vegetation, and water samples.

Airborne Iodine monitoring was successfully demonstrated. The team used the proper equipment and procedures in collecting their samples. State procedures did not require a field analysis. Rather, the samples were transported by a designated runner to the mobile laboratory located at the STP site. A charcoal filter was used to demonstrate the collection of a sample for the detection of airborne radioiodine. All samples were properly bagged and labeled for transport to the mobile lab.

Field Team #2 adequately demonstrated the collection and transfer of samples to detect particulate activity. Upon a request from the Field Monitoring Team leader, a sample was taken and transported to the mobile lab in 13 minutes.

In the staff briefing at the BRC staging area, the Chief of Field Operations gave instructions to the emergency workers on the purpose of KI, side effects, time intervals between doses and the logging procedure in case they were instructed to take it. He also advised them that the decision to take the KI would be their own after it was recommended that they do so. The team was instructed to takea an extra supply of KI for issuance to other emergency workers who did not have any in case they had to enter "High Radiation Areas." A recommendation was made by the BRC EOF Chief of Operations for emergency workers to take KI at 10:00 a.m. Field Team #2 simulated the taking of KI as recommended.

All FEMA exercise objectives (Nos. 2, 4, 6, 7, 8, 9 and 16) assigned BRC Field Monitoring Team #2 were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.1.8 BRC Field Monitoring Team #3

Field Monitoring Team #3, along with all other BRC response teams, was prestaged at the BRC staging area in Bay City to meet exercise timing constraints. The field monitoring teams, consisting of a State Department of Public Safety, Weights and Measures trooper, and a State BRC radiation technician, together with appropriate equipment and supplies, use a DPS vehicle for transportation. The Ram Charger vehicle used by this team was greatly superior, as monitoring team transportation, to the DPS sedans used in the past due to it's space, carrying capacity and off-road capability. Due to team prestaging, actual mobilization, from normal operating locations, could not be observed. However, State plans and procedures for mobilization are adequate.

At the staging area, prior to deployment on operational assignments, the team performed a full equipment inventory and operational checks. The team was issued a BRC handheld radio for use as a back-up to the DPS radio that was used for field team communications. The hand-held radio was not demonstrated during the exercise as the team said it "didn't have the range for the required use." The DPS vehicle radio, a 32-channel unit, provided consistent, reliable communications to DPS operators in the STP EOC, as well as to DPS Pierce. local law enforcement, other mobile units and other radio systems. The team was also issued appropriate dosimetry equipment, including self reading and permanent record (TLD) dosimeters.

Staging area personnel provided briefings of all available information to the team prior to their deployment. However, much of the information that the team should have had was, apparently, not available at the staging area. It is recommended that the

staging area be made a more integral part of the "information loop" so that the teams can be more fully briefed prior to their departure on operational assignments. Frequent situation summaries were provided to the team via radio during their field activities.

During the exercise, the team demonstrated a high degree of skill and ability in the performance of the monitoring and sample collection tasks assigned to them by team control at the EOC. They also displayed good judgement and initiative in advising their team control of field conditions, including physical damage from the simulated earthquake, provided to them by the exercise controller. The use of a courier to collect samples obtained by the team appeared to work well, and allowed more time for actual field activities without making frequent trips to the mobile lab to deliver the samples.

The DPS trooper's intimate knowledge of the area was of great value to the team as it allowed rapid movement to various assigned locations for team activity. The binder, carried by the team, that provides locations of pre-established fixed monitoring points, requires some additional work as a number of road names are missing. A team that has less familiarity with the area could have some difficulty in locating some of the points.

In summary, the team adequately demonstrated all objectives assigned for this exercise (Nos. 2, 4, 6, 7, 8, 9 and 16).

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.1.9 BRC Contamination Control Teams

The ability to alert, mobilize, and activate the two access control points was demonstrated adequately by both contamination control teams. Personnel were at their proper location (BRC staging area) when deployed to their access control points.

While communications equipment was available, adequate primary communications capability was not successfully demonstrated at either control point. The plan called for handheld BRC radios to handle the primary systems. However, these radios failed to adequately function properly to receive the transmission of messages. Two backup systems were subsequently demonstrated adequately (a telephone at a nearby roadhouse at one control point and deputy sheriffs' radio units at both control points). However, the sheriff's deputies had to relay messages through a central dispatch point, creating slow and cumbersome delays and creating the possibility for misinterpretation and error in re-transmission. Since there were no direct communications with the Field Team Coordinator at the STP EOC, the access control point personnel were unable to obtain first hand information regarding protective action recommendations or general information regarding the exte[illegible]

Both teams demonstrated a thorough knowledge of procedures for performing monitoring operations for contamination. Emergency workers took readings at appropriate times and maintained logs as specified. Exercise participants and their vehicles entering or leaving the controlled areas were monitored, and if required, were directed to decontamination facilities. BRC representatives exhibited a thorough knowledge of the mission exposure limits and actions necessary in the event exposure levels exceeded established limits. However, the sheriff's deputy manning the Contamination Control Team #2 access control point demonstrated limited knowledge of required procedures and was not adequately prepared orequipped with an emergency worker kit to work in a radiologically hazardous environment. He was, however, aware of the capabilities of the BRC personnel to advise him. At the other control point activated by Contamination Control Team #1, the deputy sheriff made all decisions on whether citizens could enter the contaminated area. No one was allowed to enter. But, had anyone actually entered, both a low range and high range dosimeter would have been issued.

Both teams displayed a high level of training and knowledge of the tasks they were called upon to perform. All equipment was checked prior to departing the staging area and spare equipment was carried to the field in the event malfunctions occurred. Calibration of equipment was within proper time limits and readings were made at appropriate times and levels with instruments properly enclosed in plastic bags. The correct logging of locations, times and date was also demonstrated.

The proper knowledge and use of KI was satisfactorily demonstrated with the staffs having been properly instructed on the use and administration of KI prior to deployment. Once emergency workers were instructed to take KI, appropriate records were kept of the simulation process.

The control of traffic and access to the evacuated and shelter areas was adequately demonstrated. The Contamination Control Team #2 did not receive current and timely information on protective action recommendations, planning areas or relocation centers. However, the mission was accomplished by implementing proper access control procedures. When citizens arrived, they were properly diverted from the hazardous area and instructed on alternate routing.

All FEMA Objectives (2, 4, 6, 16, and 20) assigned to this location were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-1 **Description:** Handheld radios issued to the contamination Control Teams failed to function properly. Consequently, there was no communication with the staging area or the STP EOC where the Field Team Coordinator was located. (See ARCA 89-1 under STPEGS EOC (BRC OPERATIONS). (NUREG 0654, Rev. 1, F.1.d)

Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.1.10 Media Information Center

The Media Information Center (MIC) for STP is located in the Matagorda Hotel and Conference Center on Highway 35 in Bay City. Spokespersons for the State Bureau of Radiation Control (BRC), Matagorda County and Houston Lighting & Power (HL&P) participated in the exercise.

The MIC was activated at 10:08 a.m. with Matagorda County and BRC PIOs in place by about 10:45 a.m.

A problem occurring in the last exercise (1987) involving the absence of a BRC spokesperson to address technical information during most of the exercise was resolved with the appearance of a BRC representative throughout the exercise.

Another problem involving the inability of state and county PIOs to monitor what was being presented in the press briefings from their work stations was resolved with the installation of loudspeakers in all MIC offices.

The Site Communications Room was well planned. However, because of the room's limited size, a possible misinterpretation of information was created with the MIC manager trying to brief the staff above the background noise level of a nearby speakerphone being used to communicate between the MIC and the plant.

A problem still exists regarding physical arrangements in the press briefing room. As in the last exercise (1987), TV cameras and operators positioned at the front of the room blocked the view of reporters seated behind them. In a real life situation, this could pose a problem with reporters seated behind the TV cadre being unable to view media speakers or be recognized for questions.

For the most part, press briefings were clear, accurate and timely. The large, well lighted room with its excellent accoustics lends itself to the well organized implementation of the briefings.

The HL&P staff is to be commended for introducing the plan to enhance the viability of the briefings by making a plant spokesman available between the formal briefings and throughout the exercise to conduct one-on-one interviews with reporters and answer any spontaneous questions.

Presentations by BRC and Matagorda County spokespersons could be improved with better use of the large display maps next to the speakers' table. Several times, the spokespersons remained seated while reading pre-scripted releases dealing with dose assessment measurements/projections and evacuation routes out of specified sectors within the 10-mile EPZ. This important information could be better dramatized if the maps were used to point out areas referred to in the pre-scripted releases.

The use of transmitting and receiving communications equipment was adequately demonstrated and all appropriate messages were handled in a timely and accurate manner. However, the system could be fine tuned a step further by having all technical data, including dose assessment measurements and projections, transcribed by telefax/telecopier, even if the information has also been transmitted by phone. This redundant procedure will negate a possible misinterpretation of technical data over the phone and insure accuracy.

All changes in Emergency Classification Levels (ECLs) were noted in a timely and accurate manner by the staff.

The rumor control system was well planned and handled in an organized fashion with the HL&P staff responding to more than 100 call-in questions from concerned citizens.

All FEMA exercise objectives (Nos. 1, 2, 4, 5, 13, 14 and 15) assigned to the MIC were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** A possible misinterpretation of important information was created in the Site Communications Room with the MIC manager trying to brief the staff above the background noise of a nearby speakerphone being used to communicate between the MIC and the plant.

  Recommendation: Designate separate areas for the MIC manager to conduct his briefings and for the MIC staff to communicate with the plant over the speakerphone.

- **Description:** TV cameras and operators continue to block the view of reporters seated behind them during press briefings.

  Recommendation: Position the TV cadre to one side of the speakers' table or position the TV cadre directly in front of the table as they are now doing and make space available on either side for the reporters to sit.

- **Description:** Display maps used in the press briefings were not utilized to the best advantage by BRC and Matagorda County spokespersons.

Recommendation: Have all spokespersons present their prescripted information while standing beside the display maps in the event of a need to point out areas effected by dose assessment readings and/or evacuation, etc.

- **Description:** A possibility exists for misinterpreting technical data called in over the phone.

  Recommendation: Have all technical data transmitted by telefax/telecopier to assure accurate interpretation.

2.2 LOCAL GOVERNMENT OPERATIONS

2.2.1 Matagorda County EOC

The EOC staff did a notable job of monitoring the prescribed classification levels received from STP and implementing procedures in a timely manner. In addition, not only were procedures followed in implementation of the operating procedures, but the staff did a commendable job of anticipating and implementing their response actions.

The classification levels were prominently displayed and status boards were updated very expeditiously. Based on these observations, objective 1 was met.

The Notification of Unusual event (NOUE) was received by the Matagorda County Sheriff at 8:13 a.m. via the dedicated phone line. Based upon receipt of this classification level, the County Sheriff, who is also designated as the County Emergency Coordinator, notified all appropriate response individuals according to his procedures. The initial notification was completed by approximately 8:30 a.m. Concurrently, a hard copy message of the NOUE was received over the telefax at 8:17 a.m. No problems were identified regarding receipt of any of the hard copy telefax messages throughout the exercise.

Based on receipt of the NOUE, the County Judge, the Bay City and Palacios City Mayors, the Bay City police Chief, the Red Cross, the Matagorda County Health/ Radiological Officer, and the EBS station were notified. The hospital was also notified due to the nature of the events leading to the declaration of a NOUE.

At 9:04 a.m., the Alert was received, the appropriate staff were notified, and setup of the EOC was initiated. An excellent job was demonstrated in setting up the EOC operations room in a short period of time. Staff arriving at the EOC knew their duties and responsibilities in activating the EOC.

The Site Area Emergency was received at 10 a.m. and the General Emergency was received shortly thereafter at approximately 10:23 a.m. Based on these observations, the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions was demonstrated; thus objective 2 was met.

The Matagorda County Judge and the Matagorda County Sheriff (Emergency Coordinator) were effectively in charge of the EOC operations. They both conducted emergency operations in a coordinated manner. The Emergency Coordinator directed most of the response operations while the County Judge provided effective input into the decision making process. Other staff also provided input and were involved in the decision making process, as appropriate. There was also effective demonstration of keeping the staff updated on the response status through frequent briefings by the Emergency Coordinator and the Bay City Police Chief. The internal message handling system worked flawlessly through competent logging of internal and external messages, expeditious message reproduction and distribution, and prompt relaying of internal messages to the EOC staff. There was an excellent demonstration of processing incoming information and rapid documentation on status boards. The status board information was updated continuously and was effectively used during briefing sessions to monitor the actions being implemented. Hard copy messages and status board summaries were developed, copied, and distributed to all emergency response personnel within the EOC. Overall, the Emergency Coordinator in direct consultation with the County Judge, demonstrated the ability to direct, coordinate and control emergency operations.

The EOC staff demonstrated the capability to communicate with all appropriate personnel and organizations by effective use of equipment and procedures. Commercial telephones, a dedicated phone, two-way radios, and two telefaxes were used to communicate between the Matagorda County EOC and external locations. Also available, but not called upon for support in the exercise, was a RACES operator. During the initial notification, activation, and subsequent activities, communications within the county and to other external contact points functioned well and procedures were followed. All communications systems available at the EOC functioned well and without delay or malfunction. All staff were well-trained in the use of communications equipment and performed professionally in following procedures. Based on these observations, the ability to communicate with all appropriate organizations, including field personnel was effectively accomplished.

The Matagorda County EOC is located in the County Sheriff's Department multi-purpose room in Bay City, Texas. The facility is adequate to support the emergency response activities. The facility is located outside the 10-mile EPZ. Access to the EOC operations room was adequately controlled and persons were required to sign in and out with all visitors being approved by the County Sheriff before entrance was allowed. Maps, status boards, office equipment and displays were excellent and were effectively used throughout the exercise. One issue involved a malfunction of the copying machine; the staff immediately utilized a back-up machine and had the machine repaired without delay. The "County Emergency Response Procedures board was very useful for all EOC staff members and was updated to account for an Area Requiring Corrective Action identified during the previous exercise; an additional column was added to the display that indicated procedures for "Reentry/Recovery". This display board listed certain procedures that should be implemented for each of the four classification levels, including reentry/recovery.

Two areas recommended for improvement were identified for the facility:

- It is suggested that provisions be made for visually presenting the location of traffic control points (CPs), road hazards and access control points (see objectives 11 and 20 summaries).

- The "County Emergency Response Procedure" board needs to have an additional procedure added that reflects requirements for siren activation prior to the EBS message dissemination (see objective 12 summary).

Overall, apart from the two areas recommended for improvement indicated above, the adequacy of facilities, equipment, displays and other materials to support emergency operations was demonstrated.

Several issues have been identified during the assessment of the radiological exposure control activities at the Matagorda County EOC. The following issues were identified:

- No permanent records dosimeters were available for use by the Matagorda County emergency workers, also suitable ranges of direct-read dosimeters were not available; a dosimeter is needed that measures higher level exposures in addition to the dosimeter currently available (0-200 mR).

- Emergency workers entering the plume EPZ did not have an exposure record card nor were appropriate written instructions issued along with the dosimeters distributed. The instructions should include how to use the dosimeters, how often to read them, and what exposure limit is authorized. It is suggested that Attachment 5 of Revision 2 of the County plan be referenced as a guide for developing suitable instructions/recordkeeping for Matagorda County emergency workers operating in the 10-mile EPZ.

- The sheriff's deputy manning the Contamination Control Team #2 access control point, demonstrated limited knowledge of required procedures and was not adequately prepared or equipped with an emergency worker kit to work in a radiologically hazardous environment.

Prior to dispatch, a charger was used to zero the dosimeters that were distributed. At one point, the Emergency Coordinator requested that emergency workers read their dosimeters out in the field. Because the emergency workers did not have permanent record dosimeters or high range pocket dosimeters (0-200 mR), the ability to continuously monitor and control emergency worker exposure control was not adequately demonstrated.

Decision-making for protective action recommendations received at Matagorda County EOC were reviewed by the County Judge and the Emergency Coordinator (County Sheriff). The consultations involved other staff members as appropriate in most situations. Many factors were considered in the decisions to accept the protective action recommendation and implement emergency response actions within the county. Decisions were made rather quickly following receipt of the recommendation. In some instances, not all factors were considered in the decision-making process. For instance, limited input and interaction occurred between the decision-makers and the public information representatives from the utility. This resulted in several EBS messages not completely and accurately reflecting the conditions of the actual exercise events. It is recommended that a list of all pertinent decision-making factors be developed and assessed for each protective action recommendation received at Matagorda County.

The decision-making criteria should include but not be limited to:

- public instructional message content that reflects the actual emergency situation;
- evacuation impediments such as road conditions and hazards, meteorological factors, evacuation time estimates and evacuation route limitation/opportunities;
- population affected, availability of type and amount of shelter facilities;
- special notifications that are required for institutions, schools and handicapped individuals.

It is important to note that the list for items to discuss during decision-making situations should be developed for the unique conditions that exist for the county in the implementation of their plan. Also, it is important to note that decision-making activities are not subject to strict timeframes; this is to ensure that all critical factors are assessed and to allow decision makers adequate time to evaluate all conditions. Finally, the previous ARCA regarding the availability of evacuation time estimates was corrected. Apart from the issue of establishing decision-making criteria, the objective to demonstrate the ability to make appropriate protective action decisions, based on appropriate and relevant factors was adequately demonstrated.

The primary means for initially alerting the public in the 10-mile EPZ is by outdoor pole-mounted sirens; tone alert radios are used as a back-up for the siren system and also provide both an attention message and detailed emergency information. Use of either warning system must be followed by public information, with the primary information system being the Emergency Broadcast System. The back-up system or complementary system is the county mobile public address units. For the exercise, the sirens were to be simulated; messages sent to EBS were demonstrated. According to the county procedures, once the decision has been made to implement protective actions, the County Judge instructs the activation of the warning system and then contacts EBS (KMKS). The EBS procedures include activation of the tone alert radios and dissemination of the instructional message over the tone alert radios and on the station's radio frequency.

During the exercise, the decision to implement the initial protective action recommendation occurred at 10:20 a.m. following receipt of the first protective action recommendation at 10:15 a.m. The first EBS message was conveyed to KMKS at 10:22 a.m.; however the siren was not activated as part of the first EBS message. The General Emergency was received at 10:20 a.m. and the second protective action recommendation was received at 10:24 a.m. Both of these messages were received while the first EBS message was being processed. In response to the second PAR and the GE, the decision to sound the siren took place and this was accomplished at 10:32 a.m. The siren sounding at this time thus provided the alert signal for the first EBS message because the EBS repeats messages every five minutes. To ensure that the sirens are sounded in conjunction with EBS, county procedures need to be followed to assure that the sirens be sounded, and that it be sounded before activation of EBS. The "County Emergency Response Procedures" board should be amended to include this procedure. Based on these observations, the ability to initially alert the public with an instructional message within fifteen minutes was accomplished.

Nine public instruction messages were disseminated from the Matagorda County EOC. Utility representatives were responsible for message development. Prescripted messages were used that included descriptions of protective action zones in terms of familiar landmarks and boundaries. However, the first two EBS messages did not contain descriptions of evacuation routes or where the public is to be evacuated; this is required according to the public information calendar. EBS message #2 was confusing and inaccurate as to which zones were previously evacuated up until that time and which additional zones were to be evacuated. Messages 3 and 4 included descriptions of reception centers designated for specific zones, but this important information was not repeated consistently in subsequent EBS messages 5 through 9. Furthermore, EBS messages 7, 8, and 9 were not accurate as to whether zone 14 was included as part of the sheltering protective action. Finally, none of the EBS messages addressed sheltering issues related to meximizing protection while sheltering or instructions for transients without shelter; also ad hoc respiratory protection measures were not presented and no information was provided as to what to take or leave behind when evacuating. Overall, it is evident that the resources are available to demonstrate an effective public instruction process at the Matagorda County EOC. However, training is required to address all of the shortcomings presented during the exercise based on these observations, the ability to coordinate, formulate and disseminate accurate information to the public was not adequately demonstrated; thus objective 13 was not met.

The policy for distribution and administration of KI is established for state and county operations. During the exercise, KI was recommended (simulated) at 10:37 a.m. and based on the review of the policy and demonstration of implementation of the policy, the objective to recommend, distribute and administer KI to emergency workers was successfully accomplished; thus objective 16 was met.

Successful demonstration (simulated) for the evacuation of handicapped persons during the evacuation phase was completed. This task was completed under the direction of the Emergency Coordinator who passed on a current index card file to the Sheriff's Department Dispatcher. The dispatcher simulated notification of all persons in the file. The procedures indicate that a Matagorda County Sheriff's vehicle would pick-up the

individuals. Based on interviews, the individuals were to be transported to pre-determined relocation center(s) with accommodations for handicapped persons. Overall, demonstration of the ability to implement protective actions for special groups was conducted. The actual and simulated actions were satisfactory to demonstrate this objective for the scope of this exercise; thus objective 18 was met.

The transportation officer and Palacios Mayor provided information about how evacuation of schools would be handled. No actual demonstrations of school evacuations took place because the schools were not in session. During the exercise, a simulated evacuation of the Tidehaven school took place at approximately 10:20 a.m. All arrangements with school buses and drivers were simulated as well as transport of buses to the relocation centers. Based on the limited demonstration designed into the exercise, the demonstration was satisfactory to meet objective 19.

Traffic control activities were demonstrated by Matagorda County by dispatching two sheriff's deputies to two separate traffic/access control points. The sheriff's deputies were accompanied by BRC and DPS personnel. Limited activities could be evaluated from the EOC on the actions taking place in the field; a complete assessment of the traffic control activities is included in Section 2.1.9 of this report. However, as initially identified at the EOC and subsequently verified by the evaluators assessing the traffic/access control point activities in the field, it did not appear that the field personnel were fully and regularly apprised of the protective actions in place during the exercise as well as other exercise-specific conditions. In this regard, it is important that a map be used to identify where the location of traffic/access control points are located as well as to visually identify where road impediments/hazards are located. Also, questions arose as to how Matagorda County emergency workers dispatched from the EOC would receive monitoring and decontamination; this issue is unresolved regarding the county's planned response to this situation. Based on these limited observations from the standpoint of the EOC operations, the objective to provide the organizational ability and resources necessary to control access and traffic was demonstrated; thus objective 20 was met.

A lengthy discussion took place on recovery and reentry issues at the Matagorda County EOC. This session was directed by the County Sheriff and extensive information was provided by a BRC staff member. Recovery issues were organized into four well-defined phases and the discussions were extremely effective in addressing the fundamental issues associated with each phase. The interaction and level of interest set a new standard for successfully completing the objective to demonstrate the ability to implement measures for recovery and reentry. The Matagorda County response addressed actions that need to be taken during recovery and reentry phases of exercises or actual events. Based on the observations, the objective to demonstrate implementation of appropriate measures for controlled recovery and reentry was met. The previously identified ARCA associated with this objective was corrected and objective 33 was met.

Overall, as was also demonstrated in the previous exercise, all EOC staff members assigned to the Matagorda County EOC were highly responsive to the requirements of the exercise. There was excellent participation by all appropriate agencies and the staff demonstrated a sincere willingness to improve from their previous

exercise. In summary, the following FEMA exercise objectives were met: 1, 2, 3, 4, 5, 11, 12, 16, 18, 19, 20, and 33. Objective 6 was not met and must be demonstrated in the next scheduled exercise.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-3 **Description:** The sheriff's deputy working with Contamination Control Team #2 had only one dosimeter (0-200 mR) and no TLD. He did not appear knowledgeable about the radiological hazard threat, dosimetry or personal protective actions. (See text under Contamination Control Teams, Page ~~37~~ 35.) (NUREG 0654, Rev. 1, K.3.a and b)

Recommendation: All personnel assigned access control point/ traffic control point duties should be provided proper emergency worker exposure control training and emergency worker kits. These kits should be assembled at the County EOC and should include two direct reading dosimeters, one TLD, a personal exposure/KI record card, KI tablets, and an instruction card for use of this equipment.

89-4 **Description:** No permanent record dosimeters were available for use by the Matagorda County emergency workers sent into the 10-mile plume EPZ. Also, suitable ranges of direct-read dosimeters were not available; a dosimeter is needed to measure higher level exposures beyond the dosimeter currently available (0-200mR).

Also, emergency workers entering the plume EPZ did not have an exposure record card nor were appropriate written instructions issued along with the dosimeters distributed. (NUREG 0654, K.3. a. & b.)

Recommendation: Provide emergency workers from Matagorda County who enter the 10-mile EPZ appropriate low and high range dosimeters as well as permanent record dosimeters. It is suggested that Attachment S of Revision 2 of the County plan be referenced as a guide for developing suitable instructions/ recordkeeping for the emergency workers that address the issues specified above. The instructions should include how to use the dosimeters, how often to read them, and what exposure limit is authorized.

89-5 **Description:** Following receipt of the first protective action recommendation at 10:15 a.m., the decision to implement this initial protective action recommendation occurred at 10:20 a.m. The EBS message associated with the first PAR was conveyed to KMKS Radio at 10:22 a.m.; however, the siren was not sounded as part of the first EBS message. (NUREG 0654, E.5, E.6)

Recommendation: To ensure that the sirens are sounded in conjunction with EBS, procedures need to be followed to assure that the sirens be sounded, and that it be sounded before activation of EBS. The county procedures need to be changed and the "County Emergency Response Procedures" board should also be amended to include this procedure.

89-6 **Description:** The first two EBS messages did not contain descriptions of evacuation routes or where the public is to be evacuated; the public information calendar indicates that the EBS is the primary method for public receipt of this information. EBS message #2 was confusing and inaccurate as to which ones were previously evacuated up until that time and with regard to which additional ones were to be evacuated. Messages 3 and 4 included descriptions of reception centers designated for specific zones, but this important information was not repeated consistently in subsequent EBS messages 5 through 9. Furthermore, EBS messages 7, 8, and 9 were not accurate as to whether zone 14 was included as part of the sheltering protective action. Finally, none of the EBS messages addressed sheltering issues related to maximizing protection while sheltering or instructions for transients without shelter. Also, ad hoc respiratory protection measures were not presented and none of the EBS messages addressed what to take or leave behind when evacuating. (NUREG 0654, E.5, E.6, E.7, G.4, G.4.c)

Recommendation: Training is required to address all of the shortcomings concerning public instructions noted during the exercise.

AREAS RECOMMENDED FOR IMPROVEMENT

- **Description:** The "County Emergency Response Procedure" board does not have a procedure reflecting requirements for siren activation prior to the EBS message dissemination.

  Recommendation: Since this board is used regularly as a checklist for the Emergency Coordinator in carrying out his essential emergency response functions, and since the procedure to sound the

sirens did not occur during the first EBS message, it is recommended that the "County Emergency Response Procedure" board be amended to include this procedure.

- **Description:** The location of traffic/access control points and road hazard areas, were not presented visually on a map. This would have helped to clearly and quickly identify the locations so that the impact of new protective action recommendations could have been more quickly and fully addressed during the decision-making process.

  Recommendation: It is suggested that provisions be made for visually presenting the location of traffic control points, road hazards and access control points on a map.

- **Description:** Decisions were made rather quickly following receipt of the protective action recommendations; in some instances not all factors were considered in the decision-making process. For instance, limited input and interaction occurred between the decision-makers and the public information representatives from the utility. This resulted in several of the EBS messages not completely and accurately reflecting the conditions of the actual exercise events. Also, it did not appear that the field personnel were fully apprised of the protective actions in place during the exercise as well as other exercise-specific conditions.

  Recommendation: It is highly recommended that a list of all pertinent decision-making factors be developed and assessed for each protective action recommendation received at Matagorda County. The decision-making criteria should include but not be limited to:

  - public instructional message content that reflects the actual emergency situation;
  - evacuation impediments such as road conditions and hazards, meteorological factors, evacuation time estimates and evacuation route limitation/opportunities;
  - population affected, availability of type and amount of shelter facilities;
  - special notifications that are required for field emergency workers, institutions, schools and handicapped individuals.

- **Description:** Questions arose as to how Matagorda County emergency workers dispatched from the EOC would receive monitoring and decontamination; this issue is unresolved as to the county's planned response to this situation.

  Recommendation: Determine if a procedure exists for emergency worker monitoring and decontamination and ensure that the emergency workers are aware of the procedure. Provide, if necessary, monitoring and decontamination resources at the Matagorda County EOC for Emergency Workers returning from field activities in the 10-mile EPZ.

- **Description:** The deputy sheriff working with Contamination Control Team #2 did not receive timely notification of changes in protective actions. (See text under Contamination Control Teams, Page ~~34~~ 35.)

  Recommendation: Insure regular updated transmissions to all traffic control points advising them, in a timely manner, of changes in protective actions and any change in the access control points mission due to these changes.

2.2.2 Reception Center (Monitoring/Decontamination Function)

The function of monitoring and decontaminating evacuees and their vehicles was performed at Palacios High School in Palacios.

Evacuees entered the high school parking lot where their vehicles were monitored for contamination by a team using a CDV-700 survey meter last calibrated in August, 1987. Contamination found on any car was marked with radioactive labeled tape and the vehicle was then driven to a segregated area of the parking lot. Decontamination would be carried out later at the bus washing area at the school.

Evacuees entered the school field house where initial radiation screening was conducted on their hands and shoe bottoms. The screening was performed quickly; however, one monitor was too close to one evacuee's shoes and allowed a probe to touch one of the shoes. After being screened, the evacuee, if clean, was registered at the reception center by a Red Cross staff member. If contaminated, the evacuee was furnished shoe coverings and directed to proceed to the next point.

Detailed radiation monitoring was performed at the next point and the results recorded on a form. However, the form was not given to several evacuees who continued on to the decontamination area. This created a problem getting the necessary information to decon area monitors. A courier subsequently carried the forms to the decontamination area. Additionally, the monitoring results on the form for a personal article belonging to one evacuee revealed a level in excess of 0.1 mR/hr. A decon monitor subsequently released the article to the evacuee. Another evacuee was remonitored in the decon area and told to remove contaminated clothing, etc. which was

placed in a bag. However, no receipt was issued to the evacuee for his personal possessions.

Contaminated evacuees were then directed to enter a shower facility, walking on brown wrapping paper, which, after becoming wet, would tear easily. Lack of a separation between the areas for entering and exiting the shower also created a problem for possibly clean people becoming recontaminated. After showering, evacuees were then re-monitored for contamination and, if clean, were provided with disposable clothing and directed to the Red Cross area to be registered. If still contaminated, an evacuee would repeat the washing/showering process with a soft bristle brush and soap and be re-monitored.

Some of the emergency workers had radios in their private cars that could be used in an emergency. However, they were not monitored during the exercise. It is recommended that a backup radio system be made available to the reception center.

The capability to monitor emergency worker exposure at the reception center was demonstrated through the distribution of CDV 138 and CDV 730 dosimeters along with the proper recordkeeping cards. The emergency workers were given instructions on the reading of the instruments, time intervals for reading (30 minutes) and the recording of the reading.

Although no emergency workers showed up to demonstrate the adequacy of conducting decontamination procedures for emergency workers, equipment and vehicles and for waste disposal, it is apparent from the above demonstration of this process for evacuees that the capability exists for conducting this process for emergency workers.

Thus, FEMA objectives (Nos. 4, 21 and 25) assigned to the Palacios Monitoring/ Decontamination Station were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-1 **Description:** There was no adequate backup communications system available. (See ARCA 89-1 under STPEGS EOC (BRC OPERATIONS) (NUREG 0654, Rev. 1, F.1.d)

Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.

89-7 **Description:** The CDV-700s used by the radiation monitors were last calibrated in August, 1987. (NUREG 0654, Rev. 1, H.10)

Recommendation: CDV-700 survey instruments should be calibrated annually when used in the REP program in accord with FEMA-REP-2, Revision 1.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** Monitors at the reception center did not, at times, maintain their survey instrument probes at a proper distance from an evacuee. Additionally, the monitoring results for a personal article belonging to one evacuee registered in excess of 0.1 mR/hr which resulted in the contaminated article being subsequently released to the evacuee.

  Recommendation: Reception center monitors should be provided with extra training in proper monitoring procedures and in the use of the monitoring results form.

- **Description:** The means of ingress and egress from the shower area were not separated to minimize possible recontamination.

  Recommendation: Make sure a partition is set up at the shower entrance separating the means of ingress and egress.

- **Description:** One evacuee did not receive a receipt for personal articles placed in a plastic bag for decontamination.

  Recommendation: Provide all individuals receipts for personal articles being left for decontamination.

- **Description:** Monitoring results were recorded on a form which did not accompany the evacuee to the decontamination area, necessitating the forms to be delivered by a courier.

  Recommendation: Develop a more efficient procedure for the forms to accompany evacuees to the decontamination area.

- **Description:** The floor in the decontamination area leading to the showers was only covered with thin wrapping paper which shredded easily when becoming wet.

  Recommendation: The floor should be covered with absorbent plastic-backed paper to minimize possible decontamination.

2.2.3 Reception Center (Reception/Care Function)

Mobilization of emergency personnel at the Palacios Reception/Care Center and the monitoring/decontamination station was in accordance with plans and procedures and was adequately demonstrated. Members of the American Red Cross, Matagorda County Hospital District. County Health Department, Palacios City Police and State Bureau of Radiation Control began arriving at 10:00 a.m. and the facility was made ready to receive the first evacuee who arrived at 11:15 a.m.

The primary communications system for the reception center consisted of two dedicated telephone lines to the County EOC. One line was assigned to the Red Cross and one to the County Health Department. Both of the telephone lines worked well except for the fact that they were overloaded. The telephones were brought to the EOC and plugged into the appropriate locations.

It is significant to note that the Red Cross people had an interagency communications system between the Red Cross supervisor and other Red Cross workers. It was a small instrument attached to their belt with an ear piece that served as a microphone/transmitter-receiver. This system worked well to keep the supervisor and telephone operator in contact with each other.

The congregate care objective was successfully demonstrated at this location. The Matagorda County EOC notified the American Red Cross (Reception/Care Center Manager) at 10:20 a.m. to open the facility. The shelter Manager was aware of the possible number of evacuees to expect at the facility. The facility had sufficient sleeping accommodations, toilets, drinking water, storage and parking space. Food would be prepared in the school cafeteria. The shelter was prepared to handle handicapped evacuees. They were also capable of offering crisis counseling and establishing a nurse's station. There was quick access to a hospital and an ambulance could be easily obtained. The relevant functions and activities of the Reception/Care facility were implemented in a manner that is consistent with established plans and procedures.

All FEMA objectives (2, 4, 5, 6, 21, and 22) assigned to this location were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION: None.

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** The telephone system was overloaded during the exercise.

  Recommendation: Install an additional telephone line for the Bureau of Radiation Control.

2.2.4 PALACIOS VFD AMBULANCE SERVICE

Mobilization of emergency personnel was satisfactorily demonstrated by the Palacios Volunteer Fire Department Ambulance Service. A call was received at 1:48 p.m. that an injured contaminated individual needed transportation to the hospital. Within three minutes the ambulance crew was enroute to the designated location and arrived at 2:08 p.m. The patient was properly prepared for transportation and received the necessary care while in transit. The ambulance arrived at Wagner General Hospital in Palacios at 2:30 p.m.

Communications capabilities consisted of a telephone in the central dispatch office, a radio base station, and two-way radios in the vehicle. The ambulance crew could establish radio contact with fire, police, central dispatch, and the hospital. All ambulance personnel have a fire/ambulance telephone in their homes and can be alerted simultaneously. The communication system was successfully demonstrated between the ambulance and the hospital with very clear and distinct send and receive messages. The backup system is the telephone in the central dispatch location.

The ambulance crew's knowledge of emergency worker exposure control procedures and requirements was properly demonstrated. Each crew member was issued one 0-200 mR dosimeter and one uniquely identified TLD. All dosimeters were zeroed and the initial reading was properly logged for the record. The crew was knowledgeable in the use and frequency of reading dosimeters. The maximum dose limits established in the plan for emergency workers was known to the crew members, as well as the action to take if the dose limit was reached or exceeded. Since the plan sets the maximum dose at 75 R, with only the 0-200 mR dosimeters, there was no way for them to know if and when they were approaching the maximum dose limits.

The medical services - transportation objective was effectively demonstrated by the ambulance crew. The ambulance was the raised roof type vehicle with the equipment necessary for the proper transportation and care of an injured individual. Protective clothing, draping material for inside of the vehicle, dosimetry and TLDs, and a survey meter were available and adequately demonstrated. Dosimeters were zeroed and distributed with name, serial numbers and initial readings logged on a plain sheet of paper. Proper forms were not in the kit, but a plant representative said they would provide the forms immediately. The ambulance crew was knowledgeable and well trained. All procedures were adequately demonstrated in a very conscientious manner.

All FEMA exercise objectives (2, 4, 6, 23) assigned to the Palacios VFD Ambulance Service were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-8 **Description:** Although the plan sets 75 R as the maximum allowable exposure dose for emergency workers for lifesaving, the ambulance personnel only had 0-200 mR dosimeters. They had no way of ascertaining if and when they had reached the maximum dose level. (NUREG 0654, Rev. 1, K.3 a & b)

Recommendation: The ambulance crew members should also be issued emergency worker dosimetry kits with all appropriate equipment.

AREAS RECOMMENDED FOR IMPROVEMENT: None.

2.2.5 WAGNER GENERAL HOSPITAL

The South Texas Radiological Emergency Preparedness Exercise conducted April 28, 1989 included an on-site emergency as well as an off-site medical drill. Wagner General Hospital was to participate only in the off-site drill. However, due to a communications problem at the plant, Wagner General was notified at 8:20 a.m. that they would be receiving an injured contaminated patient as a result of the on-site emergency. The hospital called the plant to confirm the message and began preparing the staff and the radiological treatment area for patient arrival. At 9:25 a.m. the patient had not arrived and the Hospital called the plant and again received a message that the injured contaminated worker was being sent to the hospital. This miscommunication resulted in the staff being dressed in protective clothing from 8:30 a.m. until the off-site drill in the afternoon.

The off-site medical drill was to occur at 12:30 p.m. but was not initiated until 1:54 p.m. when the hospital was notified by the Sheriff's office that an ambulance from the Palacios VFD had been dispatched to an off-site location. At 1:56 p.m. the ambulance radioed the hospital that they were enroute to the patient's location. At 2:20 p.m. the ambulance contacted the hospital to inform them of the extent of the patient's injuries, vital signs, and that the patient was contaminated. The estimated time of arrival at the hospital was also given. Radio communication was again established at 2:25 p.m. to provide specific information about contamination levels and location and an update on the patient's vital signs.

Upon arrival at the hospital, three State HPs were available to assist the ambulance and hospital personnel. Ambulance security was established and one of the State HPs promptly monitored and cleared the ambulance. This addressed one of the three recommendations made from the previous medical drill. As indicated above, hospital preparations were initiated much earlier in the day because of the miscommunication. Although preparation of the area was not observed, the hospital administrator indicated that three staff members set up the treatment area in approximately 14 minutes. This addressed a second recommendation from the previous medical drill in which preparation of the treatment area was accomplished by only one staff member. Patient decontamination was quickly and appropriately accomplished by the hospital personnel. They were fully dressed in protective clothing and demonstrated knowledge of protective measures necessary to decontaminate the patient without further spreading contaminated material. One State HP assisted personnel in the treatment area while another HP was at the buffer zone providing assistance as needed. Contamination levels and location were properly charted. The third recommendation from the previous medical drill, covering the return air vent in the treatment room, was not resolved as the air vent was not covered.

Exit procedures from the treatment area were not observed as all emergency room personnel had to respond to an actual emergency just as this phase of the drill was beginning. These procedures were discussed with hospital personnel and it was obvious that the staff had received adequate training and knew the procedures.

All FEMA exercise objectives (2, 4, 24) assigned to Wagner General Hospital were met.

DEFICIENCIES: None.

AREAS REQUIRING CORRECTIVE ACTION:

89-9 **Description:** The return air duct in the treatment area was not covered to prevent the spread of contaminants. (NUREG 0654, Rev. 1, L.1)

Recommendation: Cover the air duct as required.

2.3 UTILITY ISSUES

AREAS RECOMMENDED FOR IMPROVEMENT:

- **Description:** The Site Area Emergency was declared at 9:41 a.m. Hard copy was received at 10:01 a.m. The General Emergency was declared at 9:25 a.m. Hard copy was not received at the State EOC until 10:25 a.m.

  Recommendation: This delay in receipt of hard copy notification from the utility should be investigated and corrected.

- **Description:** There was some confusion at the State EOC about whether the releases were in REM or in MILLIREM. Messages 5 and 6 reported releases in REM. BRC called the State EOC to report that the REM on each of these messages should be changed to MILLIREM. Messages 7 and 8 reported MILLIREM releases. Messages 9 and 10 reverted to REM.

  Recommendation: This type of confusion could be eliminated by removing the pre-printed REM from the message form.

- **Description:** There were some problems with the timeliness and accuracy of information contained in a protective action recommendation issued from the STP EOC. The protective action recommendation to evacuate in Sectors M & N was rescinded and altered to sheltering in those areas. The message took 1 hour and 16 minutes to develop and transmit hard copy PARS over the fax machine to state and local offsite locations.

Recommendation: The system used at the STP EOC to assure the rapid transmission of information on PARs to the necessary locations should be monitored more closely by utility and State personnel to assure that all locations and the public are informed as promptly as possible.

- **Description:** The controller packages for the State field monitoring teams and mobile lab were extremely confusing and difficult for the field controllers to compute the necessary information required for field team input.

  Recommendation: The controllers should be given the information in the form required to drive the field team activity and not require the controllers to make extensive calculations to arrive at the necessary input.

3 TRACKING SCHEDULE FOR STATE/LOCAL ACTIONS TO CORRECT DEFICIENCIES AND AREAS REQUIRING CORRECTIVE ACTION

Individual exercise site narratives, in Section 2 of this report, have provided listings of Deficiencies and/or Areas Requiring Corrective Action, with recommendations, noted by the Federal evaluators during the April 26, 1989 exercise. The evaluations developed by the Federal evaluators were based on applicable planning standards and evaluation criteria set forth in Section II of NUREG 0654/FEMA REP 1, Rev 1 (November 1980), and preapproved exercise objectives.

The FEMA Region VI Director is responsible for certifying to the FEMA Associate Director, State and Local Programs and Support, Washington, D.C., that any Deficiencies and/or Corrective Actions noted in the exercise will be corrected, and that such corrections will be incorporated into emergency response plans as appropriate.

FEMA Region VI will request that the State of Texas, and Matagorda County, submit measures that they will or intend to take to correct those problems noted by the Federal evaluators. If corrective actions are necessary, FEMA Region VI will request that a detailed plan, including dates for scheduling and implementing the corrective actions, be provided if such actions cannot be instituted immediately.

Table 1 provides, by exercise operating location or activity group, a consolidated summary of all Deficiencies and/or Areas Requiring Corrective Action. As noted previously in this report, there were no Deficiencies identified in the April 26, 1989 exercise. The table is designed so that space has been allowed to add: (1) the proposed corrective actions that will be undertaken by the State or local jurisdiction, and (2) the projected and actual dates of completion.

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
STPECS EOC (BRC OPERATIONS)						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-1 Description: The BRC handheld radios used by the contamination control and decon support teams were unable to communicate with the BRC staffs at the STP EOC and the BRC staging area. These same radios were a source of problems in a previous exercise because of a very limited range.	4	F.1.d				
Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.						
89-2 Description: The BRC and the utility use the same computer program to calculate dose projection. For some reason (one of the programs may not have had recent revisions incorporated) the projected dose calculations gave different results, on the two computers, when using the same input data. An incorrect result could have adverse effect on decision making.	10	I.8				
Recommendation: Review the new program revision for accuracy and update both computers with the correct revision.						

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
BRC CONTAMINATION CONTROL TEAMS						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-1 Description: Handheld radios issued to the Contamination Control Teams failed to function properly. Consequently, there was no communication with the staging area or the STP EOC where the Field Team Coordinator was located. (See ARCA 89-1 under STPEOS EOC (BRC OPERATIONS)	4	F.1.d				
Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.						
MATAGORDA COUNTY EOC						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-3 Description: The sheriff's deputy working with Contamination Control Team #2 had only one dosimeter (0 - 200mR) and no TLD. He did not appear totally knowledgeable about the radiological hazard threat, dosimetry or personal protection actions.	6	K.3.a & b				
Recommendation: All personnel assigned access control point/ traffic control point duties should be provided proper emergency worker						

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
MATAGORDA COUNTY EOC (Continued)						
AREAS REQUIRING CORRECTIVE ACTION: (Continued)						
kits. These kits should be assembled at the County EOC and should include two direct reading dosimeters, one TLD, a personal exposure/KI record card, KI tablets, and an instruction card for use of this equipment.						
89-4 Description: No permanent record dosimeters were available for use by the Matagorda County emergency workers sent into the 10-mile plume EPZ. Also suitable ranges of direct-read dosimeters were not available; a dosimeter is needed to measure higher level exposures beyond the dosimeter currently available (0-200mR). Emergency workers entering the plume EPZ did not have an exposure record card nor were appropriate written instructions issued along with the dosimeters distributed.	6	K.3.a & b				
Recommendation: Provide emergency workers from Matagorda County who enter the 10-mile EPZ appropriate low and high range dosimeters as well as permanent record dosimeters. It is suggested that Attachment 5 of Revision 2 of the County plan be referenced as a guide for developing suitable instructions/recordkeeping for the						

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
MATAGORDA COUNTY EOC (Continued)						
AREAS REQUIRING CORRECTIVE ACTION: (Continued)						
emergency workers that address the issues specified above. The instructions should include how to use the dosimeters, how often to read them, and what exposure limit is authorized.						
89-5 Description: Following receipt of the first protective action recommendation at 10:15 a.m., the decision to implement this initial protective action recommendation occurred at 10:20 a.m. The EBS message associated with the first PAR was conveyed to KMKS Radio at 10:22 a.m.; however, the siren was not sounded as part of the first EBS message.	12	E.5, E.6				
Recommendation: To ensure that the sirens are sounded in conjunction with EBS, procedures need to be followed to assure that the sirens are sounded, and that they are sounded before activation of EBS. The county procedures need to be changed and the "County Emergency Response Procedures" board should also be amended to include this procedure.						

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
MATAGORDA COUNTY EOC (Continued)						
AREAS REQUIRING CORRECTIVE ACTION: (Continued)	13					
89-6 Description: The first two EBS messages did not contain descriptions of evacuation routes or where the public is to be evacuated; the EBS is the primary method for public receipt of this information. EBS message #2 was confusing and inaccurate as to which zones were previously evacuated up until that time, and with regard to which additional zones were to be evacuated. Messages 3 and 4 included descriptions of reception centers designated for specific zones, but this important information was not repeated consistently. Furthermore, EBS messages 7, 8, and 9 were not accurate as to whether zone 14 was included as part of the sheltering protective action. Finally, none of the EBS messages addressed sheltering or instructions for transients without shelter. Also, ad hoc respiratory protection measures were not presented and none of the EBS messages addressed what to take or leave behind when evacuating. Recommendation: Training is required to address all of the shortcomings concerning public instructions noted during the exercise.		E.5, 6, 7 G.4, G.4.c				

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
RECEPTION CENTER (MONITORING/ DECONTAMINATION FUNCTION)						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-1 Description: There was no adequate backup communications system available. (See ARCA 89-1 under STPEGS EOC (BRC OPERATIONS)	4	F.1.d				
Recommendation: The BRC radio system should be improved to provide for continuous communication with field units.						
89-7 Description: The CDV-700s used by the radiation monitors were last calibrated in August, 1987.	21	H.10				
Recommendation: CDV-700 survey instruments should be calibrated annually when used in the REP program in accord with FEMA-REP-2, Revision 1.						
PALACIOS VFD AMBULANCE SERVICE						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-8 Description: Although the plan sets ~~25~~ 75 R as the maximum allowable exposure dose for emergency workers, the ambulance crew only had 0-200mR dosimeters. They had no way of ascertaining if and when they had reached the maximum dose level.	6	K.3.a & b				

TABLE 1 REMEDIAL ACTIONS FOR THE APRIL 26, 1989 SOUTH TEXAS PROJECT EXERCISE

Deficiencies and/or Areas Requiring Corrective Actions -- With FEMA/RAC Recommendations for Correction	FEMA Exercise Objective No(s)	NUREG 0654 Reference	State (S) and Local (L) Proposed Corrective Actions	Proposed Completion Date	FEMA Evaluation of State and Local Corrective Actions and Determination of Adequacy	Actual Completion Date
PALACIOS VFD AMBULANCE SERVICE (Continued)						
AREAS REQUIRING CORRECTIVE ACTION: (Continued)						
Recommendation: The ambulance crew members should also be issued emergency worker dosimetry kits with all appropriate equipment.						
WAGNER GENERAL HOSPITAL						
DEFICIENCIES: NONE						
AREAS REQUIRING CORRECTIVE ACTION:						
89-9 Description: The return air duct in the treatment area was not covered to prevent the spread of contaminants.	24	L.1				
Recommendation: Cover the air duct as required.						

4 EVALUATION OF OBJECTIVES

4.1 Summary of FEMA Objectives Remaining to be Met

Table 2 provides a consolidated listing of those FEMA objectives which, according to the FEMA RAC Chairman, have not been satisfactorily met or tested, and which should be incorporated into exercise objectives on or by the sixth year of the six-year exercise cycle in which all objectives must be tested and met. These objectives should be considered in the development of future exercise objective lists; as well as those FEMA objectives which, although previously tested, and satisfactorily demonstrated, must be tested and evaluated during any full-participation exercise of off-site State and local response capabilities.

4.2 FEMA Objectives Tracking - South Texas Project

Table 3 provides a comprehensive tracking system of all FEMA exercise objectives, NUREG 0654 Reference Elements, latest exercise objectives, jurisdictional responsibilities, exercise dates, identified deficiencies and/or required corrective actions, and the date that specific FEMA objectives were met by State and local agencies. This system will track the progress and status of this data through the six-year exercise cycle in which all FEMA objectives must be tested and met.

TABLE 2 Summary of FEMA Objectives to be Met

	FEMA Objective and NUREG Reference	Jurisdiction
29.	Demonstrate ability to project dosage to the public via ingestion pathway exposure, based on field data; and to determine appropriate protective measures based on PAGs and other relevant factors.	State: Not tested 4/8/87
30.	Demonstrate ability to implement protective actions for ingestion pathway hazards (J.9, J.10.a/g).	State and local: Not tested 4/8/87
32.	Demonstrate ability to determine appropriate measures for controlled reentry and recovery based on estimated population exposure, available EPA PAGs and other relevant factors.	Matagorda County: Partially met 4/8/87 and 4/26/89
34.	Demonstrate the ability to maintain staffing on a continuous 24-hour basis by an actual shift change.	State and local: Not tested 4/8/87 and 4/26/89
35.	Demonstrate ability to support an orderly evacuation of on-site personnel (J.2).	Matagorda County: Not tested 4/8/87
36.	Demonstrate the ability to carry out emergency functions (i.e. activate EOCs, mobilize staff at EOCs establish communications and complete call-down during unannounced or off-hours drill or exercise.	State and local: Not tested 4/8/87 and 4/26/89

TABLE 3 FEMA EXERCISE OBJECTIVES TRACKING CHART
SOUTH TEXAS PROJECT ELECTRIC GENERATING STATION

FEMA Objective Number and Description	NUREG 0654 Reference	Objective at this Exercise (Yes/No)	Jurisdictional Responsibility State	Jurisdictional Responsibility Local	Date of Exercise	Deficiency or Area Requiring Corrective Action (by Tracking Number and Date)	Date Objective Met State	Date Objective Met Local(s)
OBJECTIVE 1 - (Old Obj. No. 37) EMERGENCY CLASSIFICATION LEVELS Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to the ECLs	D.4 (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 2 - (Old Obj. No. 1 & 6) MOBILIZATION OF EMERGENCY PERSONNEL Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field based emergency functions	E.1, E.2, I.8 (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 3 - (Old Obj. No. 3) DIRECTION AND CONTROL Demonstrate the ability to direct, coordinate and control emergency activities	A.1.d, A.1.e, A.2.a (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 4 - (Old Obj. No. 5) COMMUNICATIONS Demonstrate the ability to communicate with all appropriate locations, organizations and field personnel	G.3.a, H.2., H.3 (S&L)	Yes	X	X	4/26/89	ARCA 89-1 4/26/89 BRC OPNS/EOC, Contamination Control Teams, Reception Center	4/26/89	4/26/89
OBJECTIVE 5 - (Old Obj. No. 4) FACILITIES, EQUIPMENT AND DISPLAYS Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations	J.10.a, J.10.b G.3.a, H.2, H.3 (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89

TABLE 3 FEMA EXERCISE OBJECTIVES TRACKING CHART
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OBJECTIVE 6 - (Old Obj. No. 20) EMERGENCY WORKER EXPOSURE CONTROL Demonstrate the ability to continuously monitor and control emergency worker exposure	K.3.a, K.3.b (S&L)	Yes	X	X	4/26/89	ARCA 89-3 4/26/89 Matagorda Co. EOC ARCA 89-4 4/26/89 Matagorda Co. EOC ARCA 89-8 4/26/89 Palacios VFD Ambulance Service	4/26/89	4/26/89
OBJECTIVE 7 - (Old Obj. No. 7) FIELD MONITORING Demonstrate the appropriate equipment and procedures for determining field radiation measurements	I.8, I.11 (S)	Yes	X	-	4/26/89		4/26/89	-
OBJECTIVE 8 - (Old Obj. No. 8) RADIOIODINE SAMPLING Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as low as 10^{-7} microcuries per cc in the presence of noble gasses	I.9 (S)	Yes	X	-	4/26/89		4/26/89	-
OBJECTIVE 9 - (New Objective) PARTICULATE SAMPLING Demonstrate the ability to obtain samples of particulate activity in the airborne plume and promptly perform field analysis	I.8, I.11 (S)	Yes	X	-	4/26/89		4/26/89	-

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OBJECTIVE 10 - (Old Obj. No. 10) PLUME DOSE PROJECTION Demonstrate the ability, within the plume exposure pathway, to project dosage to the public via plume exposure, based on plant and field data	I.10 (S)	Yes	X	-	4/26/89	ARCA 89-2 4/26/89 BRC operations at STPEGS EOC	4/26/89	-
OBJECTIVE 11 - (Old Obj. No. 10) PLUME PROTECTIVE ACTION DECISIONS Demonstrate the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAGs, availability of adequate shelter, etc.	J.10 (S)	Yes	X	-	4/26/89		4/26/89	-
OBJECTIVE 12 - (Old Obj. No. 13) PUBLIC ALERTING AND NOTIFICATION Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s)	E.6 App. 3 (L)	Yes	-	X	4/26/89	ARCA 89-5 4/26/89 Matagorda Co. EOC	-	4/26/89
OBJECTIVE 13 - (Old Obj. No. 14 & 25) EMERGENCY PUBLIC INFORMATION Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert/notification has occurred.	E.5, E.7, G.4.b (S&L)	Yes	X	X	4/26/89	ARCA 89-6 4/26/89 Matagorda Co. EOC	4/26/89	4/26/89

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OBJECTIVE 14 - (Old Obj. No. 24) MEDIA BRIEFINGS Demonstrate the ability to brief the media in an accurate, coordinated and timely manner	G.3.a, G.4.a (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 15 - (Old Obj. No. 26) RUMOR CONTROL Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion	G.4.c (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 16 - (Old Obj. No. 21 & 22) KI FOR EMERGENCY WORKERS Demonstrate the ability to make the decision to recommend the use of KI to emergency workers and institutionalized persons, as well as to distribute and administer it once the decision has been made	J.10.e, J.10.f (S&L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 17 - (Old Obj. No. 21 &22) KI FOR THE GENERAL PUBLIC Demonstrate the ability to make the decision, if the State plan specifies to recommend the use of KI for the general public, as well as to distribute and administer it once the decision has been made	J.10.e, J.10.f (S&L)	No	-	-	-		-	-

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OBJECTIVE 18 - (Old Obj. No. 15 & 18) PLUME PROTECTIVE ACTIONS Demonstrate the ability and resources necessary to implement appropriate protective actions for the impacted plume EPZ population	J.9, J.10 (S&L)	Yes	-	X	4/26/89		-	4/26/89
OBJECTIVE 19 - (Old Obj. No. 19) SCHOOL PROTECTIVE ACTIONS Demonstrate the ability and resources necessary to implement appropriate protective actions for school children within the plume EPZ	J.9, J.10.g (L)	Yes	-	X	4/26/89		-	4/26/89
OBJECTIVE 20 - (Old Obj. No. 16 & 17) TRAFFIC AND ACCESS CONTROL Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas	J.10.j, J.10.k (S&L)	Yes	-	X	4/26/89		-	4/26/89
OBJECTIVE 21 - (Old Obj. No. 27) REGISTRATION, MONITORING AND DECON. Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees	J.12 (L)	Yes	X	X	4/26/89	ARCA 89-7 4/26/89 Palacios Reception Center	4/26/89	4/26/89
OBJECTIVE 22 - (Old Obj. No. 28) CONGREGATE CARE OF EVACUEES Demonstrate the adequacy of facilities, equipment and personnel for the congregate care of evacuees	J.10.h (L)	Yes	-	X	4/26/89		-	4/26/89

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OBJECTIVE 23 - (Old Obj. No. 30) EMERGENCY MEDICAL TRANSPORTATION Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals	L.4 (L)	Yes	-	X	4/26/89		-	4/26/89
OBJECTIVE 24 - (Old Obj. No. 31) MEDICAL SERVICES FACILITIES Demonstrate the adequacy of hospital facilities, equipment, procedures and personnel for handling contaminated injured or exposed individuals	L.1 (L)	Yes	-	X		ARCA 89-9 4/26/89 Wagner General Hospital	-	4/26/89
OBJECTIVE 25 - (Old Obj. No. 29) DECONTAMINATION Demonstrate the adequacy of facilities, equipment, procedures and personnel for decontamination of emergency workers, equipment and vehicles, and for waste disposal	K.5.a, K.5.b (L)	Yes	X	X	4/26/89		4/26/89	4/26/89
OBJECTIVE 26 - (Old Obj. No. 32 & 35) SUPPLEMENTARY ASSISTANCE (FED/OTHER) Demonstrate the ability to identify the need for and call upon Federal and other outside support agencies for assistance	C.1.a, C.4 (S&L)	No	X	X			4/8/87	4/8/87
OBJECTIVE 27 - (Old Obj. No. 9) INGESTION PATHWAY SAMPLE COLLECTION Demonstrate the appropriate use of equipment and procedures for collection and transport of samples of vegetation, food crops, milk, meat, poultry, water and animal feeds	I.8 (S)	No	X	-			4/8/87	-

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OBJECTIVE 28 - (Old Obj. No. 9) INGESTION LABORATORY OPERATIONS Demonstrate the appropriate laboratory operations and procedures for analyzing samples obtained under objective 27 by field teams	I.8 (S)	No	X	-			4/8/87	-
OBJECTIVE 29 - (Old Obj. No. 11) INGESTION DOSE PROJECTION Demonstrate the ability to project dosage to the public for ingestion pathway exposure and to determine appropriate protective measures based on field data, FDA PAGs and other relevant factors	I.10, I.11, J.11 (S)	No	X	-			-	-
OBJECTIVE 30 - (Old Obj. No. 12) INGESTION PROTECTIVE ACTION IMPLE. Demonstrate the ability to implement both preventive and emergency protective actions for ingestion pathway hazards	J.9, J.11 (S)	No	X	-			-	-
OBJECTIVE 31 - (Old Obj. No. 33) TOTAL POPULATION EXPOSURE Demonstrate the ability to estimate total population exposure	M.4 (S)	No	X	-			4/8/87	-
OBJECTIVE 32 - (Old Obj. No. 34) CONTROLLED REENTRY AND RECOVERY Demonstrate the ability to determine appropriate measures for controlled reentry and recovery based on estimated population exposure, EPA PAGs and other relevant factors	M.1 (S&L)	N	X	X		ARCA 87-5 4/8/87 Matagorda Co. EOC	4/8/87	Partially met 4/8/87 Co. EOC

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OBJECTIVE 33 - (Old Obj. No. 34) REENTRY AND RECOVERY IMPLEMENTATION Demonstrate the ability to implement appropriate measures for controlled reentry and recovery	H.1 (S&L)	Yes	-	X	4/26/89		-	4/26/89
OBJECTIVE 34 - (Old Obj. No. 2) 24 HOUR STAFFING Demonstrate the ability to maintain staffing on a continuous 24-hour basis by an actual shift change	A.2.a, A.4 (S&L)	No	X	X			-	-
OBJECTIVE 35 - (Old Obj. No. 23) EVACUATION OF ON SITE PERSONNEL Demonstrate the ability to coordinate assistance to the evacuation of on-site personnel	J.2 (L)	No	X	X			-	-
OBJECTIVE 36 - (PR-1 Requirement) UNANNOUNCED AND OFF HOURS OPERATIONS Demonstrate the abil[illegible] to carry out emergency functions (i.e., act[illegible]ate EOCs, mobilize staff at EOCs, establish communications and complete call-down during unannounced or off-hours drill or exercise	PR-1	No	X	X			-	-