



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

February 20, 2001

William T. Cottle, President and  
Chief Executive Officer  
STP Nuclear Operating Company  
P.O. Box 289  
Wadsworth, Texas 77483

SUBJECT: FEDERAL EMERGENCY MANAGEMENT AGENCY'S REPORT

Dear Mr. Cottle:

Enclosed is a copy of the Federal Emergency Management Agency's (FEMA) exercise evaluation report for the October 18, 2000, emergency preparedness exercise at the South Texas Project Electric Generating Station.

The report indicates that FEMA observed no deficiencies or areas requiring corrective actions during the exercise.

The purpose of this letter is to transmit to you the results of the FEMA evaluation of the emergency exercise. No response to the NRC is required.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the ADAMS Public Library component on the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

If you have any further questions, please contact Mr. Paul Eikmann at (817) 276-6539.

Sincerely,

Gail M. Good, Chief  
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-2-

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# Federal Emergency Management Agency

Region VI  
Federal Regional Center  
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Denton, TX 76201-3698

February 2, 2001

Ellis W. Merschoff, Regional Administrator  
U.S. NRC, Region IV  
611 Ryan Plaza Drive, Suite 400  
Arlington, TX 76011

*Ellis*

Dear Mr. Merschoff:

Enclosed for your use is a copy of the final report of the South Texas Project Electric Generating Station (STPEGS) REP exercise conducted October 18, 2000.

An electronic copy of the final report will also be forwarded to you if you have provided us with an e-mail address.

If you have any questions, contact Brenda J. Mosley at (940) 898-5344.

Sincerely,

A handwritten signature in black ink, appearing to read "Gary E. Jones", is written over the word "Sincerely,".

Gary E. Jones  
Acting Regional Director

Enclosure  
cc e-mail: Kathy Halvey Gibson, Chief, NRC



# Final Exercise Report

## South Texas Project Electric Generating Station

Licensee: *South Texas Project  
Nuclear Operating Company*

Exercise Date: *October 18, 2000*

Report Date: *January 31, 2001*

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FEDERAL EMERGENCY MANAGEMENT AGENCY  
REGION VI  
800 North Loop 288  
Denton, Texas 76209-3606

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## I. EXECUTIVE SUMMARY

On October 18, 2000, a biennial Radiological Emergency Preparedness (REP) exercise was conducted in the plume exposure pathway emergency planning zone (EPZ) around the South Texas Project Electric Generating Station (STPEGS). The exercise was evaluated by the Federal Emergency Management Agency (FEMA), Region VI. The purpose was to assess the level of preparedness of the State and local responders to react to a simulated radiological emergency at the STPEGS. The exercise was held in accordance with FEMA's policies and guidance concerning the implementation of State and local radiological emergency preparedness plans and procedures.

The qualifying exercise to satisfy FEMA Rule 44 Code of Federal Regulations (CFR) 350 requirements for NRC licensing to operate the facility was conducted April 8, 1987. There have been eight FEMA evaluated exercises, including the exercise on October 18, 2000, plus several drills conducted since that date.

FEMA Region VI wishes to acknowledge the dedicated participation of many individuals in the State of Texas, Matagorda County, Bay City, and McAllister Reception/Care-Monitoring/Decontamination (R/C-M/D) Center. Many of these participants are paid civil servants whose full-time job is to protect the health and safety of the public within the jurisdictions they serve. There are many more that are dedicated volunteers who participate and perform a service to the community in which they live.

This report contains the final written assessment of the biennial exercise including the identification of any exercise issues and recommendations for corrective action where appropriate.

All State and local organizations, except where noted in this report, demonstrated an adequate knowledge of and ability to implement emergency plans and procedures and properly implemented them. There were no Deficiencies and no Areas Requiring Corrective Action (ARCA) identified during this exercise.

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## II. INTRODUCTION

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

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

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

The findings presented in this report are based on the Federal evaluation team's assessment of the participants' response to a simulated radiological incident at the STPEGS that affected the off-site population. The final classification of any issues identified was made by the Region VI RAC Chairman and the report was approved by the Regional Director.

The criteria used in the evaluation process are contained in:

- NUREG-0654, FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (November 1980);
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual" (September 1991); and
- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology (EEM)" (September 1991).

Section III of this report entitled "Exercise Overview" presents basic information and data relevant to the exercise. This section contains a description of the emergency planning zone, a listing of all participating jurisdictions which were evaluated and a tabular presentation of the times of actual occurrence of key exercise events and activities.

Section IV of this report, entitled "Exercise Evaluation and Results," presents detailed information on the demonstration of applicable exercise objectives at each jurisdiction or functional entity evaluated in a jurisdiction-based format. This section also contains descriptions of all Deficiencies and ARCAs assessed during the exercise and recommended corrective actions, as well as descriptions of ARCAs assessed during previous exercises and the current status of each.

### **III. EXERCISE OVERVIEW**

This section contains data and basic information relevant to the October 18, 2000, exercise to test the off-site response capabilities in the area surrounding the South Texas Project Electric Generating Station (STPEGS). This section of the report includes a description of the EPZ, a listing of all participating jurisdictions which were evaluated and a tabular presentation of the times of actual occurrence of key exercise events and activities.

#### **A. Emergency Planning Zone Description**

The area within a 10-mile radius of the STPEGS is located in the State of Texas, entirely within Matagorda County. The plant site is located approximately 14 miles southwest of Bay City and 75 miles southwest of Houston. There are no incorporated jurisdictions within the 10-mile radius of the facility. The EPZ includes several unincorporated towns and subdivisions. The remainder of the EPZ consists of unincorporated farmland and fields. Industrial facilities within the EPZ include Celanese Chemical Plant, Equistar Petrochemical, Matagorda Aerostat, Chemway Energy, and oil or gas pipelines.

Based on the 1990 Census, the total population of the EPZ is 3,040 people.

The Colorado River runs north to south through the EPZ and forms the eastern boundary of the site. A public wharf, located at the Port of Bay City, 4.8 miles to the north-northeast of the Station is used for loading and unloading gasoline and diesel oil from barges on the Colorado River.

The Burlington Northern/Santa Fe Railroad runs north to south through the EPZ, about 8 miles east of the Station. The Union Pacific Railroad runs east to west through the northern part of the EPZ, approximately 7 miles from the STPEGS. Various railroad spurs run off these rails to support industrial locations.

Two state highways are within the EPZ. State Highway 35 forms the northwestern and western boundary of the EPZ. State Highway 60 runs north to south through the EPZ, about 7 miles from the STPEGS.

There are three schools within the 10-mile radius. Matagorda Elementary is located 8 miles south-southeast of STPEGS. Tidehaven High School and Intermediate School are also within the EPZ at 8 – 8.5 miles north-northwest of the Station. FM-521 is located about 3 miles from the plant. A recreational facility, River Park and Golf Course, is located 9 miles from the Station. Another recreational area, Matagorda

Beach, is about 15 miles south of the Station. Evacuation of the beach area is north on State Highway 60, through the EPZ. There are no other public institutions or commercial recreational areas in the EPZ.

The EPZ is divided into 11 zones, based primarily on natural boundaries, for the purpose of emergency response planning and the implementation of protective actions.

## **B. Exercise Participants**

Agencies and organizations of the following jurisdictions participated in the STPEGS exercise at the locations indicated:

### **State of Texas**

Texas Bureau of Radiation Control (BRC)  
Texas Department of Public Safety (DPS)

### **Risk Jurisdictions**

Matagorda County

### **Support Jurisdictions and Organizations**

McAllister Reception/Care Monitoring/Decontamination Center

## **C. Exercise Timeline**

Table 1 on the following page presents the times at which key events and activities occurred during the STPEGS exercise held on October 18, 2000.

**TABLE 1. EXERCISE TIMELINE**

**DATE AND SITE: October 18, 2000, South Texas Project Electric Generating Station**

Emergency Classification Level or Event	Time Declared By Utility	Time That Notification Was Received Or Action Was Taken					
		Matagorda County EOC	Pierce DD EOC	EOF-BRC Dose Assessment	Joint Information Center	BRC Mobile Lab	State EOC
Unusual Event		N/A	N/A	N/A	N/A	N/A	N/A
Alert	7:46 am	7:57 am	7:56 am	N/A	7:52 am	8:20 am	8:12am
Site Area Emergency	9:08 am	9:11 am	9:19 am	9:18 am	9:25 am	9:20 am	9:29am
General Emergency	9:57 am	10:03 am	10:09 am	9:57 am	10:05 am	10:09 am	10:22a
Rad. Release Started	11:32 am	11:49 am	11:43 am	11:32 am	11:21 am	11:35 am	11:51a
Rad. Release Terminated	12:53 pm	1:08 pm	1:07 pm	1:09 am	12:53 pm		1:02pm
Facility Declared Operational		8:30 am	N/A	10:10 am	8:40 am	8:20 am	10:00a
Declaration of State of Emergency		12:10 pm	N/A		N/A		12:28p
Exercise Terminated		2:00 pm	2:06 pm	2:00 pm	2:06 pm	2:15 pm	
Early Precautionary Actions – Evacuate Tidehaven HS & JHS & Matagoarda Elm.Schools; Close parks		9:26 am	N/A	N/A	N/A	N/A	N/A
<b>1<sup>st</sup> Protective Action Decision</b> Evacuate: Zones 1,2,3,4,5 Shelter:		10:24 am	N/A	10:01 am	N/A	N/A	N/A
1 <sup>st</sup> Siren Activation		10:25 am	N/A	N/A	N/A	N/A	N/A
1 <sup>st</sup> EAS Message		10:27 am	N/A	N/A	N/A	N/A	N/A
<b>2<sup>nd</sup> Protective Action Decision</b> Evacuate: Add Zones 8 & 9 Shelter:		12:31 pm	N/A	12:31 pm	N/A	N/A	N/A
2 <sup>nd</sup> Siren Activation		12:32 pm	N/A	N/A	N/A	N/A	N/A
2 <sup>nd</sup> EAS Message		12:36 pm	N/A	N/A	N/A	N/A	N/A
KI Administration Decision		1:14 pm	N/A	N/A	N/A	N/A	N/A

#### **IV. EXERCISE EVALUATION AND RESULTS**

This section contains the results and findings of the evaluation of all jurisdictions and functional entities that participated in the October 18, 2000, exercise to test the off-site emergency response capabilities of State and local governments in the 10-mile EPZ surrounding the STPEGS.

Each jurisdiction and functional entity was evaluated on its demonstration of criteria contained in exercise objectives delineated in FEMA-REP-14, Radiological Emergency Preparedness Exercise Manual, dated September 1991. Detailed information on the exercise objectives and the extent-of-play agreement for this exercise is found in Appendix 3 of this report.

#### **V. Summary Results of Exercise Evaluation**

The matrix presented in Table 2 on the following page presents the status of all exercise objectives from FEMA-REP-14 which were scheduled for demonstration during this exercise at all participating jurisdictions and functional entities. Exercise objectives are listed by number and the demonstration status of those objectives is indicated by the use of the following letters:

- M - Met (No Deficiency or ARCAs assessed and no unresolved ARCAs from prior exercise)
- D - Deficiency assessed
- A - ARCAs assessed or unresolved ARCAs from previous exercises
- N - Not Demonstrated (Reason explained in subsection B)



## **B. Status of Jurisdictions Evaluated**

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

- **Met** – Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this exercise and under which no ARCAs assessed during prior exercises remain unresolved.
- **Deficiency** – Listing of the demonstrated exercise objectives under which a Deficiency was assessed during this exercise. Included is a description of each Deficiency and recommended corrective actions.
- **Areas Requiring Corrective Action** – Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current exercise or ARCAs assessed during prior exercises that remain unresolved. Included is a description of the ARCAs assessed during this exercise and the recommended corrective action to be demonstrated before or during the next biennial exercise.
- **Not Demonstrated** – Listing of the exercise objectives which were not demonstrated as scheduled during this exercise and the reason they were not demonstrated.
- **Prior Issues – Resolved** – Description of ARCAs assessed during previous exercises which were resolved in this exercise and the corrective actions demonstrated.
- **Prior Issues – Unresolved** – Description of ARCAs assessed during prior exercises which were not resolved during this exercise. Included is the reason the ARCAs remain unresolved and recommended corrective action to be demonstrated before or during the next biennial exercise.

The following are definitions of exercise issues which are discussed in this report.

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

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

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

- **Plant Site Identifier** – A two-digit number corresponding to the Utility Billable Plant Site Codes.
- **Exercise Year** – The last two digits of the year the exercise was conducted.
- **Objective Number** – A two-digit number corresponding to the objective numbers in FEMA-REP-14.
- **Issue Classification Identifier** – (D = Deficiency, A = ARCA). Only Deficiencies and ARCAs are included in exercise reports.
- **Exercise Issue Identification Number** – A separate two (or three) digit indexing number assigned to each issue identified in the exercise.

## 1.1 STATE EMERGENCY OPERATIONS CENTER AUSTIN, TEXAS

The State of Texas EOC (SEOC) is located in the sub-basement of the Department of Public Safety (DPS) building in Austin, TX. The SEOC is a modern facility that includes a large Council Room where the primary emergency activities and operations of the Division of Emergency Management (DEM) Staff occur.

The DEM staff adequately demonstrated their ability to monitor, understand, and maintain the Emergency Classification Levels (ECL) issued by the South Texas Project Electric Generating Station (STPEGS). The DEM staff was advised at 8:12 a.m. that an **ALERT** had been declared at STPEGS through the Texas Law Enforcement Telecommunications System (TLETS). A Regional Liaison Officer who was located at the Pierce Office of the Department of Public Safety (DPS-Pierce) provided this information. Additionally, this information was confirmed by facsimile. There was an error in this notification. The statement indicating "THIS IS A DRILL" actually stated "THIS IS **NOT** A DRILL." The DEM staff noticed this and immediately notified DPS-Pierce and a corrected notification was received at 8:24 a.m. The DEM was notified of the **SITE AREA EMERGENCY (SAE)** at 9:29 a.m. and then the **GENERAL EMERGENCY (GE)** at 10:22 a.m. through verbal conversations with DPS-Pierce and the Emergency Operations Facility (EOF). Though the primary means of emergency notification is TLETS, in the case of GE, prior telephone notification was received.

DEM effectively demonstrated the ability to activate the SEOC staff and make the appropriate notifications to the SEOC Primary Staff and advise them of the emergency status and request their mobilization. At 9:35 a.m., the DEM Controller (DEMC) directed the start of emergency notification calls to State agencies, and the primary calls were successfully completed at 9:55 a.m. Emergency notification calls to secondary agencies were completed at 10:14 a.m. Secondary agencies were alerted to the situation at STPEGS and were invited to be in attendance since their agencies' roles and responsibilities were not vital to the State's response to the emergency.

The DEMC, who provided direction to the SEOC participants at all times, led the SEOC staff. A DEM Assistant Controller, who managed the control room where the emergency communication equipment and audio-visuals were maintained, aided him. The Assistant Controller received all incoming faxes, TLETS, and radio communications, and appropriately managed the message logging and dissemination system. Early in the exercise, the DEM staff agencies were not getting the incoming messages and news releases. These documents were compiled at the back of the Council Room as a read file. The second shift DEMC changed this distribution scheme so that the documents were delivered to the individual DEM staff agencies. Additionally, the control room did not receive any of the Matagorda County Emergency Alert System messages; these messages should have been faxed to the SEOC as part of a group fax. He also maintained

communications with the DEMC to ensure that he was knowledgeable of the situation occurring. A primary responsibility of the DEMC included maintaining direction and control for activities in the Council Room. He performed this responsibility adequately. The DEMC provided two formalized SEOC staff briefings, which included agency updates, as well as ad hoc briefings when major events occurred during the exercise. In addition, a STPEGS representative provided technical briefings. The technical representative's formalized briefings to the staff, as well as personal updates to the Controller, were a benefit to the combined efforts of the SEOC staff. In all, the DEMC demonstrated the ability to provide leadership and information to the staff in a quick and decisive fashion.

Primary communications for the SEOC were located in the Control Room attached to the Council Room. The Control Room and Council Room each had adequate communications equipment, which included telephones with conference capability, facsimile machines, radios, and TLETS. The primary communication device for emergency notifications to the SEOC from DPS-Pierce was TLETS. When TLETS went temporarily out-of-service (simulated), the SEOC staff maintained communications with DPS-Pierce using a previously established link as of 11:53 a.m. This, along with telephone and facsimile links previously established, demonstrated that adequate backup communications capabilities existed. Each of the communication devices demonstrated was sufficiently manned by trained individuals.

The Council Room for the SEOC is fully operational with ample space, lighting, restrooms, ventilation, furnishings, and other amenities, i.e., computer, copiers, and supplies to support emergency operations. State Troopers for security manned entrances to the DPS building. When notification of each ECL was received, it was promptly displayed on a large monitor, which was clearly visible anywhere within the Council Room.

Additionally, all status boards were available for use and updated on a continuous basis. The use of large video monitors and projection systems allowed for viewing of ECLs evacuation zones, and an assortment of detailed maps of the area.

At 11:45 a.m., a shift change occurred among the DEM staff. The outgoing DEMC conducted an outbriefing for the incoming staff, and the new DEM staff took over the operations and continued operations without disruption.

The DEM staff did an adequate job in demonstrating their effectiveness in performing the required response to the exercise event.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 2, 3, 4 and 30
- b. **DEFICIENCY:** NONE

**c. AREAS REQUIRING CORRECTIVE ACTION: NONE**

**d. NOT DEMONSTRATED: NONE**

**e. PRIOR ISSUES RESOLVED: NONE**

**f. PRIOR ISSUES – UNRESOLVED: NONE**

## 1.2 DISASTER DISTRICT EOC, PIERCE

The Department of Public Safety (DPS) office in Pierce provides Highway Patrol, Driver's License, License and Weight, Motor Vehicle Inspection, and Safety Education services to the public. The DPS Communications Center is also located in the building and operates 24-hours a day, 7-days a week. The Pierce Disaster District Committee (DDC) would locate in the Emergency Operating Center (EOC) in this facility. The DDC is tasked to assist the Governor to respond to emergencies or disasters affecting the lives and property of the citizens of Texas. Mobilization, facilities, direction and control, and communications objectives were evaluated at this location.

At 7:56 a.m. on Wednesday, October 18, 2000, DPS communications personnel received notification of an **ALERT** at STP. After verification, the Communications Officer quickly prepared the Texas Law Enforcement Teletype System (TLETS) transmission and follow-up fax for the State Emergency Operating Center (SEOC) in Austin. She also began call down of essential personnel on the Alert Notification Call List using the telephone and pagers. Most of the Highway Patrol personnel who would report to the EOC for DDC duties were already on duty in the building. Mobilization of personnel and activation of the EOC was quickly accomplished. Responding were the DPS Lieutenant (LT) in charge of the District, the Sergeant who is second-in-command, the Communications Manager, the PIO/Safety Education Officer, and 2 administrative personnel. Liaisons from STP, the Texas Department of Health-Bureau of Radiation Control, and the Texas Division of Emergency Management also reported. Additional committee members could be called in as warranted by the situation. Subsequent notification messages were received at 9:19 a.m., **SITE AREA EMERGENCY (SAE)**, and 10:09 a.m., **GENERAL EMERGENCY (GE)**. Communications personnel completed the appropriate TLETS messages and faxes for transmission in addition to completing the related call down as required by the SAE and GE.

DPS operations are performed in a newly remodeled facility. The building is open to the public during normal business hours for the activities previously described. For anyone arriving at other times, communications personnel control the access. The new EOC/classroom provided space to work that had not been previously available to the staff. The room contained tables and chairs, 4 telephones, a copier, status board, key event chronology board, agency telephone numbers board, EPZ and IPZ maps, protective response zones and populations map, and white boards for posting additional information. STP also provided several excellent books of maps depicting the 10-mile EPZ, traffic/access control points (T/ACPs), monitoring points, industrial, recreational, and special facility locations, siren locations, and population. A back-up generator powered by propane was running – a weekly test performed every Wednesday.

The DPS LT is responsible for the overall management and operations of the DDC, and he is designated its Chairman. The LT successfully demonstrated the ability to direct, coordinate, and control emergency response activities. He periodically briefed personnel and provided updates when new information arrived. He developed 2 situation reports that were sent to Austin. Troopers were dispatched, without problem, when requested for the T/ACPs.

The communications objective was effectively demonstrated. Personnel monitored, verified, recorded, and appropriately responded to all message traffic. The Communications Center contained commercial and TEXAN telephone systems, TLETS II, facsimile, two-way radio, National Warning System (NAWAS), Texas Warning System (TAWAS), and the utility's ringdown hotline. All incoming and outgoing information was promptly reported, logged, copied, and distributed. The DDC received news releases and EAS messages from Matagorda County, and news releases from the utility, BRC, and the Nuclear Regulatory Commission. Personnel effectively dealt with the controller injects that cited a TLETS problem and cell phone overload. The staff communicated freely and received helpful, supplemental information provided by the DEM Regional Liaison Officer, BRC representative, and utility liaison.

Of particular note was the responsiveness and dedication of the staff to their duties despite a busy day for the department. The exercise fell on a DPS Regional Workday when most personnel are assigned high visibility duties "on the street." This situation created a busy Communications Center with extra radio traffic in addition to the exercise messages. Additionally, the PIO proficiently handled many incoming calls enabling the LT to handle his duties with fewer interruptions. He arranged for and escorted a reporter from the El Campo newspaper who interviewed the staff during the exercise. The drill was terminated at 2:06 p.m.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 2, 3, and 4
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

### 1.3 BRC OPERATIONS AT STPEGS EOF

The Texas Department of Health, Bureau of Radiation Control (BRC) staff were pre-positioned in the Bay City area in accordance with the extent-of-play agreement. They reported to the Staging Area facility at the agreed time. The BRC staff received the notification of the **ALERT** by telephone and facsimile from the Department of Health in Austin at 7:46 a.m. Upon receipt of the **ALERT**, the BRC Chief of Field Operations (CFO) briefed the emergency response personnel in the staging area.

At 8:57 a.m., the CFO deployed an advance party consisting of three staff members to the STPEGS Emergency Operations Facility (EOF). The CFO conferred with the Field Monitoring Team Leader (FMTL) to determine the best locations to position field monitoring teams. Consideration was being given to the area in the projected downwind direction. At 9:18 a.m., the CFO reported that an SAE had been declared. The plant had declared an SAE at 9:08 a.m. The remaining BRC EOF staff arrived at the EOF at 10:10 a.m. A total of seven BRC staff, including the advance party, reported to the STPEGS EOF. The staff included the CFO, three Accident Assessment staff, a utility liaison, an FMTL, and two administrative support staff.

The BRC staff was assigned a small but functional area in a side room in the STPEGS EOF. The BRC utility liaison also had an assigned work area in the main EOF operations room. The EOF facility and the BRC room had adequate furnishings, lighting, and ventilation. The BRC staff had their own dedicated facsimile machine, a computer terminal, and a radio base station. Within the facility, the BRC had access to copy machines and other office equipment. In addition to the main EOF status boards, the BRC area had numerous status boards that were promptly posted with accurate information. Copies of the plans and procedures were available and were used when appropriate. The displays included maps and charts of the EPZ with planning areas, population figures, pre-selected monitoring points, Traffic/Access Contamination Control Points (T/ACPs), evacuation routes, and reception centers. The utility staff provided updates on meteorological data during the exercise. Meteorological data was promptly posted. Access to the facility was controlled by STPEGS security.

The CFO was in charge of the BRC response both at the Staging Area before deployment and at the EOF. He acted as the lead State BRC representative in the response to the STPEGS incident. The staff was well trained and well versed in their responsibilities and rarely needed specific directions. Either the CFO or the BRC Utility Liaison conducted briefings as needed, and staff input was solicited during the development of protective action recommendations (PARs). There was excellent interaction between the STPEGS staff, Nuclear Regulatory Commission staff, and the BRC staff. As the incident progressed, BRC staff discussed potential protective action recommendations with the utility. The CFO and his staff worked well as a team. The CFO and staff were in contact

with other BRC staff in the State and county emergency operation centers (EOCs) and in the Joint Information Center (JIC).

The primary means of communication between facilities were the five telephone lines available to the BRC EOF staff. The primary communications link between the BRC FRMTL and the four field monitoring teams and Staging Area was the BRC radio. Radio communications were sometimes difficult; however, the FRMTL always managed to complete the necessary communications by use of radio relays either through the Staging Area or through other field monitoring teams. In addition to commercial telephone and radio, the BRC EOF staff also had a fax machine that was used to transmit hardcopy information to other locations.

The capability to continuously monitor and control radiation exposure was demonstrated by the BRC staff assigned to the EOF. The BRC staff members were issued dosimetry and completed exposure record forms at the BRC Staging Area. The dosimetry consisted of two ranges of direct-reading dosimeters (DRDs), 0-200 mR and 0-20 R, and a Thermoluminescent Dosimeter (TLD) card. The BRC Accident Assessment staff that was interviewed indicated that the proper interval for reading the DRDs was every 30 minutes until such time that the habitability of the EOF was confirmed by utility personnel. The BRC staff followed this DRD reading protocol. The individuals who were interviewed were knowledgeable of exposure limits and knew that the CFO was the only individual who could authorize exposures in excess of the reporting limits. The FRMTL kept track of the exposures reported by the FRMT members. The CFO instructed the BRC personnel to turn in their dosimetry at the BRC Staging Area at the conclusion of the exercise. The EOF was radiologically surveyed during the exercise by a Health Physics Technician from STPEGS. Radiation levels in the EOF never exceeded background levels.

The BRC staff assigned to the EOF was issued fact sheets for Potassium iodide (KI) at the BRC Staging Area. All BRC personnel received the simulated instruction sheet, which provided information on dosage and potential side effects. Sufficient KI was present at the BRC Staging Area, but the KI distribution was simulated in accordance with the pre-exercise extent-of-play agreement.

The capability to develop dose projections and protective action recommendations was demonstrated by the BRC dose assessment personnel. The dose projections were all timely in terms of changes in plant conditions or receipt of field monitoring data. The initial dose projections were "what if" type calculations based upon containment monitor readings and an assumed GAP release. At one point during comparison of the utility and BRC dose projections, it was determined that the output results were significantly different even though the printed input values were identical. A further review of the output information revealed that for some reason the computer dose projections were being performed with different Chi/Q values, which are determined by the selected stability class. The printed input information indicated that the same stability class was being used by both the

utility and the BRC dose assessors. Further exploration of the problem determined that if the computer mouse was used to highlight the stability class box, the stability class could be entered as text and the computer would print the input text, but actually default to a different stability class for performing the dose projection calculation. If the drop down box was used to input the stability class either by letter designator or delta "T," temperature differential, the computer would complete the dose projection calculation using the correct stability class. The BRC dose assessor correctly used the drop down box method thereafter, but it does point to the need to correct the computer program to not allow data entry by text box that will not be utilized in the calculations. Also, a review of the completed dose projections indicated that even though a four (4) hour release duration was indicated, the dose projections only integrated over a one (1) hour time period. The root cause for this anomaly should be determined.

The CFO and/or the BRC dose assessor reviewed and concurred with the utility generated PARs. The first utility PAR, to evacuate zones 1, 2, 3, 4 and 5, received concurrence from the lead BRC dose assessor at 10:01 a.m., before the CFO arrived at the EOF. The second PAR, to evacuate zones 8 and 9, received concurrence from the BRC CFO at 12:31. All of the PARs were driven by plant status. Subsequent dose projections and field measurements confirmed that the PARs were adequate.

The FRMTL developed monitoring strategies, based upon the road network and the current wind direction, for placement of the field monitoring teams prior the release occurring. Direct radio communication with the field monitoring teams was hampered by apparent "dead spots" at many of the monitoring locations. The FRMTL was able to communicate with the field monitoring teams by relaying radio communications through the BRC Staging Area; so no critical information was lost, and there were no delays in the radio relay communications process. The FRMTL posted the field team locations on a map, which indicated the fixed monitoring point locations. Field team measurements and monitoring location information were promptly recorded on the status board. There was good cooperation and sharing of field measurement data by the utility and BRC. Air samples collected by the BRC field monitoring teams were transferred to a courier for transport to the mobile laboratory at the BRC Staging Area. Results of the air sample analysis were faxed from the mobile laboratory to the BRC dose assessor in the EOF. The BRC air sample results were received near the termination of the exercise; however, the sample values were reviewed and found to compare favorably with the air sample data that had been collected by the utility field teams. Dose projections, based upon the utility air sample data, had already been completed, since the air sample concentrations were reported directly from the utility field monitoring teams at the time the air samples were collected and analyzed in the field.

Following the termination of the plume phase exercise, the BRC staff in the EOF participated in a separate mini scenario designed to provide a mechanism for closure of a previous exercise issue. During the mini scenario, BRC was provided a set of initial conditions by a controller and initial dose projections were provided by a utility dose assessor. The initial conditions indicated that an evacuation PAR for the 2-mile radius and 5-miles in the downwind direction had been made and the initial dose projections indicated that the PAR was adequate. The utility dose assessor provided a second dose projection based upon new plant data, which indicated that the PAGs would be exceeded at 10 miles. The BRC correctly assessed the need for confirmatory field measurements that were taken from a plume location that would be representative of the new release conditions based upon the current wind speed. BRC was provided the results of the field team field measurements and air sample data. The BRC staff properly assessed the field data and confirmed that PARs were not warranted beyond the 10-mile EPZ boundary. This demonstration corrected issue 60-98-07-A-01 from a previous exercise.

The capability to make timely and appropriate protective action decisions (PAD) was demonstrated to the extent possible by the BRC CFO in the EOF. The responsibility for all PADs, except the authorization of potassium iodide (KI), belongs to the Matagorda County Judge. The BRC staff at the EOF did, however, review and concur with the utility generated PARs. The BRC dose assessor reviewed each dose projection to determine if the 25 rem thyroid dose criterion for authorization of KI was triggered. All dose projections, based upon either unit vent monitor data or field team measurement data, indicated that KI authorization was not warranted. The BRC staff in the EOF had frequent contact with their counterparts in the State and county EOCs. The BRC CFO also reviewed and approved news releases prior to their issuance by the JIC.

## **RELOCATION, RE-ENTRY AND RETURN TABLETOP**

After the conclusion of the plume phase exercise, the BRC EOF staff moved to the Matagorda County Convention Center, where they provided technical support during the Relocation, Re-entry and Return Tabletop demonstration. The BRC staff demonstrated knowledge of the Relocation PAGs, as well as their ability to correctly interpret assessed environmental measurement data in the format of aerial measurement contour maps.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 2, 3, 4, 5, 7, 9, 14, 28 and 29
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE

**e. PRIOR ISSUES – RESOLVED:** Issue ID: 60-98-07-A-01

**f. PRIOR ISSUES – UNRESOLVED:** NONE

## 1.4 BRC MOBILE LABORATORY

The BRC Mobile Laboratory was pre-positioned at the Bay City Convention Center adjacent to the BRC staging area, in accordance with the extent-of-play agreement between the State and FEMA.

Communications consisted of a BRC radio in the Emergency Response Vehicle (ERV), four commercial telephone lines and a FAX machine. Backup communications located in the staging area included a FAX machine, BRC radio and additional telephones.

All BRC personnel, including the laboratory staff, were issued a TLD, two DRDs(0-200 mR and 0-20 R), a 2-week supply of KI, and a KI release form. A dosimeter charger was available in the staging area. The laboratory personnel were knowledgeable in the use of the dosimeter and recording values on the form supplied to them.

The appropriate procedures and equipment were demonstrated for measurement of FRMT samples. As samples arrived at the ERV, they were monitored for radiological contamination, re-bagged, logged in, and placed in the proper container for counting in the adjacent laboratory. After the sample preparation procedure was completed, the samples were delivered to the laboratory. Once the samples were inside the laboratory, they were re-surveyed, given a laboratory number and analyzed for their radiological content. During the exercise, five air samples were received and analyzed. Samples with external readings above 0.1 mR/hr were transferred to a contract laboratory for analysis.

The radiochemists performed the analysis according to their current procedures. Pre-setup of the laboratory was also demonstrated, including calibration procedures. The results of the analysis were telephoned to the dose assessment group at the EOF and then faxed to them to confirm the numbers. Personnel performance at both the ERV and in the laboratory was outstanding. Both groups demonstrated knowledge, professionalism, and concinnity in the completion of their assigned duties.

The laboratory staff successfully demonstrated the capability to maintain staffing on a continuous 24-hour basis through an actual shift change.

In summary, the status of FEMA objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 5, 25, and 30
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES - UNRESOLVED: NONE**

## 1.5 STATE FIELD RADIOLOGICAL MONITORING TEAM #1

Field Radiological Monitoring Team (FRMT) #1 consisting of two members, a Bureau of Radiation Control (BRC) staff member with a background in health physics and a Department of Public Safety (DPS) License and Weight Trooper, participated in the South Texas Project Electric Generating Station (STPEGS) exercise on October 18, 2000. The teams mobilized at and deployed from the Texas Department of Health, Bureau of Radiation Control Staging Area at the Bay City Civic Center, 201 Seventh Street, Bay City, Texas. The team members, their vehicle and equipment were pre-positioned for the exercise in Bay City in accordance with extent-of-play agreements. The team used a printed checklist to perform an inventory before loading the equipment and supplies into the designated vehicle, a DPS crew-cab pickup truck. In accordance with the extent-of-play agreement, only a portion of the health physics equipment kit was utilized for exercise purposes.

The ability to communicate with appropriate emergency personnel at facilities and in the field was demonstrated by this field team. Communication capabilities were based on use of a Department of Health frequency (Channel 20) in the Department of Public Safety vehicle radio with 64 channels. During this exercise, the evaluator rode in a chase vehicle, furnished by DPS, and listened to the radio traffic on that vehicle's radio. From this vantage point, the DPS radio on the Health Department frequency appeared to provide adequate communications throughout the exercise. The DPS radio is the primary mobile communications vehicle with commercial telephone from pay stations being the backup system.

The ability to continuously monitor and control radiation exposure to emergency workers was demonstrated by FRMT #1. Each of the two members of this field team was equipped with a TLD and two direct-reading dosimeters (DRDs) with ranges of 0-200 mR and 0-20 R. The team has a dosimeter charger in its health physics equipment kit, which was not carried into the field during the exercise when the team was deployed. DRDs were initially zeroed and numbers were recorded prior to departing from the Staging Area. DRDs were read at appropriate intervals, and records were maintained on DRD readings. The team members were briefed on dose limits and were provided with instructions regarding dose limits printed on a sticker attached to their map. The team members were aware that the turn-back rate was 100 mR/hour. Team members were provided information and instructions on potassium iodide (KI) use. The instruction sheet was used as a simulation for issuance of actual KI which had an expiration date of January 2001. The team knew that dosimetry was to be turned in to the dosimetry station at the Staging Area at the end of the shift.

The appropriate use of equipment and procedures for determining field radiation measurements was demonstrated. The team brought appropriate radiation survey instruments with them and had access to backup instruments if needed. The team had a Ludlum Model 14C survey meter with standard GM probe to detect gamma radiation, or beta and gamma radiation in the open-window position. This instrument read in

milliroentgen per hour (mR/hr) or in counts per minute and had a capability of measuring up to 2000 mR/hr. While the Ludlum Model 14C had several probes, there was no high-range instrument available to measure between 2 R/hr and 100 R/hr. These additional probes consisted of a pancake GM probe and a 1" x 1" sodium iodide scintillator, in addition to the standard side-window GM tube probe. FRMT #1 had only one Ludlum 14C instrument in the field, but stated that if it needed a backup instrument, one would be available from a courier. It is understood that the DPS trooper has a Ludlum 14C instrument available at the Sheriff's Office. This second instrument with one of the other probes would have been a valuable addition to the capability of FRMT #1, as well as serving as a backup instrument.

Prior to any reported release, the team was given a briefing on meteorological conditions and the deteriorating plant conditions. The team was dispatched from the Staging Area to a predetermined monitoring point (MP) 41, about 2.5 miles west of STP to standby at that location. As FRMT #1 departed from the Staging Area, the radio was checked for operability. After completion, the Team Leader was notified of the status of FRMT #1 and was standing by. At 11:29 a.m., the Team Leader requested an air sample be taken at MP 41 although a release had not taken place at this time. The air sample was started at 11:33 a.m., but at 11:34 a.m., the Team Leader notified all teams that a release had started. The Team Leader asked FRMT #1 to stop any air sampling and to wait for an increase in ambient radiation. At 11:50 a.m., the radiation level was 10 mR/hr open window and 8 mR/hr closed window, and at that time, FRMT #1 re-started its initial air sampling.

Air sampling was conducted using a Radeco Model H-809V-1 air sampler powered through a voltage inverter by the DPS vehicle's electrical system. The sample head contained a charcoal cartridge for radioiodine sampling and a Whatman filter for particulate sampling. Air flow was adjusted to 2 cubic feet per minute (CFM), and a volume of 10 cubic feet were taken. The charcoal cartridge and particulate filter were separately bagged and labeled. In accordance with the extent-of-play agreement, charcoal cartridges rather than silver zeolite cartridges were used, and the cartridges were not purged with air to remove noble gases. In accordance with State procedures, measurements of the activity of the cartridge and filter were not conducted in the field to obtain estimates of the airborne activity associated with radioiodine and particulate. Air sampling was completed at 11:55 a.m., and FRMT #1 proceeded west on FM 521 to FM 1095, near MP 42. The radiation level was at background level and the particulate filter and charcoal filter were removed, bagged, and labeled in preparation for courier transport to the laboratory for analysis. The Team Leader directed the team to meet the courier at CR 357 at CR 358, about two miles north and two miles east of MP 42. FRMT opted to traverse this route by going back past MP 41, in the plume, which had an ambient radiation reading of about 22 mR/hr at this time. A more prudent route would have been traveling north, then east, and avoiding the plume altogether. In using the particular route that FRMT #1 traveled, it is estimated that the team would have received a cumulative exposure of 3 mR as read on the DRDs or a dose equivalent of about 15 mrem. While this is not excessive, it is unwarranted, and should be avoided in the future. A second air sample was taken at 1:11 p.m. also at MP 41. FRMT #1, by taking continuous

ambient radiation readings, did note that the tail of the plume passed this point as the air sample was being completed. Since the radiation reading had dropped to background, the particulate filter and the charcoal filters were removed, bagged and labeled at this location. FRMT #1 was directed to proceed to MP 52 to meet the courier for transfer of these samples. The courier conducted a clean transfer of samples from FRMT #1 without any cross-contamination.

During all of the described operations, the team members demonstrated a high degree of training and awareness of procedures, and worked effectively together. Appropriate instruments, equipment, and supplies were available and properly utilized.

The observed relevant functions and activities overall were implemented by the team in a manner consistent with emergency plan and procedures, as modified by pre-exercise agreements.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 5, 6, and 8
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

## 1.6 STATE FIELD RADIOLOGICAL MONITORING TEAM #2

As per the extent-of-play agreement, State Field Radiological Monitoring Team #2 (FRMT) reported to the Bureau of Radiation Control (BRC) staging area at 7:00 a.m. on Wednesday, October 18. The team consisted of one member from the Texas Department of Health, Bureau of Radiation Control (TDH-BRC) and a Trooper from the Department of Public Safety (driver and assistant). The TDH-BRC staff member checked his equipment, to make sure all equipment was operating properly. He secured dosimetry for himself and the Trooper. All survey instruments were checked for calibration dates within one year, battery check, source check (cesium), and operability.

The team utilized a radio system for their primary mode of communication with the BRC representative at the EOF and the staging area. The reason why the FRMT communicated with the staging area was due to the problem of the Field Radiological Monitoring Team Leader (FRMTL) having difficulty hearing the teams in the field. This system worked fine and caused no delays in actions taken. Backup communication would occur via a cellular telephone. There were no significant delays or malfunctions.

FRMT #2 was equipped with a TLD and two DRDs (0-200 mR and 0-20 R). They read their dosimeters every 30 minutes, were knowledgeable about their dose limits, and at what levels they would be advised to take KI.

The team was dispatched to monitoring point 30 (intersection of County Roads 381 and 383) at 9:05 a.m. They consistently monitored background levels with the Ludlum Model 14-C survey meter (calibrated February 2000), along with the Ludlum Model 44-6 probe (open/closed window). Plant and weather conditions were relayed to the team via radio. They arrived at monitoring point 30 at 9:30 a.m. When taking radiation measurements, the team correctly demonstrated monitoring procedures using the Ludlum Model 14-C survey meter.

At 12:07 p.m., FRMT #2 was instructed to take an air sample at monitoring point 30. The team placed the air sample on the front of their vehicle (away from the engine), turned the sampler on and collected a 5-minute sample at a reading of 2 cubic feet/minute, for a total of 10 cubic feet. After collecting the air sample, FRMT #2 stored their equipment and proceeded to monitoring point 31 (intersection of County Roads 384 and 385).

At 12:25 p.m., FRMT #2 arrived at monitoring point 31. Using excellent contamination control techniques, the team properly stored the filter and sampler into a plastic bag, and labeled it for pickup by a TDH-BRC courier. At 12:42 p.m., the TDH-BRC courier arrived and conducted a clean transfer of samples from FRMT #2 without any cross-contamination. At 1:20 p.m., FRMT #2 was instructed to proceed to monitoring point 41. While traveling to the monitoring point, Team #2 traveled on County Road 392, going

north to monitoring point 41. En route, they were receiving elevated readings on their survey meter. They informed the FRMTL, who then told them to collect an air sample. At 1:50 p.m., FRMT #2 collected their second air sample and then proceeded to a background area. When they reached a background area, the FRMTL called to all field teams to terminate the exercise. Prior to returning to the staging area, the HP surveyed himself, the Trooper, and his vehicle to check the contamination levels.

Excellent teamwork was demonstrated between the HP and the Trooper.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 5, 6, and 8
- b. **DEFICIENCY:** NONE
- c. **ISSUES:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

## 1.7 JOINT INFORMATION CENTER

The Joint Information Center is located in the Best Western Matagorda Hotel in Bay City, Texas. There were six objectives demonstrated at the Joint Information Center.

The ability to mobilize and activate personnel was adequately demonstrated at the Joint Information Center (JIC) by all agencies represented. The response individuals were notified by their respective organizations in accordance with their plans. Mobilization began at the ALERT Emergency Classification Level (ECL), which was received at the JIC at 7:52 a.m. Pre-staging was in accordance with the extent-of-play agreement. Personnel received notification from their respective agencies by pager or telephone. Current, accurate personnel rosters were used by the agencies in making the mobilization calls. Rosters were available for each shift. Matagorda County Public Information Officers were contacted by telephone by the County Sheriff's Office 24-hour Warning Point. Two PIOs reported directly to the JIC and one reported to the County Emergency Operating Center (EOC) to establish liaison, in accordance with their plan. Utility personnel were notified by pager. Mobilization for Utility, State and County representatives began at 8:18 a.m. and all designated personnel were present in the JIC at 8:35 a.m., except representatives of the State Bureau of Radiation Control who arrived at 9:30 a.m.

The JIC is not a dedicated facility and requires approximately one hour to set up. The utility has a contract requiring the hotel to provide conference rooms and the media center space and furniture when needed for exercises or for actual emergencies. All necessary equipment is stored permanently on the premises. Most setup activities had been accomplished prior to the declaration. Upon arrival of utility personnel, the administrative function and the rumor control function had to move equipment into their designated areas. This setup required 30 minutes. The JIC was fully staffed and declared activated at 8:40 a.m. All areas reserved for public information officials and their staff were secured, starting at 8:15 a.m. Security included: a guard at the entrance, a badging system, partitions, and locked doors.

Facilities, equipment, displays and other materials to support emergency operations are more than adequate to support all anticipated emergency operations, with appropriate space, furnishings, lighting, restrooms, ventilation, backup power, and other equipment. If backup power is required, the local utility will provide a portable generator. Equipment included 44 telephone lines with instruments, all of which were activated for this event, computers, word processors, copiers, and four facsimile machines.

A large central room served as the media briefing room. It could accommodate over 100 media representatives, with risers in the rear for television cameras, and included an adjoining room at the rear, with a separate entrance for media access for cables and other equipment. In the front of the room, a long table provided seating and microphones for all agency representatives. A separate podium was available with a microphone. At the

rear of the media briefing room, a separate room was provided that could accommodate as many as 20 media representatives, with telephones for each. An excellent sound system was available with independent sound controls for each of the rooms. At the front of the media briefing room, separated by a room divider, was the spokesperson's workroom, where the public information staff from the utility, BRC, Matagorda County and the Nuclear Regulatory Commission work independently and together to coordinate information with their respective organizations and with each other prior to media briefings. Separate rooms were provided for handling rumor calls; for monitoring radio, television and the internet; for communications; and for administrative support.

All required maps and plans were available. Displays in the JIC were excellent, providing summary and tracking information necessary for management decision making, and for demonstrating and explaining events to the media. A central status board was maintained in the spokesperson's work area and was continually updated by the utility communicator who remained in constant contact with the EOF via an open line. Posting was within 10 minutes of the receipt of information.

Communications equipment, systems and procedures at the JIC were satisfactory. Communication systems were available, operated properly, and communication links were established with all appropriate locations. Each agency represented in the JIC was in constant communications with their respective counterparts. Communications were established with Matagorda County EOC, BRC, the STPEGS EOF, and NRC Headquarters in Washington, D.C. The commercial telephone was the primary communications system for all agencies with radio backup. Additional communication systems available included cellular telephones, computers, and facsimile machines. Both primary and backup communications were demonstrated by each agency.

There were no delays caused by malfunctions or breakdowns in equipment. All incoming and outgoing communications were appropriately logged, duplicated and passed to JIC staff for action or information. Frequent reviews of action status were held to insure that no required actions or responses were overlooked.

The media consultant for STP and eight mock media participated in a live conference call with the Public Affairs Manager at STP. This media conference was taped for later review by the Media Monitoring group at the JIC.

Personnel at the JIC successfully demonstrated their ability to coordinate the dissemination of clear, accurate, and timely information to the news media. A great deal of media-related activity occurred in the JIC. During the exercise, five formal news conferences were held at approximately one-hour intervals beginning at 9:00 a.m., and 18 press releases and news advisories were issued including 7 by STP, 4 by BRC, 2 by Matagorda County, and 5 by NRC.

The time of each press conference was announced to the staff in the JIC and to the media

at the end of the previous conference. Before each press conference, the JIC Director convened a coordination meeting of all spokespersons, and included the Media Relations and Rumor Control managers. In round-robin fashion, each individual reported on the key points that would be presented and received feedback from the others to assure that the information was correct and up-to-date. The priority of speakers was then decided based on who had the most important information to present – the plant initially and, in later press conferences, the County when offsite response actions were being announced.

A particularly notable example of effective coordination occurred when the utility declared a **GENERAL EMERGENCY**. The JIC received this notification at 10:05 a.m. while a press conference was underway. On returning to the spokesperson's workroom at 10:32 a.m., a utility staff person informed the County PIO of the GE and they agreed to wait to notify the press until the County Judge had made the protective action decisions. This occurred quickly and a special announcement was made to the media at 10:38 a.m.

The JIC Director served as emcee at the press conferences, exercising firm command and control. All the spokespersons identified themselves and their organizations and presented their information clearly and with a tone appropriate to the event. STP and the County participated in all five press conferences, with BRC participating in all but the first, and NRC joining for the last two. During each press conference the spokespersons gave short updates on plant conditions, the specific roles of each agency, and the offsite response, and answered questions from the media. A technical spokesperson from the plant provided more detailed information in response to media questions, with additions and clarifications from BRC who put technical issues in layman's terms explaining, for example, the significance of radiation levels on the human body.

In the initial briefings, mostly related to the deteriorating conditions at the plant, use of visual aids – which were available in the briefing room – would have helped to clarify the specifics of what had occurred and where. Later briefings made greater use of visual displays with map overlays, especially to show the zones that were being evacuated.

Overall, information at later press conferences was presented with somewhat greater clarity than the earlier ones. For example, the reason why the plant had declared the **ALERT** was not sharply defined initially – whether the broken door was a potential release pathway or a security breach was not made clear. Similarly, the reason why school children were being dismissed could have been more clearly presented, as well as the distinction between “early dismissal” as stated in the first news advisory issued at 8:47 a.m. and the 9:00 a.m. press conference, and school “evacuation” as indicated in the 9:31 EAS message. Finally, an initial report that a large industrial plant was not in an evacuated zone was corrected in a subsequent press conference.

Following each formal press conference, all senior public information staff participated in a brief “hotwash” to review what might be improved and any outstanding concerns that could be subsequently addressed. This assured that any concerns about how well

information was getting out, and how the spokespersons were being perceived by the press, would quickly be identified. One of these hotwashes led to the concern that the press was somewhat distrustful of the spokespersons' information; therefore, they needed to present their information in an open, forthright manner that would alleviate any such concerns.

A large STP media relations staff was available to support the media between press conferences. The Media Relations Manager was dispatched to the briefing room a number of times between press conferences to notify the press of late breaking news. In addition, various agency spokespersons provided mini-briefings on important events such as additions to zones recommended for evacuation, and on-camera interviews as needed.

The mock media played an especially active role in driving the public information response. Their questions were assertive, probing, and insistent, causing the spokespersons to provide careful and thoughtful responses, more accurately mirroring real world conditions. Members of the press also wrote brief stories and presented simulated on-air reports that were provided to the rumor control and media monitoring teams.

Although the press releases all were issued to the media through the JIC, only STP and BRC prepared press releases at the JIC (after its activation). All other press releases and news advisories were prepared at the respective emergency operations centers, faxed to the JIC staff for review, finalized at the EOCs, and returned to the JIC for distribution. This process assured effective intra-agency coordination – including a few instances of updated news just before beginning a press conference – but was less effective in optimizing interagency news coordination. Although this is in part a function of the compressed exercise timeline, greater news coordination would be achieved if each agency were provided an opportunity to review all press releases before they were issued.

All the County EAS messages and news advisories provided the public information hotline number, (979) 244-5318, and the call letters of the three EAS stations accurately reflecting information in previously distributed brochures, telephone books, and other emergency preparedness materials.

One emergency brochure, Safety Takes Preparedness (issued by STP), instructs evacuees to gather their pets before evacuating. The inference is that pets would be accepted at reception centers and shelters. It should incorporate information contained in the calendar and telephone book regarding caring for pets at animal shelters and keeping them out of the reception center.

All the Emergency Alert System (EAS) messages were provided to the media. A concern at the previous exercise that the detailed public instructions following the evacuation recommendation was not issued in a timely manner was alleviated at this exercise; the instructions were issued as a news advisory immediately following the EAS broadcast.

Administrative staff at the JIC quickly and efficiently prepared and distributed documents and assured a smooth-running operation. Overall, the agencies at the JIC effectively demonstrated strong coordination and teamwork in a manner to assure protection of the health and safety of residents in the vicinity of the STP.

The rumor control function at the JIC was staffed and operated by STP employees. The first public inquiry call was received at 8:42 a.m. Four individuals were available to answer the telephones and respond to inquiries presented by the media and public. Two telephone numbers were published: one for media inquiries and the one for public inquiries. A total of five telephones were used in the rumor control room: one for media inquiries and four for public inquiries. In addition to the telephone operators, the rumor control staff consisted of a Coordinator and a Manager.

All necessary emergency information and documentation was provided to the rumor control staff. This included: EAS messages, news releases, public and media information, the Emergency Preparedness Calendar and other reference materials. Each operator made use of the Rumor Control Response Guides. These Guides assisted the operators in making quick and accurate responses by providing a multitude of emergency information. They also included detailed Guidelines that are organized by inquiry topics, which identified responses in a short concise list. Status boards containing emergency information and general data were maintained and displayed for easy reference by the staff.

The Rumor Control public inquiry telephone number was publicized in media briefings, EAS messages, press releases and the Emergency Preparedness Calendar. Approximately 124 telephone calls were received in the Rumor Control room during the exercise. Each operator received about six calls per hour throughout the exercise. In all instances, the telephones were quickly answered, and the questions appropriately addressed. Generally, the operator was able to provide accurate information on the spot or by using the reference materials provided and through discussions with the other operators and Rumor Control staff. If the operator was unable to determine a sufficient answer, a call-back was initiated. This was accomplished by recording on a form the caller's name, telephone number and the nature of the information needed. This form was taken by the Rumor Control Manager to the appropriate representative of the response organization in the JIC for further information or clarification. When this information was secured, a telephone call was made to the initial caller with a report. This system worked well.

Rumor Control operators logged incoming calls and responses intermittently. If a call was routine and was answered without additional research or discussion, it was not usually recorded. Therefore, there was no comprehensive list of calls received by Rumor Control nor the nature of inquiries. It is recommended that the telephone operators maintain a running log of all incoming calls and the actions taken in response to those calls.

The utility has an agreement with the Language Line to provide translators to assist with foreign language telephone calls as needed. There were no foreign language inquiry calls received during the exercise so this service was not accessed.

The Rumor Control staff is trained to identify, report and record trends in rumors and inquiries. During the exercise, no such trends were observed. There were instances of two or three telephone calls containing similar questions, but no significant trends were identified. Erroneous information was quickly corrected during phone calls and in media briefings. Spokespersons presented and discussed accurate data in response to false information received in inquiry phone calls.

The Media Monitoring operation was set up in the room with Rumor Control. Three staff members monitored radio and television broadcasts and internet websites to verify that accurate information was being disseminated. Several videotapes and audio cassettes containing exercise generated media briefings, interviews and broadcasts were received and previewed by the Media Monitoring staff. Inaccurate information was quickly identified and corrected during subsequent media briefings. The Media Monitoring staff also reviewed print media for accuracy and content that was received in the JIC from numerous sources.

The Rumor Control and Media Monitoring functions were well managed. The Manager was active in specific operations in the Rumor Control room and provided key input to JIC spokespersons in support of the overall JIC press briefing operation. She participated in the caucuses held with spokesperson prior to each press briefing and was present at all formal briefings.

The capability to maintain staffing on a continuous, 24-hour basis through an actual shift change was demonstrated by key personnel at the JIC. As required by the extent-of-play agreement, shift change at the JIC was accomplished by the spokespersons for the utility, Matagorda County, and the State Bureau of Radiation Control.

Continuity of operations was accomplished by continuous uninterrupted operations during and after the shift change. These key functions were continually staffed by the incoming shift being thoroughly briefed by the previous shift personnel. Both shifts demonstrated a thorough knowledge of their emergency response roles and functions.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 2, 4, 12, 13, and 30
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE

- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ISSUES – RESOLVED: NONE**
- f. **PRIOR ISSUES – UNRESOLVED: NONE**

## 2. RISK JURISDICTIONS

### 2.1 MATAGORDA COUNTY

#### 2.1.1 EMERGENCY OPERATIONS CENTER

The ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions was adequately demonstrated. Alert and mobilization of the EOC staff was accomplished in an efficient and timely manner.

At 7:57 a.m., the Matagorda County Sheriff's dispatcher received a call from STPEGS on the hotline telephone notifying county officials that an **ALERT** had been declared at the plant. The declaration was due to a truck that had backed into and damaged the doors of the Unit 1 Fuel Handling Building. As per procedure, the dispatcher then proceeded to make the appropriate emergency response notifications from a current personnel roster. All notifications to mobilize EOC responders were accomplished by telephone and were completed by 8:34 a.m. Additional notifications of an **SAE** at 9:11 a.m. and a **GE** 10:03 a.m. were received in the EOC. No staff were pre-positioned at the facility, and the facility had to be brought up to a fully operational status. The EOC was declared operational at 8:30 a.m. A roster was available for a second shift. Each staff position had a procedural checklist of activities to complete based upon each ECL. A Bay City Police Officer and Sheriff's Department Deputy were stationed at the entry to control access to the EOC. All essential emergency operations were performed at the facility.

The Matagorda County EOC is contained in a small, but well laid out space. There were a sufficient number of telephones available for the staff, and two fax machines were used to send and receive messages. Status boards were well designed and visible from all locations in the EOC. These included weather, staffing status, significant events, evacuation routes and T/ACP locations, and plume and ingestion EPZ maps. Status boards were updated in a timely manner. The staff used an excellent procedure to preserve the earlier entries on the significant events board. After the board became full, a staff person took a Polaroid photo of the board. This image was enlarged on a copy machine and signed by the Emergency Management Director. The board was then erased and subsequent entries made. A 60 kw generator provides backup power to the facility and is tested daily.

The Matagorda County Judge, acting as the Emergency Management Director (EMD), was in charge of directing the response to the event at STP. The EMD was supported by the Emergency Management Coordinator, County Sheriff, the Mayors of Bay City and Palacios, Matagorda County Precinct 3 Commissioner, and Police Chief of Bay City. These individuals were located at the decisionmakers table and the EMD obtained the input of

these staff. The EMD held frequent briefings of the EOC staff and key staff were asked to provide updates in their area of responsibility.

Communications equipment, systems and procedures at the Matagorda EOC were adequate. Communication systems were available, operated properly, and communication links were established with all appropriate locations. Both primary and backup communication systems were demonstrated without any failures or delays in communicating with other organizations.

Available communications equipment included 19 commercial telephones, cellular telephones, the STP hotline, hand-held and mobile multi-frequency radios, facsimile machines, 800 MHz radio telephone, and computers. All of this equipment provided for multiple redundancies and backups in case of failure of one or more systems. There were no delays caused by malfunctions or breakdowns in equipment. All incoming and outgoing communications were appropriately logged, and announced to EOC staff for action or information. Frequent reviews of action status were held to insure that no required actions or responses were overlooked.

During this exercise Matagorda County EOC responders communicated with the Disaster District EOC in Pierce, STP, field personnel, McAllister Reception Care Center, Bay City and Palacios special facilities, Brazoria, Calhoun and Jackson Counties, Texas Parks and Wildlife, Police, Fire and EMS.

The Environmental Health Director (EHD) demonstrated the capability to continuously monitor and control radiation exposure to emergency workers. The radiological officer possessed an expansive knowledge about dosimetry and control of emergency worker exposure. Field personnel dispatched from the EOC also demonstrated this objective.

All field workers were issued a non-self-reading Thermoluminescent Dosimeter (TLD). A record was made of the dosimeter serial number assigned to each emergency worker. Workers were advised to turn the dosimeters back to the EHD at the end of their assignment. Each worker was also issued two direct-reading dosimeters, a DRD 862 with a range of 0 to 200 mR and a DRD 622 with a range of 0 to 20 R, and simulated KI. A record was made of the dosimeter numbers assigned to each emergency worker. All instruments had been calibrated and inspected for electrical leakage in September 2000 according to stamps on the storage box and on each instrument. Each emergency team had access to a dosimeter charger. Dosimeters were zeroed, and the initial readings for each dosimeter were recorded on a standard record chart, which was provided for each emergency worker. Instructions were available on a card indicating how to use the dosimeters and when to perform periodic readings on the direct-reading dosimeters. Dosimeters were read at 30-minute intervals. Readings were recorded on the individual record chart. Emergency workers were briefed on the authorized mission exposure limits (200mR). The EHD used the group concept in the EOC for controlling exposure by hanging a set of dosimetry in the EOC and reading the DRDs every 30 minutes. KI was not authorized for ingestion during this exercise.

The capability to make timely and appropriate protective action decisions (PAD) was demonstrated by the Emergency Management Coordinator and his staff. After being informed of the **SITE AREA EMERGENCY** declaration by the plant at 9:11 a.m., discussions began on the need to order a precautionary evacuation of school children and the closure of parks and recreational areas in the county. The decision to effect the evacuation of schools was made by the EMD at 9:26 a.m. and broadcast to the public in the first EAS message (EAS-1). The schools affected were: Tidehaven High School and Junior High School evacuated to Blessing and Markham Elementary Schools and Matagorda Elementary evacuated to Linnie Roberts Elementary. The decision was also made to staff two Traffic/Access Contamination Control Points.

At 10:03 a.m., the EOC was notified of the **GENERAL EMERGENCY ECL**, but no PARs were issued at that time. At 10:16 a.m., a PAR to evacuate Zones 1, 2, 3, 4, and 5 was received from the plant. After discussions on the logistics needed to implement the PAR, the EMD made the decision to accept the recommendation at 10:24 a.m. This information was broadcast in EAS #2. After being notified that a release of radiation was occurring, (the public was informed of this event in EAS #3 issued at 11:52 a.m.) the EMD and key staff began discussions on the need to expand evacuation to zones 8 and 9. This was based on wind direction and speed. To their credit, the EOC had begun these discussions in advance of the PAR from the plant. The EMD decided to expand the evacuation at 12:31 p.m. and the recommendation was broadcast in EAS #4.

Matagorda County successfully demonstrated its ability to alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate officials. EOC personnel had computerized pre-scripted EAS messages that were easily modified to reflect the specific requirements of the protective action decisions. A message was produced and checked for accuracy by the EMD, then signed to indicate his decision to implement the PAD. These messages were then faxed to the EAS radio station, sirens were sounded, and a staff person called the station to ensure their receipt of the message and to confirm their intention to air it at the specified time. During the exercise, Matagorda County issued four EAS messages and three news advisories. The news advisories were used to provide more detail to the public than was appropriate in the initial EAS message. All activations of the EAS system occurred well within the 15-minute time period. EAS messages were faxed to all appropriate locations with one exception. The County has a contract with a commercial vendor to broadcast fax messages to a predetermined distribution list once they receive a copy from the EOC. It appears that the vendor did not send copies to the State EOC in Austin. Utility and County personnel are following up to determine the reason this was not done.

The capability and resources to implement potassium iodide (KI) protective actions for emergency workers was adequately demonstrated. Sufficient fresh quantities and instructions in the use of KI were available for emergency workers. The EOC briefed emergency workers on the use and proper record keeping if KI was ordered to be ingested. No KI was authorized for ingestion during this exercise.

The ability and resources necessary to implement appropriate protective actions for the impacted permanent and transient plume EPZ population, including transit-dependent persons, special needs populations, handicapped persons and institutionalized persons, were adequately demonstrated.

The American Red Cross (ARC) representative was responsible for handling the needs of special populations. These populations were identified on a list, which the ARC Office used to simulate contacting them. If no answer was received, a vehicle would be dispatched to the residence to determine their status. Early in the emergency, the ARC representative also arranged with the Transportation Coordinator for the availability of transportation assets to support transit-dependent special group needs. There were no special facilities in the affected area other than schools. Telephone was used to provide emergency information and instructions to these populations. The Sheriff's Office also has a TDD in the dispatch office.

## **RELOCATION, RE-ENTRY AND RETURN TABLETOP**

At the conclusion of the plume-phase exercise, a Relocation, Re-entry and Return Tabletop exercise was conducted at the Bay City Civic Center. Participants included Matagorda County Emergency Management personnel, the Texas Department of Health Bureau of Radiation Control, South Texas Project personnel, the Federal Emergency Management Agency Region VI, and the U.S. Nuclear Regulatory Commission.

Players were presented with scenario data from Day 5 after the incident at STP. A very aggressive agenda was set for the exercise that lasted just under 1-1/4 hours. The briefing packet handed to players stated that the demonstration of the objectives for this exercise "focuses on decisionmaking activities in the post-emergency phase of a radiological incident. The decisionmaking involves the establishment of levels of exposure in restricted areas and development of policies for: 1) re-entry of specific persons into restricted areas; 2) relocation of previously unevacuated persons; 3) return of the population to evacuated areas; and 4) long-range recovery of affected areas."

Some of these items were met. For example, it was determined that people living outside the 2 REM / first year zone on the isodose contour map could be allowed to return. It was also stated that remediation in some affected areas "may take months or years." However, the real value of this exercise was that it gave the opportunity for dialogue among organizations that do not often get to meet face-to-face to discuss the important issues involved in the post-emergency phase of an incident. One important topic discussed was the fact of perceived versus real effects of a contaminating incident. A Matagorda County official articulated this concern and asked what resources would be available to him if constituents did not want to return to their homes even if the properties had been determined to be free of contaminating effects.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. MET: Objectives 1, 2, 3, 4, 5, 9, 10, 11, 14, 15, 28 and 29**
- b. DEFICIENCY: NONE**
- c. AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. NOT DEMONSTRATED: NONE**
- e. PRIOR ISSUES – RESOLVED: NONE**
- f. PRIOR ISSUES – UNRESOLVED: NONE**

## 2.1.2 TRAFFIC/ACCESS CONTAMINATION CONTROL POINT #1-A

The two members of the BRC Contamination Control Team (CCT) #1-A were dispatched to the Traffic/Access Contamination Control Point (T/ACP) # 2-B, Highway 35 and the Colorado River, from the BRC Staging Area located at the Matagorda County Convention Center at 10:15 a.m. Prior to being dispatched, the CCT members verified the operability of their surveying instruments and that they had the appropriate supplies. A radio check to the BRC was accomplished at 10:21 a.m. while en route. BRC radio transmissions were monitored throughout the transit period. They had attempted a radio check earlier but were unsuccessful. The CCT arrived at T/ACP # 2 at 10:26 a.m. At 10:52 a.m, the Department of Public Safety (DPS) Trooper arrived at the T/ACP.

Upon arrival at the T/ACP, the DPS Trooper and CCT positioned their vehicles, set up traffic cones at the pre-selected off-road location established in accordance with the extent-of-play agreement, and checked radiation monitoring equipment operation. Because the off-road location did not physically duplicate actual on-road positioning conditions, the DPS Trooper was asked how he would actually place his vehicle. He indicated that he would place his vehicle facing traffic on the side of the road of the outgoing traffic lane. Appendix W, Procedure 22 of the Emergency Management Plan for Matagorda County, Bay City and Palacios states that the vehicle is to be parked on the side of the road near the intersection or assigned control point location.

Primary radio communications were demonstrated by the use of the two-way radio linking the CCT vehicle to the BRC. The CCT vehicle also had an external speaker to allow T/ACP personnel to monitor radio communications while they were outside of their vehicles. The CCT team had a hand held two-way radio and a cellular phone for backup. A backup two-way radio was available in the DPS Trooper's vehicle providing communication to the DPS dispatcher, co-located at the Matagorda Country EOC. In addition, the DPS Trooper's vehicle had a cellular phone providing additional communication capabilities. All systems were utilized without delays or breakdowns.

All T/ACP personnel were issued two DRDs (0-200 mR and 0-20 R), a TLD, dose record card, and instructions for the use of the dosimeters and KI at their dispatch locations. The CCT also had a Ludlum 14-C survey instrument for contamination monitoring. The T/ACP personnel demonstrated their knowledge of dosimetry, KI, and normal radiation exposure limits and checked their dosimeters approximately every 30 minutes. The DPS Trooper was familiar with the emergency personnel involved in protecting life or property. The CCT personnel were familiar with authorized limits and coordinated information with the DPS Trooper. There was some initial confusion about the wind direction and the direction of the plume, but it was resolved after a discussion with all parties involved at the CCT. The CCT personnel demonstrated all aspects of vehicle/personnel contamination monitoring processes and had additional contamination containment supplies available to support the other T/ACPs if needed.

A total of 5 vehicle players were processed through T/ACP #1-A. All of the vehicles processed were dispatched to the McAllister High School Reception Center. The scenarios offered by the vehicle players provided a diversity of challenges to the T/ACP members in assessing the proper courses of action. Their screenings were complete, well coordinated, considered all potential options, and provided concise verbal instructions and maps to the players.

The T/ACP #1-A site evaluation was terminated at 2:03 p.m. and the CCT returned to the BRC Staging Area. The evaluation was closed out at 2:30 p.m. when the CCT members turned in their dosimeter/TLD items and recording logs to the administrative support team at the Staging Area.

In summary, the status of FEMA exercise objective for this location is as follows:

- a. **MET:** Objective 1, 4, 5, and 17
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES RESOLVED:** NONE
- f. **PRIOR ISSUES UNRESOLVED:** NONE

## **2.1.3 TRAFFIC/ACCESS CONTAMINATION CONTROL POINT #2-B**

The BRC Staging Area was located in the Bay City Convention Center on Highway #35 in Bay City. Personnel were pre-staged at this facility at 7:00 a.m., in accordance with the extent-of-play agreement. Contamination control teams were briefed, dosimetry issued and exposure records established. Each team member was issued two direct reading dosimeters (DRD), (0-200 mR and 0-20 R) and one thermoluminescent dosimeter (TLD). Contamination Control Team (CCT) #2 completed their kit inventory at 7:53 a.m.

At 9:55 a.m., during the Staging Area briefing, two traffic control points were assigned. To avoid confusion with Field Radiological Monitoring Teams, the two Traffic/Access Control Teams, Team #1 and Team #2, were re-designated as Team A and Team B respectively. At 10:13 a.m., the teams were dispatched to pre-selected control points. Prior to departing the Staging Area parking lot, CCT B attempted a radio check. The radio check was not successful. One team member stated that radio reception is poor in the parking lot due to close proximity to the Staging Area radio antenna. Another radio check from approximately 5 miles south of the Staging Area was successful, and all subsequent radio communications were satisfactory.

CCT B arrived at the control point located at Riverside Park at 10:36 a.m. At 11:10 a.m., a Matagorda County Deputy Sheriff arrived at the T/ACP and the control point was established. The Deputy arrived with two DRDs (0-200 mR and 0-20 R) and one TLD.

Five vehicles were processed at the control point. One vehicle was turned away. Three vehicles were found contaminated and directed to the Reception Center located at McAllister Junior High School. The remaining vehicle was allowed to enter the evacuated area to pick up elderly parents. Upon returning to the control point, this vehicle was contaminated and the elderly parents were sick. The Deputy Sheriff directed them to the hospital. The Staging Area Field Radiological Monitoring Team Coordinator was notified of the contaminated vehicle and the hospital was also notified. Notifications were simulated.

T/ACP and CCT personnel demonstrated primary radio communications using two-way vehicle radios. The CCT also used an external speaker on the vehicle radio and backup hand-held radio to allow them to monitor radio communications from outside their vehicle. The T/ACP demonstrated backup communications to the Sheriff's Department using a cell phone. All systems were utilized without breakdown.

All T/ACP and CCT personnel demonstrated their knowledge of use of dosimetry, KI and radiation exposure limits. The KI would be delivered to the team by courier following the decision to administer KI. The CCT adequately demonstrated contamination techniques using a Ludlum 14-C survey instrument. Dosimeters were checked approximately every

30 minutes throughout the demonstration. A member of the CCT had his watch alarm set as a reminder to read DRDs.

The T/ACP at Riverside Park was terminated at 2:00 p.m., and the CCT returned to the Staging Area in Bay City. The evaluation was terminated at 2:35 p.m. when CCT members turned in their dosimeters, TLDs and recording logs to the administrative support personnel at the Staging Area.

The noteworthy areas of the demonstration were that the exercise scenario, which was written for evacuees, resulted in a realistic and very challenging interaction at the T/ACP. Also, the CCT monitoring kits were exceptionally well organized.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 5, and 17
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES RESOLVED:** NONE
- f. **PRIOR ISSUES UNRESOLVED:** NONE

## 2.1.4 SCHOOL BUS DRILL MATAGORDA ELEMENTARY SCHOOL

The County EOC Transportation Officer started the notification of the schools in Bay City, Matagorda, Palacios, Tidehaven, and Van Vleck by telephone at 8:36 a.m. during the **ALERT** status at STP. This call-down was complete at 8:44 a.m. The ECL calls for early dismissal of students and the cancellation of all activities. This alert gives parents the option to pick up their children at the school.

At 9:12 a.m., the School Service Center was contacted to ready the bus and place a driver on standby. At 9:08 a.m., the schools were notified of the **Site Area Emergency (SAE)** and to evacuate all remaining students. After determining the number of students remaining at the facilities, the bus driver was notified to report to the EOC to evacuate 40 students from Matagorda Elementary School to Linnie Roberts Elementary School. At 9:20 a.m., the driver arrived.

The driver and two TA/CP officers were briefed by the Transportation Officer and the Environmental Health Director in a joint briefing session. This was an efficient use of manpower time to conduct one briefing rather than three separate ones. The driver received a packet containing instructions, dosimetry, a record for dosimetry readings, and a map of the route to the host school. Two DRDs were issued (0-20 R and 0-200 mR). The driver was also briefed on dosimetry, route and procedures prior to departure. KI (simulated) was issued and instructions were given.

Communications between the driver en route and the Transportation Officer in the EOC was via radio equipment in the bus. The School Service Center was also equipped with radios. Hands-free cellular telephones were used as backup. All of this equipment was tested immediately following the briefing by the Environmental Protection Officer and before the bus departed the EOC. Additionally, the driver and T/ACP officers were reminded to check and make sure they had full tanks of gasoline before departing for their assignments. The bus departed the EOC at 9:40 a.m.

During the drill, the driver provided location and status updates to the Transportation Officer by demonstrating both radio and hands-free cellular phone communications. There were no problems encountered with these communications. After arriving at Matagorda Elementary School at 10:18 a.m., the driver notified the EOC of her arrival and then read and recorded the dosimeter readings. The driver was very well educated in her roles and responsibilities and took them very seriously. The driver demonstrated a thorough knowledge of the bus routes and school locations as well as details about where children lived throughout the community. At 10:21 a.m., the bus departed for Linnie Roberts Elementary School with 40 children (simulated) aboard and arrived there at 11:00 a.m.

In summary, the status of FEMA Objectives at this location is as follows:

- a. **MET:** Objectives 1, 4, 5, and 16
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES RESOLVED:** NONE
- f. **PRIOR ISSUES UNRESOLVED:** NONE

### **3. SUPPORT ORGANIZATIONS**

#### **3.1 McALLISTER RECEPTION/CARE MONITORING/DECON CENTER**

The McAllister Junior High School Reception Center was activated at the SAE at 9:40 a.m. from the Matagorda County EOC by calls to the Directors of the Matagorda County Chapter of the American Red Cross (ARC) and Environmental Health Department (EHD). All duty rosters are maintained at the Matagorda County EOC. The ARC is responsible for registration, crisis counseling, medical referral, disaster welfare services, and assignment to congregate care centers. The EHD is responsible for radiological monitoring and decontamination of both personnel and vehicles.

Telephone was the primary means of communication at the McAllister Junior High School Reception Center. The ARC has primary responsibility for communications with the Matagorda County EOC although the county personnel monitoring staff were also in direct communications with the County EOC. The vehicle monitoring station personnel communicated effectively by hand-held VHF radios with the Reception Center. Backup communications with the county EOC were available through the Bay City Police and the Matagorda County Sheriff's Department. Copies of the messages that were faxed to the ARC communications room were hand carried to the Monitoring/Decontamination communications room. There were no breakdowns or delays in communications at the Monitoring and Decontamination Center.

The McAllister Reception Center Vehicle Monitoring Team consisted of eight monitoring personnel from the county with assistance from the State of Texas BRC. The team was fully operational by 10:42 a.m. The facility was well organized and provided separate areas for clean and contaminated vehicles. Access to the area was limited to one driveway. The Texas Bureau of Parks and Wildlife provided security.

Additional facilities were provided for the control and care of pets. A separate area for decontamination of pets was provided and equipped with water and supplies. Cooling water and shade were also provided. This respect for the reality of the emotional ties between pets and their owners should be commended and emulated.

The Radiological Officer (RO) demonstrated the proper use of the radiation monitoring equipment. Each emergency worker was issued a Panasonic TLD and a Landauer 0-200mR DRD with a test date of 7-27-00. A dosimetry charger was available inside the Reception Center. Individuals maintained their own dosimetry records. Completed documents were turned into the RO at end of the assignment. A master log of each DRD and TLD was maintained by the RO. Emergency workers were briefed on the reporting exposure limit of 200mR. Since no lifesaving missions would be assigned to this monitoring team, a higher exposure limit would not be appropriate. The need to take KI.

would be miniscule based on the distance outside the EPZ. If it were necessary, the KI and proper instructions would be issued by the county EOC.

Vehicles began arriving around 11:53 a.m. The team utilized two Ludlum Model 14 C monitoring instruments complete with speakers. Two additional instruments were available. All monitors utilized the open shield 44-6 head. All instruments were checked with a check source and had been calibrated on 8-10-00. Twenty-one vehicles were monitored using proper procedures and techniques. Four vehicles were clean. Each vehicle took an average time of 4 minutes and 26 seconds to survey. Seventeen vehicles were found contaminated. Once contamination was found, the survey was stopped and the vehicle moved to the contaminated vehicle area. The occupants were moved to the personnel monitoring area. The average scan time for the contaminated vehicles was 1 minute and 53 seconds. It was determined by interview that vehicle decontamination would be done at the car wash one block east of the monitoring area. Per the extent-of-play agreement, no decontamination was demonstrated.

Per extent-of-play, only one member of the vehicle monitoring team changed shift. Rosters are available at the county EOC. The member selected was the team supervisor and the shift change was adequately demonstrated. Shift change briefings began in the Reception Center and continued at the vehicle monitoring area. An acting supervisor took control during the supervisor's briefing which demonstrated the depth of capabilities within the team.

When the second shift supervisor resumed command of the team, he more than adequately demonstrated the teams' capabilities. An incoming visitor tried to pass through the monitoring area without being monitored. Her intentions were to pick up someone from the Reception Center and she was not a player. The team had no way of knowing that she was not a player and did an excellent job of politely, but firmly, refusing her entry without monitoring. Had she been able to enter the area, her vehicle might have spread contamination in an otherwise clean area.

The capability to continuously monitor and control radiation exposure to emergency workers and the general public was adequately demonstrated at the McAllister Junior High School Reception Center. The personnel monitoring supervisor was very knowledgeable about dosimetry and control of emergency worker exposure. He briefed the other Matagorda County, Bay City, and South Texas Project volunteers who were involved in the demonstration of operations at this facility. One TLD and one 0-200 mR DRD were issued to each of the volunteers who staffed both shifts of the personnel monitoring station. A record was made of the serial numbers for the TLD and DRD (with initial readings) that were assigned to each volunteer. In accordance with the procedure to have emergency workers read their dosimeters at 30-minute intervals, the personnel monitoring supervisor set an alarm for 30-minute intervals and instructed the staff to read their DRDs each time the alarm went off. All of the dosimeters used for this demonstration were labeled with a sticker indicating that they had been inspected August 1, 2000. There were pistol grip dosimeter chargers in the exposure control supply cache

issued to the Reception Center. At the beginning of the shift, the personnel monitoring staff were instructed to return their TLDs and DRDs to the supervisor of that station.

The personnel monitoring function was set up and staffed by Matagorda County, Bay City and South Texas Project volunteers who had this station ready to receive evacuees within approximately one hour at 10:40 a.m. One Eberline Portal Personal Monitor supported by two Ludlum Model 14-C survey instruments (for monitoring individuals who could not walk through the portal monitor and as backup if the portal monitor malfunctioned) were available for monitoring evacuees. The portal monitor, which was labeled as having been inspected and calibrated 9-19-00, was set up at the entrance to the center and source checked at 10:38 a.m. Two knowledgeable personnel monitoring staff were available during each of the two shifts demonstrated at this exercise. The floor was marked with radiation marking tape to distinguish contaminated and uncontaminated areas at the entrance to the personnel monitoring station. The portal monitor platform and step-off area were covered with paper and the contaminated area was roped off for contamination control. It took an average of 12 to 15 seconds to monitor each individual evacuee using the portal monitor; the first six individuals were monitored in a total time of 1 minute 37 seconds. Uncontaminated evacuees were given a white slip of paper and sent directly to the registration area. Contaminated individuals were given a pink slip of paper and booties to put on their feet and then escorted to the decontamination station. Thirty-three evacuees (simulated), including three members of the press (simulated), were monitored at the personnel monitoring station. Twelve of these were contaminated (controller injects) and sent to the decontamination station before being allowed to enter the registration area. All procedures, equipment and training used to monitor evacuees would also be used to monitor emergency workers at the McAllister Junior High School Reception Center.

There was a roster of positions to be staffed for two shifts of personnel monitoring at the Reception Center. A shift change of all of the center's station leads was begun at 1:30 p.m. with an emergency worker exposure control briefing and distribution of dosimetry (one 0-200 mR DRD and one TLD) to the second shift. Following this briefing, each station leader was briefed by their predecessor covering procedures to follow. The personnel monitoring lead was advised to maintain contamination control of the entrance by replacing the paper covering the portal monitor platform and step-off areas and to maintain separation between the contaminated and uncontaminated areas. The second shift lead was also briefed about the operation of the portal monitor, how to reset it if needed, and the time it should take to monitor each individual evacuee using the portal monitor. The second shift personnel monitoring lead was conscientious about having the staff read their dosimeters at 30-minute intervals and was knowledgeable about all aspects of the personnel monitoring function. The shift change of this key individual was accomplished within 10 minutes at 1:40 p.m. without any interruption of continuous personnel monitoring operations.

Emergency workers (EW) in the decontamination area all wore a TLD and a 0-200 mR DRD. BRC staff also wore a 0-20R DRD. Records for each dosimeter and TLD issued were kept by the Monitoring and Decontamination Supervisor and instructions were issued to the EW to read and record their readings every 30 minutes. All DRDs were zeroed and initial readings were recorded. The DRDs had been inspected for electrical leakage on 8-1-00. The radiation monitoring teams used Ludlum Model 14C instruments that had been calibrated on 8-10-00. The emergency workers were all aware of their maximum authorized exposure limit (200 mR). At the end of each Ews mission, TLDs, DRDs, exposure records, and equipment were turned in to the Monitoring and Decontamination Supervisor.

At the entrance to the decontamination area, contaminated evacuees were registered and personal items were bagged and labeled. The evacuees were then sent to the shower for decontamination. The facility is capable of separately accommodating both male and female evacuees when showering, but for this exercise, only one decontamination area was utilized. Evacuees were advised that their bagged clothing would be cleaned and returned to them. Proper disposal containers were used for discarding towels after showering.

Supplies in the decontamination area included shampoo, soap, lotion, nailbrushes, and other essential items. Male and female radiological monitors were available for both shifts. They used the Ludlum Model 14-C survey instruments to monitor the evacuees after they showered. If radiation levels of at least 0.1 mR/hr were detected on the evacuees, they were advised to re-shower with emphasis on the areas where contamination was located. Changes of clothing were available after decontamination was successfully completed. Good health physics techniques were practiced by the staff to prevent the spread of contamination in the decontamination area. After decontamination was completed, the evacuees were issued a white form indicating they were clean and were then directed to the ARC for registration.

At 1:05 p.m., a complete shift change took place in the decontamination area. Incoming shifts were briefed by the outgoing shift on the current status of the emergency. Both shifts demonstrated knowledge of their emergency response roles and functions. The shift change was accomplished in a manner that facilitated continuous, uninterrupted operations.

Radiologically clean individuals with a white form were directed to the ARC Entrance Desk. Persons without the clearance form were sent back to the monitoring area. The ARC Form 5972, Disaster Shelter Registration, was used to register the evacuees. The information from this form was entered into an Excel spreadsheet on the computer. This spreadsheet could be sorted as needed for answering queries on evacuees. It was also readily available for e-mailing or faxing to other locations as needed. This was an excellent example of the use of technology in disaster applications. This process could be

greatly enhanced if all registration personnel had a notebook computer for entering the data during the registration process.

The ARC sign-in board was also located in this area in plain view of entering evacuees. It is recommended that this sign-in board be moved, before evacuees begin arriving, to a less public area.

The Registration Assignment Staff reviewed the Shelter Registration Form 5972 for accuracy and referred the evacuee to the next station based upon individual needs. These stations included Message Center, First Aid/Crisis Counseling, and a Transportation Waiting Area. The three-part forms were broken down and distributed to the evacuee, message center and registration desk. Trained Health Services personnel were available for minor medical problems or referrals and crisis counseling.

Of particular note was the Message Center. In addition to being an excellent source of information on a particular transient problem, the displays were outstanding. Large EPZ maps with the evacuation areas clearly marked were available to explain to the evacuees what areas were involved and what evacuation routes should be followed. A Status Board was kept posted with ECLs, school closings, host schools, and protective actions. A message board was also available for leaving and/or receiving messages from family members or friends.

The ARC Communications area received all incoming messages and calls and made internal distribution as necessary. All ECL notices, News Releases & EAS Messages were received from the county EOC and/or the JIC. Consideration should be given to including RACES as a part of the Reception Center operations as they are an excellent source for back-up/additional communications and an asset in locating evacuees at other RCs.

The first shift Reception Center Manager was called upon, without prior notice, to give a press briefing to visiting reporters. She did an outstanding job of explaining the center's operations as well as answering questions.

An excellent shift change briefing was given in which the second shift manager was taken around to each station and introduced to each of the volunteers. The shift change took place at approximately 1:00 p.m. without interruption of operations. This was an excellent example of what a Reception Center operation really should be. The staff was enthusiastic, professional and eager to demonstrate their knowledge and training.

Per the extent-of-play agreement, the Congregate Care Facility (St. Mark's Episcopal Church) was not activated; however, an ARC official described its setup and operating procedures. The ARC is responsible for this facility, which could handle approximately 220 evacuees. The facility has a kitchen, mess hall, and an area for the evacuees to sleep. All the necessary essential services and staff are available to operate this facility. The

ARC official advised that there are sufficient shelters available in Bay City to handle over 3,000 evacuees. Before evacuees would be allowed into one of their facilities, they must show a form indicating they have been to a reception center and cleared of any contamination.

In summary, the status for FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 5, 18, 19, 22 and 30.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

# APPENDIX 1

## ACRONYMS AND ABBREVIATIONS

ALARA	-	As Low As Reasonably Achievable
ANL	-	Argonne National Laboratory
Anti-C	-	Anti-Contamination
ARC	-	American Red Cross
ARCA	-	Area Requiring Corrective Action
ARFI	-	Area Recommended for Improvement
BRC	-	Bureau of Radiation Control
CCT	-	Contamination Control Team
CFO	-	Chief of Field Operations
CFR	-	Code of Federal Regulations
cpm	-	Counts Per Minute
DEM	-	Division of Emergency Management
DHHS	-	Department of Health and Human Services
DOE	-	U.S. Department of Energy
DOI	-	U.S. Department of Interior
DOT	-	U.S. Department of Transportation
DPS	-	Texas Department of Public Safety
DRD	-	Direct-Reading Dosimeter

## ACRONYMS AND ABBREVIATIONS – CONTINUED

EAS	-	Emergency Alert System
ECL	-	Emergency Classification Level
ECO	-	Environmental Control Officer
EEM	-	Exercise Evaluation Methodology
EMC	-	Emergency Management Coordinator or Emergency Management Council
EMD	-	Emergency Management Director
EMS	-	Emergency Medical Service
EOC	-	Emergency Operations Center
EOF	-	Emergency Operations Facility
EOP	-	Emergency Operations Plan
EPA	-	U.S. Environmental Protection Agency
EPO	-	Environmental Protection Officer
EPZ	-	Emergency Planning Zone
ERV	-	Emergency Response Vehicle
FAA	-	Federal Aviation Administration
FDA	-	U.S. Food and Drug Administration
FEMA	-	Federal Emergency Management Agency
FM	-	Farm to Market
FRMT	-	Field Radiological Monitoring Team

## ACRONYMS AND ABBREVIATIONS – CONTINUE

FRMTL	-	Field Radiological Monitoring Team Leader
GE	-	General Emergency
GM	-	Guidance Memorandum
G-M	-	Geiger Mueller
HHS	-	Health and Human Services
HL&P	-	Houston Lighting & Power Company
HP	-	Health Physicist/Health Physics Technician
IM&C	-	Instrument Maintenance & Calibration
INEEL	-	Idaho National Engineering and Environmental Laboratory
JIC	-	Joint Information Center
KI	-	Potassium Iodide
M/D	-	Monitoring/Decontamination
MDA	-	Minimum Detectable Activity
Mon/Decon	-	Monitoring/Decontamination
MP	-	monitoring point
mR	-	milliroentgen
mR/hr	-	milliroentgen per hour
Nal	-	sodium iodide
NAWAS	-	National Warning System
NOUE	-	Notification of Unusual Event

## ACRONYMS AND ABBREVIATIONS – CONTINUED

NRC	-	Nuclear Regulatory Commission
NUREG	-	NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980
ORO	-	Off-site Response Organization
PAD	-	Protective Action Decision
PAG	-	Protective Action Guide
PAR	-	Protective Action Recommendation
PC	-	Protective Clothing
PIO	-	Public Information Officer
RAC	-	Regional Assistance Committee
RACES	-	Radio Amateur Civil Emergency Service
R/C-M/D	-	Reception/Care-Monitoring/Decontamination
RCS	-	Reactor Coolant System
REA	-	Radiological Emergency Area
REP	-	Radiological Emergency Preparedness
RERP	-	Radiological Emergency Response Plan
R/hr	-	Roentgen per Hour
RO	-	Radiological Officer
SAE	-	Site Area Emergency
SOP	-	Standard Operating Procedures

## ACRONYMS AND ABBREVIATIONS – CONTINUED

STPEGS	-	South Texas Project Electric Generating Station
T/ACP	-	Traffic/Access Control Point
TDD	-	Teletype Device for the Deaf
TDH	-	Texas Department of Health
TELETS	-	Texas Law Enforcement Teletype System
TEWAS	-	Texas Early Warning Alert System
TLD	-	Thermoluminescent Dosimeter
TLETS	-	Texas Law Enforcement Teletype System
USDA	-	U. S. Department of Agriculture

## APPENDIX 2

### EXERCISE EVALUATORS AND TEAM LEADERS

The following is a list of the personnel who evaluated the South Texas Project Electric Generating Station exercise on October 18, 2000. Evaluator Team Leaders are indicated by the (\*) before their names. The organization which each evaluator represents is indicated by the following abbreviations:

FEMA -	Federal Emergency Management Agency
ANL -	Argonne National Laboratory
INEEL -	Idaho National Engineering and Environmental Laboratory
DOT -	Department of Transportation
HHS -	Health and Human Services
USDA -	U.S. Department of Agriculture
EPA -	Environmental Protection Agency
NRC -	Nuclear Regulatory Commission

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
RAC Chairman	Larry Earp	FEMA
REP Program Manager & Exercise Coordinator	Brenda Mosley	FEMA
Texas State EOC, Austin	*Ron Graham	USDA
Disaster District EOC, Pierce	*Marilyn Boots	FEMA
BRC at STPEGS EOF	*Bradley Salmonson Charles Hackney	INEEL NRC
BRC Mobile Lab, Bay City	*Frank Wilson	ANL
State Field Team #1-A	*Harry Harrison	ANL
State Field Team #2-B	*George Brozowski	EPA

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
Joint Information Center	*Carl McCoy	ANL
	Bill Gasper	ANL
	Mike Meshenberg	ANL
Matagorda County EOC, Bay City	*Richard Converse	ANL
	Bruce Young	ANL
Traffic/Access/Contamination Control Point #1	Henry Delgado	HHS
Traffic/Access/Contamination Control Point #2	Tracey Green	ANL
School Bus, Matagorda Co.	Reta Oliver-Muller	FEMA
EAS Station	*Richard Vaughn	DOT
McAllister R/C-M/D Bay City	*Willie Malone	FEMA
	Tom Baldwin	ANL
	John Flynn	ANL
Congregate Care	Al Lookabaugh	ANL
Relocation, Re-entry, and Return Tabletop, Bay City	*Richard Converse	ANL
	Bradley Salmonson	INEEL
	Charles Hackney	NRC
	Bruce Young	ANL

**APPENDIX 3**  
**SOUTH TEXAS PROJECT**  
**ELECTRIC GENERATING STATION**  
**2000 FULL SCALE EXERCISE**  
**EXERCISE OBJECTIVES**  
**AND EXTENT-OF-PLAY AGREEMENT**

**Objective 1: Mobilization of Emergency Personnel**

Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations. Demonstrate the capability to activate and staff emergency facilities for emergency operations.

**Locations:** Bureau of Radiation Control (BRC) Operations at STP EOF; Joint Information Center (Bay City); BRC Staging Area (Bay City); BRC Mobile Laboratory (Bay City); State (BRC) Field Monitoring Teams (Bay City); State Contamination Control Teams (Bay City); Matagorda County EOC (Bay City); McAllister Reception Center (Bay City); State EOC (Austin); Disaster District EOC (Pierce); Bus Driver Demonstration; Traffic and Access Control Demonstration.

**Extent of Play:**

- 1) The Bureau of Radiation Control and DPS personnel not stationed in the Matagorda County area will pre-stage at the BRC staging area in Bay City.
- 2) At Site Area or General Emergency, the State EOC will notify agencies, which compose the Emergency Management Council. However, only those agencies on the primary notification list will be requested to send representatives to the State EOC.
- 3) American Red Cross personnel will pre-stage at the ARC Chapter office in Bay City.
- 4) Matagorda County monitoring and decontamination personnel will pre-stage at the Environmental Health Department.
- 5) An extra dispatcher will be placed on duty at the Matagorda County Sheriff's office to handle the regular workload.
- 6) To allow for maximum amount of play, Joint Information Center staff will pre-stage in the Bay City area.
- 7) One (1) bus driver will be mobilized for the bus demonstration.

- 8) Two (2) law enforcement officers will be mobilized for the Traffic and Access Control Point demonstration (see statement at Objective 30).

## **Objective 2: Facilities – Equipment, Displays, and Work Environment**

Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations.

**Locations:** BRC Operations at STP EOF; Joint Information Center (Bay City); BRC Staging Area (Bay City); Matagorda County EOC (Bay City); State EOC (Austin); Disaster District EOC (Pierce).

### **Extent of Play:**

- 1) Regardless of the scenario, **no** facilities/activities will relocate during this exercise.
- 2) The BRC Mobile Laboratory and Emergency Response Vehicle (ERV) will be pre-staged because of the distance involved with driving the vehicle to Bay City.
- 3) To allow for the maximum amount of play, the set-up at the Joint Information Center will be pre-staged.

## **Objective 3: Direction and Control**

Demonstrate the capability to direct and control emergency operations.

**Locations:** BRC Operations at STP EOF; BRC Staging Area (Bay City); Matagorda County EOC (Bay City); State EOC (Austin); Disaster District EOC (Pierce).

## **Objective 4: Communications**

Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.

**Locations:** BRC Operations at STP EOF; Joint Information Center (Bay City); BRC Staging Area (Bay City); BRC Mobile Laboratory (Bay City); BRC Field Monitoring Teams (Bay City); State Contamination Control Teams (Bay City); Matagorda County EOC (Bay City); McAllister Reception Center (Bay City); State EOC (Austin); Disaster District EOC (Pierce); BusDriver Demonstration; Traffic and Access Control Demonstration.

**Extent of Play:**

- 1) A controller phone cell will be established to ensure appropriate communications are accomplished and to ensure fluid exercise play.

**Objective 5: Emergency Worker Exposure Control**

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

**Locations:** BRC Operations at STP EOF; BRC Staging Area (Bay City); BRC Mobile Laboratory (Bay City); BRC Field Monitoring Teams (Bay City); State Contamination Control Teams (Bay City); Matagorda County EOC (Bay City); McAllister Reception Center (Bay City).

**Extent of play:**

- 1) Access to anti-contamination clothing will be demonstrated; however, it will not be worn. Exercise participants will use gloves, as necessary.
- 2) The McAllister Reception Center monitoring and decontamination staff will only demonstrate the use of TLDS. Reception center monitoring and decontamination staff will not be issued direct reading dosimetry (DRD).

**Objective 6: Field Radiological Monitoring – Ambient Radiation Monitoring**

Demonstrate the appropriate use of equipment and procedures for determining field radiation measurements.

**Location:** BRC Field Monitoring Teams (Bay City)

**Extent of Play:**

- 1) Four (4) Field Monitoring Teams will be deployed for training purposes. Only two teams will be evaluated.
- 2) Any attempts by Field Monitoring Teams to locate (and measure) areas of maximum exposure will be limited in compliance with BRC Procedure 7, Personnel Dosimetry and Exposure Control.

- 3) Use of anti-contamination clothing will be limited to gloves.
- 4) Equipment not required to demonstrate exercise objectives may be left at the staging area to allow for additional space within the vehicle.
- 5) Drill evaluators and controllers may be required to travel in separate vehicles due to space restrictions.

### **Objective 7: Plume Dose Projection**

Demonstrate the capability to develop dose projections and protective action recommendations regarding evacuation and sheltering.

**Location:** BRC Operations at STP EOF

#### **Extent of Play:**

- 1) The protective actions that result from this decision making process will not be implemented. No member of the public will be relocated. Special populations will be addressed in Objective 15.
- 2) Area Requiring Corrective Action (ARCA), Issue ID: 60-98-07-A-01, will be closed by training BRC Accident Assessment to aggressively follow-up with field sampling to verify dose projections. The objective will be demonstrated by BRC officials **after conclusion of the exercise** by a controller/player inject which will indicate that a Protective Action Guide (PAG) may be exceeded beyond the Emergency Planning Zone (EPZ) boundary.

### **Objective 8: Field Radiological Monitoring – Airborne Radioiodine and Particulate Activity Monitoring**

Demonstrate the appropriate use of equipment and procedures for the measurement of airborne radioiodine concentrations as low as  $1.0E^{-7}$  microcuries per cubic centimeter in the presence of noble gases and obtain samples of particulate activity in the airborne plume.

**Location:** BRC Field Monitoring Teams (Bay City)

#### **Extent of Play:**

- 1) Samples will be counted in the Mobile Laboratory, not by Field Monitoring Teams.

- 2) Activated charcoal filters will be used in lieu of Silver Zeolite filters for exercise purposes.

### **Objective 9: Plume Protective Action Decision Making**

Demonstrate the capability to make timely and appropriate Protective Action Decisions (PADs).

**Locations:** Matagorda County EOC (Bay City); BRC Operations at STP EOF

### **Objective 10: Alert and Notification**

Demonstrate the capability to promptly alert and notify the public within the 10-mile plume pathway emergency planning zone (EPZ) and disseminate instructional messages to the public on the basis of decisions by appropriate state or local officials.

**Location:** Matagorda County EOC (Bay City)

#### **Extent of Play:**

- 1) Siren and alert radio activation will be simulated.
- 2) Emergency Alert System (EAS) Messages will be sent to the EAS radio stations; however, broadcasts will be simulated.
- 3) Route alerting will not be demonstrated.
- 4) Community Alert Network (CAN) will not be demonstrated.

### **Objective 11: Public Instructions and Emergency Information**

Demonstrate the capability to coordinate the formulation and dissemination of accurate information and instructions to the public.

**Location:** Matagorda County EOC (Bay City)

#### **Extent of Play:**

- 1) Messages will not be broadcast over commercial radio or television.

## **Objective 12: Emergency Information – Media**

Demonstrate the capability to coordinate the development and dissemination of clear, accurate and timely information to the news media.

**Location:** Joint Information Center (Bay City)

## **Objective 13: Emergency Information – Rumor Control**

Demonstrate the capability to establish and operate rumor control in a coordinated and timely manner.

**Location:** Joint Information Center (Bay City)

### **Extent of Play:**

- 1) Four telephones will be staffed for this demonstration. A phone cell will inject rumors.

## **Objective 14: Implementation of Protection Actions – Use of KI for Emergency Workers, Institutionalized Individuals, and the General Public (State and Local)**

Demonstrate the capability and resources to implement potassium iodide (KI) protective actions for emergency workers, institutionalized individuals, and, if the state plan specifies, the general public.

**Locations:** BRC Operations at STP EOF; BRC Staging Area (Bay City); Matagorda County EOC (Bay City)

### **Extent of Play:**

- 1) Distribution of KI to emergency workers will be simulated by using copies of the Patient Packet Insert to represent actual KI supplies.
- 2) Actual ingestion of KI will be simulated by emergency workers.
- 3) The use of KI by the general public is not recommended in the State of Texas, and there are no institutionalized individuals within the STPEGS 10-mile EPZ; therefore, KI will not be issued to the general public or institutionalized individuals.

## **Objective 15: Implementation of Protective Actions – Special Populations**

Demonstrate the capability and resources necessary to implement appropriate protective actions for special populations.

**Location:** Matagorda County EOC (Bay City)

### **Extent of Play:**

- 1) Protective actions for special needs individuals will be considered at the County EOC; however, actual demonstration of protective actions will not be performed.
- 2) Matagorda County EOC staff will demonstrate this objective through discussion and showing the evaluator a roster of special needs individuals in the 10 mile emergency planning zone.

## **Objective 16: Implementation of Protective Actions – Schools**

Demonstrate the capability and resources necessary to implement protective actions for school children within the plume pathway emergency planning zone (EPZ).

**Location:** Matagorda County EOC (Bay City)

### **Extent of Play:**

- 1) Matagorda Independent School District will demonstrate implementation of protective actions for schools via telephone communications with the Matagorda County EOC, Transportation Coordinator. No students will be affected by the notifications.
- 2) A bus will travel to the County EOC for dosimetry issuance and the appropriate briefings. The bus will travel to a predetermined school for simulated student pick-up. The bus will then travel to a designated host school in Bay City and terminate its route. No students will be affected by the demonstration.

## **Objective 17: Traffic and Access Control**

Demonstrate the organizational capability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

**Location:** Matagorda County EOC (Bay City)

### **Extent of Play:**

- 1) Law enforcement officers and BRC Contamination Control Teams will establish two Traffic and Access Control Points (see statement at objective 30).
- 2) In order to protect exercise participants, these Traffic and Access Control Points will be established at pre-selected off-road locations. Normal traffic will not be affected by control point operations.
- 3) A controller inject during the exercise will identify the two Traffic and Access Control Point locations. The controller inject will not interfere with the Traffic and Access Control Point decision making process.

## **Objective 18: Reception Center Monitoring, Decontamination, and Registration**

Demonstrate the adequacy of procedures, facilities, equipment, and personnel for the radiological monitoring, decontamination, and registration of evacuees.

**Location:** McAllister Reception Center (Bay City)

### **Extent of Play:**

- 1) Decontamination will be discussed if requested, but actual decontamination will not be performed.
- 2) Due to school in session, only a portion of the reception center will be activated during the exercise, including:
  - Only one locker room (male area) will be activated for the demonstration.
  - The emergency vehicle and bus pickup will not be activated.
  - No evacuees will be transported to a Congregate Care facility.

### **Objective 19: Congregate Care**

Demonstrate the adequacy of facilities, equipment, supplies, personnel, and procedures for congregate care of evacuees.

**Location:** McAllister Reception Center (Bay City)

**Extent of Play:**

- 1) The Congregate Care facility (St. Mark's Episcopal Church) activation will not be demonstrated; however, if requested, an American Red Cross official will walk evaluators through the facility to describe its setup and operating procedures.

### **Objective 22: Emergency Workers, Equipment, and Vehicles Monitoring and Decontamination**

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

**Location:** McAllister Reception Center (Bay City)

**Extent of Play:**

- 1) Emergency workers use the same facilities as the general public. Demonstration of this activity is included in Objective 18.
- 2) Vehicle decontamination will be discussed if requested, but actual decontamination will not be performed.

### **Objective 25: Laboratory Operations**

Demonstrate laboratory operations and procedures for measuring and analyzing samples.

**Location:** BRC Mobile Laboratory (Bay City)

**Extent of Play:**

- 1) Laboratory personnel will process samples collected by Field Monitoring Teams.

### **Objective 28: Relocation, Re-Entry, and Return – Decision Making**

Demonstrate the capability to develop decisions on relocation, re-entry, and return.

**Locations:** BRC Operations at STP EOF; Matagorda County EOC (Bay City).

#### **Extent of Play:**

- 1) To be demonstrated via a tabletop discussion at the conclusion of the plume phase exercise and post drill critique.
- 2) The Chief of Field Operations/Recovery Manager will brief county, state, and federal officials on the PAGs developed. In addition, county, state, and federal officials will discuss relocation, re-entry, return and resource issues as they pertain to the evacuated zone(s).

### **Objective 29: Relocation, Re-Entry, and Return – Implementation**

Demonstrate the capability to implement relocation, re-entry, and return.

**Locations:** BRC Operations at STP EOF; Matagorda County EOC (Bay City).

#### **Extent of Play:**

- 1) To be demonstrated via 1a tabletop discussion at the conclusion of the plume phase exercise and post drill critique.
- 2) The Chief of Field Operations/Recovery Manager will brief county, state, and federal officials on the PAGs developed. In addition, county state, and federal officials will discuss relocation, re-entry, return and resource issues as they pertain to the evacuated zone(s).

### **Objective 30: Continuous, 24-Hour Staffing**

Demonstrate the capability to maintain staffing on a continuous, 24-hour basis through an actual shift change.

**Locations:** Joint Information Center (Bay City) BRC Contamination Control Teams (Bay City); BRC Mobile Laboratory (Bay City); BRC Operations at STP EOF; State EOC (Austin); McAllister Reception Center (Bay City)

**Extent of Play:**

- 1) Rather than deploying one team per shift, the Bureau of Radiation Control will use two (2) Contamination Control Teams for the entire exercise. The two Traffic and Access Control Points teams will meet the shift turnover requirement.
- 2) Turnover between key members of the Joint Information Center (Bay City) will occur between the Alert and Site Area Emergency Classification Level. The turnover will include utility, state and local spokespersons only.
- 3) Shift turnover for monitoring and decontamination operations will include:
  - one (1) supervisor
  - one (1) Station One emergency worker
  - one (1) Station Two emergency worker
  - one (1) Station Three emergency worker
- 4) Shift turnover for the American Red Cross will include:
  - one (1) Reception Center Manager
  - one (1) Registration Coordinator.
- 5) Due to the compressed exercise schedule, the State EOC will make shift changes at other than normal times.
- 6) Shift change at the BRC Mobile Laboratory will occur by controller inject.

## APPENDIX 4

### EXERCISE SCENARIO AND TIMELINE

#### Narrative Summary

Initial conditions consist of Unit 1 at 100% power, Charlie Train outage with the Containment Spray Pump 1C Discharge Valve out of service for Preventative Maintenance. Other equipment out of service includes Spent Fuel cooling pump 1B is tagged out for maintenance. A small feedwater leak inside containment has been identified during a containment entry. Maintenance is preparing to go in later today to repair the leaking valve. Work is in progress on repairing the RCB Personnel Airlock door seal. Supplementary containment purge is running to ventilate the RCB. Workers are preparing to unload a Reactor Coolant Pump motor in the Unit 1 Fuel Handling Building truck bay. Unit 2 is shut down for a refueling maintenance outage with its fuel off loaded to the spent fuel pool. Meteorological conditions include the wind out of the East (70 degrees) at 6-8 mph. Current temperature is 73 degrees with a high expected near 97.

Emergency Cooling Water pump 1B trips due to a short in the motor. The pump breaker received a trip signal on the over current relay; the breaker fails to open. The 4160 Volt ESF bus E1B normal supply breaker trips open due to an over current condition on the bus, and de-energizes the bus. The Standby Diesel Generator # 12 starts but due to a lock out condition on the 4160 volt ESF bus E1B fails to close on the bus. Operator action requires securing the standby diesel generator due to the loss of ECW pump 1B. While backing into the FHB truck bay the truck strikes the FHB door and damages the door. An **Alert** is declared based upon HA 4 Vehicle crash affecting a vital area. Activation of Emergency Response Facilities begins. Maintenance teams are dispatched to assess the problem in the 4160 VAC bus and the Standby Diesel Generator output breaker. Due to the loss of 4.16 k V bus E1B the 480 volt MCC E1B1 which powers MOV-0005 Inboard Supplemental Purge valve is de-energized the valve fails to close.

Annunciator C5 on Panel C005 "Rod Cont Non Urgent Alarm" is received. The Control Room directs the EAB Plant Operator to investigate. Suddenly Power Cabinet A loses power causing loss of latch current to all twelve CRDMs powered from A. Group 2 rods in SD bank A and rods in control banks A and C powered from Power Cabinet 2AC drop into the core. Immediate actions require the operators to scram the reactor. The manual shutdown scram switch does not scram the reactor, and opening the 1K1 and 1L1 power supply breakers does not open the breakers. This is caused by failure of both the under-voltage and the shunt relays to open the reactor trip breakers. The control room notifies the EAB Watch to locally open the supply breaker to the Rod Drive MG sets. The dropped rods cause a flux tilt in the core, and with a failure of the turbine to trip, causes a

decrease in RCS average temperature which causes an over power condition in part of the core. The EAB watch is able to reach the Rod Drive MG sets on the 60 ft. MAB elevation and open the supply breakers causing the rest of the rods to be inserted. All the rods are inserted, however Rod M12 CB D GRP1 is ejected from the core and a LOCA Inside containment starts. Due to the flux tilt in the core and the localized hot spots, clad damage is sustained in parts of the core. When the reactor trips indications of not all rods on the bottom are received. Rod M12 CB D GRP1 does not show a rod bottom light. A rod ejection accident has occurred and caused further fuel-clad degradation at the time of the ejection. Supplemental Purge outboard isolation valve FV-9777 is closed. The inboard Motor Operated Valve stays open due to the loss of Bravo Train power.

This event meets the criteria for a declaration of a **Site Area Emergency** based upon SS2, "Failure of Reactor Protection System Instrumentation to Complete or Initiate an Automatic Reactor Trip Once a Reactor Protection System Setpoint has been exceeded and manual reactor trip was not successful."

Indications of low pressurizer level, increasing containment pressure, temperature, along with sump levels and containment activity gives an indication of a loss of coolant accident. Pressurizer level and pressure decrease. The only available centrifugal charging pump can not keep up with the leak rate. Pressurizer water level continues to decrease, the leak rate is approximately 1000 gpm and Pressurizer pressure decreases to the Safety Injection Setpoint. Safety Injection pumps will maintain the vessel inventory sufficiently high to prevent further core damage. Due to the LOCA, Containment pressure increases quickly, and when it reaches 9 psig the Containment Spray pumps start in train "A." Train "C" Containment Spray Discharge Isolation Valve MOV-0001C is still tagged out for maintenance and it becomes a priority job to return the valve to service.

The Rod ejection LOCA into containment combined with approximately 6% clad damage causes radiation levels to trend up inside containment. Reactor Containment Radiation Monitors RT-8050 and RT-8051 trend up to 1000 R/hr. This meets the criteria for a declaration of a **General Emergency** based upon RG2 Unexpected increase in Containment radiation. Protective Action Recommendations are made offsite. The running Containment Spray pump 1A suddenly seizes up due to a bad pump bearing which leaves no Containment Spray pumps running. Containment pressure again increases past 9 pounds.

The high sustained containment pressure causes the Supplementary Purge Exhaust outboard valve to open. Vent monitors RT-8012 and RT-8013 start to trend up and then RT-8010A and RT-8010B Unit Vent Stack monitors alarm, indicating a radioactive release is in progress out the main vent. Field monitoring teams detect the plume and track its down wind progress. Maintenance teams are able to restore the Charlie Train Containment Spray discharge valve. This causes Containment Pressure to start decreasing.

Repair and restoration of important components including the return to service of Containment Spray Pump 1C and the return of the E1B 4160 V ESF bus can terminate the radioactive release. This would allow two containment spray pumps to rapidly reduce the pressure inside containment to reduce the driving force behind the release. Restoration of E1B 4160 V ESF bus will allow 480 V bus E1B1 to be re-energized so that the inboard Supplementary Purge Valve can be shut stopping the release.

## 2000 GRADED EXERCISE TIMELINE

<u>TIME</u>	<u>SEQUENCE OF EVENTS</u>	<u>MESSAGE</u>
0700	Initial Conditions – Unit 1 is at 100% power, Spent Fuel Cooling pump 1B tagged out for maintenance. The RCB personnel airlock door seal is being replaced on the MAB side door. Supplementary Containment Purge is in service to support future maintenance Activities. Train “C” Containment Spray tagged out for maintenance. Fuel Handling Building doors are open supporting a delivery of a RCP Motor. Meteorological conditions include Winds from 70° at 6 to 8 mph current temperature 73°.	1
	<b>Refer to Supplemental Scenario #1, 2, 10 and 11.</b>	
07:30	During transport of a refurbished Reactor Coolant Pump Motor into Unit 1 FHB, the tractor trailer crashes into the FHB truck bay door damaging the door.	2
07:45	An <b>Alert</b> is declared based upon HA4, Emergency Action Level 5, Vehicle crash affecting a Plant Vital Area. Activation of Emergency Response Facilities begins. (Performance Indicator)	3C,5
07:50	The simulator control room receives indications that the normal supply breaker for the 4160 Volt bus E1B has tripped with a lock out condition on the bus, preventing the standby diesel generator from powering the bus. EAB watch is dispatched to check on E1B Switchgear.	4
	<b>Refer to Supplemental Scenario #6.</b>	
08:00	State and county authorities are notified of the Alert declaration. (Performance Indicator)	
08:10	Personnel arrive at Emergency Operations Facility, Technical Support Center, and Operations Support Center to activate facilities.	
~08:15	Team dispatched to investigate lock-out on E1B buss	6
	<b>Refer to Supplemental Scenario #6</b>	

<u>TIME</u>	<u>SEQUENCE OF EVENTS</u>	<u>MESSAGE</u>
~08:30	Repair efforts to FHB truck bay door continue	7
	<b>Refer to Supplemental Scenario #2.</b>	
09:00	Rod Cont Non-Urgent Alarm is received and the Control Room directs the EAB watch to investigate. Suddenly Group 2 rods in shut down bank "A" and rods in control banks "A" and "C" powered from Power Cabinet 2AC drop into the core. While attempting to scram the reactor an ATWS occurs. The Reactor trip breakers are opened at the Reactor trip switchgear causing the rest of the rods to be inserted. A Rod ejection accident occurs simultaneously and causes fuel clad damage at the time of the ejection. A LOCA inside containment starts.	8,9
	<b>Refer to Supplemental Scenarios #4 &amp; #7.</b>	
09:05	Indications of decreasing Pressurizer level, increasing containment pressure, temperature, and humidity along with increasing sump levels and containment activity gives an indication of a loss of coolant accident. When Pressurizer pressure reaches the Safety Injection set point, safety injection is initiated and the SI pumps maintain Pressurizer level. MOV-0005 fails to close due to loss of power.	
	<b>Refer to Supplemental Scenario #3.</b>	
09:10	When Containment pressure reaches nine lbs. Containment Spray pump 1A is the only containment spray pump that starts. Work continues on Containment Spray pump 1C discharge valve.	10
09:15	Meets the criteria for a declaration of a <b>Site Area Emergency</b> based upon SS2 Failure of Reactor Protection System Instrumentation to complete or initiate an automatic reactor trip Once a reactor protection system set point has been exceeded and Manual reactor trip was not successful from the Control Room. (Performance Indicator)	11C
09:30	The State and County authorities are notified of the Site Area Emergency Declaration. (Performance Indicator)	

<u>TIME</u>	<u>SEQUENCE OF EVENTS</u>	<u>MESSAGE</u>
~09:35	Assembly and Accountability is completed.	12
09:45	Containment Spray Pump 1A seizes up and stops running.	13
	<b>Refer to Supplemental Scenario #5.</b>	
10:30	Due to the LOCA in containment, radiation monitors RT-8050 & 8051 indicate dose rates greater than 1,000 R/hr.	
10:45	Meets the criteria for a declaration of a <b>General Emergency</b> based upon RG2 Valid reading on RT-8050 or 8051 greater than 1,000 R/hr. (Performance Indicator)	14C
10:50	Protective Action Recommendations are made offsite based upon projected offsite dose rates. (Performance Indicator)	
10:55	An injured man is reported from in the field. A team member working on 1B ECW has slipped and fallen knocking himself unconscious.	15
	<b>Refer to Supplemental Scenario #9</b>	
11:00	The State and County authorities are notified of the General Emergency Declaration. (Performance Indicator)	
11:30	Increasing Containment pressure causes a failure of the outboard supplementary purge valve FV-9777 actuator and causes the valve to open off its seating surface and results in a radioactive release. Unit vent monitors indicate a radioactive release is in progress out the main vent.	16
	<b>Refer to Supplemental Scenario #8.</b>	
11:35	Field monitoring teams search for the plume to track its down wind progress.	
~11:45	Site ambulance leaves for Matagorda General Hospital with injured man.	17

<b><u>TIME</u></b>	<b><u>SEQUENCE OF EVENTS</u></b>	<b><u>MESSAGE</u></b>
12:45	Radioactive release is terminated when the 4160 V ESF bus EIB is re-energized which allows 480 V bus E1B1 to be energized to close the inboard Supplementary purge isolation valve MOV-05. Containment Spray pump 1C is released for return to Service.	18
<b>Refer to Supplemental Scenario #10.</b>		
13:00	Release is terminated, efforts continue to track the plume with offsite field teams.	
14:00	Drill is terminated.	19
~15:30	Reconvene with State and County for Recovery Reentry Seminar.	20

## APPENDIX 5

### EAS STATION OBSERVATIONS

Commercial Broadcast Station KMKS-FM, phone 979-244-4242, is the Matagorda County EAS station which was evaluated in the October 18, 2000, Radiological Emergency Preparedness Exercise for South Texas Project Electric Generating Station. KMKS broadcasts 50,000 watts of power, 24 hours a day, on a frequency of 102.5 MHz from its remote transmitter located near Palacios, Texas. There is an STL microwave link from the station to the transmitter. The station was relocated in December 1998, from 1627<sup>1</sup>/<sub>2</sub> Seventh Street to 2309 Fifth Street in Bay City, Texas. Both the station and the transmitter are equipped with stand-by electric generators. The generator at the transmitter functions automatically if commercial power is interrupted.

Six telephone lines serve the station. One of the telephone lines is an unpublished number that, in emergency situations, is reserved for the Matagorda County EOC to contact the radio station. One of the lines is dedicated to the fax machine. Two alternate phone lines are available as back-up for the fax machine. The fax machine is the primary system for receiving emergency information from the Matagorda County EOC. The fax machine is equipped with two signaling devices, both audio (alarm bell) and visual (flashing light), that indicate that a message is being received. The station operates 24 hours a day; however, it is operated automatically by computer control from 10:00 p.m. until 5:00 a.m. During this time, there is no one present at the station. The station is capable of being operated by remote control at anytime. The Sheriff's Department can remote control the station from the Matagorda County EOC. The station also has a MARTI unit available that serves as a remote studio, to broadcast from remote locations.

At 8:22 a.m., a hand-written fax message, "This is a test," was received from the EOC. The Media Coordinator at the EOC called at 8:25 a.m. to confirm receipt of the test message. At 8:44 a.m., the station received a fax of NEWS ADVISORY NOTICE NA-1. The EOC phoned at 8:59 a.m. to verify receipt of message NA-1. At 9:29 a.m., the station received EMERGENCY ALERT SYSTEM MESSAGE NOTICE EAS-1. At 9:30 a.m., the EOC called to verify receipt of the message. At 9:35 a.m., the station simulated broadcast of the message. The Station Manager indicated that the EAS message would be rebroadcast each 15 minutes until the message was cleared or superseded. At 10:28 a.m., the station received EMERGENCY ALERT SYSTEM MESSAGE NOTICE EAS-2, at the same time the EOC phoned to verify receipt of the message. The station immediately simulated a broadcast of EAS-2. At 10:32 a.m., three events happened: the station received NEWS ADVISORY NOTICE NA-2; the EOC phoned to verify receipt of this news advisory; and the station simulated a rebroadcast of EAS-2 and NA-2. At 11:55 a.m., the station received via fax EMERGENCY ALERT SYSTEM MESSAGE NOTICE EAS-3. At 11:56 a.m., the EOC called to verify receipt of the message. At this time, the

EAS station simulated broadcast of this message and a rebroadcast of NA-2. At 12:34 p.m., the station received via fax EMERGENCY ALERT SYSTEM MESSAGE NOTICE EAS-4. Upon receipt of this message, the station simulated broadcast. At 12:36 p.m., the EOC called to verify receipt of the message.

At 1:44 p.m., there was an unscheduled shift change. This shift change was accomplished flawlessly. The reason for the shift change was that the Station Manager needed to leave to cover a news story regarding an accident involving a Sheriff's car. The station owner relieved the station manager.

At 2:04 p.m., a fax message was received from the EOC that terminated the drill. At 2:12 p.m. the EOC called to verify receipt of the message.

The station personnel were completely familiar with all of the procedures and had on hand all necessary pre-scripted messages, procedures and maps. During the drill, none of the pre-scripted messages were used. The broadcasts were only made in English.

In summary, the status of FEMA exercise objectives for this location is as follows:

- a. **MET:** Objectives 1, 4, 10, and 11.
- b. **DEFICIENCY:** NONE
- c. **AREAS REQUIRING CORRECTIVE ACTION:** NONE
- d. **NOT DEMONSTRATED:** NONE
- e. **PRIOR ISSUES – RESOLVED:** NONE
- f. **PRIOR ISSUES – UNRESOLVED:** NONE

## APPENDIX 6

### AREAS RECOMMENDED FOR IMPROVEMENT

#### MATAGORDA COUNTY EOC

**Description:** The isodose contour map showing the various levels of contamination in the EPZ was handed out without comment. Considerable time was spent before it became clear what the various isodose contours meant in terms of deciding who should be allowed to return to their homes and what types of restrictions needed to be applied.

**Recommendation:** Provide a more thorough briefing on the information given out to players.

**Description:** The stated time for this part of the exercise was one hour.

**Recommendation:** Allow a longer time for the tabletop. To provide adequate time for discussions and decision making, three or four hours is a more reasonable time frame.

**Description:** A greater challenge is needed for the decision making progression.

**Recommendation:** Provide several sets of assumptions for different time frames. For example, mini-scenarios for five days, two weeks and one month could be passed out one at a time. Each mini-scenario would have its own data set and assumptions with questions and decisions for players. This would give players a more realistic idea of how decision making and recovery progress as more data becomes available.

#### McALLISTER RECEPTION/CARE - MONITORING/DECON CENTER

**Description:** The ARC sign-in board was also located in this area in plain view of entering evacuees.

**Recommendation:** Move this sign-in board, before evacuees begin arriving, to a less public area.

**Description:** Use of additional communications support.

**Recommendation:** Consideration should be given to including RACES as a part of the Reception Center operations as they are an excellent source for back-up/additional communications and an asset in locating evacuees at other RCs.

## APPENDIX 7

### PLANNING ISSUES

#### STATE FIELD RADIOLOGICAL MONITORING TEAM #1

**Description:** Texas Radiological emergency Management Manual, Procedure Number 7, Personnel Dosimetry, Change 2 of March 1998, page 2, under paragraph IV.C. states that the required dosimetry is self-reading dosimeter: 0-200 mrem, 0-20 rem, and other (as appropriate). Later, paragraph VII A.1. states in part, that personnel will not exceed 200 mrems TEDE during a shift unless authorized by supervisory authority. Paragraph VII.A.2. states in part that personnel are not to exceed 1 rem TEDE per day without prior approval of the Chief of Field Operations. This is also reiterated in paragraph VII.C. Paragraph VII.D.6. stating that persons in an active beta-gamma plume will estimate the TEDE using a factor of 5.

**Recommendation:** The exposure, as measured by a direct-reading dosimeter, should be appropriately shown as roentgens (abbreviated R) or milliroentgens (abbreviated mR). The "factor" mentioned in the procedure is properly a DRD Conversion Factor, used to make an estimate of physiological damage in dose equivalents whose units are rems or millirems. The procedure should reflect these proper units.

#### BRC OPERATIONS AT STPEGS EOE

**Description:** There was a problem with the Stampede program during the exercise when the first "what if" type calculations were run using a 4 hour default release duration, which produced a correct calculation with the integrated dose being four times the calculated dose rate. Shortly thereafter, a different calculation was done using containment pressure and a pressure drop rate. The chosen values were 10 psig and 10 psig/hour, which gave a calculated release duration of 1 hour. This 1 hour release duration apparently is stored within the program and used in all future calculations until such time that someone manually enters a new release duration time. Unfortunately, the 1 hour release duration, that is used internally by the program for dose projections, did not display on the screen as a replacement for the initial 4 hour release duration, so whenever new data was entered, the display box showed 4 hours, so it was not changed, since 4 hours is the desired default dose projection timeframe. The program appears to calculate correctly, if the release duration time is entered for each new calculation.

**Recommendation:** The system does work, but until the program software is changed, there will need to be some additional training to make sure that everyone is aware of the program's idiosyncrasies. Both BRC and the utility are now aware of the problem and know that it needs to be fixed, either as a software program change or training or both.