

Dec 10

FEB 1 1991

Docket No. 50-341

The Detroit Edison Company  
ATTN: W. S. Orser  
Senior Vice President  
Nuclear Generation  
6400 North Dixie Highway  
Newport, Mi 48166

Gentlemen:

We have received the enclosed Federal Emergency Management Agency (FEMA) letter and associated exercise report dated October 4, 1990, transmitting the FEMA Region V report for the February 14, 1990, exercise at the Enrico Fermi Atomic Power Plant Unit 2. This was a partial-participation exercise for the State of Michigan and the Province of Ontario, Canada, and a full-participation exercise for the Counties of Monroe and Wayne.

FEMA identified five deficiencies and fourteen Areas Requiring Corrective Action (ARCA) in the performance of offsite agencies during the exercise. All five deficiencies were corrected in remedial exercises conducted on June 28, 1990 and July 17, 1990. Based on its review of the exercise, FEMA concluded that offsite radiological emergency preparedness is adequate to provide reasonable assurance that appropriate offsite measures can be taken to protect the health and safety of the public living in the vicinity of the Enrico Fermi Atomic Power Plant Unit 2.

We fully recognize that corrective actions to be implemented may involve parties and political institutions which are not under your direct control. Nonetheless, we would expect the subject of offsite preparedness for the area around the Enrico Fermi Atomic Power Plant Unit 2 to be addressed by you as well as others.

Sincerely,

L. Robert Greger, Chief  
Reactor Programs Branch

Enclosure: As stated

See Attached Distribution

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The Detroit Edison Company

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Distribution:

cc w/enclosure:

D. R. Gipson, Assistant Vice  
President & Manager Nuclear  
Production

Patricia Anthony, Licensing

P. A. Marquardt, Corporate

Legal Department

DCD/DCB (RIDS)

OC/LFDCB

Resident Inspector, RIII

James R. Padgett, Michigan Public

Service Commission

Harry H. Voight, Esq.

Michigan Department of

Public Health

Monroe County Office of

Civil Preparedness

Fermi, LPM, NRR



# Federal Emergency Management Agency

Washington, D.C. 20472

OCT 4 1990

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

Dear Mr. Congel:

Enclosed is a copy of the final report for the February 14, 1990 exercise of the offsite radiological emergency response plans for the Fermi II Nuclear Power Plant. The State of Michigan partially participated in the exercise. The Counties of Monroe and Wayne fully participated in the exercise, as well as the Detroit Edison Company. In addition, the Province of Ontario, Canada, participated in the exercise. The exercise report, dated July 24, 1990, was prepared by the Federal Emergency Management Agency (FEMA) Region V staff and a copy has been provided to the State of Michigan.

There were five deficiencies observed during the February 14, 1990, exercise. A remedial exercise was conducted June 28, 1990 to demonstrate those objectives associated with the deficiency identified in Wayne County regarding initial alert and notification. On July 17, 1990, a remedial exercise was conducted to demonstrate those objectives associated with the deficiencies identified in the State of Michigan Department of Public Health. The remedial exercises corrected all five deficiencies. A copy of the remedial exercise reports, dated June 28, 1990, and July 17, 1990, are enclosed and FEMA Region V has provided a copy of the remedial exercise reports to the State.

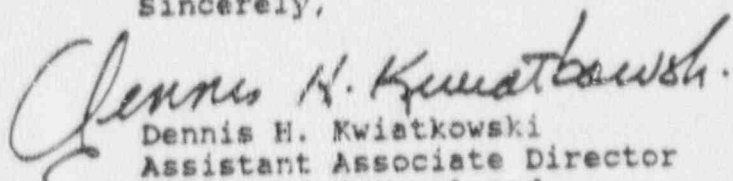
There were fourteen Areas Requiring Corrective Action identified during the February 14, 1990, exercise. The FEMA Region V staff has reviewed the schedule of corrective actions provided by the State of Michigan, dated July 30, 1990, in response to the exercise weaknesses identified. Additional verification of corrective actions will be provided by FEMA Region V during the next exercise for the Fermi II Nuclear Power Plant, now scheduled for June 3, 1992.

~~9010-210-443~~

Based on the results of the February 14, 1990, exercise, as well as the June 28, 1990, and July 17, 1990, remedial exercises, FEMA considers that offsite radiological emergency plans and preparedness are adequate to provide reasonable assurance that appropriate measures can be taken offsite to protect the health and safety of the public in the event of a radiological emergency at the site. Therefore, the Title 44 CFR, Part 350 approval of the offsite radiological emergency response plans and preparedness for the Fermi II Nuclear Power Plant granted on March 9, 1987, continues to be in effect.

If you have any questions, please feel free to contact Craig S. Wingo, Chief, Technological Hazards Division, on 646-2871.

Sincerely,



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

Enclosures



JOINT EXERCISE REPORT  
ENRICO FERMI II NUCLEAR POWER PLANT  
DETROIT EDISON COMPANY

Location of the Plant: Located in the State of Michigan, Monroe  
County, Frenchtown Township, near the  
City of Monroe

Date of Exercise: February 14, 1990

Date of Draft Report: June 14, 1990

Date of Final Report: July 24, 1990

Participants Included: State of Michigan  
(partial participation)  
Monroe County  
(full participation)  
Wayne County  
(full participation)  
Detroit Edison Company and  
Province of Ontario, Canada

PREPARED BY  
FEDERAL EMERGENCY MANAGEMENT AGENCY, REGION V  
175 WEST JACKSON BOULEVARD  
CHICAGO, ILLINOIS 60604

~~9-10790450~~ 7981

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## EXERCISE REPORT

### Introduction

#### 1. Exercise Background

This was the fifth joint exercise for the State of Michigan, Monroe and Wayne Counties, based on a simulated accident at the Enrico Fermi II Nuclear Power Plant. Previous exercises were conducted:

- 1 February 1-2, 1982 (full participation)
- 2 June 26-27, 1984 (full participation)
- 3 October 22, 1986 (partial participation,  
unannounced-off hours)
- 4 May 18, 1988 (partial participation)  
(remedial exercise November 3, 1988)

The second six year cycle ends February 2, 1994.

#### 2. Participating and Non-Participating Off-Site Authorities

The 10-mile plume exposure Emergency Planning Zone (EPZ) of the Enrico Fermi II Nuclear Power Plant impacts primarily on Monroe County and to a lesser extent on Wayne County. The State of Michigan, Monroe and Wayne Counties, the utility, Detroit Edison Company, and the Province of Ontario, Canada; participated in the exercise. A Canadian representative from Ontario was present in the Michigan EOC, Lansing.

#### 3. List of Evaluators

For this exercise there were eighteen Federal evaluators observing off-site exercise activities. The evaluation team was composed of:

FEMA Region V	5
Argonne National Laboratory	6
Idaho National Engineering Laboratory	2
Center For Planning and Research	1
U. S. Department of Agriculture	1
Environmental Protection Agency	1
Department of Energy	2

The evaluator assignments were as follows:

Off-site Exercise Director	Dan Bement, FEMA
State of Michigan	Marcia Smith, FEMA Janet Quissell, USDA Bill Serrano, INEL Ken O'Brien, DOE Sue Nielson, DOE Debbie Arenberg, EPA

Monroe County

Robert Laird, FEMA  
William Knoerzer, ANL  
Carol Lofton, FEMA  
Frank Wilson, ANL  
Tom Carroll, ANL

Wayne County

William King, FEMA  
Rebecca Thompson, ANL  
George Barber, CPR

Joint Public Information Cntr.  
Rumor Control

Edwin Hakala, ANL  
Jacques Metrani, ANL

#### 4. Evaluation Criteria

The criteria used to evaluate this exercise were developed using the "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants" (NUREG 0654/FEMA REP-1, Revision 1). The evaluation modules used for evaluating the exercise are the Exercise Evaluation Methodology (EEM), Interim-Use Document, May 25, 1988.

#### 5. Exercise Objectives

Objectives for the exercise were selected from among the thirty-six standard objectives listed in Guidance Memorandum TX-3 (February 26, 1988). The listing of the objectives selected is contained in Attachment I of this report.

#### 6. Summary Of Scenario

See Attachment II.

#### 7. State and Local Resources Used In The Exercise

Facilities activated during the exercise were: State EOC, Lansing; Monroe County EOC, Monroe; Wayne County EOC, Detroit; Joint Public Information Center (JPIC), Monroe Community College, Monroe; Field Team Center, Michigan State Police/Erie Post; Monroe County Reception/Decontamination, Congregate Care, Emergency Worker Decontamination Facilities.

Full staffing was demonstrated for all EOC positions. Monroe County JPIC personnel demonstrated a shift change. The Reception/Decontamination, Congregate Care Centers did not demonstrate a shift change, but did have staffing lists. Monroe and Wayne Counties simulated siren and EBS activation. EBS message content was coordinated between the two Counties. Rumor control

was demonstrated at the JPIC. Monroe County opened a reception/decontamination center, a congregate care center and an emergency worker decontamination center.

#### 8. Exercise Findings in Past Exercises

During previous Fermi II exercises outstanding weaknesses have been cleared. The May 18, 1988 exercise cited the following weaknesses:

##### Michigan

##### Deficiencies

There were no deficiencies identified for the State of Michigan.

##### Areas Requiring Corrective Action

There were no Areas Requiring Corrective Action identified for the State of Michigan.

##### Monroe County

##### Deficiencies

(1) A complete shift change at one time by the entire executive group contributed to the confusion in the processing of protective action recommendations to the public. NUREG 0654/FEMA REP 1-1, Planning Standard, A.4. (Cleared during the remedial exercise November 3, 1988.)

(2) The mishandling of messages resulted in the failure to provide recommended protective actions to the population in the risk area. NUREG 0654/FEMA REP 1-1, Planning Standard, A.2.a. (Cleared during the remedial exercise November 3, 1988.)

(3) The first EBS message giving protective actions was not complete. It did not contain the physical boundary descriptions of the area requiring protective action. NUREG 0654/FEMA REP 1-1, Planning Standard, E.6. (Cleared during the remedial exercise November 3, 1988.)

(4) The subsequent EBS messages giving protective actions and other emergency information were incomplete or inaccurate. Specifically, the second EBS message also did not contain the physical boundary descriptions. NUREG 0654/FEMA REP 1-1, Planning Standard, E.7. (Cleared during the remedial exercise November 3, 1988.)

##### Areas Requiring Corrective Action

(1) A full shift change was not demonstrated as designed in the



objectives and scenario. NUREG 0654/FEMA REP 1-1, Planning Standard, A.4. (Corrected February 14, 1990 exercise.)

(2) First shift law enforcement personnel in the EOC were unfamiliar with pre-determined traffic and access control points. The Operations Chief assisted the law enforcement personnel by explaining where to locate this information in the plan and how to use the information once located. NUREG 0654/FEMA REP 1-1, Planning Standards, J.10.j., O.4.d. (Corrected February 14, 1990 exercise.)

(3) The bus driver and the public information brochure indicate that St. Charles School would relocate to St. Stevens School in New Boston while the Monroe County plan indicates that the reception school would be the Mason Senior High School which is the reception school for the four schools in the Jefferson School District. NUREG 0654/FEMA REP 1-1, Planning Standards, G.1., J.10.g. (Corrected, plan updated July 1988.)

(4) The Radiological Officer on the first shift provided incorrect information as to the exposure limit which required notification by field personnel. NUREG 0654/FEMA REP 1-1, Planning Standard, K.4. (Corrected November 1988.)

(5) The registration and radiological monitoring conducted at the reception center was not coordinated with similar activities being conducted at the mass care facility. NUREG 0654/FEMA REP 1-1, Planning Standard, J.12. (Corrected November 1988.)

(6) The emergency worker decontamination station was not established at a location identified in the plan. NUREG 0654/FEMA REP 1-1, Planning Standard, K.5.b. (Corrected November 1988.)

(7) Personnel conducting radiological monitoring at the emergency worker decontamination station utilized improper monitoring techniques. NUREG 0654/FEMA REP 1-1, Planning Standards, K.5.d., O.4.c. (Corrected February 14, 1990 exercise.)

(8) The decontamination procedures do not address the preservation of emergency worker dosimetry during the decontamination process. NUREG 0654/FEMA REP 1-1, Planning Standard, K.3.b. (Corrected November 1988.)

(9) FEMA was not informed in advance as to the date and time of the medical drill. (Note: The time and location of the school and emergency worker decontamination demonstrations were not finalized until just prior to and during the exercise.) NUREG 0654/FEMA REP 1-1, Planning Standards, N.2.c., N.3.b., N.3.f. (The 1988 medical drill was held without FEMA evaluation. The medical drill of 1989 was evaluated by FEMA. The 1990 medical drill has not been scheduled.)

## Wayne County

### Deficiencies

(1) Effective emergency worker exposure control was not demonstrated in this exercise. NUREG 0654/FEMA REP 1-1, Planning Standards, K.3.a., K.3.b., K.4.. (Cleared during the remedial exercise, November 3, 1988.)

#### Areas Requiring Corrective Action

(1) Pre-exercise material submitted by the State indicated the first shift JPIC staff would be activated and mobilized correcting the ARCA from the previous exercise. The pre-positioned second shift Wayne County Public Information Officer (PIO) at the JPIC in actuality participated in the initial JPIC media briefings until the first shift PIO arrived at the JPIC. NUREG 0654/FEMA REP 1-1, Planning Standard, E.2. (Corrected February 14, 1990 exercise.)

(2) Wayne County did not sound the sirens (simulated) within the County, simultaneously with Monroe County. NUREG 0654/FEMA REP 1-1, Planning Standard, E.5. (Action repeated (February 14, 1990), to be correct as a deficiency in a remedial exercise June 28, 1990.)

(3) Insufficient information was released in the EBS messages pertaining to ad hoc respiratory protection. NUREG 0654/FEMA REP 1-1, Planning Standard, E.7. (Corrected February 14, 1990 exercise.)

(4) The Wayne County Plan and the Public Information Brochure list different numbers of schools in the EPZ. NUREG 0654/FEMA REP 1-1, Planning Standards, J.10.g., G.1. (Corrected February 14, 1990 exercise.)

(5) Dosimetry at access control points was not observed. In the exercise manual for off-site authorities it was identified that Wayne County would not dispatch personnel to an access control point. Therefore, no evaluation of dosimetry and access control personnel abilities was conducted. NUREG 0654/FEMA REP 1-1, Planning Standard, K.3.b. (Corrected February 14, 1990 exercise.)

(6) The facility used for the exercise, Woodhaven School, is not the facility identified as the primary or alternate reception, congregate care or emergency worker decontamination center in the Wayne County Plan. Additionally, the consolidation of these three activities into a single demonstration made it very difficult to differentiate among the various capabilities being demonstrated. NUREG 0654/FEMA REP 1-1, Planning Standard, J.10.h. (Corrected February 14, 1990 exercise.)

## NARRATIVE

Michigan

Emergency Classification Levels  
Objective 1, Met

The State Emergency Operations Center demonstrated the ability to implement appropriate emergency functions and activities with corresponding emergency classification levels. The State warning point was notified of the Alert at 0745 and immediately activated the call out procedures. The State Emergency Operations Center notified the Counties through direct communications lines which were manned throughout the exercise. Voice transmitted notifications were followed by faxed hard copy to each County.

The utility notified the State of the emergency classification levels. The levels were prominently displayed in the Emergency Operation Center. The notification times of emergency classification levels were: Alert, 0745; Site Area Emergency, 0858; General Emergency, 0948.

Mobilization of Emergency Personnel  
Objective 2, Met

The State Emergency Operations Center was fully staffed and operational within thirty minutes of the Alert notification. The call list was current with staff names and telephone numbers. The alert, mobilization and activation of the State Emergency Operations Center was demonstrated. State field teams were pre-staged. The JPIC staff was alerted and mobilized. The Emergency Operations Center was activated at 0845, seventeen minutes after the arrival of the manager and the Governor's representative. The Monroe County liaison arrived at 0845, and the Wayne County liaison arrived at 0955. Shortly thereafter, the NRC and Canadian representatives arrived. All participants arrived within a reasonable period of time.

Direction and Control  
Objective 3, Met

The ability to direct, coordinate and control emergency activities was demonstrated in the State Emergency Operations Center and Field Team Center. Direction was effectively provided by the Director and Deputy Director of the Emergency Management Division of the State Police. Frequent briefings were given by the Operations Chief. All involved agencies were included in decision making. Directions, decisions and information were documented, and communicated both orally and in writing in a timely manner to all necessary locations. Professional and support staff functioned efficiently and professionally throughout the exercise.

Field Team Center activities included the initial briefing, dispatch, and direction of the State field monitoring teams. The center was manned by at least two staff during the exercise. Resources available in the Field Team Center included 10-mile EPZ maps, field team sampling maps, telephones and radios; and a facsimile machine. The internal record keeping functions performed at the facility were not observed. Based upon the information received by the field teams and the State Emergency Operations Center, the Field Team Center functioned effectively. A single protective action recommendation was received by the Field Team Center during the exercise directing emergency workers to take KI. The Protective Action Recommendation was made at the State Emergency Operations Center at 1017 and was received by the field monitoring teams at 1022.

The State JPIC Manager provided effective direction, control and coordination of functions. He was supported by representatives of the utility, the risk Counties, the Nuclear Regulatory Commission Regional staff, and the Governor's representative. Periodic briefings were held to update the staff on the situation. The staff participated in decision making related to the JPIC operations, preparation of releases, and news media briefings. The JPIC used an internal message handling system which included maintaining a log of messages, their reproduction and distribution. Information was provided in a timely manner with file copies of all messages posted for ready reference. Protective action decisions were reviewed and effectively coordinated prior to inclusion in news releases. The JPIC staff was well organized and worked cooperatively in a professional manner.

#### Communications Objective 4, Met

The ability to communicate with all appropriate locations, organizations and field personnel was demonstrated. The State Emergency Operations Center is equipped with several radio systems and frequencies, numerous commercial telephone lines and dedicated telephone lines to enable the State to communicate with all necessary locations.

Radio contact between field monitoring teams and the Field Team Controller was provided through the State Police radio. The primary radio system had multiple channels available through the State Police, in addition, a back-up telephone was available. The Field Team Center periodically contacted the field teams providing them with information supplied from the State Emergency Operations Center.

#### Facilities, Equipment and Displays Objective 5, Met



The State Emergency Operations Center facilities, equipment, displays and other materials are in place to support emergency response activities. Maps are in place on the walls of the operations room and are easily seen by the staff. Status boards are positioned at the front of the operations room and were kept up to date with key information on emergency activities. The emergency classification levels were placed in a prominent location where they are easily seen. As the classification levels changed they were promptly posted. The operations room is well arranged with tables, chairs, telephones and support materials. Lighting and physical comforts are well controlled.

#### Emergency Worker Exposure Control

Objective 6, Not Met

- Two Deficiencies
- Two Areas Requiring Corrective Action

The field team's response kits were equipped with adequate supplies of gloves, booties, respirators and field sampling supplies. Team members were not consistent in their use of the gloves during sampling and monitoring outside the field survey vehicle. One team member wore no gloves the first time out of the vehicle for sampling, but he did wear gloves the second time. The second team member did not wear gloves either time samples were collected. The first team member wore his gloves back inside the vehicle after his second time out. The trunk of the vehicle did not appear to be well organized. Sampling equipment and supplies were all over the trunk by the end of the exercise. There was no container set up for contaminated supplies and contaminated personal protective clothing.

Area Requiring Corrective Action: Team members were not following prescribed procedures in the use of protective clothing. Gloves were intermittently used and potential contamination was spread when gloves were not disposed of prior to reentering the field vehicle. (NUREG 0634/FEMA REP 1-1, K.3.a., K.3.b., K.4.)

Recommendation: Team members need to review the procedures pertaining to the use of protective clothing in the field when involved in collecting samples.

Area Recommended For Improvement: Better utilization of time and effort could be realized by a more orderly equipment housekeeping procedure in the field vehicle. Containers and supplies became mixed throughout the trunk of the field vehicle. There was no container designated for the disposal of contaminated materials or personal protective items.

Respirators were available for each team member. Team members recently received training and fit-testing. The support team member (the Michigan State Trooper) had a respirator, but had not



received recent training or fit-testing. One of the team members had a personal respirator, was trained and fit-tested. He had a beard so he was unable to wear the device correctly.

Area Requiring Corrective Action: There is no written policy or procedure for respirator use in the field team manuals. The support personnel (State Trooper) had not been recently trained or fit-tested and one of the team members had a beard, so, he was physically unable to wear the respirator correctly. (NUREG 0654/FEMA REP 1-1, K.3.a., K.3.b., K.4.)

Recommendation: The State should define their policy on respirator usage. They should develop written procedures to give instructions to the staff on when to use them, how to use them (put them on properly) and be sure that all team members are physically able to wear them.

Each team member was issued two self-reading dosimeters, one 0-20mr and one 0-10R. Team members did not have written procedures in the field team kits to guide them in recording, recharging and zeroing dosimeters. Recharging would be necessary based upon the allowable exposure limit of 25R for non life-saving emergency activities. Personal record keeping sheets were available and prepared for each team member. Exposures were not recorded during the exercise as required by procedures.

Deficiency: The State did not issue a self-reading dosimeter that would record exposures as high as the allowed emergency worker exposure of 25R. There is no written procedure available for team members to know when to record, recharge or zero the 0-10R dosimeter they were issued. (NUREG 0654/FEMA REP 1-1, K.3.a., K.3.b., K.4.)

Recommendation: The State should issue self-reading dosimeters that will record exposures of 25R or provide written procedures for team members defining when to record, recharge or re-zero the 0-10R dosimeters.

The State field laboratory equipment included a TLD Reader. Procedures for its use are included in the field van's SOP manual. The Reader is not calibrated and there are no procedures for calibration. The Reader is not included nor involved in a National Certification Program such as NVLAP. The field staff, therefore, could not demonstrate a correlation between the equipment's read out and the radiation exposures incurred by field team members.

Deficiency: The State's field laboratory TLD Reader is not properly cal. rated and is not involved in a national accreditation program, i.e. NVLAP. The laboratory analysts could not correlate the read out radiation exposure of emergency workers. (NUREG 0654/FEMA REP 1-1, K.3.a., K.3.b., K.4.)

Recommendation: The State should develop a program and written procedures for calibrating the TLD Reader and become involved in a national accreditation program, i.e. NVLAP, for their TLD emergency worker program (Reader, etc.).

Field Radiological Monitoring - Ambient Radiation Monitoring  
Objective 7, Met

The field team monitoring kits included a Bicron, Surveyor 2000 with bullet probe and pancake probe to measure beta-gamma levels. (The kits also included a Bicron Microanalyst for beta-gamma measurements.) The kits included a CDV-715 to measure high-range gamma levels. The teams had access to battery spares in their kits and equipment spares from the equipment van. The teams performed battery checks on equipment before deployment, though they had no written procedures advising them what source checks meant. Most instruments showed evidence that they were within their calibration period. Team members properly monitored air and ground radiation levels. Results of ground monitoring were not recorded by the teams or relayed back to the Field Team Center consistently. This data would have been useful to the State's dose assessment staff (assessing whether or not there was ground contamination). Revisions should be made to the field team's data report forms to include a space to record ground measurements.

The teams kept the G-M probes enclosed in plastic bags while in use. They promptly transmitted three foot readings to the Field Team Center after they performed air iodine/particulate measurements. Team members deployed during the exercise were either familiar with the area or had maps available indicating the location of sampling points and routes. The maps used by the field teams were well thought out and well detailed.

Area Recommended For Improvement: The results of ground monitoring activities were not recorded by the teams or relayed back to the Field Team Center. The State should consider revising the field team report forms to include a space to record the ground measurements made by the teams. This will help the State assess whether or not there is ground contamination.

Field Radiological Monitoring - Airborne Iodine Monitoring  
Objective 8, Partially Met  
- One Deficiency

The field team used an air sampler equipped with battery cables and a GM Counter pancake probe. The team said they had a silver based absorber available in the kit. The first time the team began taking the air sample they did not have a cartridge filter in the air sampler, and the flow rate, as a result of this, was too high. The sample duration as specified in the procedures is not long

enough to allow the measurement of radioiodine at the specified concentration of  $10^{-7}$  uCi/cc. The samples were bagged and labelled with time, date, location, and identification of the sampling team. The field team left the plume and travelled to a low background area before attempting to count the air sample media. The counting instrument was within calibration. A fixed geometry was used to count the air sample media and the count rates were transmitted promptly by radio to the Field Team Center. The first sample was not counted in the proper configuration as the team counted the cartridge before putting it in a plastic bag (it was counted just laying in their hand).

Deficiency: Air iodine concentrations were measured by State field teams using portable battery powered sampling equipment and simulated silver zeolite cartridges. Two samples were observed and the counting methodology was not consistent between the two samples. Field personnel were unfamiliar with set up procedures, and the handling and field counting of the cartridges. The procedure was deficient in the sampling time and expected flow rate formula. The present procedure will not allow detection of iodine concentrations at the level required by NUREG 0654/FEMA REP 1-1. (NUREG 0654/FEMA REP 1-1, I.8., I.9.)

Recommendation: Field teams should be trained to follow procedures for performing radioiodine air sampling.

Field Radiological Monitoring-Particulate Activity  
Objective 9, Met  
- Three Areas Requiring Corrective Action

Air particulate samples were obtained by State Field Teams using a portable air sampler and a sampler holding device. The filters were transferred from the sampling device to a holding envelope using a tweezer. The filters were then placed in a baggie with the simulated silver zeolite cartridge. The baggie was closed using a labeled tag. Cross contamination control was not exercised during this process through the cleaning of the tweezers between samples. Particulate filters were transported to the mobile laboratory by the field staff. Particulate filters were logged and analyzed by the field laboratory according to pre-defined procedures. The overall process does not provide for adequate sample tracking during sample analysis and storage, a dedicated location for the storage of hot and/or analyzed samples or the disposal of contaminated wastes. Sample results developed by the laboratory are recorded on forms. The SOPs do not identify to whom the results should be reported or the procedures of reporting. The lab staff were able to reason out the expected reporting chain.

Area Requiring Corrective Action: Sample cross contamination control was not demonstrated by the field teams during the particulate sampling process nor by the field and mobile lab staff



during the sample exchange process. (NUREG 0654/FEMA REP 1-1, I.10., H.12.)

Recommendation: The State should incorporate sample cross contamination control measures into the particulate filter sampling and field-laboratory sample exchange processes/procedures.

Area Requiring Corrective Action: The operating procedures for the mobile laboratory do not address sample tracking, sample storage for hot and analyzed samples, disposal of contaminated materials and general contamination control within the lab. (NUREG 0654/FEMA REP 1-1, I.10., H.12.)

Recommendation: The laboratory's SOPs should be augmented to include procedures addressing sample tracking, sample storage of hot and analyzed samples, disposal of contaminated materials, and general contamination control within the lab.

The State field monitoring teams were composed of two staff members each from the Department of Public Health. Joining the field teams for the purpose of the exercise was a controller from the Fermi 2 plant. The field teams rode in State Police vehicles, with a trooper who was driving. Team members were pre-positioned at the Erie State Police Post. Team leaders were briefed on current plant and meteorological conditions, backup communications, use of KI, and decontamination procedures prior to deployment. The State should develop a checklist for the pre-deployment briefings of team members to ensure all necessary items are addressed in a consistent manner. Procedures identifying the individual responsible for the briefings and content were developed since the previous exercise.

Each team reviewed the contents of their instrument and supply kits against inventory sheets maintained in the kits. Equipment included in the instrument kits was checked by each of the teams, however a written procedure defining acceptable instrument parameters is not included in the kits. For example, teams used a check source to see if instruments were working, but did not know if the response they saw was adequate - i.e. did not know if instruments were working properly. The state should develop an equipment check out procedure for inclusion in the kits and field team manuals. (This was an ARCA in the previous exercise.) Department of Public Health field team members are alerted by a 24-hour duty officer. Call lists of the staff are updated regularly.

Area Requiring Corrective Action: Procedures for field equipment checks have not been developed for use by the State field teams. Team members are unaware if instruments are working properly, because they are unaware of the expected response from the check source. (NUREG 0654/FEMA REP 1-1, I.10., H.12.)

Recommendation: The State should develop written standard operating procedures for field equipment checks. These procedures

should be incorporated into the field team manuals.

Area Recommended for Improvement: Team members were briefed before deployment, but personal notes were used by the briefer. The State should consider developing a checklist for the pre-deployment briefing of team members to ensure all necessary items are addressed, and that there is consistency if there is a personnel change.

Plume Dose Projection  
Objective 10, Met

The dose assessment staff at the State Emergency Operations Center demonstrated the ability to project dosage via the plume exposure pathway using both plant and field data. The five member team has two members dedicated to receiving input from the plant and the field teams, two members dedicated to making the dose calculations, and the fifth team member was responsible for the overall effort including providing protective action recommendations to the decision making body at the State Emergency Operations Center. A lap top computer is used to perform the dose calculation and the system is backed up with an identical system. If both systems fail, the capability exists to perform hand calculations. The plant status, release rates, and met data are received and used in the calculations to project the off-site dose rates. These off-site data are adjusted based on input received from field team measurements which is used to back calculate a source term to refine or adjust the projected dose rate values.

Plume Protective Action: Decision Making  
Objective 11, Met

The dose assessment staff at the State Emergency Operations Center demonstrated the ability to provide protective action recommendations to the decision making staff. The protective action recommendations were based on results of projected whole body and child thyroid dose calculations using plant release and meteorological data. The projections were supported using results of measurements by field teams. The protective action recommendations were based on the protective action guides.

Alert, notification and Emergency Information - Initial Alert and Notification  
Objective 12, Partially Met  
- One Area Requiring Corrective Action

The ability to initially alert the public and disseminate an instructional message is a County function. The decision to initiate the prompt alert and notification system was demonstrated



at the State Emergency Operations Center. Protective action recommendations were developed through a coordinated staff effort and transmitted to County Emergency Operation Centers for implementation. The State Emergency Operations Center failed to track the status of the Counties implementation of the protective action recommendations. The County Emergency Operations Centers sent status report messages to the State with the status of different activities at regular intervals. An open direct phone line was maintained with both Counties throughout the exercise which is common practice. The Monroe County message to the State indicated siren and Emergency Broadcast Station activation at each recommendation, however Wayne County did not transmit this information at anytime. Consequently Wayne County, through an administrative error, took over one hour to activate sirens and the Emergency Broadcast Station for the County.

Area Requiring Corrective Action: The State Emergency Operations Center failed to effectively track Wayne County's activation of the prompt alert and notification system. Over one hour elapsed before Wayne County activated the sirens and Emergency Broadcast Station for the General Emergency. (NUREG 0654/FEMA REP 1-1, E.5., E.6., E.7.)

Recommendation: The County's activities should be tracked more closely in the State Emergency Operations Center through use of checklists or status boards.

Alert, Notification and Emergency Information - Public Instructions  
Objective: 13, Met

The State Emergency Operations Center coordinated information recommendations for the County and Joint Public Information Center dissemination. Hard copies of Emergency Broadcast Station messages and Joint Public Information Center press releases were faxed to the State Emergency Operations Center. The JPIC issued five news releases over the course of the exercise at the following times: #1 - 0945, #2 - 1017, #3 - 1225, #4 - 1420, and #5 - 1613. The staff had access to current, accurate and timely information from their respective EOCs/EOF and from the EBS messages. Pre-scripted messages were used as a base for news releases along with information provided by the representatives at the JPIC. All affected sectors were described in terms of familiar landmarks and boundaries. In news release #2 the content of the release was correct (the General Emergency ECL), but the attachment provided was for a Site Area Emergency EBS. It was caught and corrected immediately. There was no observed radio or television monitoring to track information provided to the public. The JPIC representatives sent information (press releases, etc.) to the EOCs/EOF so that they would be aware of what was being presented to the media. Press releases and results of press interviews were coordinated with other spokes persons during the "round table"

discussions prior to release or briefing.

Area Recommended For Improvement: Consideration should be given to monitoring EBS broadcasts to see if they accurately reflect the material released through press releases.

Alert, Notification and Emergency Information - Media  
Objective 14, Met

The JPIC staff demonstrated the ability to brief the media in a timely, accurate and coordinated manner. Four briefings were held for the media at 1030, 1230, 1430 and 1600. Representatives from the following organizations served as the briefing team: Michigan State Police, as JPIC Manager; Governor's office; State Department of Health; Detroit Edison Company; Monroe County Civil Preparedness Office; Wayne County Emergency Management Office; and the U.S. Nuclear Regulatory Commission (NRC). The NRC representative was present for one briefing. Representatives of both counties participated in briefings. All staff had access to current, accurate and timely information through review of reports, messages and releases, conferences and individual consultation with each other. Briefings were held at the JPIC, in an area of the Monroe Community College cafeteria eating area. Due to requirements for construction of a new JPIC operations work area, it was essential that for this exercise part of the briefing area be curtained-off for cafeteria customers. Though a higher than normal noise level was evident, it did not materially detract from the briefings. Pre-scripted information was used for media briefings. An issue of concern was the determination of which reception centers were open in Monroe County, as noted in the JPIC release based on Monroe County input. This was resolved in the subsequent briefing, but the error remained in news releases.

Area Recommended For Improvement: An inconsistency was observed during a briefing, between announced and printed news release locations of Monroe County reception centers. It is recommended that public information procedures be reviewed to assure that material used for media briefings is correct and accurate. Normally this would require contact of the Monroe County EOC by the Monroe County public information liaison at the JPIC. This should be accomplished before the "round table" pre-briefing conference at the JPIC.

Area Recommended For Improvement: Media briefing displays often need to be changed during presentations. It is disruptive for the briefer to have to do this. It is recommended that a staff member be assigned to assist in changing or moving displays as required during briefings.

Alert, Notification and Emergency Information - Rumor Control

Objective 15, Met

See narrative for Monroe County Objective 15.

Use of KI

Objective 16, Partially Met

- Three Areas Requiring Corrective Action

Radioprotective drugs (KI) are available to the State field monitoring staff in the emergency kits. The KI is in tablet form and has an expiration date of October 1990. The decision to recommend the use of KI during the exercise was made by the State Department of Health at 1017, in the State EOC. The decision was based upon plant conditions, the presence (unquantified) of iodine in the plume, and the need for lead time for the drug to be effective prior to exposure. The basis for the decision was not in accord with the State's emergency plan. The protective action recommendation was relayed to the State field staff via the Field Team Center (FTC) at 1022. Actions taken in response to the recommendation were not recorded by the field teams or back to the FTC. Additionally, one group of field staff independently decided to simulate taking KI at 0930, prior to the State's recommendation. This action was also neither recorded nor reported to the FTC. Discussions with the field and FTC staffs indicated the absence of State policy on the functioning/assignment of personnel to field positions who are either allergic to, or refuse to take KI. Field staff were unsure of their potential reaction to taking KI.

Area Requiring Corrective Action: The decision to recommend the use of KI by State emergency workers was made based upon criteria different than indicated in the State emergency plan. The criteria did not consider the benefit versus risk of taking KI as is incorporated into the FDA's PAGs. (NUREG 0654/FEMA REP 1-1, J.10.e., J.10.f)

Recommendation: The State should revise its procedures associated with the use of KI to ensure that the decision is based upon a benefit versus risk assessment such as included in the FDA's PAGs.

Area Requiring Corrective Action: The State's policy on the use of KI r emergency field staff was not well understood by field team members. One of the field groups simulated the taking of KI prior to receiving the recommendation via the FTC. Additionally, actions taken in response to the recommendation were not recorded by the FTC or the field staff. (NUREG 0654/FEMA REP 1-1, J.10.e., J.10.f)

Recommendation: The State should clarify its policy on the administration of KI to all staff involved in the decision making process and to those individuals who may potentially take KI. The policy and procedures for its implementation should be documented



in the field team manuals.

Area Requiring Corrective Action: The State's policy for the use of KI by emergency personnel does not address the issue of personnel allergic to, or who refuse to take KI. The State has not assessed the impact this issue may have upon their response capability. (NUREG 0654/FEMA REP 1-1, J.10.e., J.10.f)

Recommendation: The State's policy on the use of KI should be expanded to address the issue to personnel who are allergic to, or refuse to take KI. The impact of the State's policy in this area should be assessed. The policy and procedures for its implementation should be documented in the field team manuals.

#### Use of KI - General Population Objective 17, Met

The State has taken the position that potassium iodide will not be issued to the general public. Precautionary measures to protect the health and safety of the general public will be taken well in advance of potential health threats to the general public. Precautionary measures include, but are not limited to sheltering in place and evacuation. The State Health Department representative in the State EOC discussed the State's policy with the evaluator.

#### Implementation of Protective Actions - Plume EP2 Objective 18, Met

In the State Emergency Operations Center the Social Services personnel assisted the American Red Cross in staffing the five reception/decontamination and congregate care centers opened in the affected area. Implementation of protective actions was demonstrated consistent with the State Emergency Operations Plan and procedures.

#### Implementation of Protective Actions - Evacuation of Schools Objective 19, Met

The protective actions of sheltering and evacuating school children were determined by key staff in the State Emergency Operations Center when the decision to shelter and evacuate the general public was made. Monroe and Wayne Counties simulated the evacuation of school children upon notification from the State. Due to the severe weather, school interviews were modified. See narratives under both Counties.

#### Traffic Control Objective 20, Met

The ability to control evacuation traffic flow and access to evacuated and sheltered areas is a County responsibility. State Police personnel in the State Emergency Operations Center assisted with manpower and equipment. Activated traffic control points were tracked by State Emergency Operations Center staff. Communication links with County law enforcement were well coordinated.

#### Decontamination

Objective 25, Not Met

- One Deficiency

The State identified the Erie State Police Post in Erie, Michigan as the site for decontamination of State Department of Health and law enforcement personnel involved in the exercise. Specifically, the garage and shower areas of this building were used. These areas were not large enough to accommodate the number of emergency workers that could be expected. There was only one small shower. The parking lot was large enough to separate clean and contaminated vehicles. Personnel monitoring of field staff and vehicles was demonstrated at an outdoor hot-line set up at the Erie State Police Post. The monitoring process was not adequate. The personnel and vehicles were scanned too quickly and not thoroughly. The instrumentation used was a G-M Counter with a pancake probe which was adequate. However, there was no evidence that this instrument was calibrated - no calibration sticker. The triggering point for decontamination was known by the decontamination staff, but when contamination was found, no record was made. Written procedures for personnel monitoring and decontamination have been developed, but certain parts of the procedures are not adequate (showering). Detailed procedures are not available to decontamination staff. Beyond general showering, staff were not aware how to decontaminate a specific area of the body, though these procedures are available in the plan. Cross contamination would occur with the system that was demonstrated. There was no clear delineation between clean and contaminated areas though small aspects of this were thought out. The shower identified for decontamination was located some distance from the garage, and the State attempted to keep the area between these two places clean by instructing contaminated personnel to dress in clean clothes before traveling to the shower. There was no attempt to keep the shower area or the garage area controlled. The procedure directing male/female staff to disrobe in the garage area is impractical. A private area could easily be set up. Actual decontamination of personnel, equipment and vehicles was not demonstrated during the exercise.

Deficiency: The procedures developed to demonstrate decontamination of personnel and equipment were not adequate. They were not comprehensive enough to enable the staff to perform the decontamination process. Personnel were unfamiliar with all aspects of procedure implementation. Once adequate procedures are



developed, the facility itself needs to be evaluated for adequacy.  
(NUREG 0654/FEMA REP 1-1, K.5.a, K.5.b.)

Recommendation: The State develop adequate procedures and train staff to ensure that field personnel and equipment will be properly decontaminated. Records should be kept on contamination observed and successful decontamination.

Supplementary Assistance (Federal/Other)  
Objective 26, Met

The identification and request for Federal assistance was demonstrated during both the plume and ingestion portions of the exercise. A request was transmitted to FEMA through the Nuclear Regulatory Commission representative to activate the FRMAC. A request for fly-over monitoring was made to the Department of Energy. The need for equipment, personnel and capability of Federal response was identified correctly.

Ingestion Exposure Pathway - Dose Assessment  
Objective 29, Met

The ingestion pathway portion of the exercise did not require field team activities nor review of the lab. Consequently, none of the lab data were required to be phoned in or transmitted to the State Emergency Operations Center. The lab analysis data for soil, forage, stored feed, surface water, and milk were delivered to the State Department of Health at the State Emergency Operations Center. From these data the staff indirectly converted the field data to dose projections. Actually the deposition values on soil or concentrations in forage and milk are compared to Food and Drug Administration derived response levels which are tantamount to dose. Consequently, this comparison is an indirect comparison to dose. The staff gave an excellent demonstration of their ability to convert the field data to a format for ease of decision making.

Ingestion Exposure Pathway - Protective Action Recommendations  
Objective 30, Met

The ability to implement both preventative and emergency protective actions for ingestion pathway hazards was demonstrated in the State Emergency Operations Center by the representatives of: the State Department of Agriculture, Radiation Health, Public Health, Natural Resources, Transportation, State Police and the Governor's Office. In this partial participation ingestion pathway exercise the activities of decision making, protective action decisions and public information were demonstrated. The State Department of Agriculture's Emergency Coordinator issued an agricultural advisory at 1003, soon after the General Emergency declaration, for the

preventative protective action of: sheltering dairy animals and other livestock, feeding livestock stored hay and grains and providing well water, soon after the General Emergency declaration. This advisory was for the Monroe County Townships of Frenchtown, Berlin and Ash. In addition, a second advisory issued at 1000 was addressed to commercial food retailers, processors, wholesalers and animal feed establishments in the Monroe County Township of Frenchtown, Berlin, and Ash, and the Wayne County Townships of Brownstown and the cities of Flintrock, Gibraltar and Rockwood to protect food and feeds stored on the farm.

From the food and feed resource lists, forty food and feed facilities, and three dairy herds were identified in the 10-mile EPZ sectors R, A and B. The lists include the names, addresses and telephone numbers and would be used to send sampling teams to these facilities to collect samples.

At 1342 the <sup>e</sup>deescalation of the emergency occurred and a 24-hour time step in the scenario was initiated. The agencies in the State Emergency Operations Center engaged in a table top discussion of the issues to address the recovery, re-entry and ingestion pathway considerations based on the measured radiological deposition of the emergency. The table top discussion included emergency protective actions of embargoing, and disposal of food having contamination. Emergency livestock feed and re-entry into the area by farmers to care for livestock was discussed. A telephone number was issued for assistance and information regarding the advisories and concerns of the agricultural committee.

## Monroe County

### Emergency Classification Levels Objective 1, Met

The Monroe City/County Central Dispatcher received the Alert emergency classification level (ECL) at the 24-hour warning point, over telephone at 0758. It was verified at 0759 with the receipt of a faxed copy of the notification form from the utility. Call out procedures were initiated at 0801. Once the Monroe County EOC was staffed and activated, ECLs were upgraded and various emergency agencies responded with the implementation of County plans and procedures.

### Mobilization of Emergency Personnel Objective 2, Met

After verifying the Alert ECL, the Monroe City-County Central Dispatch Supervisor initiated call-out procedures. The central dispatch is the communications focal point for all City and County emergency functions. The County Sheriff, City Police and local Fire Departments and all ambulance services are dispatched from this location using telephones radios, and pagers.

All initial responders were contacted by telephone or pager within thirty minutes. Once the Monroe County EOC was staffed and activated, reception and decontamination centers were opened and traffic control points established and manned.

### Direction and Control Objective 3, Met

The Operations Officer, guided by the Chief of Staff, coordinated the function of the EOC on behalf of the County Board Chairman, who was in charge. Appropriate EOC staff were involved in the decision making process. Message logs were kept and messages were delivered to the cognizant staff in a timely manner. The issuance of protective actions involved the appropriate EOC staff. The County emergency operations plans were referenced as the EOC officials made decisions.

### Communications Objective 4, Met

Various communications links at the Monroe City-County Central Dispatch are available. Phones are the primary link; radios and pagers are backups. At the Central Dispatch there are three consoles; two are identical and a third console can tone alert fire departments and normal emergency radio frequencies on the other two consoles. EOC messages are phoned to the Central Dispatch. The

Monroe County EOC has a direct telephone to the EBS Station (WJR). Sirens are activated from the Monroe County EOC, and can also be activated from the Central Dispatch point.

Facilities, Equipment and Displays  
Objective 5, Met

The Monroe County EOC is located eleven miles from the Fermi II plant in the Monroe County Office of Civil Preparedness Building. The main operations room is spacious, well lighted and has sufficient work-space to accommodate twenty plus emergency response positions. Each position has a telephone. Adjacent to the operations room is the communications room with radios, RACES, additional phones and fax machine.

Emergency Worker Exposure Control  
Objective 6, Met - Previous ARCA, Cleared

The County Health Department staffs the Radiation Officer position at the EOC and is responsible for the inventory and distribution of dosimetry to County emergency workers. The inventory and distribution of dosimetry occurs at the Health Department's main office. From that location, packaged TLDS, CDV-742s and CDV-138 SRDs and record keeping cards with dose level information are distributed to emergency workers. Chargers are available. Initial readings are recorded on the record keeping card and then subsequent half hour readings are also recorded.

Alert, notification and Emergency Information - Initial Alert and Notification  
Objective 12, Met

The County received the PAR messages from the State representative in the County EOC and immediately followed County plan procedures. The first and each succeeding message was completed within 15-minutes. The EBS radio station was contacted by telephone and pre-scripted messages were faxed to the station for the station personnel to read over the air. Sirens were not sounded, nor were EBS messages actually broadcast. Pre-scripted messages were used to fax to the EBS station, and when required, additional information was hand written in the blanks provided for this information within the message. The sounding of the siren (simulated) was coordinated with the radio station and the radio station rebroadcasted the messages (simulated) as described in the plan.

Alert, Notification and Emergency Information - Public Instructions  
Objective 13, Met



The procedure of disseminating public instructions was accomplished efficiently and in a timely manner. Procedures were followed and the Chief of Staff tracked the message through the system. The Michigan liaison in the County EOC clearly announced each of the messages to be released to the public. Upon receipt of each message, the Chief of Staff immediately initiated steps to inform the public. Copies of all public notification messages were faxed to the State EOC and the JPIC. Message logs were kept and well maintained. The monitoring of EBS message broadcasts was simulated by the EOC staff. The procedures and the sequence of events to disseminate public instruction were explained to the evaluator. The system described worked effectively and with no hesitation.

Area Recommended For Improvement: Greater control of the message process would be provided if the Chief of Staff or an appointed staff member followed all messages through the system until they are broadcast. Presently, if information or specific facts were erroneously disseminated to the public it would remain unknown until it was broadcast over the EBS station.

Alert, Notification and Emergency Information - Media  
Objective 14, Met

See narrative under the State, Objective 14.

Alert, Notification and Emergency Information - Rumor Control  
Objective 15, Met  
- One Area Requiring Corrective Action

The rumor control system in the JPIC was staffed and supervised by volunteers from Monroe County. They had been trained by the utility. Five telephone lines were utilized for rumor control during the exercise. The telephone numbers were publicized during the press briefing, (posted in viewing range) and are in the public information brochures. The telephones were staffed by rumor control staff throughout the exercise. One additional person was utilized to secure responses to inquiries, to facilitate responses to rumors, and to distribute the information to the rumor control staff.

The rumor control staff had to wait for the "official hard copy" before relating the information to callers. A delay was observed during the General Emergency when evacuation was ordered and EBS broadcasts were aired instructing the population to evacuate and callers were being told to shelter. The staff had correct information, but could not relay it due to lack of "official hard copy". Furthermore, the staff was often provided information which was not clear or precise (i.e., messages contained more information than needed and were unreadable or not understandable). Rumor



control staff requested they be provided with "more and better" information. A status board and rumor control staff briefings could alleviate some of this problem. Some rumor control staff exhibited a need for additional training.

**Area Requiring Corrective Action:** The telephone answering staff of the rumor control function had to wait for the "official hard copy" of information before providing current accurate information to callers. This placed the telephone staff in the position of giving out information which had been superseded by the progress of events. In some instances the information given to callers did not accurately reflect the current protective actions. (NUREG 0654/FEMA REP 1-1, G.4.c.)

**Recommendation:** Place a priority on the distribution of information to the rumor control function. The posting of information on a status board and an emergency classification level placard would assist in getting information to telephone answering staff.

**Area Recommended For Improvement:** The rumor control staff was given more information than they require to perform their function. They should be given copies of EBS messages and press releases to perform their responsibilities.

#### Implementation of Protective Actions - Plume Objective 18, Met

The responsible EOC official had up-to-date phone lists and resources available to assist individuals who might need transportation or other assistance. The fire, EMS transportation and the Health Department representatives were fully aware of their responsibilities and had their procedures ready to perform the necessary tasks. They simulated their tasks by discussing them with the evaluator as the scenario did not drive this objective.

**Area Recommended For Improvement:** Future scenarios on controller messages should drive objective 18.

#### Implementation of Protective Actions - Evacuation of Schools Objective 19, Met - Previous ARCA Cleared

Schools were closed due to a winter snow/ice storm. Therefore, a teacher and bus driver were not interviewed. Interviews were conducted with the Monroe Public Schools Deputy Superintendent, the transportation director and the Principal of Lincoln Elementary School.

Primary means of communications between the EOC and the school administration building is commercial telephone. A radio base

station is located at the high school. Bus drivers can be contacted by telephone and/or radio. Each bus has radio contact with the dispatcher over one of three channels; two channels are for administration and operations. Bus drivers are issued TLDs and two self reading dosimeters along with a record keeping card and instructions.

Monroe County has a three tier evacuation program. The first tier has 47 buses for eight schools nearest the plant (2,505 students), the second tier has 58 buses for nine schools (2,995 students), and the third tier has 41 buses for three schools (2,262 students). The Monroe Public Schools have evacuated all their students on two occasions. The first evacuation was 1987 when all the students were bused to the high school for a drug awareness program. This evacuation took two bus runs over approximately 45 minutes. The second school closing was December 19, 1989 when the public water supply was closed due to Zebra crustacea clogging of the main water supply from Lake Erie. This school closing took approximately two hours. Eighteen students were ultimately taken to a school with a water supply until parents picked them up.

#### Traffic Control Objective 20, Met

The County Sheriff coordinated and established thirty simulated traffic and access control points. The Michigan Department of Transportation (MDT) simulated the salting of evacuation routes designated by the Sheriff's Department. The MDT coordinated and manned the traffic and access control points with personnel from two Michigan State Police (MSP) Barracks, Monroe City Police and members of the Sheriff's Department.

#### Relocation Centers - Registration, Monitoring, and Decontamination Objective 21, Met - Previous ARCA Cleared

The procedures, facilities, equipment and personnel for the registration, monitoring and decontamination of evacuees was demonstrated at the relocation center by the staff of the Monroe County Health Department, Summitfield Township Fire Department and the Red Cross. Each emergency worker was provided with a TLD, a CDV-138 and one CDV-742. All activities were performed in a professional manner by knowledgeable trained staff. The facility and parking area were properly prepared to assure segregation of contaminated and clean individuals, and vehicles.

#### Relocation Centers - Congregate Care Objective 22, Met

The facilities, equipment and personnel for congregate care of

evacuees was demonstrated at the Summerfield School. The facility is spacious and could accommodate 300-600 evacuees. The facility was staffed by Monroe County Health Department, Summerfield Township Fire Department, Monroe County Department of Health and Human Services and the local Red Cross and RACES. Good leadership was exhibited. Communications were carried out using commercial telephone and RACES radio network. The Red Cross was prepared with equipment, supplies and personnel to operate the congregate care center on a 24-hour per day basis. The Red Cross Center Manager was knowledgeable and possessed leadership qualities.

Immediate food supplies are available through the school cafeteria. Additional needs would be supplied through Red Cross sources via agreements with area vendors and merchants; some with 24-hour capabilities. A nursing station would be manned by Red Cross volunteers and health department personnel, crises counseling is available through health department resources.

#### Decontamination

Objective 25, Met

- Three previous Areas Requiring Corrective Action cleared

Monitoring and decontaminating Monroe County emergency workers, vehicles and equipment was performed at the Monroe County Fairgrounds. Upon entering the Fairgrounds, emergency workers are directed to the monitoring area. Vehicle passengers are directed to the reception center building, while the drivers stay with the vehicle. A monitoring team from the Monroe City Fire Department monitors the vehicles. The monitoring instruments used were calibrated in June 1989. If the vehicle is found clean, it is directed to the "clean" parking lot. A screening of the driver is performed at this point.

If the vehicle is contaminated, it is driven to the parking lot for contaminated vehicles. The action level to determine if a vehicle is contaminated is 0.1 mCi/hr above background. Vehicles are decontaminated when directed by the County Health Officer.

Radiation monitors wore the proper protective clothing. Monitoring procedures were good. It took approximately nine minutes to monitor one vehicle.

Emergency workers are monitored as they enter the reception center. A detailed personal monitoring procedure was demonstrated. It took the monitor approximately 90 seconds to monitor one worker. The action level to determine if a worker needed to be decontaminated was 0.1 mCi/hr above background. If emergency worker contamination levels are above the action level, the workers are directed to the decontamination area where they shower and are re-monitored. If contamination cannot be removed they are sent to a designated







## Wayne County

### Emergency Classification Levels Objective 1, Met

The Wayne County coordinator and his staff followed procedures and demonstrated their knowledge, understanding and ability to implement appropriate actions in a timely manner upon receipt of each ECL. The County was notified of the initial ECL (Alert) at 0825. The following ECLs: Site Area Emergency (SAE) at 0858 and General Emergency (GE) at 0910 were transmitted to the County by the State liaison via the "hot line" and followed by a hard copy message. The State liaison, as well as the coordinator, orally announced to the EOC staff all changes in the ECLs. The correct ECLs were displayed on the status board and on a sign conspicuously located on the wall next to the status board.

### Mobilization of Emergency Personnel Objective 2, Met

Mobilization of the Wayne County EOC staff was timely and effectively carried out. Mobilization commenced upon receipt of the Alert ECL when the first call was initiated. The Emergency Management Director ordered mobilization of the EOC at 0810. Calling responsibility was divided among the Director, Deputy Director and Sheriff personnel using an updated roster. Calls were completed by 0830. The first EOC staff members (other than those already in the facility at the time of the Alert) were in place by 0900. In addition to personnel from Wayne County, liaison persons from the Michigan State Police and Brownstown, Redford, Rockwood and West Rock were present. There were fifty-six County and liaison people admitted to the EOC area between 0840 and 1001. A number of operating positions in the EOC were backed up or replaced during a shift change. A shift change was not required to be demonstrated in this exercise. Positions in the EOC included personnel from County Health and Social Services, Red Cross, Medical, public works, Sheriff, Fire, Police, Airport Security, County Executive and radiological services.

### Direction and Control Objective 3, Partially Met - One Area Requiring Corrective Action

The alerting, mobilization and activation of personnel for both the Brownstown Fire Department Ambulance crew and the Seaway Hospital emergency room staff was fully demonstrated. The first notification of both activities began at 1015, and personnel contacts were completed by 1020. Notification of the fire staff was by radio from the Fire Chief who was at the scene of the



Michigan State Police. A fax machine was available and the use of a computer system to relay information to the JPIC. The communications center and message center were amply staffed. Fifty cellular phones could be made available within one hour and fifty more within 24 hours.

A RACES back up capability was in place and was utilized as a back up system. RACES was used as a primary or alternative means of communication for selected locations, e.g., the two high school reception centers.

There were no breakdowns or difficulties in communications equipment or procedures during the exercise. Hard copy back up messages were received, generally within five to ten minutes, following all voice messages received over the hot line from the State.

The ability to communicate with all appropriate locations organizations and field personnel was satisfactorily demonstrated by use of Hospital Emergency Medical Systems (HEMS) radio and by commercial telephone. The hospital received notification of an accident with a possible injured/contaminated victim (1048) over the HEMS radio. They received victim information from the ambulance when in route to the hospital. Transmissions over the radio were loud and clear.

#### Facilities, Equipment and Displays

##### Objective 5, Met

##### - One Area Requiring Corrective Action

The modernization of the EOC Operations room resulted in a well lighted, comfortable, and quiet environment. Each position was equipped with its own telephone, equipment, and communication with facilities including individual workstations for each position as well as a central, shared workstation. Telephone and data connections were made. Other improvements were made including the addition of a computer system, the addition of a fax machine to the center, and computer capability, e.g., for tele-typed messages.

Appropriate displays and maps were evident including wall maps and a status board. All displays and status boards were kept up to date, but the recording of the times of events were inconsistent.

Area Requiring Corrective Action: Times posted on the status board were inconsistent with information on the message form, i.e. representing either the time of the event, time of posting, or time the information was received. (NUREG 0654/FEMA REP 1-1, H.3., J.10.a., J.10.b., J.11.)

Recommendation: The status board "time" column should be consistent. For example, the time could represent the time of



posting while the other time such as when the event occurred or when the action was directed, etc., is included in the description of the notice.

Copier equipment was sufficient. A security position was manned at the EOC entrance requiring sign in-out and use of badges. Personnel directed to report to the EOC had picture badges already prepared and ready for issue, while others reporting to the EOC were given visitors badges.

Emergency Worker: Exposure Control  
Objective 6, Met - Previous deficiency cleared

The Radiological Health Officer, assisted by the Civil Air Patrol representative, distributed dosimetry including two self-reading dosimeters, a TLD and a record keeping card to officers of the Sheriff's office who were on field duty. He instructed them on how to read the dosimeters, how to keep track of the readings on the record cards, what the maximum allowable dose was for the mission, and in the event of a lifesaving situation, and what to do if either of these limits were reached. The officers were knowledgeable; they each checked their self-reading dosimeters to be sure they were at zero before leaving for the field. Sign-in and sign-out sheets were used to keep track of who had been issued dosimetry. There was sufficient equipment available.

Alert, Notification and Emergency Information - Initial Alert and Notification

Objective 12, Not Met  
- One Deficiency

Wayne County does not perform public alert and notification procedures until a PAR is received and affects County residents. The initial PAR affecting the County was formulated at the State EOC at 1241 and received by the State representative in the County EOC at 1242. The PAR was to shelter from 5-10 miles in sectors A, B, and C, an area that includes both Monroe and Wayne Counties. The PAR was repeated and updated at 1243 by the addition of sector C (which does not affect Wayne County). Action was not taken by Wayne County on either of these PAR messages. Alerting and notification of Wayne County did not occur until a message from the utility, which included this PAR information, came into the County EOC at 1241 and caught the attention of the EOC Coordinator at 1243. He then requested the State to verify and clarify the PAR message. This was completed at 1251 whereupon he and the communications officer formulated an EBS message which was faxed to the radio station by 1303. Sounding of the sirens (simulated) was completed at 1305, or nearly two hours after the PAR was formulated and disseminated to the County by the State. Therefore, the ability to alert and notify the public within the 10-mile EPZ



within 15 minutes was not met.

Deficiency: Wayne County officials did not act on a PAR affecting the County resident that had been received from the State (1117), and it was not until 1243 when a message from the utility, that included PAR information, caught the attention of the EOC Coordinator. The alert and notification sequence was not completed until 1325. Nearly two hours had passed from the time the first PAR, relevant to Wayne County, was received to the time the resident population was notified to shelter. (NUREG 0654/FEMA REP 1-1, E.5., E.6., E.7.)

Recommendation: Wayne and Monroe Counties should communicate with each other upon receipt of a PAR and State EOC staff should verify that actions associated with PARs are taken at both Counties.

Alert, Notification and Emergency Information - Public Instructions  
Objective 13, Met - Previous ARCA Cleared

Since only one EBS message was prepared and disseminated by Wayne County, there is little information to rely upon to evaluate this objective. Only the alert and notification sequence was demonstrated. The EOC Coordinator and the communications officer collaborated on the formulation of the message. It was promptly sent by facsimile to the EBS station and its receipt verified by phone. The EOC did not monitor radio and television broadcasts to keep track of the information being provided to the public. This is identified as a County function.

Area Recommended For Improvement: The Wayne County EOC did not monitor commercial radio or television to keep track of information being provided to the public. The County should monitor these media sources.

Alert, Notification and Emergency Information - Media  
Objective 14, Met

See narrative under the State, Objective 14.

Alert, Notification and Emergency Information - Rumor Control  
Objective 15, Met

When public dialed telephone calls go into the EOC, they are automatically received by answering machines which transfer them to the communications center. The staff of the communications center refer the caller(s) to the Rumor Control team at the JPIC. The team includes County volunteers who have been specially trained in rumor control. Rumor control telephone numbers are publicized in press releases by the JPIC.

Implementation of Protective Actions - Evacuation of Schools  
Objective 19, Not Met - Postponed  
- Previous ARCA Cleared

Demonstration of the objective had to be postponed due to the severe weather in the area. Wayne County schools were closed and those to be interviewed were not available. The objective will be rescheduled at a later date, possibly to coincide with the Wayne County medical drill.

Traffic Control  
Objective 20, Met  
- One Area Requiring Corrective Action

Traffic control activity outside the EOC was simulated as called for in the objective. The EOC staff demonstrated their emergency response roles in this activity. At 0900, following the Governor's declaration, a simulated assembly of Mutual Aid Task Force (MATF) personnel (including Sheriff, local law enforcement, public workers and fire personnel) was ordered. The assembly took place at a staging site in Brownstown for possible subsequent deployment for traffic control and other assignments. At 0940 the U.S. Coast Guard was contacted for possible assistance on Lake Erie and the local river area.

At 1009, the County Coordinator ordered traffic control be established to stop south-bound traffic on major routes from Wayne County to Monroe County. Eight simulated points were established. Public works was directed to drop off barriers at these sites for use by traffic control personnel. Simulated calls were made to the three railroads in the affected area advising them of the situation.

Simulated deployment of MATF personnel were at St. Anthony's Day Care Center for security, Brownstown High School for security, various points along evacuation routes in Monroe and Wayne Counties.

Area Requiring Corrective Action: The scenario prevented an adequate traffic control demonstration. While full mobilization of the MATF would be cost prohibitive, limited mobilization could have taken place and assignments made to traffic control points, evacuation routes, reception facilities, etc. (NUREG 0654/FEMA REP 1-1, J.10.j., J.10.k.)

Recommendation: Carry out a token mobilization of the MATF and assign personnel to representative MATF roles.

## Medical Services - Transportation

### Objective 23, Met

#### - One Area Requiring Corrective Action

Vehicles, equipment, procedures and personnel were demonstrated during the transporting of a contaminated/injured victim to Seaway Hospital. The Emergency Medical Technicians (EMT) of Brownstown Fire Department participated with on-scene EMTs in treatment and radiological assessment of the victim. The victim was injured and contaminated when a radioactive materials barrel burst on impact when it fell on the pavement from the truck he was driving. Two CDV-700 survey meters were properly used, though the probes were not covered. The victim was wrapped in plastic to control the contamination and was transported by ambulance on a stretcher in a special plastic covered cardboard bed-box. The EMTs were especially careful to prevent their exposure to the contamination. Upon arrival at Seaway Hospital, the victim was monitored and checked for trauma, and processed by the hospital emergency room staff. The ambulance EMTs and their equipment were monitored by the State Radiological Health representative, using appropriate scale measuring equipment and proper scanning techniques.

Area Requiring Corrective Action: During the initial radiological survey of the contaminated/injured victim, and his subsequent transfer to the ambulance, probes of the survey meters were not covered as prescribed in the SOPs. (NUREG 0654/FEMA RFP 1-1, L.4., K.3.a., K.5.a., K.5.b.)

Recommendation: It is recommended that during annual training, a review on the use of radiological survey instruments, as stated in the SOPs, be emphasized.

## Medical Services - Facilities

### Objective 24 Met

Seaway Hospital was notified (1030) on the hospital emergency medical system radio that an injured/contaminated victim would be transported to the hospital by Brownstown Ambulance Service. The hospital was prepared to receive the victim, when the reception area was prepared (1056) and medical staff were properly clothed in protective clothing and provided with the necessary dosimetry. All procedures on the handling and care of the victim was accomplished in a professional manner.

ATTACHMENT 1



OBJECTIVE

STATE	FERMI 2	
	(Cycle 1988-1994)	
	Wayne	Monroe

FIELD RADIOLOGICAL MONITORING

- |   |     |     |     |
|---|-----|-----|-----|
| 7. Demonstrate the appropriate equipment and procedures for determining field radiation measurements. (7)   | Yes | N/A | N/A |
| 8. Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as $10^{-1}$ microcurie per cc in the presence of noble gases. (8) | Yes | N/A | N/A |
| 9. Demonstrate the ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses. (New Objective)                                  | Yes | N/A | N/A |

PLUME DOSE PROJECTION

- |   |     |     |     |
|---|-----|-----|-----|
| 10. Demonstrate the ability, within the plume exposure pathway, to project dosage to the public via plume exposure, based on plant and field data. (10) | Yes | N/A | N/A |
|---|-----|-----|-----|

PLUME PROTECTIVE ACTION DECISION-MAKING

- |   |     |     |     |
|---|-----|-----|-----|
| 11. Demonstrate the ability to make appropriate protective action decisions, based on projected or actual dosage, EPA PAG's, availability of adequate shelter, evacuation time estimates and other relevant factors. (10) | Yes | N/A | N/A |
|---|-----|-----|-----|

ALERT, NOTIFICATION AND EMERGENCY INFORMATION

- |   |     |                 |     |
|---|-----|-----------------|-----|
| 12. Demonstrate the ability to initially alert the public within the 10-mile PZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate State and/or local official(s). (13)           | Yes | Yes<br>(Note B) | Yes |
| 13. Demonstrate the ability to coordinate the formulation and dissemination of accurate information and instructions to the public in a timely fashion after the initial alert and notification has occurred at the JPIC. (14,23) | Yes | Yes             | Yes |
| 14. Demonstrate the ability to brief the media in an accurate, coordinated and timely manner at the JPIC. (24)  | Yes | Yes             | Yes |



OBJECTIVE

STATE

FIRM 2

(Cycle 1986-1994)

Wayne Monroe

RELOCATION CENTERS (REGISTRATION, MONITORING,  
CONGREGATE CARE AND DECONTAMINATION)

- |   |     |                |                 |
|---|-----|----------------|-----------------|
| 21. Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees. (27) | N/A | No<br>(Note F) | Yes<br>(Note F) |
| 22. Demonstrate the adequacy of facilities, equipment and personnel for congregate care of evacuees. (28)   | N/A | No<br>(Note F) | Yes<br>(Note F) |

MEDICAL SERVICES (TRANSPORTATION AND FACILITIES)

- |   |     |     |    |
|---|-----|-----|----|
| 23. Demonstrate the adequacy of vehicles, equipment, procedures and personnel for transporting contaminated, injured or exposed individuals. (30)       | N/A | Yes | No |
| 24. Demonstrate the adequacy of medical facilities, equipment, procedures and personnel for handling contaminated, injured or exposed individuals. (31) | N/A | Yes | No |

DECONTAMINATION

- |   |     |    |     |
|---|-----|----|-----|
| 25. Demonstrate the adequacy of facilities, equipment, supplies, procedures and personnel for decontamination of emergency workers, equipment and vehicles and for waste disposal. (29) | Yes | No | Yes |
|---|-----|----|-----|

GROUP C - OTHER OBJECTIVES: TO BE DEMONSTRATED AT LEAST ONCE EVERY SIX YEARS

SUPPLEMENTARY ASSISTANCE (FEDERAL/OTHER)

- |   |     |     |     |
|---|-----|-----|-----|
| 26. Demonstrate the ability to identify the need for and call upon Federal and other outside support agencies' assistance. (32) | Yes | N/A | N/A |
|---|-----|-----|-----|

INGESTION EXPOSURE PATHWAY

- |   |                |     |     |
|---|----------------|-----|-----|
| 27. Demonstrate the appropriate use of equipment and procedures for collection and transport of samples of vegetation, food crops, milk, meat, poultry, water and animal feeds (indigenous to the area and stored). (9) | No<br>(Note G) | N/A | N/A |
|---|----------------|-----|-----|

OBJECTIVESTATE

FERM 2  
 (Cycle 1986-1994)  
 Wayne Monroe

28. Demonstrate the appropriate lab operations and procedures for measuring and analyzing samples of vegetation, food crops, milk, meat, poultry, water and animal feeds (indigenous to the area and stored). (9)

No  
 (Note G)

N/A

N/A

29. Demonstrate the ability to project dosage to the public for ingestion pathway exposure and determine appropriate protective measures based on field data, FDA PAG's and other relevant factors. (11)

Yes  
 (Note G)

N/A

N/A

30. Demonstrate the ability to implement both preventive and emergency protective actions for ingestion pathway hazards. (12)

Yes  
 (Note G)

N/A

N/A

RECOVERY, REENTRY AND RELOCATION

31. Demonstrate the ability to estimate total population exposure. (34)

No

N/A

N/A

32. Demonstrate the ability to determine appropriate measures for controlled reentry and recovery based on estimated total population exposure, available EPA PAG's and other relevant factors. (35)

No

No

No

33. Demonstrate the ability to implement appropriate measures for controlled reentry and recovery. (35)

No

No

No

MOBILIZATION OF EMERGENCY PERSONNEL (24-HOUR CONTINUOUS BASIS)

34. Demonstrate the ability to maintain staffing on a continuous 24-hour basis by an actual shift change. (2)

No

No

Yes  
 (Note H)

EVACUATION OF ONSITE PERSONNEL

35. Demonstrate the ability to coordinate the evacuation of onsite personnel. (23)

No

N/A

N/A

UNANNOUNCED AND OFF-HOURS

36. Demonstrate the ability to carry out emergency response functions (i.e., activate EOC's, mobilize staff that report to the EOC's, establish communications linkages and complete telephone call down) during an unannounced off-hours drill or exercise. (New Objective)

No

No

No



ENRICO FERMI-2 REP EXERCISE  
FEBRUARY 14, 1990  
OFF-SITE EXERCISE OBJECTIVES

Objective Notes

This will be a full-scale plume, partial-scale ingestion pathway exercise. Facilities to be activated include: SEOC - Lansing; Field Team Center (FTC) - Erie Post, Monroe; Monroe Emergency Operations Center (MEOC) - Monroe County; Wayne Emergency Operations Center (WEOC) - Wayne County; and Reception/Decontamination and Congregate Care Centers in Monroe County. In addition, an off-site medical drill will be conducted in Wayne County (Objective 23/24) out of sync with the exercise. (Date, time, location, and participants to be addressed in the scenario submission.) The on-site medical drill will also be conducted out of sync with the exercise (time and date to be provided with the scenario).

Note A - Objective 2: Personnel will be alerted and mobilized for the SEOC, WEOC, MEOC and JPIC. State personnel/equipment will be pre-positioned for the FTC. Personnel for the Reception/Decontamination and Congregate Care Centers will be pre-staged and the demonstration may be out of sync with the exercise.

Note B - Objective 12: Both Wayne and Monroe Counties have the responsibility to activate the siren system and EBS in their own jurisdiction for the plume EPZ. Sirens and EBS are activated in the affected zones and sectors only. If there are no protective actions ordered in Wayne County, no sirens will be activated. Information will be released to the public via the JPIC, but EBS will not be activated.

Note C - Objective 18: Wayne and Monroe Counties will demonstrate decision making and resource lists at the EOC's. No vehicles or personnel will be involved, nor persons moved.

Note D - Objective 19: No school children will be moved. GM EV-2 interviews will be arranged in both counties.

Note E - Objective 20: No vehicles will be dispatched. Evacuation and access control will be demonstrated at the EOC's only via decision making, coordination and resource list.

Note F - Objective 21/22: Monroe County will activate a Reception/Decontamination/Congregate Care Center (location/time to be provided in the scenario). Wayne County will not activate Reception/Decontamination/Congregate Care facilities.

Note G - Objective 27/28/29/30: This will be a partial participation ingestion pathway exercise. As such, state ingestion activities will be limited to decision making, protective action orders and public information. No field demonstrations will be conducted.

Note H - Objective 34: The State and Wayne County will not demonstrate 24-hour staffing capabilities. Monroe County will demonstrate shift changes at the MEOC and the county JPIC staff.

ATTACHMENT II

ENRICO FERMI-2 REP EXERCISE - 90

Full Participation Plume, Partial Participation Ingestion  
REP Exercise Scenario

(Controlled Information)

February 14, 1990

OFF-SITE AUTHORITIES ACTIVITIES

## EXERCISE SCENARIO

### Background Information

1. The Enrico Fermi-2 REP Exercise - 90 is scheduled for February 14, 1990.
2. This will be a full participation, plume exposure pathway exercise for Monroe and Wayne Counties and the State of Michigan; in addition, the State will conduct a partial participation ingestion pathway exercise.
3. Reference is made here to the Exercise Objectives (dated November 17, 1989).
4. Attached is a portion of the utility on-site scenario.
5. Facilities to be activated include:
  - a. SEOC - Lansing
  - b. Monroe EOC - Monroe County
  - c. Wayne EOC - Wayne County
  - d. Joint Public Information Center - Monroe Community College
  - e. FTC - Michigan State Police/Erie Post
  - f. Monroe Reception/Decontamination, Congregate Care, Emergency Worker Decontamination Facilities
6. Full staffing will be demonstrated for all EOC positions. Monroe County will demonstrate a shift change. Monroe County JPIC personnel will also demonstrate a shift change. Reception/Decontamination/Congregate Care Centers will not shift change, but will have staff listings.
7. All facilities (EOC's and JPIC) will be in normal daily status.
8. Monroe and Wayne Counties will simulate siren and EBS activation. EBS message content will be coordinated between the two counties. Rumor control will be demonstrated at the JPIC.
9. Monroe County will open a reception/decontamination center, a congregate care center and an emergency worker decontamination center.



ENRICO FERMI-2 REP EXERCISE - 90

FACILITIES LOCATIONS

SEOC: Michigan State Police/Emergency Management Division  
300 S. Washington Square, Suite 300  
Lansing, Michigan 48913  
Phone: 517/373-6271

MSP Operations: Michigan State Police/Headquarters  
714 S. Harrison  
East Lansing, Michigan 48823

Wayne County EOC: 10250 Middlebelt Road  
Detroit, Michigan 48242  
313/942-5289

JPIC: Monroe Community College  
1555 S. Raisinville Road  
Monroe, Michigan 48161

Monroe County EOC: 965 Raisinville Road  
Monroe, Michigan 48161  
Phone: 313/241-6406

*FTC*  
*EMD State Police Post*  
*12075 Telegraph Rd*  
*East, MI 48153*  
*313 242-3500*

Emergency Worker Decontamination

*Primary:* 4-H Building  
Monroe County Fairgrounds  
Raisinville Road  
Monroe, Michigan

*Alternate:* Monroe County Animal Control  
Raisinville Road  
Monroe, Michigan

Reception Decontamination Center

Summerfield School  
Ida West Road  
Petersburg, Michigan  
Contacts: (Reception) George Costello (11 a.m.)  
(Decontamination) Maureen Montorency (11 a.m.)

Congregate Care Center

Summerfield School  
Ida West Road  
Petersburg, Michigan  
Contact: Kiria Hoopingarner (11 a.m.)

ENRICO FERMI-2 REP EXERCISE - 90

EV-2 INTERVIEWS

Monroe County: February 15, 1990, 9:30 a.m.  
Monroe Public Schools  
Administration Building  
1275 N. Macomb Street  
~~Macomb~~, Michigan

*Monroe*

Contacts: Mr. William P. Chamberlain/Kim Hooper

Wayne County: February 15, 1990, 1 p.m.  
Gibraltar Schools/Carlson High School  
30550 W. Jefferson Street  
Gibraltar, Michigan  
Contact: TBA

OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ONSITE ACTIVITIES	SEOC	MEOC	WEOC	FTC	JPIC	
0700	Initial Conditions	No off-site activities begin until approximately 7:50 a.m.					
0710	Slow increase in off-gas release rate.						
0725	Monitor alarm - "Radiation monitor upscale"	NOTE: The State, Monroe and Wayne Counties will demonstrate Alert, Notification, Mobilization of EOC and JPIC staff (except State JPIC and FTC personnel who will be prepositioned). County personnel at the Reception/Decontamination/Congregate Care and Emergency Worker Decontamination facilities will be prepositioned, and those demonstrations will be out-of-sync with the exercise.					
0730	Fuel clad failure						
0735	UNUSUAL EVENT DECLARED						
0750	Notifications made to off-site authorities of NUC.	Off-site authorities notified of NUC.					
0750	MSIV Closure due to high steam line radiation. Reactor scram. ALERT declared.						
	Off-site authorities notified of ALERT.	A	Monroon Co. receives ALERT notification from plant.	Wayne Co. receives ALERT notification from plant.		DECO personnel will report to the JPIC and begin activation at the ALERT level or upon Governor's Disaster Declaration.	
						<div style="border: 1px solid black; padding: 5px;">                     Key:                      A-Actual                      S-Simulated                 </div>	

## OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ONSITE ACTIVITIES	SFIC	NEOC	WEOC	FTC	JPIC
	TSC activated.	Operations notified EMD, RHD, Wayne and Monroe Counties.				
		EMD and RHD confer and make joint assessment.	Local governments may or may not declare State of Emergency under local plans depending on local SEP plans and timing of governor's Disaster Declaration.			
		EMD recommends to Governor that he de- clare a State of Disas- ter under Act 390.				
	Plant provides 15- minute updates during ALERT level.	Governor concurs and orders activation of of MEPP and local plans.				
		EMD notifies NEOC/WEOC of Disaster Declara- tion.				
		State and Counties begin activation of EOC's and JPIC personnel.				
		State notifies FEMA, Ohio, Ontario of ALERT classification.				
0855	SITE AREA EMERGENCY declared based on either loss of two fission product bar- riers or dose rates >1 rem/hr. in plant.	SEOC notifies WEOC/WEOC and JPIC of SAE.				



EMERGENCY PERMITS-2 REP EXERCISE - 90  
OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ON-SITE ACTIVITIES	SEOC	MEOC	MEOC	FTC	JPIC
About 0900 to 0930	EDP activated.	SEOC, MEOC, MEOC staffed and operational. Communication lines opened between all facilities.			FTC operational about this time.	JPIC should be staffed and operational about this time.
		SEOC notifies FEMA, Ohio, Ontario of SAR status and disaster declaration.				
		SEOC passes plant data to counties and JPIC as it is received.	Local Reception/Decontamination and Congregate Care Centers placed on standby.			Once operational, the JPIC will begin regular press briefings.
			MEOC/NEOC receives notice of SAR.			JPIC notified of SAR. Holds press briefings.
			FBS brought to standby.			
			Siren operability confirmed.			
0950 to 1030	GENERAL EMERGENCY declared based on off-site dose of >1 r/hr at site boundary.					

## OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ONSITE ACTIVITIES	SEOC	NEOC	WEOC	FTC	JPIC
	Notification made to SEOC.	SEOC receives notification of GENERAL EMERGENCY.	SEOC notifies NEOC and WEOC of GENERAL EMERGENCY.		FTC notified of GENERAL EMERGENCY. Field Teams dispatched to track plume.	SEOC notifies JPIC of GENERAL EMERGENCY.
		RHD concurs with GENERAL EMERGENCY and recommends protective actions to Governor.				
		Governor orders protective actions. SEOC notifies local EOC's and JPIC of PA's.	WEOC and WEOC activate sirens and EBS per local plans if PA's require it.			JPIC provides information of GENERAL EMERGENCY, and PA's ordered by Governor.
		SEOC notifies FEMA, Ohio and Ontario of GENERAL EMERGENCY.				
1000 to 1300	Plant personnel attempt to restore SGTS and monitor off-site radiation conditions.					
		SEOC orders agricultural PA's as a precautionary measure.				
		SEOC monitors PA implementation and responds to requests for assistance.	NEOC and WEOC establish access control and insure reception/decontamination and congregated care centers are operational.			JPIC continues regular schedule of press briefings.

ENRICO FERRI-2 REP EXERCISE - 90  
OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ONSITE ACTIVITIES	SEDC	MEOC	MEOC	ETC	JPIC
1300	SGTS restored, release terminated.	SEDC monitors release, notifies PA's as needed.			State Field Teams continue to track plume. Data provided to SEDC.	
		SEDC notifies FFHA, Ohio, Ontario and BECO of Governor's PA orders.				
		SEDC notifies plant that release is terminated.				
		SEDC notifies committee, JPIC and ETC.	MEOC/MEOC/ETC & JPIC notified that release has been terminated.			
		SEDC notifies FFHA, Ohio and Ontario of release termination.				
		Once plant has made repairs, state and utility will enter deescalation discussions and downgrade emergency level.				
		SEDC notifies local EMC's, FFHA, Ohio and Ontario of deescalation.	Local EMC's begin deescalation activities.			JPIC provides information to public on deescalation and status of closest activities.

## OFF-SITE SCENARIO TIME/ACTIVITY

TIME	ONSITE ACTIVITIES	SEOC	MEOC	WEOC	FTC	JPIC
About 1330	On-site exercise terminated.  Exercise terminated for DECo.	State completes limited reentry and recovery actions.	Counties terminate exercise play. PA's may remain in effect depending on release deposition.		FTC terminates exercise play.	JPIC will continue to provide information on reentry and recovery. Local PIO's close out operation.

## 24-HOUR TIME JUMP

14:15		SEOC begins Ingestion Pathway tabletop exercise.  New data summary sheets will be provided to RHM at the SEOC on which to base ingestion activities. These activities will consist of defining the deposition "footprint," and exposure levels, then establishing an environmental monitoring program. Sample points will be identified and assignments (simulated) made to the field teams				JPIC continues with reduced staffing to support SEOC ingestion exercise play.  JPIC provides information on ingestion exercise play.
-------	--	---	--	--	--	--



TIME	ONSITE ACTIVITIES	SEDC	MEDC	WEDC	FTC	JPIC
		at the FTC. (NOTE: State Field Teams will not be demonstrated for Ingestion Pathway Exercise.) Discussions at the SEOC on ingestion pathway protective actions, return of evacuees, etc based on data sample sheets & "footprint." Federal support re- quested as needed via FEMA. Additional FA's ordered by Governor as needed. Exercise play will be directed toward close out of exercise.				JPIC exercise play terminated.
About 1530		SEDC exercise play terminated.				JPIC exercise play terminated.

AUG 02 1990

STATE OF MICHIGAN



JAMES J. BLANCHARD, GOVERNOR  
DEPARTMENT OF STATE POLICE  
COL. E. T. DAVIS, DIRECTOR

EMERGENCY MANAGEMENT DIVISION

KNAPPS CENTRE, SUITE 300  
380 SOUTH WASHINGTON SQUARE  
LANSING, MICHIGAN 48213

PHONE: 517 373-4271

July 30, 1990

Mr. Dan Bement, Chief  
Technological Hazards Branch  
Federal Emergency Management Agency  
Region V  
175 W. Jackson Boulevard  
4th Floor  
Chicago, IL 60604

RE: Enrico Fermi II: Schedule of Corrective Actions

Dear Mr. Bement:

Attached is a copy of the Schedule of Corrective Actions for the Enrico Fermi II 1990 RFP exercise. If you have any questions, please feel free to contact this office.

Sincerely,

A handwritten signature in black ink, appearing to read "J. M. Tyler".

F/Lt. James M. Tyler  
Commanding Officer  
Pre-Disaster Services Section

cc: Ms. Joan Mulvehill  
Lt. Chris Rundle  
Mr. Mark Sparks  
Mr. Jon Eckert



AUG 02 1990

SUMMARY LISTING OF EXERCISE WEAKNESSES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1990

DEFICIENCIES  
State of Michigan

<u>NUREG 0654 Criteria</u>	<u>Summary Statement</u>	<u>Proposed Corrective Action</u>	<u>Estimated Date</u>
K.3.a.	∪ The State did not issue a self-reading dosimeter that would record exposures as high as the allowed emergency worker exposure of 25R. There is no written procedure available for team members to know when to record, recharge or zero the 0-10R dosimeter they were issued.	New procedures have been written. Staff training was conducted on 6/12/90. Remedial demonstration was held 7/17/90	7/17/90
K.3.a. K.3.b. K.4.	∪ The State's field laboratory TLD Reader is not calibrated and is not involved in a national accreditation program, i.e. NVLAP. The laboratory analysts could not correlate the readout to radiation exposure of emergency workers.	TLD reader was calibrated by U. of M. with a NIST traceable source.	6/90
I.8., I.9.	∪ Air iodine concentrations were measured by State field teams using portable battery powered sampling equipment and simulated silver zeolite cartridges. Two samples were observed and the counting methodology was not consistent between the two samples. Field personnel were unfamiliar with set up procedures, and the handling and field counting of the cartridges. The procedure was deficient in the sampling	New procedures have been written and staff trained on 6/12/90. A remedial drill was conducted on 7/17/90.	7/17/90

Continuation: Deficiencies - State of Michigan

time and expected flow rate formula.  
The present procedure will not allow  
detection of iodine concentrations at  
the level required by NUREG 0654/FEMA  
SEP 1-1.

K.5.a.  
K.5.b.

2 The procedures developed to demonstrate  
decontamination of personnel and equip-  
ment were not adequate. They were not  
comprehensive enough to enable the staff  
to perform the decontamination process.  
Personnel were unfamiliar with all  
aspects of procedure implementation.  
Once adequate procedures are developed,  
the facility itself needs to be evaluated  
for adequacy.

New procedures were written and staff  
training was conducted on 6/12/90.  
A remedial drill was held on 7/17/90.

7/17/90



SUMMARY LISTING OF EXERCISE WEAKNESSES  
 FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
 FEBRUARY 14, 1990  
 AREAS REQUIRING CORRECTIVE ACTION  
 State of Michigan

<u>NUREG 0654 Criteria</u>	<u>Summary Statement</u>	<u>Proposed Corrective Action</u>	<u>Estimated Date</u>
K.3.a. K.3.b. K.4.	Team members were not following prescribed procedures in the use of protective clothing. Gloves were intermittently used and potential contamination was spread when gloves were not disposed of prior to reentering the field vehicle. K.4.	New procedures have been written and staff trained on 6/12/90. Demonstrated at remedial drill on 7/17/90.	7/17/90
K.3.a. K.3.b. K.4.	There is no written policy or procedure for respirator use in the field team manuals. The support personnel (State Trooper) had not been recently trained or fit-tested and one of the team members had a beard, so, he was physically unable to wear the respirator correctly.	Team members were trained on 6/12/90 in respirator use and fit testing to enable testing of drivers.	6/12/90
I.10., H.12.	Sample cross contamination control was not demonstrated by the field teams during the particulate sampling process nor by the field and mobile lab staff during the sample exchange process.	Training observed by FEMA on 6/12/90 included emphasis on preventing cross contamination. Demonstration at remedial drill on 7/17/90.	7/17/90

Continuation: Areas Requiring Corrective Action - State of Michigan

- |                    |  |  |                   |
|--------------------|--|--|-------------------|
| I.10., H.12.       | The operating procedures for the mobile laboratory do not address sample tracking, sample storage for hot and analyzed samples, disposal of contaminated materials and general contamination control within the lab.   | The next revision of the mobile lab procedures will address this issue. Training of selected staff will follow.  | 10/90             |
| I.8., I.11.        | Procedures for field equipment checks have not been developed for use by the State field teams. Team members are unaware if instruments are working properly, because they are unaware of the expected response from the check source.                             | New check lists include field checks. Demonstrated at the remedial drill   | 7/17/90           |
| E.5., E.6.         | The State Emergency Operations Center failed to effectively track Wayne County's activation of the prompt alert and notification system. Over one hour elapsed before Wayne County activated the sirens and Emergency Broadcast Station for the General Emergency. | New tracking procedures, forms and statue board have been developed and used at the Cook-90 and Palisades-90 REP exercises.  | 4/3/90<br>5/22/90 |
| J.10.e.<br>J.10.f. | The decision to recommend the use of KI by State emergency workers was made based upon criteria different than indicated in the State emergency plan. The criteria did not consider the benefit versus risk of taking KI as is incorporated into the FDA's PAGs.   | Decision criteria were reviewed and practiced at the May 90 Palisades REP Exercise.  | 5/22/90           |
| J.10.e.<br>J.10.f. | The State's policy for the use of KI by emergency personnel does not address the issue of personnel allergic to, or who refuse to take KI. The State has not assessed the impact this issue  | KI allergy reactions are of minimal consequence and are not life threatening. Refusal to take KI would mean that the emergency worker would wear a respirator and be excluded from plume passes after approaching thyroid limit. Training of included discussion of possible reaction to KI. Demonstrated at remedial drill. | 7/17/90           |

Continuation: Areas Requiring Corrective Action - State of Michigan

J.10.e.  
J.10.f.

The State's policy on the use of KI by emergency field staff was not well understood by field team members. One of the field groups simulated the taking of KI prior to receiving the recommendation via the FTC. Additionally, actions taken in response to the recommendation were not recorded by the FTC or the field staff.

Training of 6/12/90 included emphasis on basis for KI recommendations. Demonstration made at 7/17/90 remedial drill.

7/17/90

SUMMARY LISTING OF EXERCISE WEARNESES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1990

AREAS RECOMMENDED FOR IMPROVEMENT  
State of Michigan

Better utilization of time and effort could be realized by a more orderly equipment housekeeping procedure in the field vehicle. Containers and supplies became mixed throughout the trunk of the field vehicle. There was no container designated for the disposal of contaminated materials or personal protective items.

The results of ground monitoring activities were not recorded by the teams or relayed back to the Field Team Center. The State should consider revising the field team report forms to include a space to record the ground measurements made by the teams. This will help the State assess whether or not there is ground contamination.

Team members were briefed before deployment, but personal notes were used by the briefer. The State should consider developing a checklist for the pre-deployment briefing of team members to ensure all necessary items are addressed, and that there is consistency if there is a personnel change.

Consideration should be given to monitoring EBS broadcasts to see if they accurately reflect the material released through press releases.

An inconsistency was observed during a briefing, between announced and printed news release locations of Monroe County reception centers. It is recommended that public information procedures be reviewed to assure that material used for media briefings is correct and accurate. Normally this would require contact of the Monroe County EOC by the Monroe County



Continuation: Areas Recommended For Improvement - State of Michigan

public information liaison at the JPIC. This should be accomplished before the "round table" pre-briefing conference at the JPIC.

Media briefing displays often need to be changed during presentations. It is disruptive for the briefer to have to do this. It is recommended that a staff member be assigned to assist in changing or moving displays as required during briefings.

SUMMARY LISTING OF EXERCISE WEAKNESSES  
SERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1990

DEFICIENCIES  
Monroe County

NUREG 0654  
Criteria

Summary Statement

Proposed  
Corrective Action

Estimated  
Date

There were no deficiencies identified in Monroe County.

SUMMARY LISTING OF EXERCISE WEAKNESSES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1990

AREAS REQUIRING CORRECTIVE ACTION  
Monroe County

NUREG 0654  
Criteria

Summary Statement

Proposed  
Corrective Action

Estimated  
Date

G.4.c.

The telephone answering staff of the rumor control function had to wait for the "official hard copy" of information before providing current accurate information to callers. This placed the telephone staff in the position of giving out information which had been superseded by the progress of events. In some instances the information given to callers did not accurately reflect the current protective actions.

Rumor control procedures and information flow will be reviewed during next plan update and training conducted with rumor control operators.

1/91

SUMMARY LISTING OF EXERCISE WEAKNESSES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1993

AREAS RECOMMENDED FOR IMPROVEMENT  
Monroe County

Greater control of the message process would be provided if the Chief of Staff or an appointed staff member followed all messages through the system until they are broadcast. Presently, if information or specific facts were erroneously disseminated to the public it would remain unknown until it was broadcast over the EBS station.

The rumor control staff was given more information than they require to perform their function. They should be given copies of EBS messages and press releases to perform their responsibilities.

Future scenarios or controller messages should drive the implementation of protective actions to a greater degree to challenge the EOC staff. (Objective 18)



SUMMARY LISTING OF EXERCISE WEAKNESSES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1989

DEFICIENCIES  
Wayne County

NUREG 0654  
Criteria

E.5., E.6.

Summary Statement

Wayne County officials did not act on a PAR affecting the County residents that had been received from the State (1117), and it was not until 1243 when a message from the utility, that included PAR information, caught the attention of the EDC Coordinator. The alert and notification sequence was not completed until 1305. Nearly two hours had passed from the time the first PAR, relevant to Wayne County, was received to the time the resident population was notified to shelter.

Proposed  
Corrective Action

Remedial exercise was conducted on 6/28/90 and the all deficiencies were corrected at that time.

Estimated  
Date

6/28/90

SUMMARY LISTING OF EXERCISE WEAKNESSES  
 FERMII RADILOGICAL EMERGENCY PREPAREDNESS EXERCISE  
 FEBRUARY 14, 1989

AREAS REQUIRING CORRECTIVE ACTION  
 Wayne County

NUREG 0654 Criteria	Summary Statement	Proposed Corrective Action	Estimated Date
A.1.b., A.1.d. A.2.a.	Protective actions 3 and 4 (General Emergency - evacuate and shelter) were received from the State via the State liaison both through verbal announcement and by hard copy follow up. The Emergency Services Coordinator did not recognize these as PARs and no actions were taken. The Coordinator did not provide direction to the EOC staff for implementation of the PARs.	Remedial exercise was conducted on 6/28/90 and these deficiencies were corrected at that time.	6/28/90
H.3.	Times posted on the status board were inconsistent with the time posted on the message form, i.e. representing either the time of the event, time of posting, or time the information was received.	The new MSP/EMD PROTECTIVE ACTIONS form has been duplicated in enlarged form and displayed in the EOC.	7/19/90
J.10.j. J.10.k.	The scenario prevented an adequate traffic control demonstration. While full mobilization of the MATF would be cost prohibitive, limited mobilization could have taken place and assignments made to traffic	Efforts will be made to include a limited MATF mobilization in the 1992 Fermi II RERP exercise scenario.	1992

Continuation: Areas Requiring Corrective Actions - Wayne County.

control points, evacuation routes,  
reception facilities, etc.

K.3.a.  
K.5.a.  
K.5.b.  
L.4

During the initial radiological survey  
of the contaminated/injured victim, and  
his subsequent transfer to the ambulance,  
probes of the survey meters were not  
covered as prescribed in the SOPs.

The SOPs used during  
the exercise will be  
amended to emphasize  
the need to cover the  
survey meter probes  
to avoid contamination.

12/1/90

SUMMARY LISTING OF EXERCISE WEAKNESSES  
FERMI II RADIOLOGICAL EMERGENCY PREPAREDNESS EXERCISE  
FEBRUARY 14, 1989

AREAS RECOMMENDED FOR IMPROVEMENT  
Wayne County

The Wayne County EOC did not monitor commercial radio or television to keep track of information being provided to the public. The County should monitor these media sources.



## FERMI II Remedial Exercise

June 28, 1990

### Wayne County Emergency Management

On June 28, 1990, a remedial exercise for Wayne County was conducted to correct a deficiency identified in the initial alert and notification sequence. During the February 14, 1990, Fermi II exercise, the deficiency was as follows:

Alert, Notification and Emergency Information - Initial Alert and Notification

Objective 12, Not Met

One Deficiency

Deficiency: Wayne County officials did not act on a PAR affecting the County residents that had been received from the State (1117), and it was not until 1243 when a message from the utility, that included PAR information, caught the attention of the ECC Coordinator. The alert and notification sequence was not completed until 1305. Nearly two hours had passed from the time the first PAR, relevant to Wayne County, was received to the time the resident population was notified to shelter.

To correct the deficiency the remedial exercise was staged in the Wayne County, Emergency Operations Center (EOC). The exercise participants included: Wayne County Emergency Services Coordinator; the Assistant Coordinator; the Brownstown Township Fire Chief; a liaison from the State of Michigan; a communications officer and a person who simulated activation of the siren system.

The exercise began with the State providing the County with background information concerning the simulated events that had taken place at the Fermi II Nuclear Power Plant. This included the escalation of the Emergency Classification Level (ECL) from "Notification of Unusual Event" to the "Alert". Messages from the State were telephoned in from an exercise simulation cell, also located at the County EOC. Faxed hardcopy messages were given to the County Director by the Exercise Controller.

The initial briefing informed the County EOC staff that there had been an accident at the Fermi Plant, and that the Governor had declared a "State of Emergency" at 0900.

At 1030, the ECL was escalated to "Site Area Emergency" with no Protective Action Recommendations (PAR) ordered. The County provided the following information concerning their emergency response at that time: the schools were closed for the season; reception, monitoring and decontamination facilities for evacuees

and emergency workers were established (simulate) at Bellville and Romulus High Schools; all evacuation routes were open, (this was verified through employees of the Highway Department); and, transportation needs would be met by busses from the public schools which had already been placed on standby.

At 1035, the State Liaison received a call from the State EOC, Emergency Management. The State Liaison logged, received and announced the information received. The County Coordinator received a hardcopy message and immediately announced confirmation with the Liaison's report. The County Coordinator announced there were no PARs at that time; the wind speed was five mph from 100 degrees, affecting sectors A, B & C.

At 1040, another message was received by the State Liaison, logged and announced. After receiving a hardcopy follow-up of the State's message, the County Coordinator announced the wind speed was seven mph from 103 degrees, affecting sectors A, B & C, and no PARs had been recommended.

At 1045, the State Liaison received, logged and announced another message. The County Coordinator, after receiving a hardcopy follow-up, announced there had been a small radiological release from the plant at 1040. The Radiological Health personnel were tracking the release, however, there were no PARs ordered. The Coordinator stated that "...the Law Enforcement Network (LENN), connecting the Counties through communications, had been activated and all involved parties were being kept informed." It should also be noted that the LENN is tested monthly and was confirmed working on June 27, 1960, the day prior to the exercise.

At 1046, the State Liaison received another message, logged and announced the message. The County Coordinator, after receiving hardcopy follow-up of the message, announced the wind speed was six mph from 102 degrees, affecting sections A, B & C, the release was still minor and there were no PARs ordered.

At 1100, the State Liaison received, logged and announced another message from the State EOC. After receiving a hardcopy follow-up of the message, the County Coordinator announced the EOC had been escalated to "General Emergency" and the Governor had ordered evacuation of all sectors out to 5 miles, and to 10 miles in downwind sections A, B & C. The County Coordinator instructed the communications officer to refer to page 24 of the County's SOP for Emergency Broadcast Station (EBS) notifications, in his development of the County's EBS message. This SOP was the appropriate geographical boundary description to use for the PAR ordered and the sectors affected. After receipt of hardcopy follow-up, the County Coordinator ordered that the sirens activated and the EBS message disseminated to the EBS station. The individual at the siren control was aware of procedures for activation, including coordination with Monroe County; the correct buttons to push on the

instrument panel; and, the backup procedure, should the primary system fail. The sirens were simulated sounded at 1106, prior to the simulated dissemination of the HBS message.

The entire initial alert and notification, from the Governor's protective action order to the time the sirens were sounded and the HBS message disseminated to the HBS station, was accomplished in approximately seven minutes. This demonstration corrects the deficiency.

## FERMI II Remedial Exercise

July 17, 1990

Michigan Department of Public Health

Radiological Health Division

Field Team Center

During the February 14, 1990, on-site FERMI II joint exercise, the Michigan Department of Public Health, Radiological Health Division (MDPH/RHD) failed to adequately demonstrate four tasks of the three radiological control criteria elements in NUREG-0654 which measure the capability to respond to a radiological emergency. The lack of adequate response capability was in three areas: (1) lack of written procedures, or procedures which are not current; (2) lack of sufficient training for field team workers, and (3) lack of equipment to carry out the assigned tasks.

Following the February 14, 1990, exercise, the Michigan Emergency Management Division (MEMD) was notified March 5, 1990, by letter of the four deficiencies. A meeting was held March 29, 1990, in Lansing, Michigan, with members of the MEMD, MDRM, FEMA Region V, and three members of the Federal evaluation team who observed the deficiencies. The purpose of the meeting was to discuss in detail the problem areas and provide assistance. The root of the problems first appeared at the August 1988, Donald C. Cook exercise and were observed at the May 1989 Big Rock Point exercise.

On June 11, 1990, the MEMD and the MDPH/RHD conducted a one day training session for twenty MDPH/RHD personnel assigned to radiological response teams during nuclear power plant emergencies. The training was observed by FEMA Region V.

Following the March 5, 1990 meeting, the MDPH/RHD began revising standard operating procedures in preparation for duplication and distribution later in 1990 and for use at the remedial exercise.

On July 17, 1990, the MDPH/RHD conducted a remedial exercise to clear the deficiencies. For the remedial exercise, three field teams and one decontamination team were assembled at the Michigan State Police, Erie Post, U.S. 24/Telegraph Road, Erie, Michigan. This was the same location used during the February 14, 1990, exercise and is the location identified in the State Plan. For the remedial exercise, three Federal evaluators were present: one evaluator from the Idaho National Engineering Laboratory, one evaluator from the U.S. Environmental Protection Agency, and one evaluator from the Federal Emergency Management Agency. The following is the evaluation of the remedial exercise.



Emergency Worker Exposure Control  
Objective 6

Deficiency: The State did not issue self-reading dosimeters that would record exposures as high as the allowed emergency worker exposure of 25R. There is no written procedure available for team members to know when to record, recharge or zero the O-10R dosimeter they were issued.

The deficiency associated with the O-10R direct reading dosimeter (DRD) not having sufficient range to include the 25R dose allowed emergency workers has been adequately resolved. A written procedure has been established to remind the workers to recharge the dosimeters if the dosimeter indicates an exposure at the upper end of the scale and to record the exposure histories. Additionally, the field team commander will also advise the field teams based on their reported DRD readings. The only emergency workers at the remedial exercise were members of the field teams, and the three teams demonstrated knowledge of the procedure and use of the dosimeter charger. This demonstration satisfies the direct reading dosimetry requirements and clears the deficiency.

Emergency Worker Exposure Control  
Objective 6

Deficiency: The state's field laboratory TLD reader is not calibrated and is not involved in a national accreditation program, i.e. NVLAP. The laboratory analysts could not correlate the reading to radiation exposure of emergency workers.

The TLD reader has now been calibrated by staff at the University of Michigan, although the University is no longer a member of the National Volunteer Laboratory Accreditation Program (NVLAP). TLDs with known exposure, using a Cs-137 source traceable to NBS/NIST, were used to calibrate the reader. Michigan's Department of Public Health has 900 TLDs. The calibrated reader was used to determine calibration factors for each of the 900 TLDs. It is the opinion of the evaluator that this calibration program together with an annual calibration schedule meets the intent of the FEMA guidance and should be considered an acceptable system for use in emergency worker radiation exposure control. This satisfies the TLD requirements and clears the deficiency.

Field Radiological Monitoring - Airborne Iodine Monitoring  
Objective 2

Deficiency: Air iodine concentrations were measured by state field teams using portable battery powered sampling equipment and simulated silver zeolite cartridges. Two samples were observed and the counting methodology was not consistent between the two samples. The methodology was inconsistent with early procedures and the sampling time of the cartridges was exceeded. The procedure was not followed in the counting of the cartridges. The procedure was not followed in the counting of the cartridges. The procedure was not followed in the counting of the cartridges. The procedure was not followed in the counting of the cartridges.

The deficiency associated with an insufficient volume of air being sampled to satisfy the requirement for determining low concentrations as low as  $1 \times 10^{-7}$  microcuries/cc in the presence of noble gases has been corrected. A written procedure has been modified to require a 5-minute sample collection time. This time coupled with a flow of 2 cfm when using a 110 VAC power source or the flow attainable with 12 VDC power from a vehicle will result in a sample volume sufficient to satisfy the detection limit. Additionally, all field team personnel have been trained in the use of the revised procedure. The three field teams collectively demonstrated the ability to collect air samples. The demonstration of the use of the revised procedure clears the deficiency.

The time-dependent adjustment factor, identified at the Big Rock point exercise, May 12, 1990, and again at the Fermi II exercise, February 14, 1990, remains unresolved. The time-dependent adjustment factor must be included in the equation to extract the  $I_{131}$  contribution from the net count rate.

The GM-detector (pancake probe) sensitivity discussed at the February 14, 1990 exercise and again during the March 29, 1990 hearing in Lansing, remains unresolved. This affects the equation in the air monitoring procedure used to determine the iodine concentration from the field readings of the silver zeolite cartridge, using a pancake probe.

The Michigan Radiological Health Division is in the process of investigating the sensitivity of the GM-detector before they will consider modifying the equation.

During the remedial exercise five new Areas Requiring Corrective Action and one Area Recommended For Improvement, were identified. They are listed below.

Areas Requiring Corrective Action:

1. Two of the three field kits used by the field teams did not contain silver zeolite cartridges and the charcoal cartridges in

the third kit were not sealed. There is a supply of silver zeolite cartridges in the supply van which is available to each field team. However, each field kit should have its own supply, and the silver zeolite cartridges should be hermetically sealed. The inventory listing for each field kit does not include silver zeolite cartridges or the number of cartridges required in each kit.

Recommendation: Include in each field kit an inventory of silver zeolite and charcoal cartridges. Revise the field kit inventory list to include both silver zeolite and charcoal cartridges.

2. The label that accompanies the particulate and silver zeolite air samples to the rad lab does not identify the sample volume or the location where the sample was taken.

Recommendation: Revise the label to include the sample volume and location where the sample was taken.

3. The Air Monitoring Procedure, Tab I-10, omitted a step prior to Step IV.A.2.B.(2).f. to determine and record the air background data from the background air sample.

Recommendation: Revise the Air Monitoring Procedure to include the step necessary to determine and record the air background data.

4. The time-dependent adjustment factor, in the equation to extract the I-131 contribution from the net count rate, identified at the Big Rock Point exercise, May 23, 1989 and again at the West II exercise, February 14, 1990, remain unresolved.

Recommendation: The time-dependent adjustment factor must be included in the equation to extract the I-131 contribution from the net count rate.

5. The GM-detector (pancake probe) sensitivity discussed at the February 14, 1990 exercise and again during the March 29, 1990 meeting in Lansing, remains unresolved.

Recommendation: The Michigan Radiological Health Division should enthusiastically pursue the investigation of the sensitivity of the GM-detector and modify the equation or substantiate why the equation should not be modified. Either way, the decision reached is to be reported to FEMA Region V.

#### Area Recommended For Improvement

1. The Air Monitoring Procedure could be improved by inserting a



step prior to Step IV.A.2.(3).f, that requires the air sampling media to be purged for approximately one minute prior to disassembly to remove noble gases trapped in the void spaces of the silver zeolite cartridge.

Recommendation: Revise the Air Monitoring Procedures to include a step requiring the air sampling media to be purged for one minute prior to disassembly.

#### Decontamination Objective 25

Deficiency: The procedures developed to demonstrate decontamination of personnel and equipment are not adequate. They are not comprehensive enough to enable the staff to perform the decontamination process. Personnel were unfamiliar with all aspects of procedure implementation. Once adequate procedures are developed, the facility itself needs to be evaluated for adequacy.

The written procedures for personnel monitoring and decontamination at this facility have been revised, and are much improved from the previous version available during the February 14, 1990, exercise. The garage and shower areas of the building, which are used for decontamination, are not large enough to accommodate the number of emergency workers expected to need decontamination at this facility. (This was mentioned in the previous summary.) The floor space in the garage area is small. There is only one small shower stall available, and the stairs leading to the shower facility are very narrow. However, the MDPH/RHD demonstrated that it is able to utilize this facility to accomplish the task of decontamination of field team personnel. Initial personnel monitoring of field staff was demonstrated at a simulated outdoor hotline. The monitoring process demonstrated was adequate. The instrument used for this purpose was a G-M counter with a pancake probe. The decontamination staff knew the trigger level for determining if someone/something was contaminated. A hotline was also set up inside the garage area. Other emergency workers using this facility are only permitted to enter and exit the building through two doors that are not in the controlled area, and these workers are trained on this procedure. All doorways leading directly to a hot area are posted with radiation signs. The hotline in the garage area is denoted by a rope that was set up in a very makeshift way. Stanchions should be available for setting up the rope. The hotline on the stairs and in the bathroom is denoted by radiation tape on the floor. Contaminated personnel are brought into the facility and are monitored by another decontamination staff member with a G-M ratemeter and pancake probe. If contaminated, they are instructed to remove contaminated clothes (behind a curtain) and if needed, are supplied with clean tyvek suits. Also, if needed, the personnel are instructed to clean



contamination off their skin in the bathroom or shower area. Clean tyveks are available to them in this area.

The remedial exercise corrected the deficiency observed during the February 14, 1990 exercise.

**Area Recommended For Improvement:**

Secure and utilize permanent devices to hold routine tape in place in the garage.

It was the desire, of the Michigan Radiological Health Division, to demonstrate and clear as many of the Pressurizing Collective Action (ARCA) as could be done during the remedial exercise, in addition to clearing the deficiencies. As noted in the foregoing, that was done. However, as a result of the remedial exercise there are new ARCA's which now need addressing. There also remain the ARCA's cited in the exercise report which could not be addressed during the remedial exercise.