Waterford 3 Steam Electric Station

After Action Report/ Improvement Plan

Drill Date - September 7, 2017

Radiological Emergency Preparedness (REP) Program

FEMA

Published: October 10, 2017

This page is intentionally blank.

Table of Contents

Page

Contents

Executive Summary

On September 7, 2017, an out of sequence Medical Services drill was conducted for the Waterford 3 Steam Electric Station (Waterford 3), located near Taft, St. Charles Parish, Louisiana. Personnel from the U.S. Department of Homeland Security/Federal Emergency Management Agency (DHS/FEMA) Region VI, evaluated all activities. The purpose of the drill was to assess the level of preparedness of local responders to react to a simulated radiological emergency at Waterford 3. The previous Medical Services drill was conducted on August 25, 2015.

Personnel from the State of Louisiana, Waterford 3, Ochsner Clinic Foundation, St. Charles Parish Hospital Emergency Medical Services participated in the drill. Evaluation areas demonstrated included: Emergency Operations/Facilities, Protective Action Implementation, and Support Operations/Facilities. Cooperation and teamwork of all the participants was evident during the drills and DHS/FEMA wishes to acknowledge these efforts.

This report contains the final evaluation of the out of sequence drill. The participants demonstrated knowledge of their emergency response plans and procedures and adequately demonstrated them. There were no Findings or Plan Issues identified as a result of the evaluation.

Section 1: Exercise Overview

1.1 Exercise Details

Exercise Name
2017 Waterford 3 Steam Electric Station Radiological Emergency Preparedness (REP) Program Evaluated Exercise

Type of Exercise
Medial Services Drill

Exercise Date(s)
September 7, 2017

Program
Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA) REP Program

Scenario Type
Radiological Emergency

1.2 Exercise Planning Team Leadership

Nan Williams
RAC Chair
FEMA Region VI
Technological Hazards Branch
800 N. Loop 288
Denton, Texas 76209
940-898-5398
Nan.Calhoun@fema.dhs.gov

Linda Gee
Federal Evaluation Team Lead
FEMA Region VI
Technological Hazards Branch
800 N. Loop 288
Denton, Texas 76209
940-898-5368
Linda.Gee@fema.dhs.gov

Toni Booker
State Planning Team Lead
Louisiana Department of Environmental Quality
Environmental Scientist
602 N. Fifth Street
Baton Rouge, Louisiana 70802
225-219-3627
Toni.Booker@la.gov

Gina Taylor
Utility Planning Team Lead
Waterford 3 Steam Electric Station
Senior Emergency Planner
172265 River Rd
Killona, Louisiana 70057
504-739-6903
Gtaylo3@entergy.com

1.3 Participating Organizations

Agencies and organizations of the following jurisdictions participated in the 2017 Waterford 3 Steam Electric Station drill:

State Jurisdictions:
- Louisiana Department of Environmental Quality

Risk Jurisdictions:
- St. Charles Parish Hospital Emergency Medical Services

Private Organizations:
- Ochsner Clinic Foundation

Section 2: Exercise Design Summary

2.1 Exercise Purpose and Design

The DHS/FEMA Region VI Office evaluated drill conducted on September 7, 2017 to assess the capabilities of 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 Waterford 3 Steam Electric Station (Waterford 3). The purpose of this report is to present the results and findings on the performance of the offsite response organizations during a simulated radiological emergency.

2.2 Exercise Objectives, Capabilities, and Activities

Exercise objectives and identified Capabilities/REP Criteria selected to be exercised are discussed in the Exercise Plan, Appendix C.

2.3 Scenario Summary

The drill scenario was developed to evaluate the response of drill participants to an incident requiring evacuation of the public from the Emergency Planning Zone surrounding Waterford 3. The scenario provides for an out of sequence Medical Services drill.

The Medical Services drill was developed to evaluate the response of drill participants to an incident at Waterford 3 requiring the transportation, treatment, and decontamination of a radiologically contaminated injured individual. The Medical Services drill scenario provided for the evaluation of Ochsner Clinic Foundation and St. Charles Parish Hospital Emergency Medical Services.

Section 3: Analysis of Capabilities

3.1 Exercise Evaluation and Results

This section contains the results and findings of the evaluation of all jurisdictions and functional entities that participated in the September 7, 2017 evaluated drills to test the offsite emergency response capabilities of local governments in the Emergency Planning Zone surrounding Waterford 3.

Each jurisdiction and functional entity was evaluated based on their demonstration of Capabilities and their equivalent REP criteria as delineated in the FEMA REP Program Manual dated January 2016.

3.2 Summary Results of Drill Evaluation

The matrix presented in the table on the following page presents the status of all exercise evaluation area criteria which were scheduled for demonstration during these drills 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 Level 1 or Level 2 Findings assessed, and no unresolved ARCAs from prior exercise)

1 – Level 1 Finding(s); formerly Deficiency assessed

2 – Level 2 Finding(s); formerly area requiring corrective action assessed or an unresolved Level 2 Finding from a prior drill or exercise

P - Plan Issue

Table 3.2 - Summary of Drill Evaluation

DATE: September 7, 2017 SITE: Waterford 3 M: Met, 1: Level 1 Finding, 2: Level 2 Finding, P: Plan Issue, N: Not Demonstrated		Ochsner Clinic	St. Charles EMS										
Emergency Operations Management													
Alert and Mobilization	1a1												
Facilities	1b1												
Direction and Control	1c1												
Communications Equipment	1d1												
Equipment and Supplies to Support Operations	1e1	M	M										
Protective Action Decision Making													
Emergency Worker Exposure Control	2a1												
Dose Assessment & PARs & PADs for the Emergency Event	2b1												
Dose Assessment & PARs & PADs for the Emergency Event	2b2												
PADs for the Protection of persons with disabilities and access/functional needs	2c1												
Radiological Assessment and Decision-making for the Ingestion Exposure Pathway	2d1												
Radiological Assessment & Decision-making Concerning Post-Plume Phase Relocation, Reentry, and Return	2e1												
Protective Action Implementation													
Implementation of Emergency Worker Exposure Control	3a1	M	M										
Implementation of KI Decision for Institutionalized Individuals and the Public	3b1												
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c1												
Implementation of Protective Actions for persons with disabilities and access/functional needs	3c2												
Implementation of Traffic and Access Control	3d1												
Implementation of Traffic and Access Control	3d2												
Implementation of Ingestion Pathway Decisions	3e1												
Implementation of Ingestion Pathway Decisions	3e2												
Implementation of Post-Plume Phase Relocation, Reentry, and Return Decisions	3f1												
Field Measurement and Analysis													
RESERVED	4a1												
Plume Phase Field Measurement and Analyses	4a2												
Plume Phase Field Measurement and Analyses	4a3												
Post Plume Phase Field Measurements and Sampling	4b1												
Laboratory Operations	4c1												
Emergency Notification and Public Info													
Activation of the Prompt Alert and Notification System RESERVED	5a1 5a2												
Activation of the Prompt Alert and Notification System	5a3												

3.3 Criteria Evaluation Summaries

3.3.1 Risk Jurisdictions

3.3.1.1 St. Charles Parish Hospital Emergency Medical Services

In summary, the status of DHS/FEMA criteria for the Risk jurisdiction is as follows:

a. LEVEL 1 FINDINGS: NONE

b. LEVEL 2 FINDINGS: NONE

c. PLAN ISSUES: NONE

d. PRIOR ISSUES – RESOLVED: NONE

e. PRIOR ISSUES – UNRESOLVED: NONE

3.3 Criteria Evaluation Summaries

3.3.3 Private Jurisdictions

3.3.2.1 Ochsner Clinic Foundation

In summary, the status of DHS/FEMA criteria for the Private jurisdiction is as follows:

a. LEVEL 1 FINDINGS: NONE

b. LEVEL 2 FINDINGS: NONE

c. PLAN ISSUES: NONE

d. PRIOR ISSUES – RESOLVED: NONE

e. PRIOR ISSUES – UNRESOLVED: NONE

Section 4: Conclusion

Based on the results of the drill, the offsite radiological emergency response plans and preparedness for the State of Louisiana and the affected local jurisdictions 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 Louisiana site-specific to Waterford 3 Steam Electric Station will remain in effect.

Appendix A: Exercise Evaluators and Team Leaders

Regional Assistance Committee (RAC) Chair: Nan Williams
Section Chief: Denise Bordelon Site Specialist: Linda Gee

LOCATION	EVALUATOR	AGENCY
St. Charles Parish Hospital Emergency Medical Services	*Linda Gee	FEMA RVI
Ochsner Clinic Foundation	Scott Hallett Tim Pflieger *Linda Gee	FEMA HQ FEMA RVI FEMA RVI
* Team Leader		

Appendix B: Acronyms and Abbreviations

Acronym	Meaning
AAR	After Action Report
CFR	Code of Federal Regulations
CPA	Control Point Attendant
CPM	Counts Per Minute
DRD	Direct Reading Dosimeter
DHS	Department of Homeland Security
FEMS	Emergency Medical Services
EOC	Emergency Operations Center
EW	Emergency Worker
EPZ	Emergency Planning Zone
FEMA	Federal Emergency Management Agency
HPT	Health Physics Technician
KI	Potassium Iodide
MGP	Mirion Technologies
mR	Milliroentgens
MS-1	Medical Services Drill
OCF	Ochsner Clinic Foundation
PRD	Permanent Record Dosimeter
R	Roentgen
REA	Radiation Emergency Area
REAC/TS	Radiation Emergency Assistance Center/Training Site
REP	Radiological Emergency Preparedness
RSO	Radiation Safety Officer
TLD	Thermoluminescent Dosimeter
Waterford 3	Waterford 3 Steam Electric Station

This page is intentionally blank

Appendix C: Exercise Plan

WATERFORD 3 STEAM ELECTRIC STATION

2017 MS1 DRILL

September 7, 2017

Evaluated Organizations

OCHSNER CLINIC FOUNDATION

ST CHARLES PARISH AMBULANCE SERVICE

APPROVAL: John Signorelli/

EMERGENCY PLANNING MANAGER

I. INTRODUCTION

In the interest of assuring the health and safety of the general public near the Waterford 3 Steam Electric Station, in the event of a radiological emergency, Waterford 3 periodically conducts drills jointly with the Federal, State and local agencies.

This manual contains the scenario of activities and supporting data describing the Waterford 3 Emergency Preparedness Medical Services drills.

This scenario was developed by postulating events that will require response by offsite organizations.

During this drill, the support organizations will respond to the simulated events and conditions that have been selected to provide the level of activity necessary to meet the scenario objectives.

Ochsner Clinic Foundation (Ochsner Medical Center) and St Charles Parish Ambulance will participate in this drill.

Drill participants will have no prior knowledge of the sequence of events. The drill scenario will allow those individuals and agencies assigned to respond during a radiological emergency to demonstrate their performance according to current emergency preparedness plans and procedures.

The scenario is a mechanism by which selected drill controllers will initiate and evaluate the activities of the drill participants. The individual drills will be initiated as shown below and expected to last approximately three hours.

Participating organizations are shown in Section IV, Guidelines, of this manual.

A. SCHEDULE

1. Thursday September 7, 2017

   08:00 Ochsner Clinic Foundation

II. EXTENT OF PLAY

A. EVALUATION AREA 1: EMERGENCY OPERATIONS MANAGEMENT

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/FEMA-REP-1, H.7, 10; I.7, 8, 9; J.10.a, b, e; J.11, 12; K.3.a; K.5.b)

1. Locations

   Ochsner Medical Center and St Charles Parish Ambulance

2. Extent of Play

   Correction-on-the-spot will be conducted at these locations at the discretion of and concurrence between the evaluator and the controller. Caution should be exercised to insure that exercise play is not interrupted.

3. ARCAs

   None

B. 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/FEMA-REP-1, J.10.e; K.3.a, b; K.4)

1. **Locations**

   Ochsner Medical Center and St Charles Parish Ambulance

2. Extent of Play

   a. Area dosimetry may be used at the hospital.

   b. Correction on the spot, at the discretion of and concurrence between the evaluator and the controller, may be acceptable at these locations.

3. ARCAs

   None

Sub-Element 6.d – Transportation and Treatment of Contaminated Injured Individuals

Criterion 6.d.1: The facility/ORO has the appropriate space, adequate resources and trained personnel to provide transport, monitoring, decontamination and medical services to contaminated injured individuals. (NUREG-0654/FEMA-REP-1, F.2; H.10; K.5.a, b; L.1, 4)

1. Locations

St Charles EMS, Ochsner Medical Center

2. Extent of Play

Attachment J – Aeromedical Transportation of a Radioactively Contaminated Patient of Radiation Accident Plan will remain in place since this procedure is applicable to the patient transportation from utility. However, Louisiana Peacetime Radiological Response Plan does not include the use of Ochsner Flight Care and it will not be demonstrated.

a. All surgical procedures, X-rays, blood samples, starting of IV's, etc., will be simulated.

b. Ambulance travel times will be simulated.

c. Ambulance will be pre-staged at a location where simulated contaminated patient loading will be demonstrated.

d. The lead controller initiates the drill by contacting the St Charles Ambulance Service and reporting a contaminated injured employee at the Waterford 3 site. (simulated location).

   i. Simulated contaminated patient will be loaded into the ambulance and transported to the Ochsner Medical Center REA.

   ii. If for some reason, the EMS unit is called into service in response to an actual event, the patient transportation will take place using an alternate vehicle.

e. Ochsner Medical Center will be contacted by Lead Controller reporting a contaminated, injured employee being transported to their location from the Waterford 3 site.

   i. The simulated estimated time of arrival (ETA) will allow the hospital to completely mobilize.

f. Information provided by the ambulance crew during transportation of the patient will be provided by cue cards.

g. After approximately 30 minutes, the ambulance will arrive at the hospital entrance with the packaged patient. The patient will be a contaminated injured plant employee.

h. **Correction-on-the-spot**, at the discretion of and concurrence between evaluator and controller, may be acceptable at this location.

D. GENERAL EXTENT-OF-PLAY (EOP)

1. With regard to last minute additions or changes to any previously approved Extent-of-Play, all suggested changes must be forwarded to the RAC Chair for approval.

2. The goal of all offsite response organizations (ORO) is to protect the health and safety of the public. This goal is achieved through the execution of appropriate plans and procedures. It is recognized that situations may arise that could limit the organizations in the exact execution of these plans and procedures.

3. In the event of an unanticipated situation, OROs are permitted to exercise flexibility in the implementation of their plans and procedures in order to successfully achieve the objective of protection of public health and safety and protection of the environment.

4. As a statement of fact, no ORO will deliberately deviate from its plans and procedures with the intent of avoiding responsibility.

E. REFERENCES

1. REP Program Manual Part III: REP Program Demonstration Guidance

III. OBJECTIVES

The following general objectives and guidelines have been developed for the Offsite Drills, which are scheduled as shown below.

A. Ochsner Medical Center – September 7, 2017

1. Demonstrate the capability to alert and fully mobilize personnel for both emergency facilities and field operations.
2. Demonstrate the capability to activate and staff emergency facilities for emergency operations.
3. Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.
4. Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.
5. Demonstrate the adequacy of the equipment, procedures, supplies, and personnel of medical facilities responsible for treatment of contaminated, injured, or exposed individuals.

B. St Charles Parish Ambulance Service – September 7, 2017

1. Demonstrate the capability to communicate with all appropriate emergency personnel at facilities and in the field.
2. Demonstrate the capability to continuously monitor and control radiation exposure to emergency workers.
3. Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals.

IV. GUIDELINES

To define the scope and extent of participation by organizations and participants, the following guidelines are established in order to meet the objectives listed in Section III of this manual.

1. The offsite drills will be conducted as follows:
    a) September 7, 2017
        (1) Medical Drill
2. Participation is limited to St Charles Parish Ambulance Service Staff, Ochsner Medical Center Emergency Room Staff, 1 Waterford 3 Plant Sr. HP Technician and the Drill Control Team. No other Waterford 3 plant staff will participate.
3. Communications between Waterford 3 plant and Ochsner Medical Center are simulated by the Drill Control Team.
4. A St Charles EMS unit will be requested to pre-stage at Ochsner Medical Center at approximately 08:00.
5. A simulated contaminated injured plant employee and a Health Physics Technician are staged at the Ochsner Medical Center at the beginning of the drill.
6. The drill is initiated by the Drill Control Team requesting the dispatch of the St. Charles Hospital Ambulance Service to transport the patient to Ochsner Clinic Foundation. The Drill Control Team then contacts Ochsner Medical Center simulating a report of a medical emergency.
7. All communications are preceded and ended with "THIS IS A DRILL."
8. The simulated medical emergency continues until the patient is decontaminated and treated by the Ochsner Medical Center medical staff.
9. A critique is conducted immediately following the termination of the drill.
10. Drill specific guidelines will be addressed in their individual appendices.

OCHSNER MEDICAL CENTER

ST. CHARLES AMBULANCE SERVICE

V. NARRATIVE SUMMARY

At approximately 07:45 AM, a Mechanical Maintenance Technician at Waterford 3, who has been repairing a leak on the "A" Low Pressure Safety Injection Pump, slips and falls down breaking her left leg below the knee and striking her forehead on a pump support. During the fall, the technician's left leg came into contact with contaminated water collected from the pump.

The Drill Control Team simulates the Control Room response and UNT-007-018, First Aid and Medical Care, is implemented. Response by the Emergency First Aid Team is simulated and primary surveys of the patient are performed

At approximately 08:00, the St Charles Ambulance Service is (simulated) dispatched to Waterford 3 to transport patient to Ochsner Medical Center.

After requesting EMS, the Drill Control Team calls the Ochsner Medical Center to report the simulated medical emergency. The patient's primary survey information (vital signs) is provided.

The EMTs will provide radio updates to Ochsner Medical Center during simulated transportation of the patient.

At approximately 08:30, the ambulance will arrive at Ochsner Medical Center. The patient will be taken into the REA, decontaminated and treated for the simulated injuries. After the patient has been removed from the REA and the proper removal of protective clothing has been demonstrated, the medical drill will be terminated. A critique of the events will be conducted.

Any required x-rays or required samples may be simulated by hospital personnel after demonstrating knowledge of requirements and processes.

(A)VI. SEQUENCE OF EVENTS

TIME	EVENT	DRILL ACTIVITY
07:30-7:45 CC-1	Drill preparations are made.	The Drill Control Team assemble at Ochsner Medical Center. The patient is "made up" and the Drill personnel are briefed.
08:00 CC-2	Drill initiated by the Drill Control Team.	The Drill Control Team notifies the Medical Center that a medical emergency involving a contaminated person has occurred and they will be the receiving hospital.
CC-3	CONTINGENCY	If St Charles Ambulance Service is unable to participate, patient transportation will conducted by alternate vehicle and EMS response will be simulated.
CC-4	CONTINGENCY	If Ochsner Medical Center is unable to participate, the medical emergency drill will be terminated.
08:05 CC-5	Simulated ambulance leaving the WF3 Site	Drill Control Team notifies the Medical Center that the ambulance has left the site and is in route.
08:20 CC-6	Simulated patient transport to Ochsner Medical Center	Ambulance notifies the Medical Center they have 10 min ETA. The patient's condition will not change during transportation to Ochsner Medical Center.
08:30 CC-7	Patient arrives at Medical Center.	The patient is taken to the REA. The hospital personnel decontaminate the patient and begin treatment of the injury.
CC-8	HP Tech Surveys Ambulance	HP Tech surveys ambulance and releases after no contamination found.
CC-9	Doffing PPE	When the patient is ready to be admitted to the hospital personnel will demonstrate doffing PPE.
CC-10	Drill terminated. Critique conducted.	When all objectives are completed the medical response drill will be terminated.

DRILL TEAM ASSIGNMENTS

A. **Ochsner Medical Center MS-1**

Lead Controller – Aaron Ertel
Patient Transfer Controller – Gina Taylor
REA/Medical Controller – TBD
Mobilization/Buffer Zone Controller – Don Vincent

DRILL TEAM INSTRUCTIONS

A. All Drill Control Team members for the Offsite Drill will be briefed by the Lead Controller prior to conducting the drill.

B. All Drill Control Team members will report as follows:

1. Ochsner Medical Center

a. 07:30 September 7, 2017

C. All Drill Control Team members will take accurate, complete notes of the activities observed during the drill.

D. The Drill Control Team will conduct a critique of the drill, with the participants, immediately following the termination of the drill.

E. The Drill Control Team members will debrief with the Lead Controller after returning to the Waterford 3 plant