South Texas Project

After Action Report/ Improvement Plan

Exercise Date - October 27, 2010

Radiological Emergency Preparedness (REP) Program

FEMA

Published January 13, 2011

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EXECUTIVE SUMMARY

On October 27, 2010, a biennial Radiological Emergency Preparedness (REP) exercise, which included a relocation, return, reentry demonstration, was conducted in the plume exposure pathway emergency planning zone (EPZ) around the South Texas Project (STP) located near Wadsworth, Matagorda County, Texas. The U.S. Department of Homeland Security/Federal Emergency Management Agency (DHS-FEMA), Region VI, evaluated the exercise. The purpose was to assess the level of preparedness of state and local responders to react to a simulated radiological emergency at STP. This 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 previous exercise at this site was conducted on July 23, 2008. The qualifying emergency preparedness exercise to satisfy FEMA rule 44 Code of Federal Regulations 350 requirements for U.S. Nuclear Regulatory Commission licensing to operate the facility was conducted on April 8, 1987. There have been thirteen evaluated exercises, including the exercise on October27, 2008, plus several drills conducted since 1987.

FEMA, Region VI wishes to acknowledge the efforts of the many individuals in the State of Texas, Matagorda County, Bay City, the City of Palacios and surrounding jurisdictions who participated in this exercise. Protecting the public health and safety is the full-time job of some of the exercise participants and an additional assigned responsibility for others. Still others have willingly sought this responsibility by volunteering to provide vital emergency services to their communities. Cooperation and teamwork of all the participants was evident during this exercise.

This report contains the final written evaluation of the biennial exercise. All state and local organizations, except where noted in this report, demonstrated knowledge of their emergency response plans and procedures and adequately implemented them. There were no Deficiencies, two Areas Requiring Corrective Action (ARCA) corrected during the exercise and no Plan Issues identified during this exercise.

SECTION 1: EXERCISE OVERVIEW

1.1 Exercise Details

Exercise Name
South Texas Project

Type of Exercise
Plume

Exercise Date
October 27, 2010

Program
Department of Homeland Security/FEMA Radiological Emergency Preparedness Program

Scenario Type
Radiological Emergency

1.2 Exercise Planning Team Leadership

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1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the South Texas Project exercise:

State Jurisdictions

- Texas Department of State Health Services, Radiation Control Program
- Texas Division of Emergency Management
- Texas Department of Public Safety, Disaster District Committee Sub-2C Pierce
- Texas Department of Public Safety, Highway Control
- Texas Commission on Environmental Quality
- Texas Department of Public Works
- Texas Engineering and Extension Service
- Texas Department of Agriculture
- Texas Public Utility Commission

Risk Jurisdictions

- Matagorda County Emergency Management
- Bay City Independent School District
- Matagorda County Sheriff's Office
- Matagorda County Department of Transportation

Support Jurisdictions

- City of Bay City
- City of Palacios

Private Organizations

- South Texas Project Electric Generating Station
- American Red Cross
- EAS Primary Radio Station, KMKS 102.5

Federal Jurisdictions

- United State Coast Guard
- United States Nuclear Regulatory Commission

SECTION 2: EXERCISE DESIGN SUMMARY

2.1 Exercise Purpose and Design

The DHS/FEMA Region VI Office evaluated the exercise on October 27, 2010 to assess the capabilities of the local emergency preparedness organizations in implementing their Radiological Emergency Response Plans and Procedures to protect the public health and safety during a radiological emergency involving South Texas Project Electric Generating Station (STPEGS). The purpose of this report is to represent the results of the findings on the performance of the offsite response organizations during a simulated radiological emergency.

2.2 Exercise Objectives, Capabilities and Activities

Exercise objectives and Capabilities/REP Criteria selected to be exercise are discussed in the Exercise Plan (EPLAN), Appendix E.

2.3 Scenario Summary

The exercise scenario was developed to evaluate the response of the exercise participants to an incident requiring evacuation of the public from the 10-mile Emergency Planning Zone (EPZ) surrounding the South Texas Project Electric Generating Station (STPEGS). The exercise scenario provided for the evaluation of the Texas Division of Emergency Management (TDEM), Texas Department of State Health Services- Radiation Control Program (DSHS-RCP), and Matagorda County to conduct evacuations of the public.

SECTION 3: ANALYSIS OF CAPABILITIES

3.1 Exercise Evaluation and Results

Contained in this section are the results and findings of the evaluation of all jurisdictions and functional entities that participated in the October 27, 2010 exercise to test the offsite emergency response capabilities of state and local governments in the 10-mile Emergency Planning Zone (EPZ) surrounding the South Texas Project electric Generating Station (STPEGS).

Each jurisdiction and functional entity was evaluated on the basis of its demonstration of criteria delineated in the exercise evaluation areas as outlined in the Federal Register, Vol. 67, No. 80, "Radiological Emergency Preparedness: Exercise Evaluation Methodology" (April 25, 2002). Detailed information on the exercise evaluation area criteria and the extent of play agreement used in this exercise are found in Appendix D of this report.

3.2 Summary Results of Exercise Evaluation

The matrix presented in Table 3.1, on the following page, presents the status of all exercise evaluation area criteria that were scheduled for demonstration during this exercise by all participating jurisdictions and functional entities. Exercise criteria are listed by number and the demonstration status is indicated by the use of the following letters:

M - Met (No Deficiency or Areas Requiring Corrective Actions [ARCAs] assessed and no unresolved ARCAs from prior exercises)

D - Deficiency assessed

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

N - Not Demonstrated (Reason explained)

P - Plan Issue

Table 3.1 - Summary of Exercise Evaluation

DATE: 2010-10-27 SITE: South Texas Project, TX M: Met, A: ARCA, D: Deficiency, P: Plan Issue, N: Not Demonstrated		TDEM-SOC	DD Sub-2C Pierce	DSHS-HQ	DSHS-EOF	DSHS-RCP FMT 1	DSHS-RCP FMT 2	JIC	Mat. Co. EOC & T/ACP	EAS-KMKS
Emergency Operations Management										
Mobilization	1a1	M	M	M	M			M	M	
Facilities	1b1				M					
Direction and Control	1c1	M	M	M	M				M	
Communications Equipment	1d1	M	M	M	M	M	M	M	M	
Equip & Supplies to support operations	1e1	M	M	M	M	M	M	M	M	
Protective Action Decision Making										
Emergency Worker Exposure Control	2a1				M				M	
Radiological Assessment and PARs	2b1			M	M					
Decisions for the Plume Phase -PADs	2b2								M	
PADs for protection of special populations	2c1								M	
Rad Assessment and Decision making for the Ingestion Exposure Pathway	2d1									
Rad Assessment and Decision making concerning Relocation, Reentry, and Return	2e1								M	
Protective Action Implementation										
Implementation of emergency worker exposure control	3a1				M	M	M		M	
Implementation of KI decision	3b1				M					
Implementation of protective actions for special populations - EOCs	3c1									
Implementation of protective actions for Schools	3c2									
Implementation of traffic and access control	3d1								M	
Impediments to evacuation are identified and resolved	3d2								M	
Implementation of ingestion pathway decisions - availability/use of info	3e1									
Materials for Ingestion Pathway PADs are available	3e2									
Implementation of relocation, re-entry, and return decisions.	3f1								M	
Field Measurement and Analysis										
Adequate Equipment for Plume Phase Field Measurements	4a1					M	M			
Field Teams obtain sufficient information	4a2				M					
Field Teams Manage Sample Collection Appropriately	4a3					M	M			
Post plume phase field measurements and sampling	4b1									
Laboratory operations	4c1									
Emergency Notification and Public Info										
Activation of the prompt alert and notification system	5a1								M	M
Activation of the prompt alert and notification system - Fast Breaker	5a2									
Activation of the prompt alert and notification system - Exception areas	5a3									
Emergency information and instructions for the public and the media	5b1							M	M	
Mon / decon of evacuees and emergency workers, and registration of evacuees	6a1									
Mon / decon of emergency worker equipment	6b1									
Temporary care of evacuees	6c1									
Transportation and treatment of contaminated injured individuals	6d1									

3.3 Criteria Evaluation Summaries

3.3.1 Texas Jurisdictions

3.3.1.1 Texas Division of Emergency Management-State Operations Center

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.2 Department of Public Safety, Disaster District Sub-2C Pierce

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.3 Department of State Health Services, Radiation Control Program - Headquarters

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.4 Department of State Health Services - Radiation Control Program at the Emergency Operations Facility

a. MET: 1.a.1, 1.b.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.1, 3.a.1, 3.b.1, 4.a.2.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.5 Department of State Health Services - Radiation Control Program Field Monitoring Team One

a. MET: 1.d.1, 1.e.1, 3.a.1, 4.a.1, 4.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: 4.a.3.

ISSUE NO.: 60-10-4a3-A-01

CRITERION: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams must move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.8., 9., 11)

CONDITION: Field Monitoring Team lacked necessary sampling filter cartridge to carry out sampling mission.

POSSIBLE CAUSE: Assumed that unknown third party removed filter that had been prepared the previous day by Field Monitoring Team member in anticipation of the exercise. The sample filter holder had been prepared the previous day and packed back in the transport container. Someone had removed the charcoal sample filter without the Team member's knowledge before the Team deployed into the EPZ.

REFERENCE: Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected.

EFFECT: Contrary to the requirement in Criterion 4.a.3, no sample was collected because the necessary sampling filter media was not in the sample holder while the sample pump was operating.

CORRECTIVE ACTION DEMONSTRATED: Another sample filter cartridge was obtained from Field Monitoring Team 2 and Team 1 returned to the sample location to repeat the sampling procedure. The sample preparation procedure was simulated in an acceptable manner.

c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.6 Department of State Health Services - Radiation Control Program Field Monitoring Team Two

a. MET: 1.d.1, 1.e.1, 3.a.1, 4.a.1, 4.a.3.
b. AREAS REQUIRING CORRECTIVE ACTION: 4.a.3.

ISSUE NO.: 60-10-4a3-A-02

CRITERION: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams must move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sampling media. (NUREG-0654, I.8., 9., 11)

CONDITION: Department of Health Services – Radiation Control Program Field Monitoring Team Two handled iodine air sample media in a manner that could cross-contaminate the sample (the iodine cartridge was removed from the air sample head with a potentially contaminated gloved hand).

POSSIBLE CAUSE: Texas Emergency Management Procedure 10.1, Monitoring and Sampling Airborne Gamma Releases does not include detailed steps that aim to

minimize the probability of the sample being cross contaminated during packaging. Additionally, field monitoring team members indicated that they had not been trained on contamination control techniques while removing the iodine cartridge from the air sample head.

REFERENCE: NUREG 0654 I.8-9; Texas Emergency Management Procedure 10.1, Monitoring and Sampling Airborne Gamma Releases, Air Sampling

EFFECT: If the iodine sample were cross contaminated, the resulting analysis would be imprecise and higher than actual. This analysis is used to make or confirm dose projections and protective action decisions. A cross contaminated sample could lead to more of the general population being evacuated than is warranted.

CORRECTIVE ACTION DEMONSTRATED: Training was provided to field monitoring team members on sample handling to prevent cross contamination of sample media. Consideration should be given to revising the air sampling procedure to include more detail or a note of explanation regarding contamination control.

A time out was called during the initial iodine sample packing. The exercise controller worked with participants and discussed contamination control and sample packaging. The field monitoring team discussed two methods to handle the sample to minimize the potential to cross contaminate the sample (wear and remove an extra pair of gloves, or have the second person hold open the plastic bag and drop the iodine cartridge into the bag without touching the cartridge). The field monitoring team then demonstrated appropriate sample handling/packaging by removing the sample cartridge without touching the filter media.

c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.1.7 Joint Information Center, Bay City

a. MET: 1.a.1, 1.d.1, 1.e.1, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.2 Risk Jurisdictions

3.3.2.1 Matagorda County Emergency Operations Center and Traffic/Access Control Point

a. MET: 1.a.1, 1.c.1, 1.d.1, 1.e.1, 2.a.1, 2.b.2, 2.c.1, 2.e.1, 3.a.1, 3.d.1, 3.d.2, 3.f.1, 5.a.1, 5.b.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

3.3.3 Private Organizations

3.3.3.1 EAS Radio Station KMKS

a. MET: 5.a.1.
b. AREAS REQUIRING CORRECTIVE ACTION: None
c. DEFICIENCY: None
d. PLAN ISSUES: None
e. NOT DEMONSTRATED: None
f. PRIOR ISSUES - RESOLVED: None
g. PRIOR ISSUES - UNRESOLVED: None

SECTION 4: CONCLUSION

Based on the results of the exercise, the offsite radiological emergency response plans and preparedness for the State of Texas and the affected local jurisdiction are deemed adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public in the event of a radiological emergency. Therefore, 44 CFR Part 350 approval of the offsite radiological emergency response plans and preparedness for the State of Texas site-specific to the South Texas Project will remain in effect.

APPENDIX A: BEST PRACTICES

1. The Department of State Health Services at the Emergency Operations Facility

Summary: The Department of State Health Services (DSHS) at the Emergency Operations Facility (EOF) showed excellent coordination & a great partnership with utility counterparts that allowed DSHS personnel to quickly identify and remedy any possible inconsistencies, such as the KI authorization for special needs population. Accident assessment team members had a good peer checking system in place to assure no mistakes were made and proper recommendations were made.

Description: After receiving the dose projections from accident assessment, the DSHS Incident Commander made her protective action recommendations and presented them to both DSHS accident assessment team members to peer-check them and to the South Texas Project's (STP) accident assessment team to coordinate a concurrence before presenting these recommendations to the County Judge. This was done in accordance with procedure. DSHS REM Procedure 1-Accident Assessment: Plume Exposure Pathway

The peer checking system that was in place successfully assured that no mistakes were made and proper recommendations were given. This peer checking system was demonstrated during a FEMA evaluated exercise and will continue to be practiced in future training and exercises.

2. The Texas Department of Public Safety (DPS) Disaster District Sub-2C located in Pierce, Texas

Summary: DDC Pierce office was well run. Participants were well trained and effectively used Web-EOC, a newer technology, to their benefit.

Description: Web EOC is an information sharing web-based program that allowed the DDC, County EOC and State Operations Center to share significant events such as press releases, levels of emergency, and protective action decisions on an accessible website. It also electronically maintained emergency responder logs and made the local logs accessible to the State Operations Center.

Because Web EOC is a newer technology, a procedure has not been put into place as of yet.

WebEOC successfully provided timely and accurate information to all levels of government who were involved in emergency response during this exercise. WebEOC is currently used in state-wide emergency operations, and will continue to be used in future REP training and exercises.

3. Joint Information Center

Summary: JIC – The STP JIC Media Liaison team was innovative in taking members of the mock media on a tour of a DSHS Mobile Lab and simulating to the media a walk-through of a reception center. Media Liaison team members provided handheld microphones to mock media, ensuring that all questions and answers were heard during press conferences. The Media and Public Inquiry team used both phones and an online program to answer public and media inquiries. The online program, PIER, was also utilized for team members to log calls and answers. The Media and Public Inquiry team also used a translation firm to answer phone questions posed in Russian, Japanese and Vietnamese. All spokespersons were polished, informative and credible during press conferences.

Description: While not graded, the Mock Media did a superb job of pushing questions and follow-up questions to the OROs. The Mock Media also provided stories via VHS, digital radio and print to the Media Monitor after every press conference. This practice is unusual but fruitful as it exercises Media Monitor teams who typically just show the capability of monitoring by turning on TV's, radios and computers.

The Mock Media provided exercise players with challenging questions and follow-up questions that enabled the OROs to exercise their public speaking capability. Although it was not graded, PIER proved to be a web-based tool that successfully allowed the utility to provide information to the public in a timely fashion.

By injecting mock stories via VHS, digital radio and print throughout the exercise, it enabled better training for the JIC media team and provided more realism to the evaluated exercise.

4. Strengths

Summary: KMKS staff extremely proactive with verification and authentication of all communication from Matagorda County Emergency Operations Center (MCEOC). Accomplished communication checks for all equipment and paid attention to detail, particularly

regarding constant fax paper tray checks. These were impressive as these details are often overlooked by busy staff. Checking dial tones and constantphone check-ins with MCEOC was helpful in establishing a successful operation. Enthusiasm for Drill was evident and live broadcast of a test emergency was done on air and seamlessly with no error. Overall great cohesion of KMKS team helped facilitate the disemination of information and allowed KMKS staff to coordinate among each other and stay focused.

Description: Annotated "demonstrated strengths" for KMKS 102.5

APPENDIX B: EXERCISE TIMELINE

Table 1, on the following page, presents the time at which key events and activities occurred during the South Texas Project exercise on July 23, 2008.

Table 1 - Exercise Timeline
DATE: 2010-10-27, SITE: South Texas Project, TX

Emergency Classification Level or Event	Time Utility Declared	TDEM-SOC	DD Sub-2C Pierce	DSHS-HQ	DSHS-EOF	JIC	Mat. Co. EOC & T/ACP
Unusual Event							
Alert	0725		0725	0744			0736
Site Area Emergency	0946		0946		0949	0946	0950
General Emergency	1108		1126		1108	1108	1112
Simulated Rad. Release Started	1103		1103		1103	1108	1103
Simulated Rad. Release Terminated							
Facility Declared Operational		0737	0814	0807	0915	0830	0814
Declaration of State of Emergency						1201	1201
Exercise Terminated		1332	1404		1320	1345	1323
Early Precautionary Actions: Evacuate special needs; evacuate parks and recreational areas in EPZ; evacuate Tidehaven and Matagorda ISDs							0952
1st Protective Action Decision: Evacuate Zones 1, 2, 3, 4, 5, 6, 7, 10, and 11							1144
1st Siren Activation for Early Precautionary Action							1010
1st EAS or EBS Message							1014
2nd Protective Action Decision:							
2nd Siren Activation for first PAD							1144
2nd EAS or EBS Message							1147
KI Administration Decision:					1117		

Table 1 - Exercise Timeline
DATE: 2010-10-27, SITE: South Texas Project, TX

Emergency Classification Level or Event	Time Utility Declared	EAS-KMKS
Unusual Event		
Alert	0725	
Site Area Emergency	0946	
General Emergency	1108	
Simulated Rad. Release Started	1103	
Simulated Rad. Release Terminated		
Facility Declared Operational		0810
Declaration of State of Emergency		
Exercise Terminated		1335
Early Precautionary Actions: Evacuate special needs; evacuate parks and recreational areas in EPZ; evacuate Tidehaven and Matagorda ISDs		
1st Protective Action Decision: Evacuate Zones 1, 2, 3, 4, 5, 6, 7, 10, and 11		
1st Siren Activation for Early Precautionary Action		
1st EAS or EBS Message		1015
2nd Protective Action Decision:		
2nd Siren Activation for first PAD		
2nd EAS or EBS Message		1152
KI Administration Decision:		

APPENDIX C: EXERCISE EVALUATORS AND TEAM LEADERS

DATE: 2010-10-27, SITE: South Texas Project, TX

LOCATION	EVALUATOR	AGENCY
Texas Division of Emergency Management-State Operations Center	*Jeff Clark	
Department of Public Safety, Disaster District Sub-2C Pierce	*Bill George	DHS/FEMA
Department of State Health Services, Radiation Control Program - Headquarters	*Bill Maier	NRC
Department of State Health Services - Radiation Control Program at the Emergency Operations Facility	Johanna Berkey *Tim Pflieger	FEMA Region X DHS/FEMA
Department of State Health Services - Radiation Control Program Field Monitoring Team One	*Paul Ward	FEMA HQ
Department of State Health Services - Radiation Control Program Field Monitoring Team Two	*Marcy Campbell	ICF
Joint Information Center, Bay City	*Bill Bischof Rebecca Fontenot Linda Gee	DHS/FEMA DHS/FEMA
Matagorda County Emergency Operations Center and Traffic/Access Control Point	Brad DeKorte Scotty Hargrave *Elsa Lopez	DHS/FEMA FDA DHS/FEMA
EAS Radio Station KMKS	*Kaori Flores	
* Team Leader		

APPENDIX D: ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
ALARA	As Low As Reasonably Achievable
ARC	American Red Cross
ARCA	Areas Requiring Corrective Action
BCPD	Bay City Police Department
DRD	Direct Reading Dosimeter
EAL	Emergency Action Levels
EAS	Emergency Alert System
ECL	Emergency Classification Levels
EMC	Emergency Management Coordinator
EMD	Emergency Management Director
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPD	Electronic Personal Dosimeters
EPZ	Emergency Planning Zone
EW	Emergency Worker
FMT	Field Monitoring Team
FTL	Field Team Leader
GE	General Emergency
GPS	Global Positioning System
HF	High Frequency
IC	Incident Commander
ISD	Independent School Districts
JIC	Joint Information Center
MCEOC	Matagorda County Emergency Operations Center
MP	Monitoring Point
NRC	Nuclear Regulatory Commission
OSA	Operations Section Administrator
OWS	Operations Watch Supervisor
PAD	Protective Action Decision
PAR	Protective Action Recommendation
PIO	Public Information Officer
RCP	Radiation Control Program
REP	Radiological Emergency Preparedness
RLO	Regional Liaison Officer

RO	Radiological Officers
SAE	Site Area Emergency
SOC	State Operations Center
STP	South Texas Project
STPEGS	South Texas Project Electric Generating Station
SUV	Sport Utility Vehicle
TO	Transportation Officer

APPENDIX E: EXERCISE PLAN

EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

Sub-element 1.a – Mobilization

Criterion 1.a.1: Offsite Response Organizations (OROs) use effective procedures to alert, notify, and mobilize emergency personnel and activate facilities in a timely manner. (NUREG-0654, A.4; D.3, 4; E.1, 2; H.4)

Locations:

- State Operations Center at Austin (SOC),
- Department of Public Safety (DPS) Disaster District Sub-2C Emergency Operations Center (EOC) at Pierce (a.k.a. DDC),
- Department of State Health Services (DSHS) Radiation Control Program (RCP) Headquarters at Austin,
- DSHS RCP at South Texas Project (STP) Emergency Operations Facility (EOF),
- Joint Information Center (JIC), and
- Matagorda County Emergency Operations Center (MCEOC)

Extent of Play:

- DSHS RCP personnel will pre-stage at the RCP staging area in Bay City.
- Regardless of the scenario, no facilities/activities will relocate during this exercise.
- DSHS Mobile Lab will be located at the staging area but will not be evaluated.
- Non-TDEM players will be pre-staged at the SOC. DSHS will be deployed to SOC at SAE via a message inject.
- At Site Area or General Emergency, the SOC will notify agencies that comprise the Emergency Management Council. These notifications will be logged according to procedure, however, physical notifications will be simulated.
- Four (4) Field Monitoring Teams will be deployed for training purposes. Only (2) teams will be evaluated. Drill evaluators may be required to travel in separate vehicles due to space restrictions in DPS vehicles.
- Disaster District Committee personnel not stationed at DD Sub-2C EOC may be pre-staged.
- To allow for maximum amount of play, DSHS-RCP and JIC staff will pre-stage in the area.
- An extra dispatcher will be placed on duty at the Matagorda County Sheriff's office, in Bay City, to handle the regular workload.
- Non-local TDEM personnel will be pre-staged in the area.
- To facilitate play, the Joint Information Center furnishings may be set up prior to the exercise.

ARCAs: None

Sub-element 1.b - Facilities

Criterion 1.b.1: Facilities are sufficient to support the emergency response. (NUREG-0654, H.3)

Locations:

- STP Emergency Operations Facility (EOF)

Extent of Play: None

ACRAs: None

Sub-element 1.c - Direction and Control

Criterion 1.c.1: Key personnel with leadership roles for the ORO provide direction and control to that part of the overall response effort for which they are responsible. (NUREG-0654, A.1.d; A. 2.a,b.)

Locations:
- SOC,
- DDC,
- DSHS RCP Headquarters,
- DSHS RCP at STP EOF, and
- MCEOC

Extent of Play: None

ARCAs: None

Sub-element 1.d – Communications Equipment

Criterion 1.d.1: At least two communication systems are available, operate properly, and communication links are established with appropriate locations. Communications capabilities are managed in support of emergency operations. (NUREG-0654, F.1, 2)

Locations:
- SOC,
- DDC,
- DSHS RCP Headquarters,
- DSHS RCP at STP EOF,
- DSHS RCP Field Monitoring Teams (FMTs),
- JIC, and
- MCEOC, including Traffic Access Control Points (T/ACP)

Extent of Play:
- A controller phone cell will be established to ensure appropriate communications are accomplished and to ensure fluid exercise play.
- Correction on the spot requested, for local agencies.*

ARCAs: None

Sub-element 1.e – Equipment and Supplies to Support Operations

Criterion 1.e.1: Equipment, maps, displays, dosimetry, potassium iodide (KI), and other supplies are sufficient to support emergency operations. (NUREG-0654, H.7, 10; J. 10.a,b,e; J. 11; K.3.a)

Locations:
- SOC,
- DDC,
- DSHS RCP Headquarters,

- DSHS RCP at STP EOF,
- DSHS RCP Field Monitoring Team (FMTs),
- JIC, and
- MCEOC, including T/ACP

Extent of Play:
- Donning and doffing of anti-contamination clothing will be demonstrated out of sequence by one player, and will not be worn during the exercise.
- Equipment not required to demonstrate exercise objectives may be left at the Staging Area to allow for additional space within the vehicles.
- Correction on the spot requested, for purposes of dressing out and for local agencies.*

ARCAs: None

EVALUATION AREA 2: PROTECTIVE ACTION DECISION-MAKING

Sub-element 2.a – Emergency Worker Exposure Control

Criterion 2.a.1: OROs use a decision-making process, considering relevant factors and appropriate coordination, to insure that an exposure control system, including the use of KI, is in place for emergency workers including provisions to authorize radiation exposure in excess of administrative limits or protective action guides. (NUREG-0654, J. 10.e,f; K.4)

Locations:
- DSHS RCP at STP EOF and
- MCEOC

Extent of Play: None

ARCAs: None

Sub-element 2.b. – Radiological Assessment and Protective Action Recommendations and Decisions for the plume Phase of the Emergency

Criterion 2.b.1: Appropriate protective action recommendations are based on data from the plant (licensee) or field, plume and dose projected through use of models, and knowledge of on and off-site conditions that may warrant consideration. (NUREG-0654, I.8, 10; Supp.3)

Locations:
- DSHS RCP Headquarters or
- DSHS RCP at STP EOF

Extent of Play:
- If STP EOF has been staffed by DSHS RCP at this time, it will be the only facility evaluated for this criterion.

ARCAs: None

Criterion 2.b.2: A decision-making process involving consideration of appropriate factors and necessary coordination is used to make protective action decisions (PADs) for the general public (including the recommendation for the use of KI, if ORO policy). (NUREG-0654, J.9; 10.f,m)

Locations:
- MCEOC

Extent of Play:
- The protective actions that result from this decision-making process will not be implemented. No members of the public will be relocated.

ARCAs: None

Sub-element 2.c – Protective Action Decisions Consideration for the Protection of Special Populations
Criterion 2.c.1: Protective action decisions are made, as appropriate, for special population groups. (NUREG-0654, J.9; J.10.d,e)

Locations:
- MCEOC

Extent of Play:
- Protective actions for special needs individuals will be considered at the MCEOC; however, actual demonstration of protective actions will not be performed.
- MCEOC staff will demonstrate this criterion through discussion and showing the evaluator a roster of special needs individuals in the 10-mile emergency planning zone.

ARCAs: None

Sub-element 2.e. — Radiological Assessment and Decision Making Concerning Relocation, Reentry, and Return
Criterion 2.e.1: Timely relocation, reentry, and return decisions are made and coordinated as appropriate, based on assessments of the radiological conditions and criteria in the ORO's plan and/or procedures. (NUREG-0654, I.10; J.9; M.1)

Locations:
- MCEOC

Extent of Play:
- Matagorda County EOC staff will demonstrate this evaluation criterion by discussion with evaluator after the plume phase exercise has been terminated.
- The state controller will assist as necessary to facilitate the tabletop and provide scenario information necessary for the counties.
- Federal RRR PAG's, DSHS & STP PAR's, plume modeling maps, radiological data and SitReps will be pre-scripted and provided as injects.
- Correction on the spot requested.*

ARCA: None

EVALUATION AREA 3: PROTECTIVE ACTION IMPLEMENTATION

Sub-element 3.a – Implementation of Emergency Worker Exposure Control

Criterion 3.a.1: The OROs issue appropriate dosimetry and procedures and manage radiological exposure to emergency workers in accordance with the plans and procedures. Emergency workers periodically and at the end of each mission read their dosimeters and record the readings on the appropriate exposure record or chart. (NUREG-0654, K.3.a, 3.b)

Locations:
- DSHS RCP at STP EOF,
- DSHS RCP Field Monitoring Teams,
- MCEOC, including T/ACP

Extent of Play:
- Exercise TLDs will be used for the exercise. TLDs for real events are packaged in the Emergency Planner box at the staging area. DSHS Emergency Planners can show evaluator real TLDs at staging area.
- DSHS RCP Contamination Control Team will support monitoring of State emergency workers returning to the Staging Area but will not be evaluated.
- Correction on the spot requested.*

ARCAs: None

Sub-element 3.b Implementation of KI Decision

Criterion 3.b.1: KI and appropriate instructions are available should a decision to recommend use of KI be made. Appropriate record keeping of the administration of KI for emergency workers and institutionalized individuals is maintained. (NUREG-0654, E.7.,J.10.e.,f.)

Locations:
- DSHS at EOF

Extent of Play:
- If the decision is made to have emergency workers ingest KI, actual ingestion of KI will not be done.
- The use of KI by the general public is not recommended in the State of Texas, and there are no institutionalized individuals within the STP 10-mile EPZ; therefore, KI will not be issued to the general public or institutionalized individuals.
- Distribution and actual ingestion of KI to emergency workers will be simulated by using copies of the Patient Packet insert or copies of the packet to represent actual KI supplies.
- Correction on the spot* is requested for the traffic and access control point demonstrations.

ARCAs: None

Sub-element 3.d. – Implementation of Traffic and Access Control

Criterion 3.d.1: Appropriate traffic and access control is established. Accurate instructions are provided to traffic and access control personnel. (NUREG-0654, J.10.g, j)

Locations:
- MCEOC, including T/ACP

Extent of Play:
- The T/ACP decision-making process will be demonstrated in real-time sequence, however, travel to the T/ACP will be simulated.
- A law enforcement officer (from the Sheriff's Department) assigned to T/ACP will discuss the knowledge of their role and responsibilities by interview with the evaluator.
- This interview can occur out of sequence of the exercise scenario, but during the exercise, at a time agreed upon by the MCEOC controller and FEMA evaluator.
- Correction on the spot requested.*

ARCAs: None

Criterion 3.d.2: Impediments to evacuation are identified and resolved. (NUREG-0654, J.10.k.)

Locations:
- MCEOC

Extent of Play:
- This criterion will be demonstrated by inject.
- No impediment will actually occur, however, the situation and solution will be discussed in the MCEOC.
- Correction on the spot requested.*

ARCAs: None

Sub-element 3.f - Implementation of Relocation, Reentry, and Return Decisions

Criterion 3.f.1: Decisions regarding controlled re-entry of emergency workers and relocation and return of the public are coordinated with appropriate organizations and implemented. (NUREG-0654, M.1, 3)

Locations:
- MCEOC

Extent of Play:
- Matagorda County EOC staff will demonstrate this evaluation criterion by discussion with evaluator after the plume phase exercise has been terminated.
- The state controller will assist as necessary to facilitate the tabletop and provide scenario information necessary for the counties.

- Controller injects will stimulate the decision making process for relocation, reentry, and return.
- Correction on the spot requested.*

ARCA: None

EVALUATION AREA 4: FIELD MEASUREMENT AND ANALYSIS

Sub-element 4.a – Plume Phase Field Measurement and Analyses

Criterion 4.a.1: The field teams are equipped to perform field measurements of direct radiation exposure (cloud and ground shine) and to sample airborne radioiodine and particulates. (NUREG-0654, H.10; I.7,8,9)

Locations:
- DSHS RCP FMTs

Extent of Play:
- Activated charcoal filters will be used in lieu of silver zeolite filters for exercise purposes but FMTs will demonstrate availability of silver zeolite filters.
- Equipment not required for demonstrating exercise evaluation criterion may be left at the staging area to allow for additional space within the vehicle.
- Correction on the spot requested.*

ARCAs: None

Criterion 4.a.2: Field teams are managed to obtain sufficient information to help characterize the release and to control radiation exposure. (NUREG-0654, I.8, 11; J.10.a; H.12)

Locations:
- DSHS RCP at STP EOF

Extent of Play: None

ARCAs: None

Criterion 4.a.3: Ambient radiation measurements are made and recorded at appropriate locations, and radioiodine and particulate samples are collected. Teams should move to an appropriate low background location to determine whether any significant (as specified in the plan and/or procedures) amount of radioactivity has been collected on the sample media. (NUREG-0654, I.9)

Locations:
- DSHS RCP FMTs

Extent of Play:
- Activated charcoal filters will be used in lieu of Silver Zeolite filters for exercise purposes.
- Each graded field team will at least once demonstrate proficiency in the use of anti-contamination clothing as required by procedure.

- The ability to don and remove anti-contamination clothing will be demonstrated at an agreed upon time and location prior to or after the exercise.
- Correction on the spot requested.*

ARCAs: None

EVALUATION AREA 5: EMERGENCY NOTIFICATION & PUBLIC INFORMATION

Sub-element 5.a - Activation of the Prompt Alert and Notification System

Criterion 5.a.1: Activities associated with primary alerting and notification of the public are completed in a timely manner following the initial decision by authorized off-site emergency officials to notify the public of an emergency situation.

The initial instructional message to the public must include as a minimum: 1) identification of the State or local government organization and the official with the authority for providing the alert signal and instructional message; 2) identification of the commercial nuclear power plant and a statement that an emergency situation exists at the plant; 3) reference to REP-specific emergency information (e.g., brochures and information in telephone books) for use by the general public during an emergency; and 4) a closing statement asking the affected and potentially affected population to stay tuned for additional information. (10 CFR Part 50, Appendix E.IV.D; NU-REG, E.5,6,7.)

Locations:
- MCEOC, and
- EAS Radio Station KMKS 102.5

Extent of Play:
- Siren and alert radio activation will be simulated by the Matagorda County Sheriff's Office Dispatcher.
- Simulation of the siren and alert radio activation will be in real time sequence with the transmission of the EAS message. The sirens will be sounded at the appropriate time in the exercise in accordance with the decision and the EAS message will follow the siren sounding.
- Emergency Alert System (EAS) message content will be determined by the Emergency Management Director and communicated to the EAS stations by the EOC Administrative Assistant; however, broadcasts will be simulated.
- Route alerting and RapidNotify (auto dialer) will not be demonstrated.
- There are no FEMA approved exception areas

ARCAs: None

Sub-element 5.b – Emergency Information and Instructions for the Public and the Media

Criterion 5.b.1: OROs provide accurate emergency information and instructions to the public and the news media in a timely manner. (NUREG-0654, E.5,7; G.3.a; G.4.c.)

Locations:
- JIC, and
- MCEOC

Extent of Play:

- Information will not be provided to the public and/or the media not participating in the exercise.
- The STP JIC is in the process of implementing the PIER (Public Information Emergency Response) system to push, pull, and track public information. PIER is a private tool used by STP only. This system will not be evaluated by FEMA. Use of this system is not intended to replace FEMA approved methods of notifying the media and the public.

ARCAs: None

GENERAL EXTENT-OF-PLAY:

1. With regard to last minute additions or changes to any previously approved Extent-of-Play, all suggested changes, including decisions due to inclement weather, must be forwarded to the RAC Chair for approval.
2. As a statement of fact, no ORO will deliberately deviate from its plans and procedures with the intent of avoiding responsibility.
3. The exercise may be suspended or terminated due to a real emergency situation.
4. Draft copies of procedures may be used during the exercise, if the procedure is under revision at the time of the exercise.
5. *Correction-on-the-spot is defined in the FEMA REP Program Manual at III-235 and in the FEMA Policy Paper, Strategic Review Steering Committee, Initiative 1.5, Correct Issues immediately, effective March 31, 2000, signed by Kay C. Goss, CEM, Associate Director for Preparedness, Training and Exercises.

Acronyms

ARCA	Area Requiring Corrective Action
DDC	Department of Public Safety Disaster District substation in Pierce, Texas
DSHS	Department of State Health Services
DPS	Department of Public Safety
EAS	Emergency Alert System
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
FEMA	Federal Emergency Management Agency
FMT	Field Monitoring Team
JIC	Joint Information Center
KI	Potassium Iodide
MCEOC	Matagorda County Emergency Operations Center
ORO	Offsite Response Organization
PPE	Personal Protective Equipment
RAC	Regional Assistance Committee
RCP	Radiation Control Program
SOC	State Operations Center
STP	South Texas Project
T/ACP	Traffic and Access Control Point

TIME	SEQUENCE OF EVENTS	MESSAGE

THIS IS A UNIT 1 DEP & EROP EXCERISE SCENARIO

06:55 Initial Conditions - Unit 2 is and has been at 100% Power for 195 days. Unit 1 Unit 1 is and has been at 100% Power for 137 days. Core burn up is 5,134 MWD/MTU.

Planned Maintenance activities include: E1A11 Engineered Safety Features (ESF) batteries are being replaced. AFW Pump 11 is out of service for bearing replacement.

The Meteorological Tower indicates the following: Wind out of the northeast (50.24º) at 4 mph and ambient temperature is 54°F.

Refer to Mini-Scenarios No. 1 & 2

07:05 Failed Fuel Monitor RT-8039 alarms at 40 µCi/ml and is trending up rapidly.

07:10 MAB 10' Radiation Monitors (8060, 8061, 8062) alarm and begin trending up rapidly.

07:15 Radiation Monitor readings continue to increase: RT-8039 150 µCi/ml, RT-8060 $5.05E^{+03}$ mR/hr, RT-8061 $8.0E^{+00}$ mR/hr, RT-8062 $5.05E^{+03}$ mR/hr

07:30 The Emergency Director enters procedure 0ERP01-ZV-IN01, Emergency Classification, and declares an **ALERT**, based on Initiating Condition **RA3**, Release of Radioactive Material or Increases in Radiation Levels that Impedes Operation of Systems Required to Maintain Safe Operation or to Establish or Maintain Cold Shutdown; **EAL-2,** Valid radiation monitor readings GREATER THAN 5 R/hr in areas requiring infrequent access to maintain plant safety functions. **1C**

Initiator Time:_____

Classification Time:_____

Classification EAL:_____

TIME	SEQUENCE OF EVENTS	MESSAGE
	Controller Information: The 15 minute Emergency Classification evaluation clock begins when the Emergency Director is informed of the MAB 10' radiation levels > 5 R/hr.	
	Upon Public Address Announcement, Security activates the Emergency Notification and Response System (ENRS) in accordance with 0ERP01-ZV-IN03. (Scenario ID Code 302, Drill Alert White Team).	**2C**
	The State/County and Nuclear Regulatory Commission contact points are notified of the Alert declaration IAW 0ERP01-ZV-IN02.	
	State and County Notification Time:_____	
	NRC Notification Time:_____	
08:00	The Emergency Director authority transfers to the TSC Manager.	
08:45	The Emergency Director authority transfers to the EOF Director.	
08:35	Chemistry Reports RCS Grab Sample reading 310 µCi/gram DEI.	
08:37	Control Room begins to shutdown due to Technical Specification 3.4.8 Action a.	
08:50	**Backup Meteorological Tower fails.**	
	Refer to Mini-Scenario No. 3	
09:15	1D Steam Generator tube leak begins as indicated by Main Steam Line (MSL) Monitor RT-8049 reading $1.00E^{+00}$ µCi/cc, Condenser Vacuum Pump Monitors RT-8027D reading 197 GPD and RT-8027 (Noble Gas) reading $1.00E^{-01}$ µCi/cc; all monitors are trending up.	
09:30	Unit Vent Radiation Monitor (RT-8010B) increases to $6.50E^{+06}$ µCi/sec.	
09:35	Implementation of CFR 50.54(x) due to redeploying Security Officers from downwind of the Unit Vent.	

TIME	SEQUENCE OF EVENTS	MESSAGE
09:40	Dose assessment indicates a radiation release has initiated based on STAMPEDE calculating 0.131 rem TEDE and 0.761 rem Thyroid CDE at 1 mile (Site Boundary).	**3C**
09:45	The Emergency Director enters procedure 0ERP01-ZV-IN01, Emergency Classification, and declares a **SITE AREA EMERGENCY** based on Initiating Condition **RS1**, **EAL-2,** Dose assessment indicates dose consequences greater than 0.1 rem TEDE or 0.5 rem Thyroid CDE at 1 mile (Site Boundary). Controller Information: The 15 minute Emergency Classification evaluation clock begins when the Emergency Director receives the information of > 10% PAGs at 1 mile (Site Boundary). Initiator Time:_____ Classification Time:_____ Classification EAL:_____ Within 15 minutes of the Site Area Emergency announcement, the Technical Support Center uses procedure 0ERP01-ZV-IN04 to develop a plan for Assembly and Accountability.	**4C**
Note	TSC Controller safety note: Contact the Control Room Controller to ensure the weather is not hazardous for Assembly and Accountability activities. If it is direct the Security Manager to simulate the Assembly and Accountability Public Address Announcement. The State and County authorities are notified of the Site Area Emergency Declaration in accordance with 0ERP01-ZV-IN02. State and County Notification Time:_____	**5**
10:00	**HALON Discharge into EAB 35' Elevation Computer Room.** **Refer to Mini-Scenario No. 4**	
10:30	Upon completion of Assembly and Accountability the Deputy EOF Director has 15 minutes to develop a plan for nonessential personnel Site Evacuation.	

TIME	SEQUENCE OF EVENTS	MESSAGE
	Backup Meteorological Tower Repaired.	**7**
11:00	Control Room receives indications of a large SGTR, RT-8049 increases to $1.50E^{+02}$ µCi/cc.	
	The Main Steam Line 1D PORV Manual Isolation Valve suffers a catastrophic failure ejecting is valve bonnet and internals allowing steam to escape into the D Isolation Valve Cubical (IVC).	**8**
	Refer to Mini-Scenarios No. 5 & 6	
	Operators initiate a manual reactor trip, safety injection, manually close D MSIV, and transition into procedure 0POP05-EO-EO00, Reactor Trip or Safety Injection.	
11:02	Turbine Generator Building (TGB) Bullet Resistant Enclosure (BRE) 1C Security Officer reports observing a large steam plume coming from the IVC Roof.	**9**
11:05	Offsite dose assessment calculations using STAMPEDE indicate greater than TEDE and Thyroid CDE Protective Action Guidelines (PAG) at 1 mile (Site Boundary).	
11:10	Protective Action Recommendation for the General Emergency is evacuate Emergency Planning Zones 1, 2, 5, Affected Sectors are Q, R, A, B.	**10C**

TIME	SEQUENCE OF EVENTS	MESSAGE
11:15	The Emergency Director enters procedure 0ERP01-ZV-IN01, Emergency Classification, and declares a **GENERAL EMERGENCY** based on Initiating Condition **FG1**, EAL-2 (4 points), Clad Loss, RCS Activity DEI greater than 300 µCi/gm; EAL-3 (4 points), RCS Loss, SG Tube is ruptured and has a non-isolable secondary steam release; EAL-3 (2 points), Containment Loss, SG Tube Leak Primary to secondary leakage greater than 150 gpd through any one steam generator with direct secondary side leakage to atmosphere. **OR** Initiating Condition **RG1**, Site Boundary Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity that Exceeds 1,000 mrem TEDE or 5,000 mrem Thyroid CDE for the Actual or Projected Duration of the Release; Using Actual Meteorology, **EAL-2**, Dose assessment indicates dose consequences greater than 1,000 mrem TEDE and/or 5,000 mrem thyroid CDE. Controller Information: The 15 minute Emergency Classification evaluation clock begins when the Emergency Director receives indication that all three FPB have been challenged or > PAGs at 1 mile. Initiator Time:_____ Classification Time:_____ Classification EAL:_____ The State and County authorities are notified of the General Emergency Declaration in accordance with 0ERP01-ZV-IN02. State and County Notification Time:_____	**11C**
12:00	Inject out of sequence chemistry data to the TSC Nuclear Engineer for core damage assessment demonstration.	
13:00	As the plant cools down the steam line pressure and release tapers off enough for an in-plant repair team is successfully repair 1D PORV Manual Isolation Valve. STP and State of Texas offsite field teams continue to monitor and track the plume.	**12**

TIME	SEQUENCE OF EVENTS	MESSAGE
14:00	Exercise Terminated	**13**

0715	0930	1100	1300	1400
RA3 **8060 5R** **ALERT**	**SG Leak RS1** **SG >10% PAGs** **SAE** **A&A**	**SGTR** **GE** **Rad release begins**	**Rad release isolated**	**Exercise Over**

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