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See Lpt.

SUBJECT: Provides licensed operator requalification training program  
 corrective action plan, per reevaluation of exams during  
 910226-0308 & follow-up operation evaluation during 910321-  
 22 periods.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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GO2-91-102  
May 16, 1991

Docket No. 50-397

J. B. Martin, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region V  
1450 Maria Lane, Suite 210  
Walnut Creek, CA 94596

Dear Mr. Martin:

Subject: **LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM  
CORRECTIVE ACTION PLAN**

- References: 1. Letter, A. L. Oxsen to J. B. Martin, Basis For Continued Operation For WNP-2 Following Evaluation Conducted on March 21,22 1991, dated March 22, 1991
2. Letter, A. L. Oxsen to J. B. Martin, Unsatisfactory Licensed Operator Requalification Training Program - Root Cause Assessment And Corrective Actions, dated April 15, 1991

The Washington Public Power Supply System Nuclear Project No. 2 (WNP-2) conducted licensed operator requalification examinations during the period February 26 to March 8, 1991, and a follow-up Operational Evaluation during the period March 21-22, 1991. The results of these examinations/evaluations led to the conclusion that the Supply System's licensed operator requalification program was unsatisfactory but provided a level of training sufficient to permit continued plant operation. In Reference 2 the Supply System provided the results of its' root cause assessment and a description of the recommended corrective actions to resolve the identified deficiencies. A subsequent management meeting was held at the NRC Region V headquarters on May 2, 1991 to discuss the results of the root cause assessment and the Supply System's planned corrective actions. The Supply System has since expanded the depth and breadth of our evaluation of the operator requalification examination failures. This letter provides the corrective actions resulting from this reevaluation.

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## **LICENSED OPERATOR REQUALIFICATION TRAINING PROGRAM CORRECTIVE ACTION PLAN**

One of the most serious issues to arise from the recent requalification experience was, as discussed at the May 2, 1991 meeting, the failure of certain operators to comply with the Emergency Operating Procedures (EOPs). This deficiency resulted from the lack of a structured approach in the use of EOPs. Failure to follow procedures, particularly the EOPs, is not acceptable. Heightened senior management appreciation of the significance of EOP compliance will be disseminated throughout the organization. Renewed effort has been, and will continue to be, placed on assuring from senior management on down that EOPs are not viewed as mere guidance, but rather as firm procedural requirements. This effort forms the center piece of our corrective actions and is described more fully below.

In order to provide the licensed and remediated operators with the necessary training, management direction, simulator instruction, and procedures for safe plant operation, the corrective actions associated with the licensed operator requalification training program have been identified and subdivided into three categories: 1. Immediate or short term (Restart) actions which will be completed prior to operator reexamination as required to support startup from the Spring 1991 Maintenance and Refueling Outage; 2. Intermediate term actions which will be completed by the end of the first post outage requalification cycle (September 1991); and 3. Long term actions to be completed by December 1991.

### Restart Actions

The following actions have been or will be completed prior to my allowing the restart of WNP-2.

1. In conjunction with plant and operations management, I will issue a memorandum to those personnel potentially involved with the EOPs (licensed operators, licensed operator trainers, shift technical advisors, Technical Support Center emergency staff, and Licensing and Assurance personnel who monitor operations and operations training activities), and to their managers and supervisors, to ensure they understand the importance of procedural compliance. The importance of this message will be reinforced by obtaining commitment signatures from each of the licensed operators.
2. Members of plant management and I will have met prior to plant restart with the affected individuals (licensed operators, licensed operator trainers, shift technical advisors, Technical Support Center emergency staff, and Licensing and Assurance personnel who monitor operations and operations training activities) to ensure they understand the challenge of the current situation and management's reaffirmed expectations for compliance with EOPs.

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3. Training on EOPs has been increased significantly to assure that they are treated as procedural requirements. For example, the training department as part of the remediation program will:
  - a) Provide four hours of classroom training with emphasis on management expectations on EOP performance, lessons learned from the crew failures, and use of the EOPs and associated procedures.
  - b) Each remediated operator will receive a total of 42 hours of static and dynamic simulator training to improve operator knowledge of the procedures, develop a greater appreciation for entry and exit requirements of the procedures and the EOP flowcharts, and to ensure the operations crews focus on a structured approach to EOP usage. This 42 hours of training and the 24 hours of simulator time described below, will also focus on crew communications and command and control.
  - c) Conduct 24 hours of simulator training with an emphasis on transient management, particularly in dealing with multiple event scenarios and the complexities they present in going through the EOP and flowcharts.
  - d) Provide eight hours of classroom systems training with emphasis on the weak areas.
  - e) Evaluate the skills acquired in the above training through classroom exams, static simulator exams, and dynamic simulator exams with evaluation based on NUREG 1021, Revision 6, ES-604 criteria.

In order to ensure the lessons learned from the recent operator failures are retained, similar training will be incorporated in the Licensed Operator Requalification Training Program.

4. Those licensed operators who are not a part of the remediation training program have shown through NRC monitored testing that they have an understanding of the EOPs and are able to utilize them. These operators have also been a part of the discussions with senior management regarding expectations for procedural compliance, and have received 12 hours of additional simulator training on accident scenarios and the use of EOPs. Additionally, prior to the next requalification testing cycle scheduled for no later than September, 1991, these operators will be trained on the lessons learned from the recent





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operator and crew failures. This combination of factors convinces me that these operators are capable of operating WNP-2 in a safe, reliable manner.

5. A simulator instructor refresher course has been developed and implemented to enhance the tools necessary for the simulator instructors to provide more effective training and evaluations. The refresher course content was designed to address those areas that were identified as weaknesses in the requalification exam and subsequent Operational Evaluation such as procedural compliance. The primary focus of the refresher training was in the area of observation and data collection. The course enhances and improves evaluator performance by reviewing those topics that are especially important in conducting static and dynamic simulator evaluations. This training included: preparation prior to conducting an evaluation, questioning techniques, methods and techniques to utilize when collecting data (with special attention being paid to the collection of facts and the avoidance of perceptions), evaluation of collected data, validation of ISCT's, determination of pass/fail decisions and conduct of critiques.
6. Management Oversight activities will be enhanced to include at least two sessions of management observation of simulator activities per week for the duration of the operator simulator training being conducted as part of the remediation program. Our objectives will be to monitor the cooperation and communications performance of the crews, particularly in the performance of EOPS, and to verify the Supply System position on procedural compliance is adhered to. Oversight will be provided by myself, the Plant Manager, Operations Manager, Assistant Operations Manager, and the Technical Training Manager with each of us providing two sessions per week. Management oversight of simulator activities has occurred in the past and will continue long term, but is being expanded for the remediation program due to the concerns identified.
7. A team of experienced utility evaluators from 5 different BWR utilities has been selected to monitor the simulator requalification testing to provide additional assurance that Supply System operator performance is acceptable. This will be accomplished prior to reexamination by the NRC. The main objective in the selection process was to bring in individuals who have worked with the Revision 4 BWROG Emergency Procedure Guidelines (EPG's), have experience with Revision 6 of NUREG 1021, and are experienced with successful operator evaluations in a simulator environment. This group will perform independently of the Supply System training evaluation team. This team will evaluate several of our dynamic simulator examinations to ensure that our evaluation standards are consistent with industry practices. They will specifically focus on communications, command and control, procedural compliance, EOP usability and use and overall safety performance. The results of their evaluations will be documented in

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accordance with the technical training evaluation program requirements, such that appropriate corrective actions are identified and tracked to completion.

8. The lead evaluation role during requalification training is assigned to the Operations Liaison so as to reinforce the tone and standard of performance expectations. This position is filled by a shift manager recently transferred from an operating crew. A new Operations Liaison has been assigned who is expected to provide aggressive evaluation and feedback which will institutionalize the improvements implemented in our remediation training program, such as EOP compliance. The importance of this role dictated that a department instruction be prepared and implemented to clearly define the duties and responsibilities of this position to obtain optimal effectiveness.
9. Following the initial requalification examination failures, the QA organization of the Licensing and Assurance (L&A) Directorate increased its surveillance of control room activities as described in Reference 1. The increased level of oversight of control room evolutions by QA will continue through restart following the outage. In addition, L&A is currently providing independent monitoring of the remediation program transient management training with qualified QA engineers and a recently hired individual experienced in the evaluation of licensed operators and EOP performance. L&A is also assessing the effectiveness of management expectation presentations by attendance at selected presentations and by interviews with licensed operators.
10. Plant procedure PPM 1.3.1, Conduct Of Operations, will be updated to clearly state management's position on the severity and extremely limited use of 10CFR50.54(x) for departure from Technical Specifications, License Conditions, and EOPs. The licensed operators will be trained on this clarification and monitored by the Management Oversight team, Training Evaluators, and QA personnel during simulator training to ensure they implement the procedure requirements in this area, particularly as they relate to EOPs.
11. Two new supervisor positions have been created to administer the daily activities of the equipment operator/replacement operator and requalification training programs, thereby alleviating the burden on the department manager who had little time for effective management actions beyond the daily administration of these programs (see Attachment 1). A department reorganization will transition to a structure which will have these key programs adequately supervised commensurate with their importance. The new supervisors each have a Bachelor of Science degree, a prior BWR SRO license, five and eleven years of operational experience, and four years of Shift Technical Advisor.

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experience each. In addition, one of these individuals has seven years of experience in operations department management at a similar BWR facility.

12. A memorandum was issued to the Technical Training staff which highlighted the importance of feedback on plant procedures (see Attachment 2). We recognize that training provides the closest thing to actual use of the EOPs short of a real emergency and that feedback from training is critical to EOP success and acceptance. Feedback from the licensed operators has always been encouraged and will continue to be solicited. This feedback will be used, in addition to the recommendations developed by the EOP review team described below, to enhance our EOPs.

### Intermediate and Long Term Actions

The following activities are scheduled for completion after restart from the current outage.

1. A consulting team has been selected to review our EOPs, the EOP flowcharts, the EOP Writers Guide, the Verification Program, the Validation Program, and the Emergency Support Procedures. This work is scheduled to begin in June and to complete by the end of July 1991. The review team will include the following: an individual with 30 years of human factors research and applications experience including serving as senior author for several NUREG/CRs dealing with procedural evaluation technology. In addition, he has also been involved in development of the Writers Guides for and the verification and/or validation of the EOPs at nine BWRs; an individual with 18 years of nuclear power experience including the last eight years dealing primarily with the development of BWR EOPs at 10 plants including assisting in the development of Revision 4 of the BWR Emergency Procedure Guidelines; an individual with 17 years nuclear experience including the last five in the development and verification of BWR EOPs. The team will review the aspects of the EOP program listed above, primarily from a human factors point of view. I am confident, based on past reviews and development efforts, that the WNP-2 EOPs are satisfactory for use in their current form. The results of the review teams efforts, however, should be EOPs of the highest quality and usability for our operators. Incorporation of EOP improvements from the review will be scheduled based on the scope and complexity of work identified with a target of completing all action by the end of December 1991.
2. In the summer of 1991, L&A will perform a team inspection of the technical training area. The team will include outside expertise in the training/EOP areas on loan from another utility. The multi-disciplined team will conduct a broad-scope programmatic and

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compliance review to evaluate the effectiveness of corrective actions to rectify currently identified problems and will use industry training program failures as a basis for identifying developing problems at WNP-2. This broad-scope evaluation will be repeated in the summer of 1992, using a similar team, as a follow-up to the 1991 inspection.

Based on the outcome of these independent team inspections, Supply System management will determine if the planned corrective actions are achieving the desired results and whether additional programmatic changes related to operator licensed training are needed.

3. An in-house consultant knowledgeable in human performance and management oversight has been tasked with providing the management team, the training instructors/evaluators, and the L&A personnel who monitor operator training and control room activities with an improved understanding of those attributes and activities which need to be monitored in order to effectively evaluate crew performance, particularly in the non-technical areas of communications, teamwork, and command and control. This structured monitoring of EOP performance will provide management with an improved insight into personnel performance while at the same time facilitating useful feedback to the operators for their own professional growth in the important non-technical skills areas.

In addition to our focus on EOPs as described above, the Supply System will continue to pursue those corrective actions put forth in our root cause analysis transmitted in Reference 2. The Supply System goals for our corrective action program are:

1. Provide the WNP-2 licensed operators with the training, skills and tools necessary to operate the plant in a safe, efficient manner during normal and postulated transient conditions.
2. Enhance the Licensed Operator Requalification Program to effectively support item 1 above and to ensure initial license and requalification candidates are fully prepared for Supply System and NRC testing and for actual plant conditions which may arise.
3. Provide sufficient senior management oversight of licensed operator training to verify management expectations are both understood and implemented.
4. Have the identified candidates successfully complete the NRC reexamination process.
5. During 1991, return the Licensed Operator Requalification Training Program to a "provisionally satisfactory" status as evaluated by the NRC.

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6. Return the Supply System Operator Requalification Training Program to a satisfactory status in conjunction with the completion of the operator training cycle currently scheduled for March, 1992.

The Supply System's corrective action activity has not been static; increased attention has resulted in an expansion of our tasks. The expanded corrective action list, grouped by time frame, is attached (see Attachment 3). In addition, Attachment 4 provides a listing of corrective action item sorted by required completion date with further information and the status of each item.

Finally, we have prepared a remediation program to assist us in returning our operator requalification program to satisfactory status (see Attachment 5). This program is far reaching and addresses among other things the need for adherence to EOPs and the capability to meet challenging accident scenarios.

In conclusion, I trust that this supplemental information is responsive to the important matters raised at our May 2, 1991 meeting. I assure you that I take your comments and concerns very seriously. I recognize the need to reorient our approach to EOPs and to emphasize operator training on more challenging accident scenarios. It is my job to assure that WNP-2 has an outstanding operator requalification program that properly focuses on adherence to EOPs and complex accident scenarios. I will settle for nothing less.

Very truly yours,



A. L. Oxsen  
Deputy Managing Director

**Attachments (5)**

cc: Document Control Desk  
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RM Gallo/NRC



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WNP-2 NUCLEAR POWER PLANT

EXERCISE REPORT

Licensee: Washington Public Power Supply System  
Location: Richland (Benton County) Washington

Date of Exercise: September 11, 1990

Participants: Full Scale:

State of Washington  
Benton County, Washington  
Franklin County, Washington

prepared by

FEMA Region X  
December, 1990



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### List of Acronyms

ACP . . access control point  
ARCA . . area requiring corrective action  
ARFI . . area recommended for improvement  
DEF . . deficiency  
DOE . . U. S. Department of Energy  
DOH . . Washington State Department of Health  
EBS . . Emergency Broadcast System  
ECL . . emergency classification level  
EDPS . . electronic dose projection system  
EEM . . exercise evaluation methodology  
EOC . . emergency operations center  
EOF . . emergency operations facility  
EPZ . . emergency planning zone  
EW . . emergency worker  
EWAC . . emergency worker/assistance center  
FEMA . . Federal Emergency Management Agency  
FNF . . fixed nuclear facility  
FSO . . Franklin County Sheriff's Office  
FT . . field team  
GE . . general emergency  
IPZ . . ingestion planning zone  
JIC . . joint information center  
KI . . potassium iodide  
mr/hr . . millirems per hour  
MI . . mobility impaired  
MUDAC . . meteorological and unified dose assessment center  
NAWAS . . National Warning System  
NOUE . . notice of unusual event  
NRC . . U.S. Nuclear Regulatory Commission  
NWS . . National Weather Service  
ORP . . Office of Radiation Protection  
ORV . . off road vehicle  
PAD . . protective action decision  
PAG . . protective action guide  
PAR . . protective action recommendation  
PC . . press conference  
PR . . press release  
RAC . . Regional Assistance Committee  
RAG . . radiological assessment group

List of Acronyms (continued)

RM . . recovery manager  
SAE . . site area emergency  
SS . . Washington Public Power Supply System  
SSDC . . Supply System Decision Center  
REM . . Radiological Emergency Manager  
TH . . thyroid  
TLD . . thermoluminescent dosimeter  
TSC . . Technical Support Center  
VCA . . verification of corrective action  
WA . . Washington State  
WB . . whole body  
WEIC . . Washington Emergency Information Center  
WNG . . Washington National Guard  
WNP-2 . . Nuclear Plant #2  
WSP . . Washington State Patrol

## SUMMARY

On September 11, 1990, FEMA Region X evaluated an exercise of offsite plans and preparedness for the State of Washington, and the Counties of Benton and Franklin Counties, Washington for the WNP-2 Nuclear Plant. WNP-2 is located on the Hanford Reservation in Benton County, Washington. This was the first exercise in the second six year cycle. Previous exercises were conducted on March 1, 1989, September 13, 1988, September 18, 1986, May 16, 1984 and June 1, 1983.

This exercise was conducted in accordance with FEMA's regulations concerning the exercise of state and local radiological emergency plans and preparedness contained in 44 CFR 350.9(a).

FEMA evaluated the following operations:

State of Washington:	Accident Assessment/EOF; State EOC; field monitoring teams.
Benton and Franklin Counties:	EOC; JIC; Columbia River route alerting; school and mobility impaired evacuation; access control points.

## SUMMARY OF RECOMMENDED CORRECTIVE ACTIONS

FEMA Region X recommends the following corrective actions. Exercise participants have initiated remedial actions for those items identified as Deficiencies. Following the completion of remedial actions, a remedial drill will be conducted. See Sections 2 and 3 for further discussion of these issues.

### STATE OF WASHINGTON

#### Deficiencies:

- \* Dose Assessment - Improve information flow from the EOF to the state EOC. Demonstrate capabilities in a remedial drill.
- \* Dose Assessment - Improve capabilities and expertise of staff responsible for dose projections. Demonstrate capabilities in a remedial drill.
- \* Dose Assessment - Improve dose projection system. Demonstrate capabilities in a remedial drill.

#### Areas Requiring Corrective Action:

- \* Control - Train DOH staff on the appropriate point of contact at the EOF.
- \* Communication - Acquire and install equipment to provide additional fax capabilities.
- \* Field Monitoring - Revise procedures and train staff on data collection and reporting processes.
- \* Media Briefing - Improve capabilities for briefing the media in an accurate and timely manner at the State EOC.
- \* Federal Assistance - Revise procedures to recognize the limitation of federal technical (radiological monitoring) assistance.

### BENTON/FRANKLIN COUNTIES

#### Deficiencies: None

#### Areas Requiring Corrective Action:

- \* Control - Improve capabilities for two-way briefings at the Bi-county EOC.

- \* Emergency Worker Instructions - Revise instructions to eliminate inconsistency.
- \* Alert & Notification - Revise procedures to ensure simultaneous activation of sirens and EBS system, if required.
- \* EBS Messages - Revise text regarding shelter instructions. Prerecord messages to eliminate preparation and reading errors.
- \* Emergency Workers & KI - Revise procedures to ensure that all emergency workers receive KI instructions.
- \* Special Needs Data Base - Review, update, and maintain special needs data base.
- \* Evacuation Verification - Develop procedures and resource needs. Revise plan. Train staff.
- \* Press Releases - PIO log at the JIC should list the times that press releases were issued.

#### VERIFICATION OF CORRECTIVE ACTIONS

In addition to the preestablished exercise objectives, FEMA evaluated the implementation of the corrective actions identified in previous exercises. Benton and Franklin Counties demonstrated that seven of the eight verification of corrective actions (VCA) were corrected. Washington State demonstrated that only 7 of the 22 VCAs were corrected. See Appendix A for the report and status of corrective actions. Corrections not successfully implemented during this exercise will be the object of review in future exercises.

## 1. INTRODUCTION

### 1.1 EXERCISE BACKGROUND

On December 7, 1979, the President directed FEMA to assume lead responsibility for all offsite nuclear planning and response.

FEMA's responsibilities in radiological emergency planning for fixed nuclear facilities include the following:

1. Taking the lead in offsite emergency planning and in the review and evaluation of radiological emergency response plans developed by state and local governments;
2. Determining whether such plans can be implemented on the basis of observation and evaluation of exercises of the plans developed by state and local governments;
3. Responding to requests by the NRC pursuant to the Memorandum of Understanding between NRC and FEMA relating to Radiological Emergency Planning and Preparedness, 50 Federal Register 15485 (April 18, 1985);
4. Coordinating the activities of Federal agencies with responsibilities in the radiological emergency planning process:
  - U.S. Department of Commerce (DOC)
  - U.S. Nuclear Regulatory Commission (NRC)
  - U.S. Environmental Protection Agency (EPA)
  - U.S. Department of Energy (DOE)
  - U.S. Department of Health and Human Services (HHS)
  - U.S. Department of Transportation (DOT)
  - U.S. Department of Agriculture (USDA)
  - U.S. Department of the Interior (DOI)

Representatives of these agencies serve on the Regional Assistance Committee (RAC), which is chaired by FEMA.

The exercise participants employed their plans of record. The following plans and procedures were used by FEMA in evaluating the performance of the participants:

1. The State of Washington Emergency Response Plan dated June 30, 1990.
2. The State of Washington Fixed Nuclear Facility (FNF) Emergency Response Procedures, dated January 18, 1990.
3. The State of Washington DOH/ORP Response Procedures For Radiation Emergencies dated July 1990 and various Supply System joint procedures.



4. The Benton/Franklin County FNF Emergency Response Plan and Procedures dated June 1989.

This exercise was conducted in accordance with the exercise scenario and agreements on extent of play. The scenario presented a hypothetical accident at WNP-2 that was to trigger offsite response activities as well as various offsite conditions and contingencies. The extent of play agreements between FEMA and the emergency response organizations define the manner in which a particular response function will be demonstrated by the players. The agreements were designed to test the ability of the plans and procedures to be implemented under simulated emergency conditions. Where no extent of play agreement existed, FEMA evaluated the observed activities as if the plans and procedures were to be followed in their entirety.

The criteria used in the evaluation are contained in NUREG-0654/FEMA REP-1, Rev. 1, FEMA's Exercise Evaluation Methodology (EEM), and the actions called for in the participants' plans and procedures.

A Control Cell was used in this exercise. The Control Cell placed and received phone calls to the Joint Information Center and the state and county EOC's. The Control Cell was used to represent the media, concerned public and other response organizations. The response by participants to the Control Cell calls gave one basis for FEMA's evaluation of the adequacy of offsite preparedness.

Section 2 of this report contains the exercise evaluation. Each objective contains a statement of the objective, the outcome of the evaluation (met/not met) and a narrative summary of our observations which served as a basis for our evaluation. Where applicable, the narrative is followed by one or more exercise issues which fall into the following categories:

Deficiencies (DEF): demonstrated and observed inadequacies that would cause a finding that offsite preparedness was not adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power plant in the event of a radiological emergency. This inadequacy could be an exercise related issue regarding inadequate plans and procedures or the ability to implement plans. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial

actions.

Areas Requiring Corrective Actions (ARCA): demonstrated and observed inadequacies of performance. Although correction is required, they are not considered in and of themselves to adversely impact public health and safety.

Areas Recommended for Improvement (ARFI): issues observed that are not considered to adversely impact public health and safety. While not required, improvements in these areas would enhance an organization's level of emergency preparedness.

Plan Issues: An issue, identified as part of an exercise or drill, that deals with an area of planning that was not included in the scope of the exercise objectives and extent of play agreements. Corrective actions are required. Plan issues will be rated "inadequate" and will be identified by appropriate criterion in NUREG-0654.

When exercise issues or plan issues are identified in this report, they are listed with a brief statement of the issue, a reference to the applicable NUREG-0654 element, the level of the issue (DEF, ARCA, Plan, or ARFI) and, if the issue is DEF, ARCA, or Plan level, a tracking number used to identify the issue. Section 3 of the report is a summary listing of all DEF, ARCA or Plan issues identified during the exercise.

## 1.2 FEMA EVALUATORS

The 1990 WNP-2 exercise was evaluated by 32 evaluators drawn from FEMA, other Federal, State, local and contractor organizations. Table 1 lists these evaluators, their organizational affiliation and their assigned locations during the evaluation.

## 1.3 EXERCISE OBJECTIVES

The goal of this exercise was to demonstrate by actual performance a number of primary emergency preparedness functions. At no time was the exercise to interfere with the safe operation of the WNP-2 plant, or with State or local government activities. Tables 2 and 3 show the locations where each objective demonstrated

during the exercise was evaluated.

TABLE 1: Evaluator Assignment List - WNP-2 Exercise, September 11, 1990

Richard W. Donovan RAC Chairman

<u>EXERCISE LOCATION</u>	<u>EVALUATOR/AFFILIATION</u>
o WA State EOC	Richard Converse (ANL) Team Leader Jerry Leitch (EPA) Irv Silver (FEMA) Bill Van Pelt (FDA) Bennie Walthall (DOT)
o WA Accident Assessment & Coordination at the EOF	Joe Keller (WINCO) Dep. Team Leader Frank Bold (ANL) Bill Brown (FEMA) Dave Duncan (ANL) Gail Good (NRC) Brad Salmonson (WINCO)
o WA Rad Monitoring	Dale Denham (DOE-RL) Carl Hunkler (ANL)
o Joint Information Center	Ed Ronne (ANL) Dep. Team Leader Eleanor Castle (FEMA) Linda Lewis (ANL) Anita Nordstrom (FEMA) Elizabeth Post (USDA) Judy Tokarz (DOE-RL)
o B/F EOC	Arvind Teotia (ANL) Team Leader Colleen King (Observer) Bruce Knipe (FEMA) Mike Post (FEMA) George Turner (FEMA) Mary Beth Vasco (FEMA)
o B/F Field Operations	
- ACPs/TCPs - Franklin County	Sam Miller (FEMA) (Group Leader)
- Franklin County	Eva Neterowicz (FEMA)
- Richland	Bill Brown (FEMA)
- School Evacuation	Bill Knoerzer (ANL)
- Mobility Impaired Evacuation	Carolyn Williams (IND)
- Route Alerting	
- DOE	Jim Price (DOE-RL)
- Washington Fish & Game	Bill Gadberry (FEMA)

TABLE 2: Objectives Evaluated at each Washington State Location  
WNP-2 Exercise September 11, 1990

Objective Description	OBJ NUM	EOC	EOF	JIC	FIELD RAD MONITOR
ECL	1	X	X	X	X
Alert, mobilize, activate	2	X	X	X	X
Direct, coordinate, control	3	X	X		
Communications	4	X	X	X	X
Facilities and displays	5	X	X	X	
Emergency worker dose control	6	X			X
Equipment and procedures radiation monitoring	7				X
Equipment and procedures airborne monitoring	8				X
Samples-particulate activity	9				X*
Dose projection	10	X	X		
Protective Action decisions	11	X			
Coordinate information and instructions	13	X		X	
Brief media	14	X**		X**	
Rumor control	15	X**		X**	
Emergency Workers - KI	16	X	X		X
Federal Assistance	26	X			

\* Demonstrate collection of air sample and transfer to WSP.

\*\* Phone calls from and to Media/Public Control Cell @ 5 calls/hour (minimum) per staff position at the Joint Information Center and at State EOC.

TABLE 3: Objectives Evaluated at each B/F County Location  
WNP-2 Exercise September 11, 1990

Objective Description	OBJ NUM	EOC	FIELD	JIC
ECL	1	X		X
Alert, mobilize, activate	2	X	X	X
Direct, coordinate, control	3	X		
Communications	4	X	X	X
Facilities and displays	5	X		X
Emergency worker dose control	6	X	X	
Protective Actions (PAs)	11	X		
Alert and Notification	12	X	X	
Coordinate information and instructions	13	X		X
Brief media	14			X*
Rumor control	15			X*
Emergency Workers - KI	16	X	X	
Implement PAs for Special populations	18	X	X	
Implement PAs for School population	19	X	X	
ACP and TCP establishment and maintenance	20	X	X	

\* Phone calls from and to Media/Public Control Cell @ 5 calls/hr: (minimum)  
per staff position at S/L EOC's.

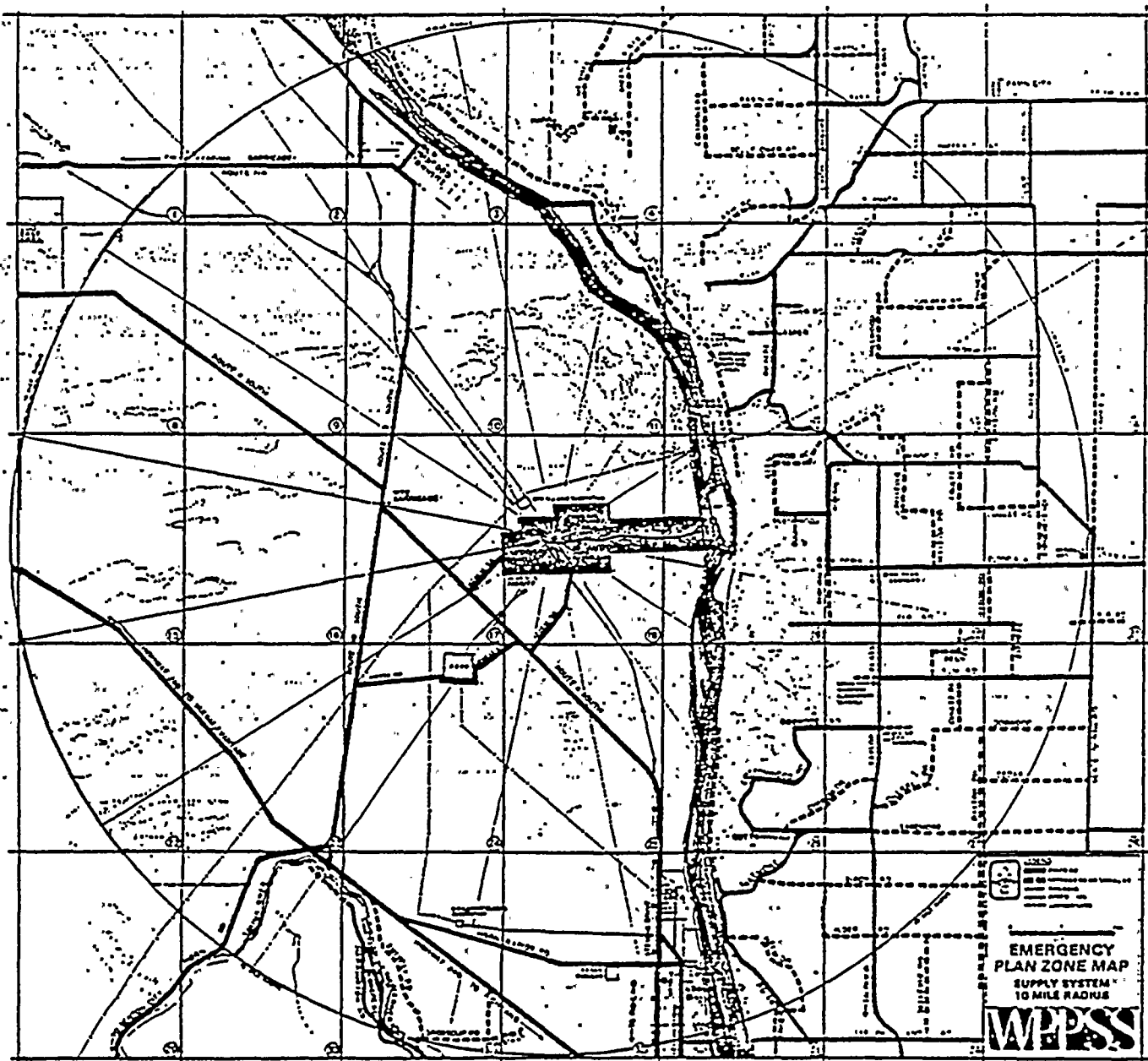


Figure 1: WNP-2 Plume EPZ Map.

#### 1.4 EXERCISE SCENARIO

The scenario was designed to test the objectives listed in Tables 2 and 3.

The scenario started with WNP-2 in the process of power ascension. It was at 10% power. At 0800, a protest group began a demonstration outside the WNP-2 fence. At approximately 0830, a separate group of demonstrators drove a truck up to the fence and placed a ladder against the fence. One member climbed the ladder and entered WNP-2 property. WNP-2 security detained the person and the control room shift manager declared an Alert per procedures.

At approximately 0910, a fire in the Technical Support Center started. The fire was quickly extinguished but it made the occupation of this work area impossible.

At 0955, the plant was continuing power ascension when a control rod accident occurred: a high worth control rod was inserted into the core out of sequence into the core. The resulting removal of negative reactivity caused a power excursion which caused a reactor scram. Plant parameters indicated fuel failure (clad damage of 1.8%).

As part of the scram process, two main steam isolation valves failed to operate. At 1010, the A Main Steam Line ruptured, allowing reactor steam to vent into the Turbine Bldg. This was the condition that triggered the emergency action level for the emergency classification level of General Emergency.

The release began with the 1010 event and continued until about 1400. During this timeframe the wind was blowing from the northwest at 300 degrees. The stability class was "E". The rate of release dropped significantly at about 1200 and remained constant until 1400.



## 1.5 GUIDE TO KEY TABLES USED IN THIS REPORT

### 1.5.1 Significant Event Log

Table 4 presents the Significant Event Log from the WNP-2 exercise. Evaluators at the exercise were instructed to record the times and substance of significant exercise events. Table 4 was constructed from their individual logs. It includes the time when the event took place, a short description of the event and any applicable comments. The times given for press releases are the times the releases were available to the media.

### 1.5.2 Protective Actions

Protective actions (PAs) are actions prescribed by public officials to minimize or prevent dose commitment. Examples of PAs include sheltering, evacuation and diversion of milk into cheese, dried or frozen products. These actions are based on protective action recommendations (PARs) from the utility or the state which in turn are based on protective action guides (PAGs). A PAG is a projected absorbed radiation dose level to the general population which warrants protective action to avoid this dose.

This process of recommending and deciding on protective actions, followed by appropriate public instructions is a key element of FEMA's exercise evaluation. Table 5a presents a summary of the PARs issued during the exercise and the time each was issued by the EOF. Once a PAR is agreed upon (becomes a PA), it is implemented by the responding organizations. Table 5b shows the time the PA was agreed to, what PAs were implemented by each organization, and other relevant comments.

Table 6 summarizes the implementation of these protective actions. Implementation is via the Emergency Broadcast System (EBS).

### 1.5.3 Information Provided to the Media

Information was provided to the media via news conferences and press releases. Tables 7a and 7b summarize the contents of the news conferences held by the Joint Information Center (JIC) in Richland, and the Washington Emergency Information Center (WEIC) in Olympia, respectively. Table 8 is a list of the press releases issued by the response organizations.

Table 4: Significant Events Log - WNP-2 Exercise September 11, 1990

SCENARIO TIME	LOCATION	EVENT
0823	EOF	NOUE Notification: at 816, Civil Disturbance.
0828	EOF to Offsite agencies.	NOUE fanout completed.
0830	B/F EOC	NOUE Notification.
0839	EOF	Alert Notification: at 836.
0840	JIC, WA EOC	Alert Notification.
0840	B/F EOC	NOUE Fanout Complete.
0846	EOF	Alert fanout complete.
0849	B/F EOC	Alert Notification.
0849	WA EOC	Declared functional.
0850	EOF to EOCs, etc.	Update Alert: Intruder location .
0852	DOE COC	Request Helicopter to perform surveillance.
0855	Franklin County Sheriff (FSO) to EOC.	Notified of ALERT; Officer dispatched to EOC.
0855	JIC	Team Discussion: regarding apprehension of intruder
0900	JIC	Begin calls to Media.
0903	EOF/MUDAC	MUDAC declared functional.
0905	B/F EOC	Alert Fanout begins.
0905	FSO	Begin EW Kit checkouts.
0911	WA EOC	WA PR#1 approved.
0913	B/F EOC	Alert fanout complete.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
0915-17	EOF to EOCs/JIC	EOF is declared Activated, RM in charge.
0915	EOF/MUDAC	Inquiry to Yakima NWS.
0919	B/F EOC	Declared Activated.
0920	WA EOC	PR WA#1 released
0927	B/F EOC	First Briefing.
0930	EOF to WA EOC	Faxed Alert Notification Form.
0930	JIC	Activate Public Inquiry Phone Team.
0932	EOF/MUDAC	DOE Rep arrives.
0936	EOF/MUDAC	3 Field Teams/Standby ready to go.
0936	EOF/SSDC	First RM Briefing.
0940	WA EOC	Declared Activated.
0941	EOF/MUDAC	REM Briefing.
0941	DOE-COC	Increased site security level.
0942	EOF/SSDC	Received NOUE & Alert Notification Forms.
0942	JIC	Declared Activated.
0944	EOF to B/F EOC	Discussed Status.
0945	WA EOC	Briefing.
0949	EOF	TSC Reactivated in Control Room.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
0951	B/F EOC	First SS Rep briefing.
0954	WA EOC	Begin callouts to Media.
0955	JIC	County Commissioner (Spokesperson) arrives.
0956	Plant	Scrammed.
0956	WA EOC	Briefing.
0957	JIC	PR SS #1 Released.
0957-1005	TSC to EOF	Discussed upgrade to SAE.
1003	B/F EOC	Reactor has scrambled.
1005	JIC	Security arrived.
1005	WA EOC	Discussion: potential release.
1006	EOF	Received signed notification form for SAE at 1001.
1007	SSDC to B/F/EOC	Request Columbia River Evacuation
1007	DOE @ EOF to DOE POC	Initiate Columbia River Evacuation; also assist in moving protestors.
1008	EOF to EOCs	SAE, PAR #1: Evacuate Columbia River, evacuate exclusionary zone.
1010	DOE POC	Send bus to WNP-2.
1010	WA EOC	Completed Press Release #1.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1010	EOF/MUDAC	Dispatch field team to Leslie Groves Park to meet Sheriff boat.
1011	B/F EOC	WSP log entry: request Fish & Game to evacuate Wahluke hunting area.
1012	EOF/MUDAC	Dispatch 2 field teams (East/West side of Columbia River)
1012	FSO	Notification of SAE, effect River Closure (ACPs F15 & F16).
1012	DOE POC to Flight Operation	Effect Columbia River Evacuation for WNP-2.
1012	B/F EOC	Posted on status board: projected dose of 5 Rem at Site Boundary.
1014	B/F EOC	PAD #1: Evacuate Columbia River, Sound Sirens, Activate EBS.
1014	DOE POC	Dispatch Boat to White Bluffs.
1015	DOE-Helicopter	Airborne.
1015	B/F EOC	Richland Police - Evacuate Horn Rapids ORV Park; dispatch deputy to Leslie Grove Park.
1015	WA EOC	Briefing.
1017	B/F EOC	Siren Activation #1.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1018	FSO	Dispatch FSO # 1 & 2 to Selph/Ringold (F15 & F16).
1018	B/F EOC to SS	Request confirmation of siren activation (per procedures) - SS cannot confirm siren activation.
1018	WA JIC Team	Airport closed due to fog - cannot get to Richland.
1018	EOF	KI decision for SS, confirm release has started.
1019	EOF/MUDAC	First dose projection (using BEDPS), 25.7 Rem TH at 1.2 miles.
1019	B/F EOC	Posted on status board, Fish & Game enroute to perform route alerting & evacuation verification.
1022	EOF to EOCs	GE, PAR #2: Shelter Sector 2 to 5 miles, KI for SS, KI PAR for S/L EWS. Note, form said "no release", but the RM explained on the crash call that the release had just started.
1023	B/F EOC	Find out if sirens have activated.
1023	EOF to SS #1-3	Take KI.
1024	B/F EOC	Siren Activation #2.
1024	EOF to JIC	GE notification.
1025	EOF to SS #1	Use respirators.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1024-36	WA EOC	Discussion on EW KI PAR.
1025	EOF	Announced DOE Helicopter Airborne as of 1015.
1025	JIC	OR PR #1 & WA PR #1 are released.
1028	B/F EOC	Begin callouts to field re: siren activation.
1028	EOF/MUDAC	SS to DOE #1, re: monitoring assignment.
1028	DOE POC	Hanford boat enroute.
1029	B/F EOC & KONA	Broadcast (simulated) EBS #1 for PAD #1.
1030	B/F EOC & KONA	Broadcast (simulated) EBS #1 in Spanish.
1031	JIC	SS PR #2 & B/F PR #1.
1032	DOE to Field	Establish Decontamination station at White Bluffs.
1032	JIC	SS PR #3 and #4.
1032	B/F EOC	WSP noted on their log that Fish & Game had completed the evacuation of Wahluke hunting area.
1033	EOF/MUDAC	Field team reports first Contact & measurement with release.
1035	FSO # 1	Arrive at Selph Landing.
1035	WA EOC	Decision to administer KI to S/L EWs.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1037	WA EOC to EOF & B/F EOC	Administer KI to S/L EWs.
1038	EOF/MUDAC to SSDC	First Plume Projection (data point report - location of plume).
1038	EOF/MUDAC	First EDPS dose projection.
1039	DOE Helicopter	Completes River EPZ Sweep (contacted 4 boats per extent of play agreement). Actual count is 22 persons on shore and 20 boats.
1040	FSO#2	Arrive at Ringold; acted as base station for Fish & Game.
1040	WA EOC	WA PR#2 - State of Emergency.
1040	Fish & Game	At Ringold - monitor radio traffic.
1041	WSP to WA EOC	Field personnel have taken KI.
1042	SS # 1	Take first air sample.
1042	JIC	PC #1.
1042	WA EOC	Briefing.
1043	DOE/EOF to DOE/POC	Release will not reach river for 22 minutes, perform another run up river.
1043	FSO#1	Observed DOE Helicopter.



Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1044	B/F EOC	PAD#2: Shelter livestock to 5 miles; Shelter Section 2 from 0 to 5 miles. Emergency Workers take KI.
1045	Radio Station KONA	Broadcast EBS test message in English.
1045	EOF/SSDC	RM decision, transmit first plume forecast (data point report) to S/L.
1045	EOF/MUDAC	First dose projection using ambient (field) radiation measurements, projected dose TH 26 REM at 1/2 mile.
1047	Radio Station KONA	Broadcast EBS test message in Spanish.
1047	B/F EOC	Receive confirmation of siren activation.
1047	FSO#2	Inform FSO that road blocks in place on river.
1048	Fish & Game to FSO	Decision to proceed with Hunting Area Closure (Note, Fish & Game had not received notification & instructions from WSP).
1048-57	EOF/SSDC	Briefing on status of PARs & PADs.
1049	WA EOC	Question, have we received the text of any EBS messages? (AD-DEM asks staff person).
1049	FSO#2	Observed DOE helicopter (Sweep #2).

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1049	B/F EOC to PASCO SCHOOL/TRANS.	Dispatch buses to schools.
1049	B/F EOC & KONA	Broadcast (simulated) EBS #2: Shelter Section 2 from 0 to 5 miles; place livestock in shelter and on stored feed. Note, no mention of ORV Park closure.
1049	DOE patrol boat	Arrives at White Bluff.
1051	Fish & Game to FSO#2	Commencing evacuation verification & route alerting of Hunting Area.
1052	FSO to FSO # 1 & 2	Verification of road block.
1053	FSO #1 & 2 to FSO	Verified positions at F15 & F16.
1057	B/F EOC	SS Briefing: release has started, wind is at 3 mph, measured dose rate of 173 mr/hr.
1059	EOF to B/F EOC	Briefing: Offsite dose rates are increasing.
1100	EOF/MUDAC	First MUDAC PAR with EDPS Dose Projection (TH dose 14,492 mr/hr. at 10 miles, evacuate Section 2, 0-10 miles, no KI PAR.
1100	EOF/SSDC	Discussion: 5% Clad failure, what is the cause?
1100	DOE field team	Begin Setup of Decontamination at White Bluffs station

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1101	PASCO TRANS./ SCHOOL	Bus departs to Markham School with radio check.
1101	Fish & Game	Enroute to Wahluke slope.
1102	B/F EOC	Receiving many phone calls r e s t a t u s o f schoolchildren.
1102	B/F EOC	Signed Proclamation of Emergency.
1102-1106	B/F EOC	Decision to evacuate schools.
1105	WA EOC	State JIC arrives back.
1103	DOE Helicopter	Completes upriver sweep.
1105	EOF/SSDC	Briefing: 4 Boats are out of zone (Columbia River-plume EPZ).
1106	SS#1	Count on cartridge, 308 mr/hr.
1106	JIC	SS PR #4.
1107	FSO#1	Observed Benton County Sheriff's boat patrolling down river.
1107	EOF/REM to MUDAC	Sent back MUDAC PAR (1100) with request to confirm MUDAC dose projection.
1109	Fish & Game	Secured north end of Hunting Area.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1109	MUDAC to REM,	Confirm dose projection and MUDAC REM to MUDAC, PAR #1; REM changes MUDAC PAR #1 REM to RM to include evacuation of Sections 1, 3 & 4 from 0 to 5 miles.
1110	EOF/MUDAC	Second EDPS Dose Projection - 10 mr/hr (WB) at 10 miles.
1113	DOE to field teams	Terminate DOE portion of River route alerting, access control & decontamination station.
1113	B/F EOC	Decision to evacuate special populations in Section 2 from 0 to 10 miles.
1114-1121	EOF to EOCs.	PAR #3: Sections 1, 3, 4 Evacuate to 5 miles. Section 2 evacuate to 10 miles, KI for EWs, Evacuate Columbia River.
1116	EOF/REM to WA EOC	Discussion on PAR #3.
1118	PASCO/TRANS SCHOOL	Bus dispatched for Mobility Impaired pickup.
1120	EOF to WA #2	Dispatched to east side of river.
1122	B/F EOC	Status board posted, evacuation bus arrives at Edward Markham School.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1124	B/F EOC	PAD #3, evacuate Section 1 to 5 miles; Evacuate Section 2 to 10 miles.
1124	WA EOC to EOF	Discussion: is PAR # 3 both the MUDAC PAR & the RM's PAR? Answer: Yes.
1125	WA EOC	Last Media callout completed.
1125	WA #1	Radio Check.
1127	Edwin Markham School	Bus departs for Isaac Stevens EWAC
1128	FSO #1 & 2	Dispatch to F#5 & F#6, take KI.
1130	JIC	WA DOH Technical Advisors arrived.
1131	EOF to WA #1	Dispatched to N. Taylor Flats.
1131	B/F EOC	Status board posted: Columbia River evacuation is complete.
1131	Fish & Game	Completed Wahluke route alert/verification, return to Ringold.
1132	WA EOC to B/F EOC	WA concurs with PAR # 3 from SS. State also concurs with PAR # 3.
1133	Fish & Game	Complete route alerting, access controls in effect.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1134	B/F EOC & KONA	Broadcast (simulated) EBS #3 - Evacuate Section 1, to 5 miles; evacuate Section 2, to 10 miles. Schools being evacuated, two assistance centers have been opened.
1135	FSO to FSO 1 & 2	Informed them that 2 assistance centers open.
1135	Fish & Game to FSO	Completed Evacuation and Access control; awaiting further instructions.
1137	MUDAC	WA DOH arrives.
1140	Fish & Game to FSO	Any instructions?
1140	JIC	Receive B/F PR #3 & SS PR #5.
1141	FSO#2	Arrives at ACP #F5.
1141	JIC	Received B/F PR #2.
1142	WA EOC	Briefing.
1143	EOF to WA #1	Briefing on plant status, (Not told to take KI).
1144	WA EOC	Receive B/F PR #3.
1145	Fish & Game	Depart to EWAC at Connell.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1145	EOF/SSDC	Briefing: School evacuation completed; evacuation of ORV park in progress; Columbia River evacuation is completed. Dose Projection 2.9 TH at 10 miles, B/F recommended shelter of animals in Section 2, 0 to 10 miles. MUDAC is considering PARs beyond 10 miles.
1148	WA EOC to FEMA	Request Federal assistance - 5 field teams and mobile lab.
1148	JIC	Receive WA PR#2.
1150	FSO#1	Arrive at ACP #F6.
1151	EOF to WA#1	Take KI.
1151	WA EOC	Received B/F EBS #1 & #2 texts.
1152	MUDAC	Receive first lab analysis. (from SS air sample taken at 1042, 0.5 mile from plant).
1153	School bus	Arrived at Host School (EWAC).
1154	MI bus	Arrived at residence.
1155	WA EOC	Phone team tells public that evacuation is being considered (when its actually taking place).

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1158	EOF/MUDAC	First dose projection based on Iodine measurement, TH 6.29 rem/hr at 1.2 miles; TH 1.09 rem/hr at 5 miles, TH 481 mr/hr at 10 miles.
1204	WA EOC	Media section received text of B/F EBS 1 & 2.
1204	JIC	PC #2.
1205	B/F EOC	Discussion: OK to remove loaded/harvested produce/go back in to evacuated area. No actions are taken to implement this issue.
1206	B/F EOC	SS Briefing: 1 mr/hr at leading edge of plume.
1210	EOF/MUDAC	MUDAC PAR # 2: IPZ advisory for Sections 1, 2, and 3, from 10 to 50 miles.
1210	B/F EOC	First Staff Briefing (Note, no mention by Richland Police of ORV Park closure & no mention by WSP of Fish & Game actions).
1218	SS at B/F EOC to EOF	Discussion: County's concerns on sending people in to get food.
1218	WA EOC/WEIC	Received SS PR #5.
1219	REM to RM/EOF	New dose projection: no need to go beyond 10 miles re PARs.
1225	B/F EOC	Report: Section 1 and 2 - evacuation is completed.



Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1225	RM to WA EOC	Notification/discussion of IPZ advisory (MUDAC PAR # 2).
1226	WA EOC	Received information that core had not been at 100% power.
1228	JIC	OR PR #2 and B/F PR #4.
1230	EOF to WA #2	Take KI.
1230	B/F EOC	Controller insert to FSO: perform evacuation verification of Section 2: FSO is unable to comply (no procedures).
1231	EWAC	MI Bus #1 arrives.
1233	EOF to B/F EOC	Discuss differences in dose projections
1235-37	WA #1	Made first plume pass/measurements: 6 mr/hr at center line.
1235	WA #2	Made plume edge measurement (at FIR street) 0.6 mr/hr.
1235	PASCO/TRANS	Dispatch Mobility impaired bus to School second residence.
1240	WA 1 to EOF	Report measurements.
1242	EOF to WA #1	Take air sample.
1245	WA EOC to B/F EOC	IPZ Advisory: Sections 1, 2, and 3, from 10 to 50 miles.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1245	WA #1	Take Air Sample #1, Taylor Flat Road.
1247	WA #2	Takes KI
1250	FSO # 1 & # 2	Depart sites to EWAC.
1251	WA #2	Take 2nd set of measurements through plume: 3.1 mr/hr (edge) and 4.6 mr/h (center) @ 19K46
1254	B/F EOC to EOF	Discussion and question the rationale for the IPZ Advisory for Section s 1 & 3.
1255	WA #2 to EOF	Field Analysis reported $2.99 \times 10^{-6}$ u/ci/cc; $3.33 \times 10^{-7}$ particulate.
1259	B/F EOC	Briefing: WA Field Team reports plume edge (northern side) is at North Elm & Dogwood.
1301	WA#2	Makes measurements at 19K2B, 822 uR/hr.
1301	REM/RM	Discuss IPZ Advisory.
1302	B/F EOC to WA EOC	Do not agree with IPZ Advisory.
1305	EOF to B/F EOC	Stand by IPZ Advisory (MUDAC PAR # 2).
1309	WA EOC	Received WA PR #3.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1310	WA #1 to MUDAC	Reports results of sample taken at 1245 from 27D9G (6.5 miles): iodine $2.93 \times 10^{-6}$ .
1310	WA EOC	Decides on IPZ Advisory.
1310	WA #2	Take air sample @ 19K46.
1320	EOF	Received first indication that majority of release was over - 1.4 hr/duration.
1320	WA EOC & KONA	Broadcast (simulated) EBS #1: IPZ Advisory.
1321-30	WA#1 to WSP	Attempted to contact re: sample transfer, finally established contact.
1322	EOF	WA had made decision on IPZ Advisory as submitted.
1325	EOF/MUDAC	Field Data (received at 1255) gets to Dose Assessment Group.
1326	EOF/SSDC	Discussion re: multiple dose projections received from MUDAC.
1330	EOF/MUDAC	Dose Projection based on field data: 27.6 Rem at 6.5 mile.
1333	JIC	B/F PR #4.
1334	WA EOC	WA PR#4.
1335	EOF/MUDAC	State Liaison confirms that WA EWS took KI about 2 hours ago.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1335-40	JIC	PC#3.
1337	WA EOC	PC#1.
1340	EOF to WA #1 & #2	Release had been stopped.
1342	Mob. Imp. Bus	Arrive at EWAC.
1342	JIC	WA PR #3.
1345	EOF/MUDAC to REM	Revised Dose Projection based upon 1.4 hour release duration: 8.07 (TH) Rem at 10 mile.
1347	EOF	Briefing - release stopped.
1349	WA EOC	Amends IPZ Advisory - Section 1, add 5 to 10 miles.
1351	Control Room to MUDAC	Request TH dose projection at 1.2 mile.
1355	WA #1 & 2 to WSP	Transfer samples for delivery to State DOH Lab.
1358	PASCO TRANS School	School District terminates exercise play.
1400	FSO # 1 & # 2	Terminates exercise play.
1400	B/F EOC	Checked Rumor Control at JIC.
1402	EOF	REM to RM, we may have issued a non conservative PAR.
1402	WA EOC	PC #1 concludes.
1413	WA EOC	WA PR #5.

Table 4: Significant Events Log WNP-2 Exercise, September 11, 1990  
(Cont.)

SCENARIO TIME	LOCATION	EVENT
1414	B/F EOC	Briefing: Price Anderson Insurance representatives will set up tomorrow at Richland airport.
1417	WA#2 to MUDAC	Sample from 19K4C (taken at 1320): $2.0 \times 10^{-8}$ .
1420	JIC	Received WA PR #4.
1425	JIC	Received WA PR #5.
1428	WA EOC	Received OR PR #2.
1430	B/F EOC	Notified that JIC PC at 1330 had an error.
1434	EOF/MUDAC	Completed dose projection with different set of field data, 0.37 REM (TH) at 10 miles.
1437	B/F EOC	Terminates Exercise Play.
1442	JIC	B/F PR #6 and SS PR #6.
1441	EOF & JIC	Terminates Exercise play.
1445	WA EOC	Terminates Exercise play.
1448	MUDAC to FIELD	Terminates Exercise play.

TABLE 5a Protective Action Recommendations - WNP-2 Exercise  
September 11, 1990

PAR #	Protective Action Recommendation	Time Issued at EOF
1	SAE; Evacuate Columbia River; and exclusion zone at WNP-2.	1008
2	GE; Shelter Section 2, 0 to 5 miles; KI for EWs.	1022
3	Evacuate to 5 miles in Sections 1, 3, & 4, and to 10 miles in Section 2.	1114

TABLE 5b Protective Action Implementation - WNP-2 Exercise  
September 11, 1990

PA # Time	Protective Action Decision	Comments
1 1014	Adopt PAR #1	Sound Sirens; Broadcast EBS #1 at 1029 (Sirens sounded at 1017, again at 1024).
2 1044	Adopt PAR #2; Place livestock on stored feed; shelter in Section 2 to 5 miles.	EBS #2 broadcast at 1049.
3 1124	Evacuate to 5 miles in Section 1, and to 10 miles in Section 2.	EBS #3 broadcast at 1134.

OTHER PAs (NOT PART OF THE PAR/PAD PROCESS)

1015 RPD begins evacuation of ORV Park.  
1106 B/F EOC decides to evacuate 3 schools.  
1113 B/F EOC decides to evacuate special populations  
in Section 2, 5 to 10 miles

TABLE 6      Emergency Broadcast System Messages Issued by B/F EOC  
WNP-2 Exercise September 11, 1990

EBS # / Time Broadcast	EBS Message Text
#1 / 1029	<p>This is B/F County PIO at the County EOC. There has been an accident at the Hanford Reservation at the WNP-2 plant. It has been classified as a Site Area Emergency. No protective measures are advised at this time. Keep your radio tuned to the EBS station KONA for further instructions. Further information will be provided as it becomes available.</p> <p>The Columbia River is being closed from Leslie Groves Park to the White Bluffs Ferry Landing. The Wahluke Slope is being evacuated. Selph Landing and Ringold boat launches are closed.</p>
#2 / 1049	<p>This is the B/F County PIO at the County EOC. There has been an accident at the Hanford Reservation at the WNP-2 plant. It has been classified as a General Emergency. The Columbia River is being closed from Leslie Groves Park to the White Bluffs Ferry Landing.</p> <p>Sheltering is necessary in Section 2 from 0 to 5 miles. (Gives geographic description of Section 2). (Reads section 7 of EBS form dealing with how to shelter - reads as printed). Sheltering of livestock is directed. Put them on stored feed. We will continue to keep you informed.</p>
#3 / 1134	<p>This is the B/F County PIO at the County EOC. There has been an accident at the Hanford Reservation at the WNP-2 plant. It has been classified as a General Emergency. The Columbia River is being closed from Leslie Groves Park to the White Bluffs Ferry Landing.</p>

TABLE 6      Emergency Broadcast System Messages Issued by B/F EOC  
WNP-2 Exercise September 11, 1990 (Cont.)

EBS # / Time Broadcast

EBS Message Text

#3/1134 (Cont.)

The following schools are taking actions to protect their children: Edwin Markham, Country Haven Academy and Country Christian School are being evacuated. Parents are advised that they can pick up their children at the Isaac Stevens Jr. High School.

Evacuation is necessary in Section 1 from 0 to 5 miles; and in Section 2 from 0 to 10 miles

(Gives geographic description of the sections).

Should take the following items with you... (Reads section 10 of the EBS form as it is written).

Assistance Centers have been established (Connell, Stevens and Kiona-Benton). Keep your radio tuned to KONA.



TABLE 7a: Summary of Press Conferences - Joint Information Center, Richland

ECL	Press Conference Number	Time	Speaker	Synopsis
GE	1	1042	B/F Rep	EOC Emergency Chairman has requested that the Columbia River be evacuated. Suspect in the plant entry has been arrested. Sirens alerting people to evacuate the River have been activated.
			DOE Rep	DOE sees none of its facilities impacted at this time. Hanford Patrol boat is assisting in the River evacuation.
			SS Rep	At approximately 0815, the plant was returning to full power after being down to repair some equipment. There was a plant demonstration taking place. An individual put a ladder against the fence which caused the plant to go to ALERT. Person has been apprehended. During this period there was an equipment malfunction in the steam isolation valves. (Tries to use a projector to demonstrate a point, but it would not work). As a result of the failure of those valves to close, there is an escape path for radiation from the plant to turbine which is not a part of the plant containment. We have some indication that there has been radiation detected outside the plant. There may have been fuel failure which is contributing to radiation readings being picked up.

TABLE 7a: Summary of Press Conferences - Joint Information Center, Richland, WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
GE (Cont.)	1	1042		As a result of these incidents, the SS declared a GE at 1012 this morning. SS is evacuating non-essential personnel.
			B/F Rep	Points out areas affected by PAs on display map.
GE	2	1204	B/F Rep	Additional PAs: B/F has recommended evacuation of Columbia River and Section 1 from 0 to 5 miles; Section 2 from 0 to 10 miles and Sections 3 and 4 0 to 5 miles; Sections 3 and 4 are entirely under the direction of DOE; Busses have been dispatched to evacuate Edwin Markham School, Country Christian school and Country Haven School. These schools are all in Franklin County. All students are being moved to Isaac Stevens school where they may be picked up by parents. EBS is going out over KONA. Assistance centers have been established at Connell High School, Isaac Stevens Jr High School and at Kiona Benton Middle School. (Reads items to be taken when evacuating).
GE	#2	1204	DOE Rep	Non-essential personnel evacuated from FFTF. DOE

TABLE 7a: Summary of Press Conferences - Joint Information Center, Richland, WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
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(Cont.)

				monitoring teams have not detected any radiation.
			WA DOH Rep	Just arrived from west side about 5 minutes ago. Do not have much information to give. Field teams are in the area making measurements.
			SS Rep	Plant technical status update. Vessel pressure reduced. Decreasing trends in radiation levels in reactor and turbine buildings. Based on releases from turbine building that we have been able to measure, estimated doses at the 10 mile boundary are approx. 2 mr/hr to the whole body and 6 mr/hr to the thyroid. These are very low levels of radiation. These are not measured values, but projections only.
			WA DOH Rep	Explains what the reported radiation readings mean, and relates them to natural background radiation.
			All Staff	Q & A session.

TABLE 7a: Summary of Press Conferences - Joint Information Center, Richland, WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
GE	3	1335	B/F Rep	Summarizes status of PAs to date: School evacuation completed at 1152; Total of 379 students; Richland ORV Park was closed at 1106; Columbia River was closed from Leslie Groves Park to White Bluff Ferry Landing and evacuation was complete at 1131; EBS broadcasts have gone out on KONA and being updated periodically; Gives public concern phone number.
			DOE Rep	FFTF evacuation completed at 1240.
			WA DOH Rep	WA field teams are in the field and we are just starting to get data into the EOF; There is a measurable plume east of the Columbia River but we are unsure of exact location as yet; We will share information with the public when available.
			SS Rep	Little new information on the plant available; Performing shut down cooling; Closure of the steam tube isolation valve not obtained yet.
			All staff	Q & A session.

TABLE 7a: Summary of Press Conferences - Joint Information Center,  
Richland, WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
GE (Cont.)	3	1335	B/F, Rep	945 people were evacuated from Section 2; Section 1 evacuated 45 people. Sections 3 and 4 are under DOE responsibility. Office for insurance claims will be opened in the area.

TABLE 7b: Summary of Press Conference - WEIC Olympia, WA  
WNP-2 Exercise September 11, 1990

ECL	Press Conference Number	Time	Speaker	Synopsis
GE	1	1337	WEIC PIO	<p>Accident update: NOUE declared at 0816 due to civil disturbance. Problem with a steam isolation unit led to declaration of SAE shortly after 1000. GE was declared at 1012. Release of radioactivity shortly thereafter.</p> <p>Current PAs: B/F has decided to evacuate Section 1 to 5 miles; Section 2 "to the grey and the clear area here(points to map); and three schools totaling about 400 kids also moved. Sheltering recommended in Sections 3 and 4 out to 5 miles, these are DOE and SS facilities. FC is handling the evacuation of people in Sections 1 and 2; Latest word from County is that those evacuations are still underway; Involves 2700 residents that reside in this whole area but I don't have specific details on Section 2; I refer you to Franklin County for further details. School children were bussed to Kiona Benton middle school in Benton City, Isaac Stevens Jr High in</p>

TABLE 7b: Summary of Press Conference - WEIC Olympia, WA  
WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
GE (Cont.)	1	1337		Pasco and Connell High School in Connell.
			WA DOA	State has issued agricultural advisories in conjunction with DOH and DCD in cooperation with the counties. These are precautionary advisories in case of radiation movement in these areas (points out affected areas on ingestion map). Milk producing animals and livestock on stored feed and covered water; All harvested crops covered or stored; Milk producers should pick up milk currently in tanks; Close water cisterns. DOA has contacted individually all dairy farms in Sections 1,2 and 3. Also contacted all milk processors and haulers in these sections to make sure they are aware of this advisory. State of OR has issued a similar advisory. All counties are in agreement with this advisory.
			WEIC PIO	Agricultural advisory has a couple of oversights that I want to fill you in on. One is that the advisory deals with

TABLE 7b: Summary of Press Conference - WEIC Olympia, WA  
WNP-2 Exercise September 11, 1990 (Cont.)

ECL	Press Conference Number	Time	Speaker	Synopsis
GE (Cont.)	1	1337		Section 1,2, and 3 from 10 to 50 miles. However, Sections 1 and 3 have only been evacuated out to 5 miles, so there is a 5 mile gap there. We are modifying the advisory to include this 5 to 10 mile gap. We will get this information out to the public.
			SS Tech. Rep.	Gives summary of technical aspects of accident and on site response.
			WA DOA	Collects PR #4 and says that replacement PR #5 will be given to media when available.



TABLE 8: Summary of Press Releases in Chronological Order  
WNP-2 Exercise September 11, 1990

Chronological PR # (Organization)	Time of Release *	Summary/Main Points
1 (SS)	0853	Alert declared at WNP-2 at 0836.
2 (BF)	0919	Counties EOC activated.
3 (WA)	0920	State EOC being activated (Gives media phone number which will be activated as of 0945).
4 (SS)	0945	JIC activated (Gives media and public concern phone numbers).
5 (OR)	0952	Oregon monitors WNP-2 emergency.
6 (SS)	0955	Fire extinguished at Plant 2.
7 (BF)	1030	Protective measures recommended. People advised to leave Columbia River from Leslie Groves Park to White Bluffs Ferry Landing.
8 (SS)	1035	General Emergency declared at Plant 2 at 1012.
9 (BF)	1050	Protective measures recommended. (Repeats Columbia River closure). Shelter in Section 2 from 0 to 5 miles.
10 (WA)	1100	Governor declares State of Emergency in 8 WA Counties.

\* Time of release is taken from that listed on the organization's press release and may not correspond to the time the media actually received the information.

TABLE 8: Summary of Press Releases in Chronological Order  
WNP-2 Exercise September 11, 1990 (Cont.)

Chronological PR # (Organization)	Time of Release *	Summary/Main Points
11 (SS)	1120	Radioactivity released from Plant 2.
12 (BF)	1132	Protective measures recommended. Students at 3 schools are being evacuated to Isaac Stevens Jr. High. Evacuation of the public in Section 1, 0 to 5 miles and Section 2, 0 to 10 miles.
13 (OR)	1200	Evacuation not necessary in Oregon.
14 (B/F)	1225	Evacuations of public in Section 1, 0 to 5 miles has been completed as of 1225; Columbia River evacuation from Leslie Groves Park to White Bluffs Ferry Landing completed as of 1131; Richland ORV Park evacuated at 1106; Markham Elementary, Country Haven Academy and Country Christian Center students and staff evacuated at 1105. 379 students reported to Isaac Stevens Elementary at 1152. Law enforcement officials in the above areas are continuing to restrict access to these areas. People who need to return briefly must check with assistance center workers to make proper arrangements.
15 (WA)	1251	Washington State has sent two radiological teams to WNP-2's EOF in Richland. Persons within 50 miles of

\* Time of release is taken from that listed on the organization's press release and may not correspond to the time the media actually received the information.

TABLE 8: Summary of Press Releases in Chronological Order  
WNP-2 Exercise September 11, 1990 (Cont.)

Chronological PR # (Organization)	Time of Release *	Summary/Main Points
		WNP-2 should stay tuned to the EBS station serving their community (lists stations).
16 (WA)	1300	Washington State officials recommend protective actions due to radiation release at WNP-2. Individuals in areas 10 to 50 miles south or east of the plant should: place milk animals & livestock on stored feed and covered water; Cover or store all harvested crops; Pick up all milk currently in tanks, if feasible; Close water cisterns and cover surface waters if possible. These are precautionary actions in anticipation of possible movement of radiation releases beyond the current 10 mile evacuation zone. Advisory is for Sections 1, 2, 3 in Washington State. No advisory for Section 4.
17 (BF)	1404	Money to compensate those affected by WNP-2 emergency is available through Price-Anderson Act.
18 (SS)	1415	Plant 2 containment isolated.
19 (WA)	1420	Washington State officials recommend protective actions due to radiation release at WNP-2. Individuals in areas 10 to 50 miles south or east of the plant should (lists same PAs as in

\* Time of release is taken from that listed on the organization's press release and may not correspond to the time the media actually received the information.

TABLE 8: Summary of Press Releases in Chronological Order  
WNP-2 Exercise September 11, 1990 (Cont.)

Chronological PR # (Organization)	Time of Release *	Summary/Main Points
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1300 release). The PAs listed in News Release #4 affect the area within 5 to 50 miles of WNP-2, in Sections 1 and 3. This advisory is for individuals within 10 to 50 miles of WNP-2 in Section 2. These are precautionary actions in anticipation of possible movement of radiation beyond the current evacuation zone. Evacuation zones are: in Section 2, out to 10 miles; in Sections 1, 3, and 4, out to 5 miles. This agricultural advisory is for the areas beyond these evacuated areas defined as Sections 1, 2, and 3 out to 50 miles. (Describes areas in terms of geographic landmarks).

\* Time of release is taken from that listed on the organization's press release and may not correspond to the time the media actually received the information.

## 2.0 EXERCISE EVALUATION

### 2.1 WASHINGTON STATE

**Objective #1:** Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario. The four ECLs are: Notification of Unusual Event, Alert, Site Area Emergency (SAE) and General Emergency (GE).

**Evaluation:** Met.

**Narrative  
Summary:**

The State of Washington demonstrated the ability to monitor, understand and use ECLs at the EOC, the EOF, and in the field.

**At the EOC**

The ECL levels in effect were quickly posted and prominently displayed in the EOC. The lighted ECL status board is a very effective means of displaying ECL levels. ECL levels were mentioned during EOC briefings and all staff appeared to be aware of the ECL level in effect at any given time.

**At the EOF**

The EOF was notified of ECLs by the Supply System (SS) on-site organization. The NOUE and the ALERT were declared by the SS control room and the SAE and GE by the SS Plant Emergency Director (PED). After the EOF was activated, the SS Recovery Manager (RM) held briefings to update staff for the reasons for the ECL change. Offsite actions which were based on preplanned actions depending on ECL declaration were all recommended by the SS Recovery Manager (RM).

**FIELD MONITORING TEAMS**

Field Team #1 and #2 demonstrated the ability to monitor, understand and use ECLs. Notifications were given to the teams by the Meteorological Unified Dose Assessment Center (MUDAC).

**Past Issues  
Examined:**

There were no past issues for this objective.

## EXERCISE EVALUATION FOR WASHINGTON STATE

### Current Exercise Issues:

None.

Objective #2: Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions.

Evaluation: Met.

### Narrative Summary:

The State of Washington demonstrated the ability to fully alert, mobilize and activate emergency personnel at the EOC, EOF, and in the field.

Activation and mobilization was in accordance with the extent of play agreement. The agreement specified that the State EOC would be set up prior to the exercise, and that State representatives to the B/F EOC, JIC, EOF and field teams were not to appear at their assigned locations until 2 hours and 20 minutes after receiving the ALERT at the WA EOC. Staffing of most facilities begins in earnest at the ALERT ECL. The ALERT was declared by the PED at 0836.

#### At the EOC

The ALERT was received in the dispatch area of the WA EOC at 0840. Notification fanout began immediately after this and the EOC was declared functional at 0849. The facility was fully activated at 0940 after all agency representatives had arrived.

#### In the Field

The WA EOC sends representatives to the B/F EOC, the EOF, and the JIC. Most of these representatives were prepositioned in the Tri-Cities and reported to their duty locations 2 hours and 20 minutes (to simulate travel time from western Washington) after the ALERT was received at the WA EOC (0840). The EOF and B/F representatives arrived at their locations after the appropriate

## EXERCISE EVALUATION FOR WASHINGTON STATE

delay. The majority of the State JIC team decided not to predeploy. Adverse weather at the Seattle airport on the morning of the exercise prevented the JIC players from traveling to Richland to participate in the exercise.

We note that the WA Fish and Game agents were to have been notified by Washington State Patrol's (WSP) Office in Yakima to begin route alerting in the Wahluke wildlife area. In a past exercise, WSP had not demonstrated prompt alerting (exercise issue S88-2). The Fish and Game agents did not receive notification from the WSP in Yakima, who were merely simulating all notifications and response functions. Instead the agents established contact with the Franklin County (FC) Sheriff's dispatch for instructions to begin route alerting of the Wahluke wildlife area.

### Past Issues Examined:

Resolved: None; Unresolved: S88-2; (see Appendix A for details).

### Current Exercise Issues:

None.

Objective #3: Demonstrate the ability to direct, coordinate and control emergency activities.

Evaluation: Met.

### Narrative Summary:

Washington State demonstrated the ability to direct, coordinate and control emergency activities at the three sites evaluated during the exercise.

### At the WA EOC

The Assistant Director, Division of Emergency Management (AD-DEM), was in charge of the emergency response for the State. Protective Action (PA) decisions were discussed among the members of the executive group and all members actively participated. Periodic briefings were held and all groups were given the opportunity to participate.

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The status of the alert and notification by the Counties was not adequately reported in the EOC. Procedure 10.18 gives WSP the responsibility to monitor the County EBS broadcasts. The procedure checklist for the State B/F representative gives a very detailed procedure on the way that this person should monitor EBS broadcasts. This includes the instruction to immediately call the WA EOC after monitoring the broadcast and brief the EOC on accuracy. This person is also supposed to send a fax copy of the EBS text to the WA EOC. We find no record that the State representative reported on EBS activity to the EOC. We note that the executive table requested the EOC manager to find out the status of EBS broadcasts at 1049, and the operations staffs logs indicate that they placed calls to B/F EOC but the results of this request were not made available. However, we did find that copies of the EBS messages were received and available at the State EOC.

We note that frequent and generally informative staff briefings were held. These briefings did report on what the counties were doing to implement PAs, but the status of EBS messages and siren sounding was not reported. This is essentially the same issue covered by SO-89-1, an inadequacy from a previous exercise (See Appendix A).

### At the EOF

The Supply System's emergency response organization demonstrated the ability to interface with the offsite agencies. Periodic briefings were held to inform the EOF personnel of changing conditions. FEMA notes that a public address announcement was not made after the GE was declared and a briefing did not occur until 38 minutes after the GE was declared. The GE notifications were made to the offsite authorities at 1022, 10 minutes after the ECL declaration. Procedures were available and used by the Supply System EOF emergency response organization.

Logs were kept to document incoming and outgoing messages. The Supply System has an informal internal message handling system. The Technical Data Center appeared to be the only center that



## EXERCISE EVALUATION FOR WASHINGTON STATE

utilized a pre-printed form to send messages to the Supply System Decision center (SSDC). There was a delay in getting the NOUE and ALERT Fixed Nuclear Facility (FNF) forms to the SSDC. They were not distributed until 0942, 27 minutes after the EOF was activated. In general, the Supply Systems's activities were conducted in accordance with the applicable Emergency Procedures-Implementing Procedures (EPIPs). The only exception noted involved the Radiological Emergency Manager (REM) and RM's change to the MUDAC Protective Action Recommendation (PAR) discussed on the 1114 CRASH call. MUDAC recommended evacuation to 10 miles in Sector 2. The REM & RM added evacuations to 5 miles in Sectors 1, 3, and 4 to the MUDAC recommendation. The RM did not mention the change or explain the basis for the change to the offsite response organizations in the CRASH call at 1114. This is essentially the same issue covered by S87-1, an inadequacy from a previous exercise (See Appendix A).

In MUDAC, direction and control was initially demonstrated in a very effective manner. The MUDAC coordinator (MC) provided a briefing to his staff at 0910 and informed the REM that the MUDAC was functional. A public address announcement at 0918 indicated that the RM had accepted the overall direction and control responsibility from the onsite SS staff. Prior to the arrival of the State personnel in MUDAC, the WA EOC Radiological Assessment Group (RAG) staff requested, on several occasions, clarifications from the MC. Upon the arrival of the USDOE and State representatives, the MC immediately provided briefings to these representatives. Periodic briefings after this point were not conducted in MUDAC.

The Field Team Coordinator (FTC) did a very good job of directing the Supply System field teams and the WA State field teams when they arrived. A DOE field team was present in the field at about 1028, but procedures used by DOE field teams do not permit them to enter the plume and as a result the team could not be effectively used to make plume measurements.

The State decided to order KI for emergency workers at 1035 (during the State field teams transit from

## EXERCISE EVALUATION FOR WASHINGTON STATE

their normal duty stations). This decision was not provided to the State field team #1 until 1151. Field team #2 was not instructed to take KI until 1230. This could have been the result of inadequate briefings of the MUDAC staff.

### Past Issues

#### Examined:

Resolved: None; Unresolved: S87-1 and S089-1 (see Appendix A for details).

### Current Exercise Issues:

#### Issue #1: (S90-1)

Coordination of accident assessment activities (PARs) between WA EOC and EOF. ARCA (A.2.a).

#### Evaluation:

WA EOC was addressing requests for dose data to the MUDAC Coordinator. DOH procedures specify that communication with the EOF should be through the REM or RM (see figure 4-2, WA DOH procedures).

**Recommendation:** Review and revise procedures, if appropriate. Train staff.

#### Objective #4:

Demonstrate the ability to communicate with all appropriate locations, organizations, and field personnel.

#### Evaluation:

Met.

### Narrative Summary:

The State of Washington demonstrated the ability to communicate with all appropriate locations, organizations and field personnel.

#### At the WA EOC

The EOC staff used commercial telephones (about 25 lines), a dedicated phone system, fax, NAWAS and other radio systems to communicate with offsite agencies. The EOC staff was able to communicate with the EOF, JIC, B/F EOC, the ingestion counties and various state agencies. All communications systems demonstrated worked well.

#### At the EOF

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The EOF staff demonstrated the ability to communicate with all appropriate locations.

The EOF Communication Center (EOFCC) had trouble faxing the FNF forms to the State. The problem was initially thought to be a problem with the auto/manual switch on the State's machine. Further investigation revealed that this was not the case, since the State received faxes from other locations during this time frame. It appears that there was no malfunction of equipment. FEMA's conclusion is that there is insufficient fax capability from the EOF to offsite organizations. There is only one dedicated fax circuit from the EOF to other onsite locations and offsite locations. There is no ability to "fax to all stations" or to determine whether one of the many parties on this "party fax line" is faxing information.

A short delay occurred with verbal notifications of the ALERT over the CRASH phone. The County dropped off the line before a formal role call was taken. The EOFCC duty officer called the B/F EOC to ensure that this notification had been received.

The MUDAC staff demonstrated the ability to communicate via commercial telephones, FM radio, and computer links (used to obtain plant parameter data) with no apparent problems.

### In the Field

Both Washington State field teams (WA#1 and WA#2) successfully demonstrated the ability to communicate with all appropriate locations using portable radios and commercial telephones. Some slight delays in communications occurred for WA #2 because of: 1) Line-of-site problems with radios in valleys east of the plant; 2) Other radio traffic obscuring transmissions; 3) Wrong telephone number in the emergency kit for B/F EOC while attempting to contact WSP. The team was able to work around these difficulties and none of them represented a serious impairment to their performance.

Past Issues  
Examined:

There were no past issues for this objective

Current

## EXERCISE EVALUATION FOR WASHINGTON STATE

### Exercise Issues:

Issue #2:           Insufficient fax capability from EOF to offsite  
(S90-2)           organizations. ARCA (F).

Evaluation:       For a period of time, hard copy data transfer was  
not accomplished from the EOF to the offsite State  
EOC. The current fax capability is limited to one  
party line linking the EOF to many locations. The  
onsite and offsite organizations should have a  
dedicated system [EOF to the two offsite EOCs only]  
that allows for the timely transfer of data.

Recommendation: Acquire equipment and data lines.       Revise  
procedures. Train staff.

Objective #5:     Demonstrate the adequacy of facilities, equipment,  
displays and other materials to support emergency  
operations.

Evaluation:       Met.

### Narrative Summary:

The State of Washington demonstrated that adequate  
facilities, equipment and displays were available  
to support emergency operations.

#### At the WA EOC

The WA EOC complex consists of four rooms; the  
main room (where most staff are located), the  
communications area, the WEIC dissemination area  
which contains the phone teams, and a room which  
was used for the press conference. The EOC was is  
considered to be undersized for the number of  
people it contains. This was especially evident in  
the main room and in the press briefing area.  
Adequate status boards were in place and  
ventilation and lighting were adequate. Production  
of news releases was enhanced by the availability  
of several computers and skilled operators. Status  
boards in use included a lighted ECL board, plant  
status, weather, status of PAs and requests for  
assistance. Maps of both the plume and ingestion  
planning zones were available. A wireless  
microphone was used to conduct EOC briefings. This  
made it easy for all staff to hear what was being

## EXERCISE EVALUATION FOR WASHINGTON STATE

said during the briefings. We noted good access control at the EOC entry, and only authorized persons were permitted into the EOC.

### At the EOF

The SS provides space and facilities in their EOF for representatives from WA State and B/F Counties. The facilities provide adequate space, furnishings and amenities for the offsite representatives. These personnel have a dedicated room (the OACC) for their use and have space available in the SSDC for conferences and briefings held by the SS RM. Access to the EOF was restricted to authorized personnel. Standard office equipment was available. The SS had access to maintenance workers for repairs to equipment which failed to operate properly. The various operational rooms had status boards displaying ECLs, plume and ingestion EPZ, evacuation routes and assistance center locations. Status board posting was done by the Information Coordinators from information received over a conferencing net. These boards, particularly in MUDAC were not always updated in a timely fashion (within about 20 minutes). Also, the Information coordinator in the MUDAC did not change the posting time for events between 0922 and 1210 (e.g., events were current, but the times of the events were not).

### At the JIC

At the JIC, press conferences were held in an auditorium which is more than adequate. The use of a boom mike to allow everyone to hear questions from the audience during the second news conference was beneficial.

### Past Issues Examined:

There were no past issues for this objective.

### Current Exercise Issues:

None.

Objective #6: Demonstrate the ability to continuously monitor and control Emergency Worker exposure.

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Evaluation: Met.

### Narrative

#### Summary:

The State of Washington successfully demonstrated the ability to continuously monitor and control EW exposure.

Each EW was issued the required dosimetry package consisting of two self reading dosimeters (0-200 mR and 0-20 R) and a permanent record TLD badge. The readings were recorded at 30 minute intervals and reported to MUDAC by radio. On the basis of interviews we determined that EWs were familiar with the authorized exposure levels and knew what action to take if these levels were exceeded.

The Field Team Coordinator did an excellent job of directing the field teams in order to minimize their exposure. The teams were directed to report dosimeter readings throughout the exercise.

### Past Issues

#### Examined:

Resolved: S86-8; S86-10; S88-3; Unresolved: None.  
(see Appendix A for details).

### Current Exercise Issues:

None.

Objective #7: Demonstrate the appropriate equipment and procedures for determining field radiation measurements.

Evaluation: Met.

### Narrative

#### Summary:

The State of Washington demonstrated the appropriate equipment and procedures for determining field radiation measurements.

The Field Teams (FTs) demonstrated the ability to properly complete operational and source checks of all radiation monitoring equipment specified in the plan. The teams were instructed to define the plume in Franklin County. The FTs interpreted the radiation readings accurately and promptly transmitted the results to the MUDAC. The proper

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dosimetry was issued (0-200 mR and 0-20 R dosimeters and a permanent record TLD badge). All team members had been fitted for and received certification in the use of respirators.

The Washington FT #1 (WA #1) was not requested to obtain ground deposition measurements, but during an interview the team captain described how the measurements would be taken at ground level and waist level had they been requested.

During the exercise the FTs were reporting closed window readings only. The FTC had to request them to report the window open readings. If the team had completed the Field Measurement Worksheet in their procedures, they would have performed this step correctly. This procedure is mentioned on page 7-1 of DSHS (DOH)/ORP procedures dated September 1986.

### Past Issues

Examined: Resolved: S86-7; Unresolved: None. (see Appendix A for details).

### Current Exercise Issues:

Issue #3: Incomplete FT readings. ARCA (I.8).  
(S90-3)

Evaluation: The FTs did not report window open readings along with window closed readings while determining the parameters of the plume until the FTC requested them to do so.

Recommendation: Train staff to follow DOH procedures which instructs FTs to obtain window open and window closed measurements.

Issue #4: Incomplete FT procedures. PLAN ISSUE  
(S90-4) (I.8)

Evaluation: There is no procedure requiring the FT to obtain ground level and waist level measurements (both open and closed window) for ground deposition measurements.

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Recommendation: Revise procedures. Train staff.

Objective #8: Demonstrate the appropriate equipment and procedures for the measurement of airborne radioiodine concentrations as low as  $10^{-7}$  microcuries per cc in the presence of noble gases.

Evaluation: Met.

### Narrative

Summary: The State of Washington successfully demonstrated the proper operation of equipment and procedures to sample and measure airborne iodine.

The WA FTs demonstrated the assembly and disassembly of sampling train, choosing areas free of obstructions (but within observed centerline of the plume) for sample collection, relocating promptly to a low background area for field analysis and purging. Proper field analysis methods and delivery of the sample to a WSP trooper for delivery to the state analytical lab was also demonstrated. Charcoal filters were used to simulate silver zeolite. The silver zeolite cartridges were available in the FT kits. The WA #1 team placed the sampling head inlet facing opposite the anticipated direction of the plume. The flow meter used was in calibration.

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

Issue #5: Improper placement of sampling head. ARFI (I.9).

Evaluation: The sampling head inlet was placed facing the opposite the anticipated direction of the plume.

Recommendation: Train staff.

Objective #9: Demonstrate the ability to obtain samples of particulate activity in the airborne plume and promptly perform laboratory analyses.



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Evaluation: Met.

Narrative  
Summary:

The State of Washington demonstrated the ability to obtain samples of particulate activity.

The WA state field teams successfully demonstrated the ability to obtain samples of airborne particulate activity, remove promptly to a low background area for field analysis of samples and deliver the appropriately labeled, bagged and contaminated survey samples to a WSP trooper for simulated delivery to the state analytical lab. An appropriate sampling location free of obstructions was chosen by each team member. See Objective #8, Issue #5 (page 57), which also applies to this objective.

Past Issues  
Examined:

There were no past issues for this objective.

Current  
Exercise  
Issues:

None.

Objective #10: Demonstrate the ability, within the plume exposure pathway, to project dosage to the public via plume exposure, based on plant and field data.

Evaluation: Not Met.

Narrative  
Summary:

The State of Washington did not demonstrate the ability to accurately project dose to the public.

The Radiological Assessment Group (RAG) at the WA EOC did not understand the parameters utilized for the basis of the dose projections made by the primary dose assessment system (EDPS) or the backup dose assessment system (BEDPS). The State's representatives at the EOF (MUDAC representative and Administrative Liaison) failed to ensure that data flow was occurring in an accurate and timely manner between the EOF and the State EOC. The MUDAC representative failed to demonstrate the ability to recognize the significance of reported field data and oversee the selection of field data

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for utilization in dose projections. The RAG and EOF representatives failed to demonstrate the development of appropriate dose projections.

### INFORMATION TRANSFER FROM MUDAC TO WA EOC

Washington's FNF plan assigns the RAG the responsibility to assess the adequacy, timeliness and effectiveness of all PARs generated by the EOF. The State has responsibility to issue PARs to the County, by either passing along the utility PAR or initiating their own when appropriate. An MOU between the SS and the State included in the plan says that the SS is responsible for providing information on the incident (follow up messages as defined by NUREG 0654/FEMA REP-1) to the State in the event of an emergency at WNP-2. The State's plan assumes that the EOF will ensure that this information flow is established and maintained by the EOF staff until State representatives to the EOF arrive and are able to assume this role.

FEMA's review of the players' logs indicate that almost all important information acquired by the RAG at the WA EOC was obtained by inquiries generated by the RAG staff through phone calls to MUDAC. In almost no instances, according to player logs, did the licensee's staff initiate contact with the WA EOC to inform them of critical plant or dose projection information. Once the State's people arrived at the EOF, they were given an initial briefing and never briefed again during the exercise. The RAG had to continue to call the State's representatives at the MUDAC in order to get information.

Information regarding the assessment of the incident was not completely shared with the RAG at the WA EOC. For example, the WA EOC received hard copy of one EDPS dose projection and one hard copy and three verbal dose projections from the BEDPS (the EOF prepared seventeen separate dose projections). Although the MUDAC staff prepared 10 plume location maps, only two hard copy and six verbal data point reports were transmitted to the State EOC dose assessment staff. By 1300, MUDAC had prepared seven plume maps. The two hard copy plume location maps were received by the State EOC at 1337 and 1339. These maps were prepared at 1245

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(Figure 2, page 61 ) and 1249 (Figure 3, page 62).

FEMA notes that the SS notification forms do not contain an area for dose rate and dose projection information as specified by criterion E.4 of NUREG-0654/FEMA-REP-1. Unless the State receives a separate fax for the dose projection, they do not have any material that supports PARS based upon dose.

Washington State was not given the detailed flow of information needed to develop and issue PARS to the Counties. The RAG staff spent much of their time trying to get information from the EOF, rather than performing analysis of the information, which is their primary function.

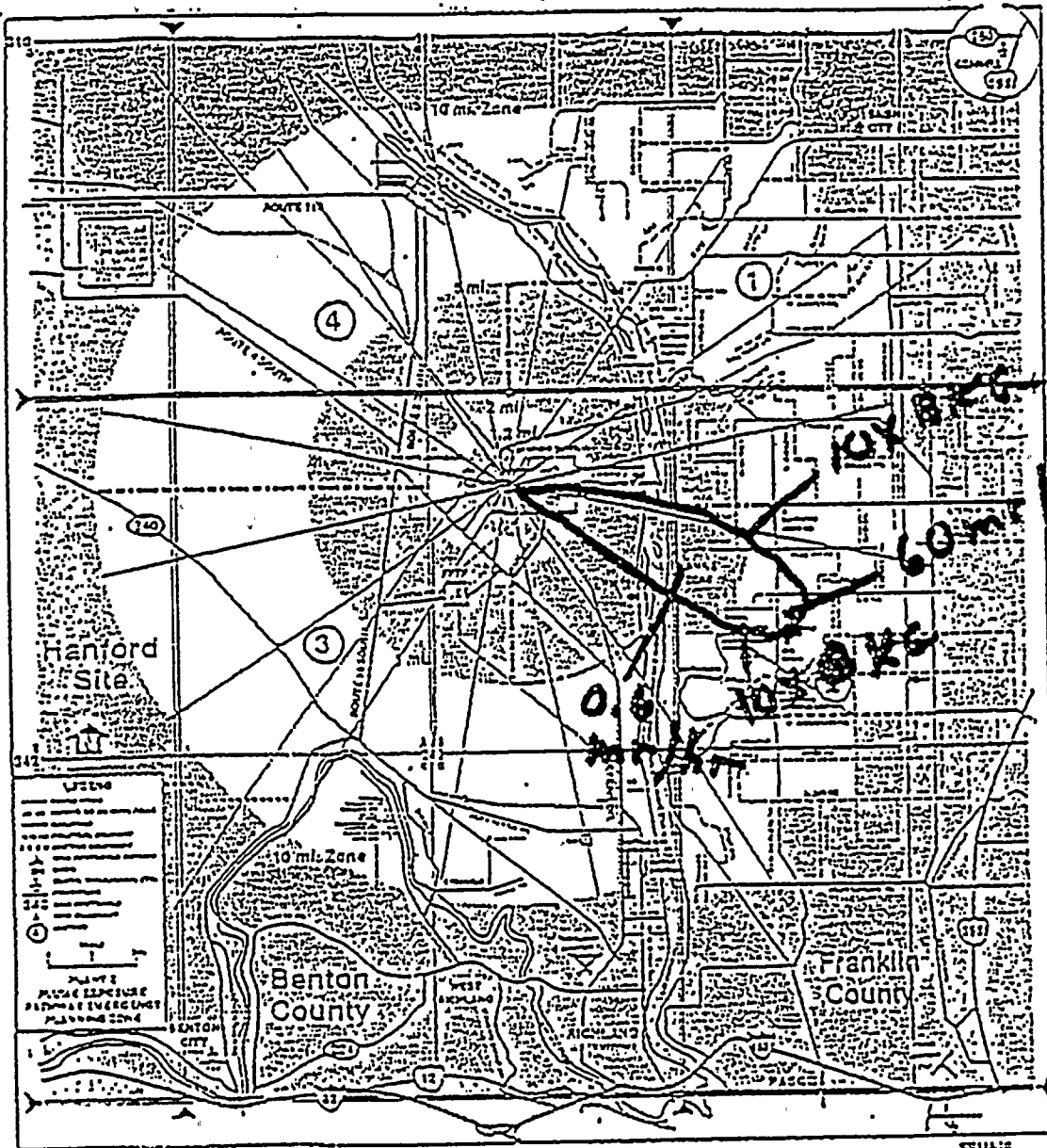
### DOSE ASSESSMENT ACTIVITIES

During this exercise, both the primary and back up dose projection systems were demonstrated for dose projection. Three dose projections were made with the EDPS and 14 projections were made using the BEDPS.

The EDPS produces real time dose projections. In other words, EDPS dose projections represent the projected dose for just the time period beginning with the initiation of the release and to the point in time that the dose projection was made. Alternatively, the BEDPS can produce a dose projection based on a default value for an estimated time of release duration. The SS procedures do not call for the use of a standard set of release duration defaults. Most BEDPS dose projections were based upon real time release durations. The State's procedures call for the use of a three hour release default time unless a better estimate is available.

Projections Based on Field Measurement





# 10 MILE EPZ FIELD TEAM SUMMARY MAP

DATE: 9/11/90 TIME: 12:49  
 MAJOR DOSE RATE: 60 mr/hr DISTANCE: ~6 miles  
 COMMENTS: reading in Franklin Co. just begun to  
appear. - Air sample being taken at  
center location; front edge being redefined  
 PREPARED BY: cg Card W. D. Dille

Figure 3: First plume location received at WA EOC: Shows whole body dose rate of 0.6 mr/hr trailing edge & 60 mr/hr leading edge. The 0.6 mr/hr datapoint was used by MUDAC for the dose projection made at 1434.

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In the various briefings at the State EOC and at the EOF; comparisons of dose projections were made. These comparisons were not qualified by the statement that these dose projections were based upon actual release durations: e.g., the input parameters were different. Washington State's PAR process calls for the comparison of dose projections based upon total release duration, not just to the point in time when a particular dose projection is made.

The EDPS and BEDPS dose assessment system allows the tracking of 15 plant parameters to provide a time history of these parameters. New dose projections based on field measurements were not rigorously analyzed and no one on the dose assessment staff performed a comprehensive review of the field data and laboratory data to validate the dose projections. This led to incorrect dose assessment conclusions which were used to support PAR #3 developed by the REM.

Most of the 14 BEDPS dose projections were made based on real elapsed time (time from start of release to time of calculation). These dose projections were not transmitted in chronological order to the SSSC and this led to some confusion as the REM attempted to interpret the data.

As stated above, only two hard copy dose projections were faxed to the WA EOC. The EDPS dose projection was made at 1044, which represented a 44 minute release. This EDPS dose projection was received by the State EOC at 1127 (note that PA #3 was made at about 1114). The RAG at the WA EOC did not appear to understand the source term supporting the EDPS dose projection. This resulted in long telephone discussions between the MUDAC Coordinator and the WA EOC, and the REM and the WA EOC. FEMA notes that during this consultation process, the SS Liaison to the State EOC called the EOF and was advised that WNP-2 had only been operating for a day at 15% power. The RAG briefed the State decision makers on this dose projection and characterized it as a "what if" dose projection instead of a real time dose projection based upon measured plant parameter data. The BEDPS dose projection was made at 1200 and represented a 55.2

## EXERCISE EVALUATION FOR WASHINGTON STATE

minute release. The BEDPS dose projection was attached to the ingestion advisory and was received by the State EOC at 1254. The PAR for this advisory was made at 1225.

The MUDAC Coordinator and the REM did not act on a well developed dose projection developed by the systems analyst and the meteorologist and forwarded to the REM at 1345. This dose projection involved the total integrated release and release time based on the BEDPS system monitor history. This dose projection projected a dose of 8.07 REM to the Thyroid at 10 miles for a 1.4 hour release duration and would have supported the need for PAs beyond 10 miles based on the PAR decision logic (State and SS procedure 13.14.1 & 2).

Two sets of plume measurements were made at approximately 1245 by the WA FTs #1 and #2. The ambient gamma readings were reflected in the data report produced at 1249 (see Figure 3). Air sample analysis was available at the 0.6 mr/hr and the 60 mr/hr locations shown in Figure 3. The MUDAC Coordinator and the State MUDAC Representative were aware of both sets of data. The MUDAC Coordinator selected an air sample data point from the trailing edge of the plume (0.6 mr/hr location shown in Figure 3). The dose projection based on this data point indicated low thyroid dose (39 mrem) at 10 miles. This dose projection (completed at 1434) was used to support the existing PAs even though it did not reflect the correct total integrated dose at 10 miles. This dose projection was reviewed by the State dose assessor in the MUDAC. The State dose assessor agreed to the dose projection without understanding where and when the air sample was collected. This would have indicated that the chosen sample point should not have been used to generate the total integrated dose.

Washington State's Protective Action Guides have been incorporated into the EOF/MUDAC procedures (See Table 9 on page 66). FEMA notes that the PAG values of < 1 REM WB and < 5 REM Thyroid are not part of the State's PAGs. Table 9 shows that if the projected dose for an individual for the entire release is > 125 mrem and < 1 rem Whole Body or > 625 mrem and < 5 rem Thyroid, then adults should be told to seek shelter and evacuation should be

## EXERCISE EVALUATION FOR WASHINGTON STATE

considered for pregnant women and children. The EDPS dose projection received at the State EOC at 1127 projected a dose rate of 14,492 mrem/hr to the thyroid at 10 miles. If the staff assigned to accident assessment at the EOF and WA EOC had correctly assessed the EDPS dose projection or correctly selected field data points and release durations as input parameters to the BEDPS, they would have noted that the projected dose rate and dose (EDPS - 14,492 mrem/hr to the Thyroid, and the BEDPS - 8.07 rem to the Thyroid) would have exceeded this conservative PAG of 625 mrem to the Thyroid at 10 miles, thus requiring protective actions beyond 10 miles.

State staff at the State EOC and at the EOF did not demonstrate that they fully understood the basis for the dose projections, or the actual projections, which were used to confirm that the PAs were adequate.



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Projected Dose To An Individual For The Entire Release	Recommended Actions	Comments
Whole Body $\leq$ 125 mrem	o No protective action required based on projected dose.	Protective Action Recommendations may be required by the classification. See Attachment A.
Thyroid $\leq$ 625 mrem		
Whole Body $>$ 125 mrem to $<$ 1 rem Thyroid $>$ 625 mrem to $<$ 5 rem	o Seek shelter <sup>+</sup> and wait further instructions. o Consider evacuation, particularly for children and pregnant women. o Monitor environmental radiation levels. o Control access.	Previously recommended protective actions may be reconsidered or terminated.
Whole Body $\geq$ 1 rem to $<$ 5 rem Thyroid $\geq$ 5 rem to $<$ 25 rem	o Conduct evacuation of populations in the predetermined area. o Monitor environmental radiation levels and adjust area for evacuation based on these levels. o Control access.	Seeking shelter would be an alternate if evacuation were not immediately possible.
Whole Body Dose $\geq$ 5 rem Thyroid $\geq$ 25 rem	o Conduct Evacuation o Control Access	Seeking shelter would be an alternative if evacuation were not immediately possible.

<sup>+</sup> Sheltering is to be with ventilation control. Ventilation control means turning off air conditioners or fans and closing doors and windows, thus limiting access of outside air.

## Attachment C

PROCEDURE NUMBER	REVISION NUMBER	PAGE NUMBER
13.14.2	12	13.14.2-15 of 20

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Table 9: PAR Decision Logic as contained in EOF/MUDAC procedures.

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### MANAGEMENT OF FIELD TEAMS

The FTs were properly directed to define the plume. Field monitoring data were plotted and dose projections plotted and displayed in the MUDAC. Field monitoring data including gamma, gamma plus beta, and air sample measurements, were recorded and posted on a variety of status boards and data point reports. Six air samples were collected during the exercise play, three by the SS field teams and three by the WA State field teams. The three air samples collected by the SS were brought to the EOF for counting and the three air samples collected by the WA field teams were counted in the field and then given to WSP for transport to the State laboratory for further analysis.

FEMA notes that the MUDAC had collected positive and negative verifications of plume measurements: e.g., they knew where the plume was, where it had been based on ground deposition, and where it was going. The above referenced data point reports showing plume locations were available to the staff that prepared the ingestion advisory. Field teams were available to continue to track the plume. The near-term weather forecast did not call for any changes in existing conditions. In other words, the MUDAC had access to adequate information (in the field and from weather forecasts) to predict that the plume was going to continue to travel in a south easterly direction (section II on the plume EPZ map). Yet, the ingestion advisory was for an area out to 50 miles in an arc of 270 degrees. There was no basis for the scope of this advisory. In fact the evidence was that the plume would probably not leave the southeastern quadrant.

#### Past Issues Examined:

Resolved: S88-6; Unresolved: S84-1; S86-9; S88-4; S88-5. (see Appendix A for details).

#### Current Exercise Issues:

#### Issue #6: (S90-5)

Inadequate Information Transfer. Deficiency (I.10).

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**Evaluation:** EOF staff and State Representatives did not establish an accurate and timely flow of information with the WA EOC regarding accident assessment. The RAG staff devoted a large amount of time to information collection instead of data analysis. Dose projections and data reports were not sent to the WA EOC in a timely manner. Only two of 17 dose projections were faxed to the WA EOC. A dose projection which was not sent to the WA EOC would have provided the information that would have justified taking protective actions beyond 10 miles. Only two of 10 plume location maps were faxed to the WA EOC. Also see open issue S88-4 in Appendix A.

**Recommendation:** Assign an EOF staff member the task of providing information to the WA EOC until the State Administrative Liaison arrives at the EOF. Train the Administrative Liaison to continue this information transfer after arrival at the EOF. Review and revise, if appropriate, SS notification form to provide integrated dose projections for 5 & 10 miles (whole body & thyroid) for all release default durations. Demonstrate capabilities in a remedial drill.

**Issue #7:** Inadequate capability and expertise to make dose  
(S90-6) projections. Deficiency (I.8).

**Evaluation:** 1. The WA EOC RAG did not demonstrate an understanding of the dose projections. The RAG did not explain to the State decision makers that the various dose projections were based upon measured parameters (either plant status or field data) and that the dose projections were calculated for the "actual elapsed release time" versus a projected total release time as specified by the state's PAGs and procedures.

2. The Washington State staff at the EOF did not understand the basis for the dose assessment that they agreed to. The MUDAC Coordinator selected an air sample data point from the trailing edge of the plume. The dose projection based on this data point indicated low thyroid dose (39 mrem) at 10 miles. This dose projection (made at 1434) was used to support the existing PAs even though it did not reflect the correct total integrated dose at 10

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miles. This dose projection was reviewed by the State dose assessor in the MUDAC. The State dose assessor agreed to the dose projection without understanding the basis for the dose projection, i.e. where and when the air sample was collected. An analysis of the available data would have indicated that this sample should not have been used to generate the total integrated dose. The State dose assessor at MUDAC was aware of the previous dose assessment (made at 1345) that projected 8.07 Rem to the Thyroid at 10 miles. FEMA notes that no one in MUDAC provided an overall correlation and validation of dose projections with the field data.

3. Also see open issues S86-9 and S88-5 in Appendix A.

**Recommendation:** Review staffing assignments the RAG and EOF. Develop a system for certifying that these individuals understand the parameters, methodologies, strengths, weakness, etc. of the two dose projection systems. Provide training on the use of these dose projection systems and the use of field data to staff assigned to accident assessment functions at the WA EOC and the EOF. Demonstrate capabilities in a remedial drill.

**Issue #8:** Inadequate dose projection systems. Deficiency (S90-7) (I.10).

**Evaluation:** Federal guidance (NUREG-0654/FEMA-REP-1, Section I, Part D) states that offsite organizations should plan for a spectrum of accidents, including a spectrum of release characteristics and durations). NUREG-0654/FEMA-REP-1 (E.4.i) also states that the dose projection system should produce dose rates and integrated doses for 2, 5, and 10 miles. Washington State's accident assessment methodology requires the development of integrated dose projections using a three hour release default when no better estimate of release time is available and the comparison of these dose projections to the State's PAGs (which represent a projected dose for the whole release). Most of the 14 BEDPS projections were based on real elapsed time (time of release to time of calculation). Integrated

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dose from these projections was interpreted as the total dose for the release. Also see Objective 16, issue S90-11 (page 67), and open issue S84-1 in appendix A.

**Recommendation:** Establish appropriate release default time durations. Revise procedures to include these defaults and to require the operator to produce dose projections consistent with the chosen release defaults. Train staff with accident assessment and PAR responsibilities to ensure that the dose projections are presented in the context of the release default and that comparisons between dose projections are made on a consistent basis. Demonstrate capabilities in a remedial drill.

**Objective #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.

**Evaluation:** Met.

### **Narrative Summary:**

The State of Washington demonstrated the ability to make appropriate Protective Action Decisions based upon the information available to them.

The State of Washington analyzes protective actions taken by the counties. The State provides concurrence or non-concurrence to the counties. In the case of non-concurrence, the State will make a state protective action recommendation. The State will make decisions regarding protective actions to be implemented within the ingestion exposure EPZ.

As documented in FEMA's evaluation of objective 10, the state decision makers (executive group) received inadequate analysis and briefings from the state staff assigned to accident assessment functions. The decisions that the State made in concurring with the PAs for the plume exposure EPZ and the decision for the ingestion exposure advisory might have been different if the accident assessment staff had properly analyzed the data and properly displayed and briefed the decision makers on the location, extent of coverage, and direction

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of travel of the plume.

The decision makers in the EOC exhibited a good, consensus oriented decision making process. All appropriate agency representatives were present and, because of the infrared CRASH phone monitoring system, all were able to hear what PARs were made and the rationale for each. All were given the opportunity to ask questions and voice their opinion on the EOF PARs.

There was detailed discussion by the decision makers, especially on the KI PAR and agricultural advisory. They had been told by the RAG and facility representatives that iodine was not a problem in the release, and were understandably puzzled by the facility's decision to issue KI to its EWs and the recommendation that offsite EWs also take the drug. The executive table finally agreed with the facility KI PAR in order to avoid alarming offsite EWs who would know that KI had been ordered for the SS EWs. During the 1252 EOC briefing, the facility representative corrected the earlier statement to say that the plant had been at 15% power coming out of an outage, but it had only been a one day outage. The plant had been at 100% power for about a month prior to this. Later in the exercise, considerable discussion preceded the State's advisory on agricultural products, again with input from Agriculture, Health and B/F Counties as to costs, effectiveness and areas to which the advisory should apply.

An agricultural advisory was issued by the State issued in Press Release (PR) #4 and PR #5 (also WA EBS #1 and WA EBS #2). This advisory recommended that farmers cover and store all harvested crops. FEMA notes that perishable crops could have been adversely impacted by the delay in marketing. The advisory was not in accord with Federal guidance which states that precautionary actions (advisories) such as the placement of milk animals on stored feed & covered water, is appropriate in those situations when "only dose projections" are available. Rather, "recommended actions that include the restrictions on movements of crops to market" should only be based upon laboratory data that confirms the presence of radiation.

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In spite of the lengthy discussion, the advisory in its final form was poorly worded and confusing. See our evaluation of Objectives 13 and 14 below.

The executive group questioned a proposed B/F County decision to let farmers back in to retrieve crops and gave cogent reasons to oppose the decision. The Counties decided not to proceed with this decision and this was noted in the WA EOC during the 1252 briefing.

In general, the decision makers knew their authority and considered relevant information. As stated above, FEMA's concern is with the inadequate analysis and briefings made by the State staff assigned to accident assessment functions.

### Past Issues Examined:

Resolved: S87-2; Unresolved: S87-3. (see Appendix A for details).

### Current Exercise Issues:

None.

Objective #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.

Evaluation: Not Met.

### Narrative Summary:

See Objective #14 below.

Objective #14: Demonstrate the ability to brief the media in an accurate, coordinated and timely manner.

Evaluation: Not Met.

### Narrative Summary:

The State of Washington did demonstrate the ability to coordinate the formulation and dissemination of emergency information and emergency instructions. The State did not always provide the emergency information in a timely manner. The State did not brief the media in an accurate and timely manner.

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The State of Washington issued five press releases, two EBS messages and conducted one news conference during the exercise. All activity occurred at the WA EOC because, due to airport closure, the State's JIC team was unable to fly to Richland to participate at the JIC. One DOH representative did appear at the JIC news conferences #2 and #3, but added little substantive information (see Table 7a).

Press release (PR) #1 announced that the WA EOC was being activated. This PR was issued at 0920 and was well coordinated with other agencies. PR #2 reported on the Governor's declaration of emergency and was released at 1040. PR #3 took an extremely long time to be issued as it kept being revised as the situation changed. It was finally available at about 1251, and informed the public that Washington field teams had been dispatched to the WNP-2 site. PA #4, issued at 1300, covered the agricultural advisories. PR #5 was a reworked version of PR #4 containing the correct information on the State's agricultural advisory. PRs #4 and #5 spoke of releases from the plant and actions to take. Later in the text is the comment that those actions were in anticipation of possible movement of the release beyond the current evacuation zone. This should perhaps be presented earlier in the text as well, in order to prevent misunderstandings by the public from a partially heard or read text.

The press briefing was originally scheduled for 1200, but kept being postponed until it finally began at 1337. The press briefing covered the extent of emergency response activities and covered the State's agriculture advisory. PR # 4 was distributed to the media at the press briefing. PR # 4 was recalled during the press briefing (at about 1400) with an explanation that it contained an error and would be reissued to the press in correct form. FEMA notes that the briefing contained some incorrect information, such as when it was announced that school children were being evacuated to all three assistance centers that had been established. In reality, school children were moved only to Isaac Stevens. It was also announced that evacuation was still in progress when it had been completed over an hour before the briefing began.



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The two EBS messages covered the agricultural advisory issued by the state and were essentially the texts of PR #4 and PR #5 modified for broadcast. The procedure for airing the broadcast was explained in detail and the message was actually read, but not transmitted over the air. Although the text was somewhat confusing, the operation seemed well executed.

We noted that there was a person assigned to update the status board in the WEIC dissemination room and this was done very well. However, it appears that there is still a problem with getting information to the dissemination area in a timely fashion. Although PA #3, which included evacuation, had been agreed to at 1124, the dissemination group was still being briefed by their chief at 1157 that evacuation was under consideration.

### Past Issues Examined:

Resolved: None Unresolved: S86-4; S86-6; S87-10; S089-1. (see Appendix A for details).

### Current Exercise Issues:

Issue #9: Inadequate briefing of the media. ARCA (G.3.a; G.4.b). (S90-8).

Evaluation: Only one press briefing was held by the State. The manner in which PR # 4 was discussed and recalled could have confused the media. Inaccurate information was also provided to the media during the briefing.

Recommendation: Hold press briefings early and often. Train staff.

Issue #10: Inadequate information and instructions. ARCA (S90-9). (E.7 & G.4.a).

Evaluation: PR #4 was partially recalled. PR #5 was issued in its place, but it was confusing and also PR #4 was necessary to fully understand PR #5. The state's EBS messages could have been misconstrued as to

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whether it was an advisory or a recommendation.

Recommendation: Review and revise, if appropriate, boilerplate releases and EBS message texts. Train staff on their use.

Issue #11: Information to Dissemination Group was not  
(S90-10) always current. ARCA (G.4.b).

Evaluation: Although PA #3, which included evacuation, had been agreed to at 1124, the dissemination group was still being briefed by their chief at 1157 that evacuation was under consideration.

Recommendation: Train staff to update dissemination group as soon as possible after a new PA or other relevant information is available.

Objective #15: Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion.

Evaluation: Met. ..

Narrative  
Summary:

The State of Washington demonstrated the ability to establish and operate rumor control in a coordinated and timely manner.

The WEIC and Rumor Control section were activated at 0845. The WEIC dissemination room had four telephone operators, a unit supervisor, a technical representative and a status board maintenance person. Periodic briefings were given to dissemination staff by the Unit Supervisor, WEIC Manager and Assistant Manager.

The Rumor Control staff secured information on current events by observing the status board and receiving copies of news releases, and by monitoring a closed circuit television located in the dissemination room.

The Rumor Control staff did provide best available information to callers in a prompt manner. When staff received calls of a technical nature, or on areas on which they had no information, they sought the unit supervisor. See S90-10 (page 74)

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regarding timeliness of information provided to Rumor Control. Of the 30 calls received during the exercise, 28 were answered correctly.

Message logs were kept of all inquiries both from the media and the public.

### Past Issues

#### Examined:

Resolved: S89-5; Unresolved: None. (see Appendix A for details).

### Current

#### Exercise

#### Issues:

None.

Objective #16: Demonstrate the ability to make the decision to recommend the use of KI to Emergency Workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases.

Evaluation: .. Met.

### Narrative

#### Summary:

The State of Washington demonstrated the ability to make the decision to recommend KI to EWS.

At the plant, initial readings in containment and on the turbine deck and a release of radioactive material at 1010 prompted the SS RM to recommend that KI be taken by the SS EWS. The decision was made at 1018. The three SS teams were instructed to take KI at 1023 and all three teams confirmed the simulated ingestion of KI. At 1057, the DOE offsite Technical Director instructed the DOE team to take KI.

The decision to recommend KI for state and county EWS rests with the State Health Officer. The Executive Group at the WA EOC heard the SS recommendation to take KI at 1018. They were confused by this recommendation because the plume information they had received indicated that little or no iodine was present at that time. At 1035, the decision was made to recommend KI for state and county workers for "psychological reasons" and for the sake of consistency of PAs. We note that the

## EXERCISE EVALUATION FOR WASHINGTON STATE

instruction to take KI was not received by the WA field teams until much later (see discussion on page 50-51). No discussion of institutional use of KI was noted.

WA FT #1 simulated the administration of KI to each of the 3 members within one minute of the time the request to take KI was received at 1151. The team noted the time and used the standard form in their kits to record the necessary information. The team's kits were examined and found to contain an adequate supply of KI with an expiration date of October 1990. About 20 minutes prior to the instruction to take KI, the team had discussed whether or not KI should be taken. However they concluded that they had no basis for this given that they had not found any detectable radiation levels nor confirmation that the reported release contained any radioiodine.

WA FT #2 was directed to take KI at 1230. At this time the team had not encountered the plume and they delayed taking KI until they first encountered the plume at about 1235. The time and dose were recorded on the proper form.

The MUDAC received data that indicated that iodine was present in the release. Dose projections were made and verbally passed on to the State EOC. An initial calculation indicated about 5 rem to the thyroid at the site boundary. Another calculation indicated 25 rem. The State's Protective Action Guide for administering KI is expressed as a radioiodine air concentration ( $1.4 \times 10^{-7}$  uCi/cc). The federal PAG is 25 rem to the thyroid (adult). The dose projection systems produces projected child thyroid doses, not calculated adult thyroid exposures.

### Past Issues Examined:

There were no past issues for this objective.

### Current Exercise Issues:

### Issue #12 (S90-11)

KI decision process. ARCA (J.10.f).

## EXERCISE EVALUATION FOR WASHINGTON STATE

**Evaluation**      The State's KI decision process was not followed. The State's PAG for KI is not expressed as a projected dose to the thyroid. The State's dose projection system does not produce projected doses for adult thyroid exposure.

**Recommendation:** Revise State PAG (Table 2, Appendix A, DOH procedures) for KI exposure to include a projected dose figure for thyroid (expressed as an adult exposure). Develop a process for converting current child thyroid dose projections into adult dose projections. Revise KI decision process. Revise plans. Train staff.

**Objective #26:** Demonstrate the ability to identify the need and call upon Federal and other outside support agencies assistance.

**Evaluation:**      Met.

### **Narrative Summary:**

The State of Washington demonstrated the ability to identify the need for and call upon federal and other outside agencies support.

At the WA EOC, the executive group recognized the need for federal assistance at about 1135. The Assistant Director of WA DEM called FEMA Region X (represented by the control cell) at 1148 and requested five monitoring teams, three mobile laboratories and three aerial monitoring planes. A message back to the WA EOC indicated that these resources would be available to the state by 1200 the following day.

We note that the WA EOC also requested aircraft support from WSP and the Washington National Guard (WNG). The WSP plane was used to take key people to Richland, and the WNG planes remained on standby at Olympia airport.

Washington DOH needs to recognize that DOE field teams will not enter the plume. This may impact how WA field teams are deployed (e.g. use DOE FTs for confirming absence of radiation in areas of non-deposition).

## EXERCISE EVALUATION FOR WASHINGTON STATE

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

Issue #13: Use of Federal technical assistance. ARCA  
(S90-12) (C.1.a).

Evaluation: DOE-RL field team procedures prohibit FT members from entering the plume. This may impact how WA field teams are deployed (e.g. use DOE FTs for confirming absence of radiation in areas of non-deposition).

Recommendation: Review and revise procedures to indicate that technical federal assistance (radiological monitoring teams) has restrictions [for plume monitoring] on the mission that they will accept. Train staff.

## 2.2 EXERCISE EVALUATION FOR BENTON/FRANKLIN COUNTIES

Objective #1: Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario. The four ECLs are: Notification of Unusual Event, Alert, Site Area Emergency (SAE) and General Emergency (GE).

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to monitor, understand and use emergency classification levels (ECL) through the appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario.

The EOC was notified by the Supply System (SS) of the ECLs as follows:

NOUE	0830
ALERT	0849
SAE	1008
GE	1022

ECLs were announced in the EOC and also displayed on the status boards so that all staff were aware of the current ECL. The ECL functions and activities were implemented in a manner consistent with their plan.

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

None.

Objective #2: Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions.

Evaluation: Met.

## EXERCISE EVALUATION FOR B/F COUNTIES

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to fully alert, mobilize, and activate personnel for both facility and field-based emergency functions.

#### At the B/F EOC

Calls to notify offsite response organizations were completed by the 911 dispatch center using the written call list specified in the County procedures. The staff was alerted in a timely manner; calls were completed in 10 minutes for initial notification (NOUE) and eight minutes for activation call out (Alert).

As specified in the County procedures, three Commissioners were automatically dispatched to other locations. One Commissioner and support staff were sent to the JIC and two were sent to the EOF.

#### In the Field

Emergency field personnel consisted of the FC Sheriff's department, school evacuation units, mobility impaired evacuation units, Columbia River route alerting units, and WA Department of Wildlife route alerting units.

Calls to notify offsite organizations were completed by the 911 dispatcher in the B/F EOC using the written call list as specified in the B/F procedures (IP-1). The WA Department of Wildlife agents did not receive notification from the WSP in Yakima, who were merely simulating all notifications and response functions. Instead the agents established contact with the FC Sheriff's dispatch for instructions to begin route alerting of the Wahluke wildlife area. All other field staff were alerted in a timely manner and mobilized promptly.

All relevant functions and activities were implemented in a manner that was consistent with the organization's emergency plan and procedures.

### Past Issues Examined:

There were no past issues for this objective.



## EXERCISE EVALUATION FOR B/F COUNTIES

Current  
Exercise  
Issues:

None.

Objective #3: Demonstrate the ability to direct, coordinate and control emergency activities.

Evaluation: Met.

Narrative  
Summary:

Benton and Franklin Counties demonstrated the ability to direct, coordinate, and control emergency activities.

The Emergency Chairman in the B/F EOC was effectively in charge of emergency response. The Decision Group was fully involved in the decision making process. This group consisted of the Emergency Chairman, one County Commissioner and the Emergency Management Directors of Benton and Franklin Counties. Periodic briefings were held by the Chairman to update staff on the status of the emergency. The Emergency Chairman effectively coordinated all PA decisions as well as the implementation of the decisions with the EOF, WA EOC, and JIC. During the EOC briefings, the Chairman failed to emphasize that the PAs were County decisions and not the utility recommendations. There was only one EOC staff briefing (at 1210) in which a representative of each agency updated the other EOC staff on their agency's emergency response activities.

Separate message logs were kept for all incoming and outgoing messages and transmissions. Copies of the plan and procedures were available to and used by the EOC staff.

Past Issues  
Examined:

There were no past issues for this objective.

## EXERCISE EVALUATION FOR B/F COUNTIES

### Current Exercise Issues:

Issue #1: Inadequate briefings. ARCA (A.2.a).  
(C90-12)

Evaluation: The Emergency Chairman did not emphasize that actions discussed during his briefings were the Counties' PAs, not the utility's recommendations. With one exception, the Chairman did not provide for two way briefings in which agency staff could report on the responses of their agencies.

Recommendation: Two way briefings should be provided on a regular basis. Review and revise procedures, if appropriate. Train staff.

Objective #4: Demonstrate the ability to communicate with all appropriate locations, organizations and field personnel.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to communicate with all appropriate locations, organizations and field personnel.

#### At the B/F EOC

The EOC had the following communications equipment: five telephone lines and a facsimile machine. In the Communications Center adjacent to the EOC there were VHF/UHF public service radios, ham radio, HF, VHF, and UHF digital teletype machine, an EBS radio and a CHEM net radio. This equipment was available to communicate with the EOF, WA EOC, County public safety organizations, WSP, ham radio net, state CHEMNET, DOE and various support agencies.

The primary communications systems were able to handle traffic without delay. Backup radio systems were not used during the exercise but were tested and all worked in a satisfactory manner.

We note that the CB radio mentioned in the County

## EXERCISE EVALUATION FOR B/F COUNTIES

plan was not available at the EOC.

### In the Field

Field radio communications were by two way radio on the FC Sheriff Department net and School District #1 transportation net. Telephone communication between the EOC and the field dispatch centers was available and used.

### Past Issues

Examined: Resolved: C88-2; Unresolved: None. (see Appendix A for details).

### Current Exercise Issues:

Issue #2: No CB radio in the B/F EOC. ARFI (F).

Evaluation: The Plan specifies a CB radio in the EOC. The CB radio is missing.

Recommendation: Add CB radio to the EOC communications equipment or delete plan reference.

Objective #5: Demonstrate the adequacy of facilities, equipment, displays and other materials to support emergency operations.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the adequacy of facilities, equipment, displays and other materials to support emergency operations.

The physical facility and components at the EOC are sufficient to support emergency operations. Adequate office equipment and administrative supplies were available. Sleeping and complete kitchen facilities were not available and deemed not necessary since the EOC is outside the 10 mile EPZ. Off duty staff can leave the facility and food can be sent out for.

Adequate maps were available. The following maps, status boards and displays were used during the

## EXERCISE EVALUATION FOR B/F COUNTIES

exercise: plume EPZ, evacuation routes, ingestion EPZ, ECL status, PA decisions, incident status log and wind speed and direction. The data/dose projection chart was not used during the exercise but was demonstrated during the participants meeting on 9/13/90. All displays were updated in a timely manner. The relevant functions and activities were conducted in accordance with the plan.

### Past Issues

Examined: Resolved: C88-3; Unresolved: None. (see Appendix A for details).

### Current Exercise Issues:

None.

Objective #6: Demonstrate the ability to continuously monitor and control Emergency Worker exposure.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to continuously monitor and control Emergency Worker exposure at all observed field locations.

EWs are responsible for self monitoring. All EWs reviewed appropriate procedures and carried the correct dosimetry.

The EW kits which contained the dosimetry were well thought out and conveniently put together. The kit was contained in a 5" x 8" 3-ring binder. It had tabs for instructions, maps, record keeping card and a plastic envelope containing one 0-20 R dosimeter, one TLD, one bottle of KI tablets and a reference sheet on KI.

The Wildlife Agents procedures (IP-14) are inconsistent in terms of what to do when 5 r dose is reached. Pg 4, item 11 of IP-14 tells the agent to report to an EW Center if a 5 r dose is reached. Pg 5 item 4 tells the agent to pick up a EW kit and follow procedure IP-19. IP-19 tells EWs to call the EOC for further instructions if a 5 r dose is

## EXERCISE EVALUATION FOR B/F COUNTIES

reached. IP-14 should not tell EWs to abandon their post until they have received authorization from the EOC.

### Past Issues Examined:

Resolved: C88-4; Unresolved: None. (see Appendix A for Details).

### Current Exercise Issues:

Issue #3: Inconsistent EW procedures. ARCA (K.3.a).  
(C90-13)

Evaluation: The Wildlife Agents procedures (IP-14) are inconsistent in terms of what to do when 5 r dose is reached. Pg 4, item 11 of IP-14 tells agent to report to a EW Center if a 5 r dose is reached. Pg 5 item 4 tells the agent to pick up a EW kit and follow procedure IP-19. IP-19 tells EWs to call the EOC for further instructions if a 5 r dose is reached. This is the correct instruction.

Recommendation: Revise IP-14 to make it consistent with IP-19.

Objective #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.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to make appropriate Protective Action Decisions.

The Decision Group consisted of the Emergency Chairman, County Commissioners and the Emergency Management Directors of Benton and Franklin Counties. This group made three PA decisions. Based on the first PAR from the EOF at 1008, the decision for evacuation of the Columbia River (PAD

## EXERCISE EVALUATION FOR B/F COUNTIES

#1) was made at 1014. When the ECL status changed from Site Area Emergency to General Emergency, PAD #2 was adopted. This involved, in addition to continuation of PAD #1, the sheltering in Section 2 from 0 to 5 miles and use of KI by EWS. Finally, PAD #3 was issued which involved evacuation of Section 1, 0 to 5 miles, Section 2, 0 to 10 miles, and the evacuation of the three schools within the EPZ.

Preplanned PAS concerning institutionalized, transit dependent and handicapped persons were implemented as per procedures. The Decision Group also considered such relevant factors as economic effects of PAS in its decision making process. Price Anderson Act information was given to EOC staff for their use.

We note that the Decision Group did not have representatives from the FC Sheriff or BC Sheriff's offices or from the Health Department as indicated in IP-2, Attachment B of the B/F procedures.

Past Issues  
Examined:

There were no past issues for this objective.

Current  
Exercise  
Issues:

None.

Objective #12: Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate state and/or officials.

Evaluation: Met.

EXTENT OF PLAY AGREEMENT: Benton & Franklin Counties will demonstrate route alerting along the Columbia River (at least four boats will be targets for alerting); Benton & Franklin Counties will activate the four sirens (to be in sequence and within 15 minutes from receipt of with SAE) and broadcast the exercise EBS message; radio station KONA will broadcast its normal test EBS message upon request of the B/F EOC; the Department of Wildlife will demonstrate alerting (as described in IP-14) and City of Richland will not be expected to perform route alerting of the Horn

## EXERCISE EVALUATION FOR B/F COUNTIES

Rapids areas.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate officials. Benton and Franklin Counties demonstrated the ability to perform route alerting along the Columbia River within 45 minutes.

#### At the B/F EOC

The County's procedures require them to broadcast an instructional message to the public within 15 minutes of making a protective action decision. PAD #1 (See Table 5 for the content of the three PADs issued during the exercise) was made at 1014 at the B/F EOC. The sirens were activated at 1017. At 1029 EBS #1 was issued.

PAD #2 was made at 1044. EBS #2 was broadcast by KONA at 1049. No mention of the ORV Park closure was included in this message.

PAD #3 was made at 1124 in the B/F EOC. EBS #3 was broadcast at 1134.

The County met the 15 minute criterion (time from decision to EBS broadcast) for all three PAs.

FEMA noted some discussion and confusion between the Communications Center, the PIO, and the Emergency Chairman over siren activation confirmation. There was some discussion and confusion on whether the EBS broadcast should be postponed until siren activation confirmation was received. The County dispatch procedures contain a step that calls for confirmation that the sirens have sounded. There is no mention of this requirement in the County PIO procedures. The County PIO has the responsibility for effecting the EBS broadcast. The four sirens are designed to alert the transients on the Columbia River within five miles of the WNP-2 facility.

## EXERCISE EVALUATION FOR B/F COUNTIES

### In the Field

The Hanford Patrol flight crew was notified to perform route alerting along the Columbia River at 1012. Using the DOE helicopter, route alerting along the River was demonstrated by contacting four boats identified as exercise participants and informing these individuals that due to the accident at WNP-2 they should return to their launch point and tune to 610 AM for EBS instructions. Columbia River route alerting was completed at 1039, well within the 45 minute time frame allowed for notification in low population areas.

The Hanford Patrol and the Benton County Sheriff's Office mobilized and deployed boats as part of the Columbia River route alerting process. The purpose of the boats is to establish access control on the river at the 10 mile points on the north and south side of the plume EPZ.

### Past Issues Examined:

There were no past issues for this objective.

### Current Exercise Issues:

#### Issue #4: (C90-14)

Siren and EBS activation - Procedural inadequacies..  
ARCA (E.6).

### Evaluation:

There are inconsistencies between the dispatch procedures (IP-1) and the PIO procedures (IP-8). The Emergency Chairman's procedures (IP-4) are not specific regarding siren activation and EBS broadcasts. FEMA notes that the siren activation is only for the Columbia River alerting. All appropriate procedures should be revised to indicate that a time will be specified for the activation of the sirens and EBS broadcast and that the responsible parties will ensure that both the siren activation and the broadcast of the EBS message are in effect at the specified time.



## EXERCISE EVALUATION FOR B/F COUNTIES

Recommendation: Revise procedures to ensure consistency regarding EBS implementation. Train staff.

Objective #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.

Evaluation: Met.

EXTENT OF PLAY AGREEMENT: Benton and Franklin Counties will broadcast appropriate EBS messages in both English and Spanish.

### Narrative

Summary: Benton and Franklin Counties demonstrated 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 had occurred.

B/F EOC is the location where public instructions are formulated and disseminated. EBS messages were produced in both English and Spanish after PADs were announced by the Emergency Chairman.

The text of EBS #2 required employers (mostly farmers) to shelter employees indoors. The capability to effect shelter of the employees may not exist during the harvest season. Evacuation may be a more appropriate instruction since sufficient inside space may be lacking in many farm areas.

The English language EBS texts were complete and consistent with the PADs. However, EBS #3 in Spanish was not consistent with PADs identified in the English version of PAD #3. The Spanish version omitted the following information: Items to take with you when evacuating; warn others who may not have heard the instructions of the need to evacuate; secure homes and businesses; what actions to take if you need transportation assistance; Actions to take while evacuating; Services provided at Red Cross Shelters.

## EXERCISE EVALUATION FOR B/F COUNTIES

### Past Issues

Examined: Resolved: C88-5; C88-7; Unresolved: C89-1; (see Appendix A for details).

### Current Exercise Issues:

Issue #5: Inappropriate EBS Instructions. ARCA (E.7).  
(C90-15)

Evaluation: PAD #2 required residents to shelter themselves and their employees, if appropriate. The prescribed shelter text of the EBS message advises persons, who have family or employees outdoors, to direct those persons to come indoors. Evacuation may be a more appropriate instruction since sufficient inside space may be lacking in many areas.

Recommendation: Revise EBS message text regarding sheltering (part 7). FEMA recommends that the following sentence be substituted for the current second sentence in part 7: "If you have family or employees who are out-of-doors and who do not have immediate access to shelter, direct them to evacuate the area". In other words, the text should advise persons to evacuate [for a shelter PA] if immediate access to shelter is not available.

Issue #6: Incomplete Spanish EBS message. ARCA (E.5).  
(C90-16)

Evaluation: The Spanish version of EBS #3 omitted the following information: Items to take with you when evacuating; warn others who may not have heard the instructions of the need to evacuate; secure homes and businesses; what actions to take if you need transportation assistance; Actions to take while evacuating; Services provided at Red Cross Shelters. It is not clear to FEMA whether the blocks on the message form were not checked or whether the spokesperson misread the text.

Recommendation: Prerecording EBS messages (in order to eliminate possible reading or preparation errors). Revise plan and procedures. Train staff.

## EXERCISE EVALUATION FOR B/F COUNTIES

Objective #14: Demonstrate the ability to brief the media in an accurate, coordinated, and timely manner.

Evaluation: Met.

### Narrative

Summary: Benton and Franklin Counties demonstrated the ability to brief the media in an accurate, coordinated, and timely manner.

Press releases from the SS and the State were received and available in the EOC. The press releases received (faxed copies) from the JIC were sometimes incomplete and garbled and were not consistently available for others to view in the EOC.

Benton and Franklin Counties participated in the three press briefings which were held at the SS JIC. The County Commissioner, who was the spokesperson for the counties, did an excellent job of summarizing the Counties responses to the emergency. He was able to provide details on what actions had been taken, and the times that these actions began or had been completed. See Table 7a for a synopsis of the three JIC press briefings.

The JIC served as a central point where information from various sources was coordinated, and where designated spokesperson briefed the media. The JIC is the location where the Benton and Franklin Counties press releases are prepared and disseminated. The JIC is also a location where telephone teams answer questions from the media and the public.

Benton and Franklin County PIOs stationed at the JIC effectively coordinated the formulation and dissemination of public information. The JIC staff had access to current and accurate information and produced six press releases during the exercise.

The staff at the JIC obtained information from the PIO at the County EOC. Prescribed information releases were utilized to formulate the news releases. Protective actions were appropriately supported by specific instructions and related information. Before issuing news releases, the

## EXERCISE EVALUATION FOR B/F COUNTIES

PIOs received authorization to release the information from the Emergency Chairman and the PIO at the B/F EOC.

A log was maintained by the PIOs at the JIC, but this log did not reflect all of the times at which news releases were issued.

The answers provided in response to the calls placed to the JIC media team were for the most part accurate. The responses appeared to be reasonable and would not have caused additional uncertainty on the part of the media callers.

### Past Issues

Examined: Resolved: C89-2; Unresolved: None. (see Appendix A for details).

### Current Exercise Issues:

Issue #7: Incomplete PIO log at the JIC. ARCA (G.3.a).  
(C90-17)

Evaluation: A log was maintained by the PIOs at the JIC, but this log did not reflect all of the times at which news releases were issued.

Recommendation: Train staff.

Objective #15: Demonstrate the ability to establish and operate rumor control in a coordinated and timely fashion.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability to establish and operate rumor control in a coordinated and timely fashion.

The JIC had two phone numbers dedicated to the Rumor Control function. These numbers were publicized during news conferences and in press releases. Ten or more phone lines were available for rumor control use, but only four were used for the exercise.

## EXERCISE EVALUATION FOR B/F COUNTIES

The JIC/Rumor Control staff secured information on current events by observing press conferences on closed circuit TV, reading press releases issued by the various organizations involved in the emergency response, listening to briefings by the Information Manager, and reading the status board posting. The Rumor Control staff at the JIC did provide available and responsive information to callers in a prompt manner. Most of the calls were answered correctly. Calls asking for transportation assistance were referred to the B/F EOC. The largest source of error among the responses to the calls was the failure of the Rumor Control staff to adequately dispel the rumor that the protestors were terrorists who were responsible for the escalation of the emergency beyond the ALERT level. FEMA notes that this rumor was the onsite response organization's responsibility.

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

None.

Objective #16: Demonstrate the ability to make the decision to recommend the use of KI to Emergency Workers and institutionalized persons, based on predetermined criteria, as well as to distribute and administer it once the decision is made, if necessitated by radioiodine releases.

Evaluation: Met.

### Narrative Summary:

Benton and Franklin Counties demonstrated the capabilities to distribute and administer KI. Some of the EWS did not receive the recommendation to administer KI. FEMA notes that the State of Washington has the responsibility for decision making regarding KI.

Franklin County Sheriff's deputies received the instruction to take KI at about 1128. Proper procedures were demonstrated by both mobile units.

## EXERCISE EVALUATION FOR B/F COUNTIES

Other EWS (with the exception of WA field teams, which are discussed in the state section of this report), did not take KI. The Columbia River route alerting team completed their required actions prior to the KI decision. The remaining EWS (Washington State Department of Wildlife, Benton and Franklin County school and mobility impaired bus drivers) never received the KI notification. This was the result of the failure of the transportation coordinator, and in the case of the Wildlife Agents, the WSP, to notify these people to take KI. Interviews with these EWS revealed that they were familiar with KI procedures, including recommended dosage and potential side effects.

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

Issue #8: Some EWS did not receive KI instructions. ARCA  
(C90-18) (J.10.e).

Evaluation: Benton and Franklin Counties school and mobility impaired bus drivers never received the KI notification. The Transportation Coordinator's procedure (IP-5) states that the Transportation Coordinator is the main point of contact with the school districts, including the transportation supervisors of the school districts. Attachment B of IP-5 does contain a note that requests the Transportation Coordinator to confirm that bus drivers have taken their KI. This attachment does not contain a specific step requiring the Transportation Coordinator to advise the bus drivers through the school districts that they should take KI. An overall interpretation of IP-5 is that it is implied that the Transportation Coordinator should do so.

Recommendation: Review & revise procedures to include a specific step requiring the Transportation coordinator to advise the school districts' bus drivers to take KI when a KI decision is made. Train staff.

## EXERCISE EVALUATION FOR B/F COUNTIES

Objective #18: Demonstrate the ability and resources necessary to implement appropriate Protective Actions for the impacted permanent and transient plume EPZ population (including transit-dependent persons, special needs populations, handicapped persons and institutionalized persons).

Evaluation: Met.

EXTENT OF PLAY AGREEMENT: Scenario will call for two mobility impaired persons to request transportation assistance. B/F EOC will dispatch resources to the requested location and simulate the transport to EWAC (no persons will be moved, vehicle will run route to EWAC).

Narrative  
Summary:

Benton and Franklin Counties demonstrated the ability and resources necessary to implement appropriate Protective Actions for the impacted permanent plume EPZ population. FEMA recommends that additional planning be conducted in order to be able to provide prompt evacuation of mobility impaired persons. FEMA also recommends that the data base of mobility impaired persons be updated.

### At the B/F EOC

The Transportation Coordinator at the B/F EOC activated the system for assessing and providing transportation support to handicapped, transit-dependent, institutionalized, and special needs groups. In a real emergency, the Transportation Coordinator would use Attachment E of IP-5 to call and assess the needs of the known mobility impaired persons. For this exercise, calls were made to and from the control cell. Delays were encountered in calling the Control Cell because of the number of lines available. When a valid request came in, the Transportation Coordinator requested transportation assistance from the appropriate school district. FEMA notes that the requests for assistance (per the extent of play agreement) were to represent actual mobility impaired persons from the existing data base. Communications with emergency workers in the field was from the Transportation Coordinator through the Bus Transportation Supervisor by telephone, then from the Bus Supervisor to the drivers via two-way radio.

## EXERCISE EVALUATION FOR B/F COUNTIES

### In the Field

At 1049 Pasco School District #1 Transportation Dispatch was notified by B/F EOC to be on alert for evacuation of special populations. Six wheelchair/lift buses were available and ready to be put into service. All district bus drivers are routinely cross-trained to operate these special buses. Office and vehicle maintenance personnel are also authorized drivers. At least six drivers were available onsite at the time of the call. This school district transports five wheelchair students on a daily basis. A current roster of all drivers and phone numbers was available.

The B/F EOC Transportation Coordinator requested a Mobility Impaired (MI) bus be dispatched at 1118 to pick up a MI resident. The resident to be transported needed a stretcher which made it an inappropriate referral because the buses are not designed to carry stretchers. The bus driver realized the problem and raised the question with the bus dispatcher. It was decided that the bus could be used to carry a stretcher. In the process of trying to locate the address, it was determined from the family that the resident had died one and a half years previously. In accordance with the extent of play agreement, it was assumed that the pickup was made and the bus transported the simulated evacuee to Stevens EWAC.

A second bus was dispatched to another MI location. The second address was not found, probably because of a control cell error. However, another individual on the Special Needs Population List, whose address was near that provided (as part of the exercise), was known to the bus driver to have moved out of the area about a year ago. Once again it was assumed that the pickup had been made, and the process of transporting this resident to Stevens EWAC was then simulated.

We noted that the Pasco School District bus dispatcher indicated that she doesn't remember ever seeing the B/F emergency plan and did not have a copy of the plan or checklist available (IP-18, Evacuation Transportation Function). She stated that she was not aware of PADs nor did she ask for situation updates. On the other hand, no



## EXERCISE EVALUATION FOR B/F COUNTIES

information was offered by the B/F EOC Transportation Coordinator.

The Special Needs Population Data Base needs to be available to the bus dispatchers and drivers to insure verified special instructions are available to all concerned. Simple route maps or directions used in conjunction with the addresses would have prevented delays and confusion during this exercise. For example, the driver encountered one lane bridge with unknown weight capacity, and an area with no obvious house numbers on homes.

### Past Issues Examined:

There were no past issues for this objective.

### Current Exercise Issues:

Issue #9: Incomplete plans for Mobility Impaired persons.  
(C90-19) ARCA (J.10.d & g).

Evaluation: Exercise play demonstrated that the Special Needs Database (IP-5 Attach. E) was inaccurate since it listed at least two people who no longer lived in the area. Exercise play demonstrated that the bus drivers had some difficulty finding addresses and that route instructions and maps would improve the ability of the school district to provide timely evacuation.

Recommendation: Review and update the Special Needs Population Data Base (FEMA notes that annual updates of the data base including verification are required). Develop maps and route instructions for the bus drivers to follow when locating and transporting mobility impaired persons. Revise procedures. Train Staff.

Issue #10: No procedures for bus dispatcher. ARFI

Evaluation: We noted that the Pasco School District bus dispatcher indicated that she doesn't remember ever seeing the B/F emergency plan and did not have a copy of the plan or checklist available (IP-18, Evacuation Transportation Function). She stated that she was not aware of PADS nor did she ask for

## EXERCISE EVALUATION FOR B/F COUNTIES

situation updates. On the other hand, no information was offered by the B/F EOC Transportation Coordinator.

Recommendation: Provide proper procedures.

Objective #19: Demonstrate the ability and resources necessary to implement appropriate Protective Actions for school children within the plume EPZ.

Evaluation: Met.

EXTENT OF PLAY AGREEMENT: B/F EOC will dispatch a bus to one school to demonstrate driver's knowledge of route, EWAC location, EW kit and communication procedure.

### Narrative Summary:

Benton and Franklin Counties demonstrated the ability and resources necessary to implement appropriate Protective Actions for school children within the plume EPZ.

#### At the B/F EOC

The B/F EOC Transportation Coordinator contacted the three schools in the plume EPZ and the School Bus Supervisor and placed them on alert at about 0850. It was determined that 380 students and staff needed to be moved from these schools if there was a PA. Resources available included 40 buses with capacity for 2,800 riders plus eight specially equipped buses. The Transportation Coordinator was instructed to notify the school of the order to evacuate at 1100. The Coordinator got through to Edwin Markham School at about 1104. The other two schools (Country Christian and Country Haven) could not be reached until 1126 because the control cell number used to simulate calls to these schools was busy until that time. Communication to the Bus Supervisor was not a problem, nor was communication from the Supervisor to the drivers.

#### In the Field

One bus was driven to Edwin Markham school and from there to Stevens EWAC, simulating the evacuation of students. At 1050 the Pasco School District #1

## EXERCISE EVALUATION FOR B/F COUNTIES

Bus Garage received a call from the B/F EOC asking for a bus to be sent to Edwin Markham School to standby for possible evacuation of students. At 1101, the bus driver made a radio check in his bus and then left for the school. The bus arrived at Edwin Markham at 1122, departed at 1127 and arrived at Isaac Stevens EWAC at 1153.

The Bus Dispatcher did not have access to a complete set of B/F County procedures and checklists. She was not aware of any plant conditions or PADs in effect (See Objective #18).

The attendance at the three schools in the EPZ is such that 12 buses can evacuate all students in one sweep. At least 40 buses were available on the day of the exercise.

Arrangements were made with FC Sheriff's Office (FCSO) to dispatch traffic control assistance to Edwin Markham School. Given the resources available to FCSO, and competing requirements for staff at ACPs, river closure points, evacuation verification routes as well as normal police activities, it is questionable whether or not there would be adequate staff to assist in traffic control at Edwin Markham School.

### Past Issues

Examined: There were no past issues for this objective.

### Current Exercise Issues:

None.

Objective #20: Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

Evaluation: Met.

EXTENT OF PLAY AGREEMENT: City of Richland will deploy resources for closure of the Columbia River access; Franklin County will deploy resources for closure of the Columbia River at Ringold and Selph Landing; the two Franklin County vehicles will be redeployed to two access control points; and the two Franklin County vehicles will demonstrate evacuation verification patrol.

## EXERCISE EVALUATION FOR B/F COUNTIES

### Narrative Summary:

Benton and Franklin Counties (Sheriff's Offices as well as the Richland Police and WSP) demonstrated the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas with some exceptions.

The extent of play called for two FCSO officers to close the Columbia River access at Ringold and Selph landing. The RPD was to close the landing at Leslie Grove Park. All other ACP responsibilities were to be simulated. These tasks were accomplished successfully. After performing the above tasks, the FCSO officers were successfully redeployed to ACP F5 and F6. This involved travel across the plume path. Officers reported dosimeter readings to the B/F EOC.

The B/F procedures (IP-6) do not detail routes or the resources required to perform evacuation verification. As a result, it would be necessary to take time away from operations duties (during an emergency) to plan routes, determine necessary resources, prepare instructions and assignments, etc. The task of determining evacuation verification routes could be accomplished more effectively by pre-incident planning. This planning should address assistance to special populations (schools), possible alerting of farm field workers, areas of traffic congestion as well as locating transit-dependent persons. FEMA notes that the agencies performing these activities do not necessarily have to be public safety agencies.

FEMA notes that the WA Department of Wildlife agents did accomplish their assigned responsibility to establish access control for the Wahluke wildlife area and that the Richland Police Department did promptly establish access control at the Leslie Grove Park (Columbia River closure). The Richland Police Department also dispatched (simulated) officers to evacuate the ORV park without benefit of a protective action decision or coordinated EBS broadcast.

### Past Issues Examined:

Resolved: C88-9; Unresolved: None. (see Appendix

## EXERCISE EVALUATION FOR B/F COUNTIES

A for details).

### Current Exercise Issues:

Issue #11: Incomplete evacuation verification procedures.  
(C90-20) ARCA (J.10.j).

Evaluation: Benton and Franklin Counties' procedures do not specify evacuation verification routes. As a result, it is necessary to take time away from operations duties and plan routes to provide observations on the status of the evacuation PAD. The task of determining evacuation routes could be accomplished more effectively by pre incident planning.

Recommendation: Develop procedures for evacuation verification process. Revise procedures. Train staff.

3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
S90-1	3	ARCA	WA EOC was addressing requests for dose data to the MUDAC Coordinator. DOH procedures specify that communication with the EOF should be through the REM or RM (see Fig. 4-2 of DOH procedures). A.2.a	Review and revise procedures, if appropriate. Train staff.	09/30 / 91
S90-2	4	ARCA	For a period of time, fax messages from the EOF were not being received by the WA EOC. The problem may have been due to the fact that the communications link consists of a single party line which links the EOF to many locations. There should be a dedicated system between the EOF and the state and local EOCs to allow for timely data transfer.	Purchase equipment and data lines. Revise procedures and train staff.	09/30 / 91
S90-3	7	ARCA	The field teams did not report window open readings along with window closed readings while determining the parameters of the plume until	Train staff to follow DOH procedures which instruct FTs to obtain open and closed window readings.	09/30 / 91

3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			the FTC requested them to do so.		
S90-4	7	ARCA	There is no procedure instructing DOH field teams to obtain ground level and waist level measurements (open and closed window) for ground deposition. PLANNING ISSUE	Revise procedures and train staff.	09/30 / 91
S90-5	10	DEF	Dose projections and field data collected were not sent to the WA EOC in an adequate and timely manner. Only 2 of 17 dose projections were faxed to the WA EOC. One of the dose projections which was not sent to the EOC would have provided information that would have justified taking PAs beyond 10 miles. Only 2 of 10 plume location maps were sent to the WA EOC. (I.10)	Assign an EOF staff member the task of providing hard copy data to the WA EOC until the WA Administrative Liaison arrives at the EOF. Train the Administrative Liaison to continue this flow of data to the EOC after arriving at the EOF.  Revise SS notification form to provide integrated dose projections for 5 and 10 miles (whole body and thyroid) for all default release durations.  Demonstrate capabilities in a remedial drill.	09/30 / 91

3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
S90-6	10	DEF	<p>The WA EOC Radiological Assessment Group did not demonstrate an understanding of the RAG dose projections sent by the EOF. State Decision Makers were not briefed on the basis of the dose projection or that the basis was different than that specified by State procedures.</p> <p>WA dose assessment staff at the EOF did not understand the basis for the final dose assessment based on field data. An air sample point from the trailing edge of the plume was used as the basis to support existing PAs. This projection did not reflect the correct integrated dose at 10 miles. (I.8)</p>	<p>Review assignments for staff assigned to the RAG and EOF. Develop a system for certifying that these people adequately understand the dose projection system in use.</p> <p>Demonstrate capabilities in a remedial drill.</p>	09/30/91
S90-7	10	DEF	<p>Inadequate dose projection systems. The BEDPS projections were based on real elapsed time (time of release</p>	<p>Establish appropriate release default time durations. Revise procedures to include these defaults and to require the</p>	09/30/91



3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			to time of calculation). Integrated dose from these projections were interpreted as total dose of the release. (I.10)	operator to produce dose projections consistent with the chosen release defaults.  Train staff with accident assessment and PAR duties to ensure that the dose projections are presented in the context of the release default and that comparisons between dose projections are made on a consistent basis.  Demonstrate capabilities in a remedial drill.	
S90-8	14	ARCA	Inadequate media briefing. Only one press briefing was held by the state. The manner in which PR #4 was discussed and then recalled with no replacement provided could have confused the media. Inaccurate information was provided to the media during the briefing. (G.3.a)	Hold press briefings early and often. Train staff.	09 / 30 / 91
S90-9	14	ARCA	Inadequate information and	Review boilerplate releases and	09/30 / 91

3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			instructions. PR #4 was recalled. PR #5 was issued in its place (but not actually given to the media). However it was confusing and PR #4 was necessary to fully understand PR #5. The EBS message by the state could have been taken for a recommendation when in fact it was an advisory. (E.7; G.4.a)	EBS message texts and revise if appropriate. Train staff.	
S90-10	14	ARCA	The dissemination group was still being told by their supervisor that evacuation was being considered when it had actually been include as part of PA #3 at 1124. (G.4.b)	Train staff to update dissemination group as soon as possible after a new PA or other relevant information is available.	09/30 /91
S90-11	16	ARCA	The State's PAG for KI is not expressed as a projected dose to the thyroid. The dose projection system used by the state does not produce projected doses for adult thyroid exposure. This should be the criteria on which KI decisions for (adult) EWS	Revise state PAG for KI exposure to include a projected dose for thyroid (expressed as an adult exposure). Develop a process for converting current child thyroid dose projections into adult dose projections. Revise KI decision process. Revise plans and train staff.	09/30 /91

3.1 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- WA STATE ISSUES  
DATE OF EXERCISE: 09/11/90

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TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			should be based. (J10.e)		
S90-12	26	ARCA	Since DOE field teams will not enter the plume, this may impact how WA field teams are deployed. For example, DOE teams instead of WA teams could be used for confirming the absence of radiation in areas of non-deposition. (C.1.a)	Review and revise DOH procedures to indicate that federal rad monitoring teams have restrictions on the type of mission they can accept. Train staff.	09 / 30 / 91

3.2 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- B/F COUNTY ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
C90-12	3	ARCA	<p>The Emergency Chairman at the B/F EOC did not emphasize that actions discussed during his briefings were County PAs, not utility recommendations. During only one briefing were agency staff asked to report on their agencies' response actions. (A.2.a)</p> <p>In a 11/9/90 letter, the Counties said that appropriate training would be conducted by 6/30/91.</p>	<p>Provide two-way briefings on a regular basis. Review and revise procedures, if appropriate.</p>	06/30/91
C90-13	6	ARCA	<p>The Wildlife Agent procedures (IP-14) are inconsistent in terms of what to do when 5 r dose is reached. Pg 4, item 11 tells the agent to report to an EW Center if a 5 r dose is reached. Pg 5 item 4 tells agent to pick up an EW kit and follow procedure IP-19. IP-19 tells EWs to call the EOC for further instructions if a 5 r dose is reached. This is the correct instruction. (K.3.a)</p>	<p>Revise IP-14 to make it consistent with IP-19.</p> <p>The Counties said that IP-14 will be revised by 12/31/90.</p>	12/31/90

3.2 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- B/F COUNTY ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
C90-14	12	ARCA	The County dispatch procedures require confirmation that sirens have sounded. There is no mention of this requirement in the County PIO procedures. During the exercise, the dispatch office requested that EBS transmission be delayed until confirmation of siren sounding had been received. This caused confusion in the EOC since there was no mention of this requirement in the staff's procedures. (E.6)	Revise IP-4 and IP-8, as well as any other applicable procedures, to indicate that a time will be specified for siren activation and EBS broadcast and that the responsible parties will ensure that both the siren activation and EBS message are in effect at the specified times.  The Counties said that IP-8 will be revised by 12/31/90.	12/31/90
C90-15	13	ARCA	The shelter text of the B/F EBS message advises persons who have families or employees outdoors to direct those people to come inside (to shelter). Evacuation may be a more appropriate instruction for these people in some cases since there may be insufficient indoor space convenient to these people. (E.7)	FEMA recommends that the following sentence be substituted for the current second sentence in part 7 of the EBS text: "IF YOU HAVE FAMILY OR EMPLOYEES WHO ARE OUT-OF-DOORS AND WHO DO NOT HAVE IMMEDIATE ACCESS TO SHELTER, DIRECT THEM TO EVACUATE THE AREA".  The Counties said that the EBS	12/31/90

3.2 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- B/F COUNTY ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
				form would be revised by 12/31/90.	
C90-16	13	ARCA	The Spanish version of the EBS #3 omitted several of the boilerplate instruction (what to take with you when evacuating...etc) that were included in the English version. It is not clear whether the blocks on the message form were not checked or whether the reader misread the text over the air. (E.7)	Prerecord EBS messages to eliminate preparation and reading errors. Revise procedures, train staff.  The Counties said that they will conduct a feasibility study on the use of prerecorded EBS messages and make a decision by 6/30/91.	06/30/91
C90-17	13	ARCA	Although a log was maintained by the County PIOs at the JIC, it did not reflect all of the times at which news releases were issued. (G.3.a)	Train staff.  The Counties said that appropriate training will be conducted by 6/30/91.	06/30/91
C90-18	16	ARCA	B/F school and mobility impaired bus drivers did not receive the KI notification given to other EWs. IP-5 for the Transportation Coordinator does not contain a specific	Revise procedure IP-5.  The Counties said that IP-5 will be revised by 12/31/90.	12/31/90

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3.2 SUMMARY LISTING OF EXERCISE INADEQUACIES  
WNP-2 EXERCISE -- B/F COUNTY ISSUES  
DATE OF EXERCISE: 09/11/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			step requiring the Transportation Coordinator to advise the bus drivers (through the school districts) to take KI. An overall interpretation of IP-5 is that it is implied that this person should do so. (J.10.e)		
C90-19	18	ARCA	The Special Needs database (IP-5 Attachment E) used during the exercise was out of date and did not reflect the status of mobility impaired people in the area. (J.10.d & g)	Review and update the Special Needs Population database annually as required by FEMA guidance.  The Counties said that the disabled person database would be updated by 6/30/91.	06/30/91
C90-20	20	ARCA	B/F procedures do not specify the routes to be used for evacuation verification. It is necessary to take time away from operations duties and plan routes to provide observations on the status of the evacuation PAD. (J.10.j)	Preplan evacuation verification routes. Revise procedures. Train staff.  The Counties said that they would preplan evacuation verification routes by 6/30/91.	06/30/91

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
S84-1	ARCA	09/11/90	No range of default values exists for use with the EDPS. (I.7; I.10)	<p>9/18/86 exercise comments: Procedure 13.8.1 does not appear to contain default values or specific references of where to locate default values. The H.P./Dose Projectionist said that the EDPS has a 2 hour default time for integrating the dose projection. However it is not clear if there were default, design basis release values for different accident scenarios upon which dose projections could be made.</p> <p>9/13/88 exercise comments: The methodology remains inflexible for modifying the source term for different accident scenarios. It allows two different nuclide mixes dependent on a filtered or non-filtered release which may not be representative of the actual source term.</p> <p>9/11/90 Evaluator comment: The above comments are still valid. The main EDPS has a</p>	.F.



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
S86-4	ARCA	09/11/90	The media was not briefed in a timely manner. Delays were attributed to to lack of management supervision by the production manager. (G.3.a;G.4.a)	single 2 hour default value. The backup EDPS has the flexibility for entering release duration times, however no reference default values were used during the exercise. Instead, real time (from start of release to time of calculation) was used for most dose projections.  During the Feb 28 - Mar 1, 1989 ingestion exercise, the WEIC never released control of the PI function to the JIC per procedures. Consequently, the JIC did not have the opportunity to issue any press releases. Although the press releases issued by the WEIC were timely, the press release function must be demonstrated at the JIC as well. In a 6/28/90 letter, the state indicated that additional training has been conducted on this issue. In the 9/11/90 exercise, FEMA will evaluate the capabilities of the WEIC and the JIC as a single unit acting for the state.	.F.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
S86-6	ARCA	09/11/90	The State JIC team refused to take the State's PIO responsibilities until FEMA/NRC arrived at the JIC. The State JIC team acted in a coordination of emergency response role instead of reporting the State's response actions to the media. (A.3; G.3.a; G.4.a)	9/11/90 exercise comment: The State did not brief the media in a timely manner. Only one press conference was held.  During the Feb 28 - March 1, 1989 ingestion exercise, FEMA observed that "the State JIC team either did not seek to assume the State's PIO responsibilities (per 10.2-13) or the WEIC failed to initiate this action." Therefore this remains an open item.  9/11/90 exercise comment: The State JIC team did not participate in this exercise, therefore this issue was not evaluated.	.F.
S86-7	ARCA	09/11/90	Field teams had incomplete kits, a radio that did not work and some members were not certified for respirator use. (I.8)	During the 9/88 plume exercise, the FEMA evaluator reported that the EW kits were complete, but that some team members were still not certified for respirator use. This item is therefore only	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				partially complete.	
				In a 6/28/90 letter, the state said that respirator certification has been completed and is an ongoing operation. DOH/DRP will not send uncertified staff on the field teams.	
				9/11/90 exercise comment: The evaluator observed up-to-date list of rad team members certified to wear respiratory protection; one team member held a current HazMat card for SCBA.	
S86-8	ARCA	09/11/90	Current instructions for EWs do not facilitate efficient replacement of workers whose doses are approaching 5 rem. Instructions require the PSO to either abandon the post or receive authorization for higher dose.	During the 9/88 plume exercise, FEMA found that the dosimetry available to EWs was still inadequate; it consisted of only a 0 - 100 R instrument. These instruments also seemed to drift significantly from a given reading. (See S88-3 for further discussion of	.T.
			Current instruments provided		

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC # -----	DATE LEVEL TESTED -----	INADEQUACY -----	EVALUATOR COMMENTS -----	ISSUE CLOSED (TRUE/FALSE) -----
		to WSP do not allow accurate detection of low doses. (K.3.a; K.3.b)	dosimetry).  In a 6/28/90 letter, the state said that new dosimetry has been obtained.  9/11/90 exercise comment: All EWs had 0 to 20 R instruments.	
S86-9	ARCA 09/11/90	A single field measurement was used as the basis for a PAR even though there were five field teams available to take measurements. (I.10)	During the 9/88 exercise, FEMA .F. observed that "The PAR to shelter ... was based on a dose projection using counting results from one air sample. ... This sample was not representative of the true plume characteristics since the sample was taken very close to the plant." The MUDAC requested a dose rate projection at approximately the same time that another sample report was received from the other field team. This sample would have been more representative of iodine concentrations in populated areas since it was taken over	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				5 miles from the plant.	
				A 6/28/90 letter from the state said that annual training stresses the importance of [more than one air sample].	
				9/11/90 exercise comment: The final MUDAC decisions were supported by the incorrect use of a single air sample. The total integrated dose based on this sample was incorrect.	
S86-10	ARCA	09/11/90	Because of the assumptions by MUDAC that the unmonitored release pathway and source term would continue to produce low radiation field measurements, the FTC did not request dosimeter readings. However, the FTC and MUDAC PADG did not express concern or interest in the exposure that EWs might receive while staffing ACPs over a 12 hour shift.	SS procedure 13.11.14 (Rev. 1) .T. does not address FEMAs recommendations.	
			Procedure 13.11.14 in place at	A 6/28/90 letter from the state indicated that SS EW dose is monitored by the workers themselves, and the Field Team Coordinator. SS procedure 13.11.14 reminds the FTC to check status of EW exposure. DOH/DRP coordinators have trained their field teams and county	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
		the time did not assign any group responsibility to track and estimate dose commitment for field personnel. (K.3.a; K.3.b)	EWs. The Dept. of Ecology has responsibility to train their staff.  9/11/90 exercise comment: Dose was effectively managed by WA-1 and WA-2 field teams. Team members estimated their dose after passing through the plume; dose was also requested from MUDAC. EOF provided plant status messages and recommended that FTs take KI.	
S87-1	ARCA 09/11/90	When the RM made PARs which extended the evacuation and sheltering areas, the County was not aware that these PARs were different from those developed by MUDAC. The County was not aware that this PAR was not the "unified PAR" anticipated per their plan. (I.10; J.7).	In a 6/28/90 letter, the state .F. said that the EFSEC procedure checklist (10.13.2.e) and the DEM Assistant Director EOC procedure checklist (10.3 B-1(c) 11/14/89) both address FEMA's recommendation that the RM should ensure that off-site representatives are aware of the issues supporting the RM's decision on the EOF PAR.  9/11/90 exercise comment: The first MUDAC PAR, prepared by the SS and DOE before the State arrived, was modified by the REM with the RM's support.	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			In accordance with EPIP 13.11.7, the REM informed the MUDAC coordinator of the change in PAR. The RM did not inform offsite authorities during the CRASH call of the SS change in the MUDAC PAR as required by EPIP 13.14.2 .	
S87-2	ARCA 09/11/90	The PADG focused on the primary PAR areas and sometimes missed automatic PARs which should have been included, based on the decision for the primary PAR. (E.4)	In a 6/28/90 letter, the state .T. said that training on automatic PARs will be conducted and automatic PARs are included in the DEM Assistant Director EOC procedures.  9/11/90 Evaluator Comment: The MUDAC procedures now assign automatic PARs to the REM. These PARs were initiated by the REM.	
S87-3	ARCA 09/11/90	At one point during the PAR development process, the plume center line appeared to be near the boundary of Sections I & II. When PARs were	In a 6/28/90 letter, the state .F. said that all plume maps in use have been revised to change division lines to coincide with major roads or	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
		developed for distances beyond 10 miles, both sections were included, resulting in an affected area of about 180 degrees. In reality the affected area was much smaller. (I.10; J.9)	streets. Training will be conducted during July and August, 1990.  9/11/90 Evaluator comment: The new maps (dated July, 1990) were in place. However, the large map is still used to plot the field monitoring data. "Neon" type tape placed on the new sector boundaries might be useful.	
S87-10	ARCA 09/11/90	At least 5 examples of incomplete or incorrect information were noted in the WEIC press releases and the press conference.(G.3.a)	During the March, 1989 ingestion exercise, the number of press release issued by the WEIC was adequate. However the content of the releases was not adequate to justify the rationale for PAs and the associated health risks. The press release associated with PAD #7 did not address the instructions for return, although the PAD did. Other examples of incorrect information are described in the exercise report.  In a 6/28/90 letter, the state	.P.



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
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said that PIO staff have received additional training regarding the use of timely and accurate information in news releases and press briefings. Boilerplate health related background information has been developed to avoid providing inaccurate or misleading health information to the public.

9/11/90 exercise comment:  
Five news releases were prepared and issued by the WA WEIC. These contained accurate information as far as they went. PR #4 reflected an incomplete effective zone for the agricultural advisory and was supplanted by PR #5. At the only press briefing held, PR #4 was issued, then recalled with the comment that PR #5 would replace it. No other PRs were handed out to the press. As it turned out, not only did the press not get PR #4, PR #4 was necessary in order to understand PR #5 since this release made reference to

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
-----	-----	-----	-----	-----	-----
				PR #4.	
				Only 1 press briefing was held. It was originally scheduled for 1200, but it kept being postponed every 15 to 30 minutes until it was finally held at 1337. See discussion of the briefing under Objective 13/14 in the exercise report.	
S88-2	ARCA	09/11/90	The WSP dispatch at Yakima waited 27 minutes to notify Fish and Game to begin route alerting. (E.6)	In a 6/28/90 letter, the state .F. said that they will do additional training to alert WSP of the need to quickly alert the Department of Fisheries and Wildlife of the need to perform route alerting and provide access control at Ringold fish hatchery.	
				9/11/90 exercise comment: F&G agent did not receive any message from WSP to proceed with evacuation. Agents proceeded with notification based on hearing the sirens. Apparently, WSP thought that	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				all calls were to be simulated and therefore did not actually place a call to the F&G agent.	
S88-3	ARCA	09/11/90	Fish and Game agents did not carry proper dosimetry. Agents carried one 0 to 100 R dosimeter.(K.3a).	9/11/90 exercise comment: All WA EWs had proper dosimetry, with the exception of one Fish and Game agent whose 0-20 R unit was defective and had been returned to the State for repair.	.T.
S88-4	ARCA	09/11/90	Dose projections which supported PARs were not sent to the B/F County EOC. (I.10).	In a 6/28/90 letter, the state said that it is the normal procedure to send dose projection data to the state and county EOCs.  9/11/90 exercise comment: Only 2 of 10 data point reports and 2 of 17 dose projections were sent offsite.	.F.
S88-5	ARCA	09/11/90	Dose and ground deposition projections were based on data from a single air sample even	9/11/90 exercise comment: The field data collected was not properly evaluated in terms of	.F.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			though there were four samples available in the MUDAC. (I.10).	were it came from and the time of collection when the data were used to provide dose projections. In addition, the dose projections were not compared in order to understand the differences. The air sample obtained about 1340 which was used to calculate the dose at 10 miles was collected after the plume had passed. The iodine concentration would not have represented the release iodine concentration. Further discussion is contained under Objective #10 of the exercise report.	
S88-6	ARCA	09/11/90	The PAR for milk herds was inconsistent with the PAR for people. (I.10).	In a 6/28/90 letter, the state .T. said that annual training stresses the importance of consistency in PARs.  9/11/90 exercise comment: Care was taken at the WA EOC to ensure that PARs for people and livestock were consistent.	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
S88-7	ARCA	09/11/90	The hot line used at the Kiona Benton EWAC did not allow for contamination control. (J.12).	In a 6/28/90 letter, the state said that new procedures are in development that will resolve this issue. Training will be given to K-B EWAC staff. Correction can be observed during the next K-B EWAC drill.	.F.
S089-1	OTHR	09/11/90	Procedures for State EBS actions are not integrated. Individual procedures for monitoring EBS by DAG and WSP do not specify to whom the results of the monitoring should be reported. The procedure for the DCD/DEM Assistant Director does not direct that EBS message text be acquired from the EOC supervisor in a timely fashion. Procedures do not specify use of WEIC to prepare EBS messages. WEIC procedures do not call for EBS messages to be available to all WEIC dissemination points.	This other issue was generated out of S84-1 and S86-5. These issues have been closed out and replaced by this issue which more accurately reflects the status of current WA procedures.  In a 6/28/90 letter, the state said that this issue will be addressed in revisions to 10.18. Commitment date for correction is August 1990.  9/11/90 exercise comment: Procedures for State EBS actions are still not integrated. There was no way	.F.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				to monitor the B/F County EBS messages at the WA EOC. Although State procedures currently assign two people the responsibility to monitor EBS broadcasts (WSP and State rep. to B/F EOC), no report was available at the WA EOC.	
127 S89-2	ARCA	09/11/90	MUDAC had 4 different map displays of the EPZ. This makes data collection and reporting difficult. (H.3; H.4)	In a 6/28/90 letter, the state .F. said that the decision has been made to use the Washington State Search and Rescue Grid as the standard map display for the MUDAC. New aerial photos will be taken and staff will be trained. Target completion date is 1/91.	
S89-3	ARCA	09/11/90	1.a: WEIC manager did not release control of the public information function to the JIC after the JIC was operational.  1.b: Coordination of press releases was accomplished after they were distributed,	In a 6/28/90 letter, WA responded as follows:  1.a: see discussion under S86-4.  1.b: State PIOs have received additional training on this issue.	.F.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC # -----	DATE LEVEL TESTED -----	INADEQUACY -----	EVALUATOR COMMENTS -----	ISSUE CLOSED (TRUE/FALSE) -----
		not before as specified in procedures. (G.4.b)	1.c: Training will be given to DOA staff describing educational materials used and how these are to be distributed.	
		1.c: Educational material was not distributed to farmers and processors in the IPZ. EBS messages are an inappropriate means to alert and inform commercial agricultural operations. (J.11)	FEMA notes that DOA procedure 10.6 has not been revised since 1986. This procedure requires DOA to issue embargo notices. Until this procedure and other procedures are revised to reflect the issues raised here and in S89-1 (see FEMA report for the 1989 ingestion pathway exercise, pg. 88) a table top drill should not be scheduled.	
		1.d: Press releases did not explain the basis for the IPZ PARs being recommended.	1.d: Additional boilerplate messages have been developed to deal with health effects, DOH, ingestion and re-entry issues. These will be included in a kit to be distributed during the fall exercise.	
S89-4	ARCA 09/11/90	Spokespersons at the JIC did not present information in an accurate manner. (G.4.a)	In a 6/28/90 letter, the state .F. said that state PIOs have received additional training	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
-----	-----	-----	-----	-----
			<p>on this issue. Boilerplate information has been developed and will be part of an information packet to be used during the 9/90 exercise.</p> <p>Displays recommended by FEMA for ingestion use remain under development. Expected commitment date is 6/91.</p> <p>9/11/90 exercise comment: No information packets were handed out to the media who came to the WEIC news conference. Information available at this conference was limited and not entirely accurate. (See discussion in the 9/11/90 exercise report).</p>	
S89-5	ARCA 09/11/90	Status boards in the WEIC were not properly maintained: they often contained out of date information. (G.4.c)	<p>The state indicated (6/28/90 letter) that the state PIO staff have received additional training on this issue.</p> <p>9/11/90 exercise comment: The WEIC demonstrated the ability to maintain status boards in</p>	.T.



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
WA STATE ISSUES

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
-----	-----	-----	-----	-----

the Dissemination Section. A specific status board staff person was assigned to post all significant events and actions on the board for the use of the media/public concern phone teams. There was a problem in that the Rumor Control section did not always receive current information in a timely manner. See issue under objective 13/14 of the exercise report for discussion of this separate issue.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
B/F COUNTY ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
C88-2	ARCA	09/11/90	During school evacuation route driving, the bus driver did not turn on his radio. (F.1)	9/11/90 exercise comment: The school evacuation bus driver performed a radio check prior to departing the Pasco School Dist. #1 bus garage. The radio was functional and was monitored by the driver during the trip to Edwin Markham school.	.T.
C88-3	ARCA	09/11/90	The weather status board, specified in IP-2 of the Bi-County procedures was not in use at the EOC. The Barricade and Evacuation route map does not show the three river launch areas that require closure during a river evacuation. (H.3)	9/11/90 exercise comment: The evacuation route maps used during the exercise did show the river ACPs. The weather status/dose projection chart (an overhead graphic) was demonstrated during the participants meeting on 9/13/90.	.T.
C88-4	ARCA	09/11/90	EWs were not carrying proper dosimetry. Each carried one unit with range of 0 to 100 R. This does not meet federal criteria outlined in REP-2, pp. 5-7.	9/11/90 exercise comment: All EWs, including Sheriff's Deputies, carried proper dosimetry.	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
B/F COUNTY ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
C88-5	ARCA	09/11/90	AS broadcast, EBS meesage #4 and #5 contained incomplete sheltering and ad hoc respiratory protection information, although this information was correctly stated in the text from which the Commissioner was reading. (E.7)	9/11/90 exercise comment: The .T. B/F EOC PIOs effectively used prescribed boilerplate text to provide complete and consistent information on sheltering.	
C88-7	ARCA	09/11/90	The Bi-County procedures were not consistent with observed play during the exercise regarding the beginning of the 15 minute period for broadcast of the EBS message. (E.5)	9/11/90 exercise comment: The .T. County has revised their procedures to set the time criterion for broadcast of the EBS message at 15 minutes after the emergency chairperson makes the decision to implement the PAD.	
C88-9	ARCA	09/11/90	IP-6 does not list the Franklin County river access points. (J.10.g)	9/11/90 exercise comment: The .T. present B/F procedures (IP-6, & IP-13 and IP-6 Attch. H) list the Ringold and Selph landing closure points. Attachment M does not list the two river ACPs but a 7/9/90 letter from the Counties states that this will be	

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 9/11/90 WNP-2 EXERCISE  
B/F COUNTY ISSUES

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				corrected in Rev. 10 due out 12/31/90.	
C89-1	ARCA	09/11/90	The County PIO at the JIC received fax copies of EBS messages but failed to distribute them to other JIC organizations or to the media. (E.5)	9/11/90 exercise comment: B/F .F. PIOs did not receive fax copies of EBS messages until 1320.  No demonstration of dissemination of faxed EBS messages to other JIC organizations was made. Information from the EBS messages was verbally communicated to the media at the press briefings.	
C89-2	ARCA	09/11/90	Although the County PIO had the complete texts of EBS messages #1 and #2, the contents were not included in press releases or in the press conferences. Information provided by the County at briefings was not accurate on several key issues. In other cases information which should have been known by the spokesperson was not. (G.4.a)	9/11/90 exercise comment: B/F .T. Co PIOs did not receive EBS messages until towards the end of the exercise. To address this issue, B/F PIOs at the JIC listened to the EBS messages broadcast and completed blank copies of EBS forms. Information from these forms was used to formulate news releases and to accurately inform the media at the press briefings.	



REMEDIAL DRILL REPORT

Clark County Assistance Center  
STATE OF WASHINGTON

JUNE 23, 1990

Prepared by

Federal Emergency Management Agency  
Region X  
Bothell, Washington

August 1990

**NRC FILE CENTER COPY**



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## 1. INTRODUCTION

### EXECUTIVE SUMMARY

This drill was conducted to demonstrate the capability of Clark County, Washington, Department of Health (WADOH), and the American Red Cross (ARC) to respond to a radiological incident at the Trojan nuclear facility which would require the activation of the designated Assistance Center and appropriate Congregate Care Centers.

A drill was held at Clark County in August 1985, and a remedial drill was held in June 1986. FEMA's findings for these drills indicated that planning and preparedness was inadequate. There were insufficient arrangements for the operation of the Assistance Center and insufficient staff and equipment to perform radiological monitoring of evacuees and their vehicles.

The remedial drill was held to demonstrate corrective action identified in earlier drills. At the June 1989 drill, FEMA found that there were inadequate arrangements and plans to:

1. Register the public.
2. Provide temporary care and shelter for the 800 school children.
3. Monitor the evacuees and their vehicles.
4. Provide appropriate directions to the Congregate Care Center. In addition, FEMA could not determine if adequate arrangements had been made for sufficient Congregate Care Centers.

FEMA held numerous meetings and discussions with Clark County, Washington State and Portland General Electric following the June 1989 Clark County remedial drill (see our drill report dated April 1990). Corrective action plans were developed and the various agencies implemented these corrective action plans.

FEMA acknowledges the following accomplishments:

- o Clark County and Washington State each revised their plans and procedures. The revised plans clearly state that Clark County is responsible for the staffing and operation of the Assistance Center, including all monitoring functions.
- o Clark County reviewed alternate facilities and designated a new facility, Prairie High School, to be the Assistance Center. A Memorandum of Understanding was signed between Clark County and the School District. FEMA visited Prairie High School and found the facility to be adequate.
- o Washington State issued revised procedures (Section 9, DOH) which contained criteria for facility selection, definition of Emergency



Workers and specified monitoring procedures, appropriate equipment, supplies, and base line rates of monitoring productivity. FEMA reviewed a draft version of these procedures and Washington State revised their procedure to address FEMA's comments.

- o Clark County developed revised procedures for the activation and operation of the Assistance Center. Staffing assignments were made to various County agencies and personnel were identified and trained. FEMA received a draft version of these procedures and Clark County revised their procedures to address FEMA's comments. A dress rehearsal drill was held on May 9. FEMA observed this drill.

The June 1990 drill demonstrated that Clark County activated and staffed the Assistance Center in accordance with their procedures. Set-up of the facility and activation (staffing of designated positions) was accomplished from a cold start within 97 minutes (931-SAE to 1108-Personnel Monitoring Workstation operational). The workability of these procedures was demonstrated by the processing of persons and vehicles through the Assistance Center. The performance of the staff was more than adequate; e.g., individuals knew their tasks, the staff worked as individuals and in groups to set-up the facility, they checked and issued equipment, dressed out in protective clothing, and performed their operational assignments in accordance with their procedure.

FEMA found two equipment-related issues (drill issues 1 and 2) which will require corrective action such as revising procedures and procuring additional dosimetry.

FEMA found one plan-related issue--the designated staffing for the Personnel Monitoring Workstations.

Clark County procedures call for the set-up and staffing of five Personnel Monitoring Workstations. The procedures also call for the set-up and staffing of two additional Personnel Monitoring Workstations if the Kalama School District is not evacuated/relocated before a radiological release begins.

In view of the time required to set-up a Personnel Monitoring Workstation, delays in monitoring the School District could occur based upon the current set-up process.

These seven Personnel Monitoring Workstations (five for general public and two for school children) were determined by Washington State and Clark County to be an adequate level of staffing. This staffing level was based upon the assumption that the productivity rate for each workstation was approximately 90 seconds per person.

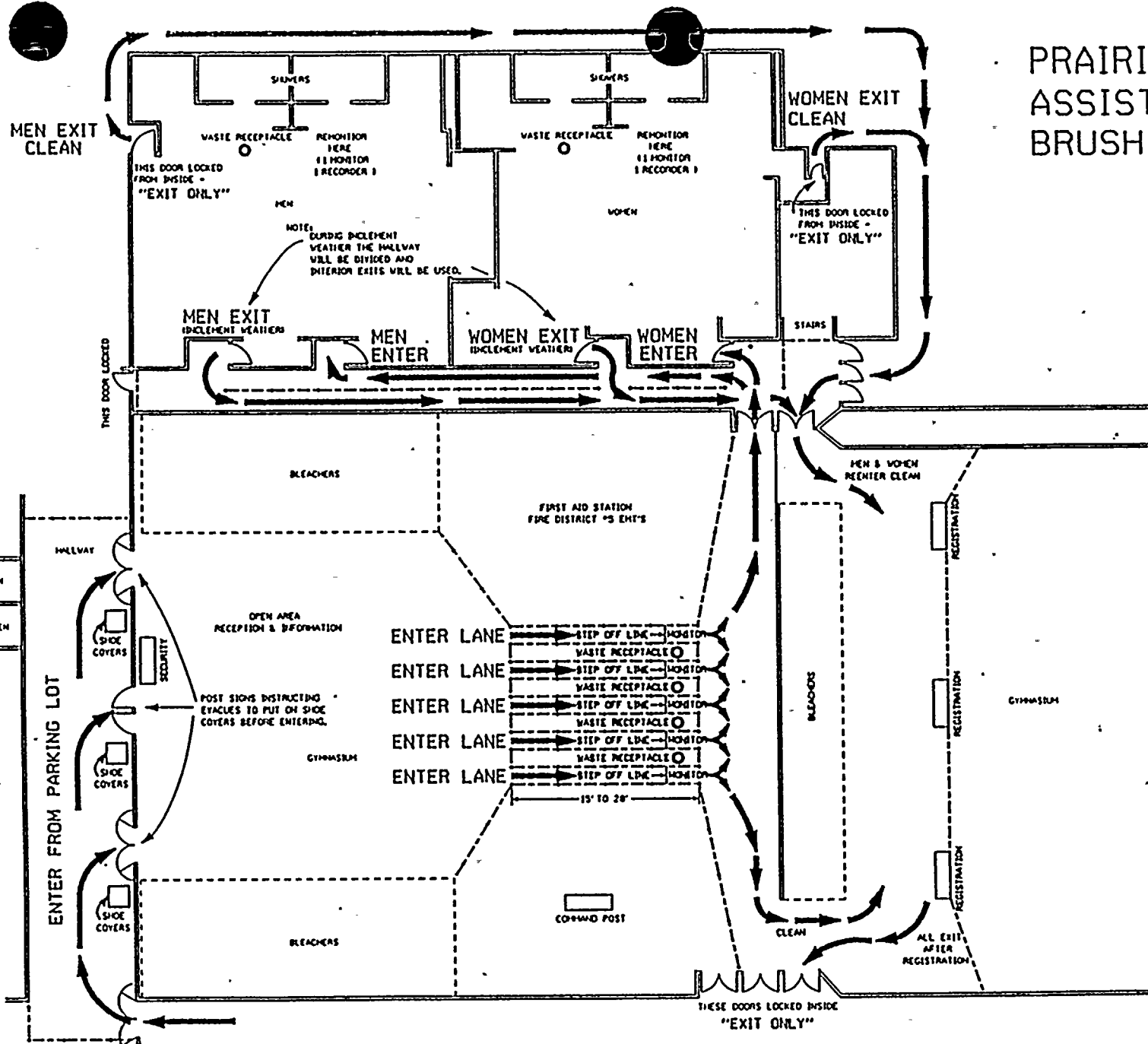
FEMA calculated the average productivity of the personnel staffing the four Personnel Monitoring Workstations in this drill to be 139 seconds or about 2.3 minutes per person. Based upon a 12 hour shift and a 10 minute break every hour, the productivity rate per monitor would be 252 persons. It would require 10 Personnel Monitoring Workstations to provide adequate capabilities to monitor the expected public within a 12-hour period.

FEMA recommended (letter dated July 19, 1990) that Clark County revise its Assistance Center plans and procedures to include the initial set-up and staff for 10 Personnel Monitoring Workstations. FEMA notes that this issue was to be resolved by June 1990. Therefore, FEMA requested that these actions be completed by September 1, 1990.

Clark County indicated (letters dated August 9 and 13, 1990) that: additional dosimetry (total of 50 CDV-730s and 50 film badges) will be acquired and placed in the Assistance Center emergency kits; the Assistance Center plan will be revised to require the set-up and staffing of 10 monitoring stations; and that an additional five CDV-700s (total of 20 CDV-700s) have been prepositioned in the Assistance Center emergency kits. Clark County has indicated that their plan has been revised. FEMA RX expects receipt of the revised plan and procedures in September of 1990.



# PRAIRIE HIGH SCHOOL ASSISTANCE CENTER BRUSH PRAIRIE, WA.



## SYMBOLS

- TRAFFIC CONES & TAPE
- BARRIER TAPE

Figure 1. Layout of Clark County Assistance Center





Attachment 1

EVACUEE INFORMATION

PRAIRIE HIGH SCHOOL ASSISTANCE CENTER

This facility has been activated to provide services to Cowlitz County residents who have evacuated their homes due to an emergency at the Trojan Nuclear Power Plant.

When you entered the parking area your vehicle was monitored for the presence of radioactive contamination. If your vehicle was found to be contaminated, it will be decontaminated before it is returned to you. The contamination consists of tiny radioactive particles which can be removed by washing.

Now you and your family will be monitored for contamination. Contamination on people is also removed by washing. If you are found to be contaminated with radioactive particles, you may only have to remove outer garments to remove contamination, or you may have to dispose of your clothing and shower thoroughly. If the latter is the case, replacement clothing will be provided.

If you are found to be contaminated, the contamination will consist of very low-level radioactivity and will cause you physical harm only if it is allowed to remain on you for a long period of time.

Once you and your family members have been certified to be free of contamination, the American Red Cross will provide you and your family temporary shelter if you need it. If not, you will be free to go wherever you wish to stay until told you can return home.

If you have questions or require assistance of any kind, just ask one of the staff people and you will be assisted.

Figure 2. Evacuee Information Sheet

## EXERCISE BACKGROUND

This drill was evaluated by FEMA RX. The criteria used in the evaluation are contained in NUREG-0654/FEMA-REP-1, Rev-1, FEMA's Exercise Evaluation Methodology (EEM), and the actions called for in the participants' plans and procedures.

Section II of this report contains the drill evaluation. Each objective contains a statement of the objective, the outcome of the evaluation (met/not met) and a narrative summary of our observations which served as a basis for our evaluation. Where applicable, the narrative is followed by one or more drill issues which fall into the following categories:

Deficiencies (DEF): Demonstrated and observed inadequacies that would cause a finding that offsite preparedness was not adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power plant in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions.

Areas Requiring Corrective Actions (ARCA): Demonstrated and observed inadequacies of performance. Although correction is required, they are not considered, in and of themselves, to adversely impact public health and safety.

Areas Recommended for Improvement (ARFI): Issues observed that are not considered to adversely impact public health and safety. While not required, improvements in these areas would enhance an organization's level of emergency preparedness.

Plan Issues (Inadequate): An issue, identified as part of an exercise or drill, that deals with an area of planning that was not included in the scope of exercise objectives and extent of play agreements. Corrective actions are required. Plan issues will be rated "inadequate" and will be identified by appropriate criterion in NUREG-0654.

When drill issues are found to exist, they are listed with a brief statement of the issue, a reference to the applicable NUREG-0654 element, and the level of the issue (DEF, ARCA or ARFI). This issue statement is followed by a more detailed narrative of the issues and FEMA's recommendation for corrective action.

## DRILL OBJECTIVES AND LOCATIONS

No.	FEMA Objective Description	<u>LOCATION/ORGANIZATIONS*</u>		
		CC EOC	CC AC	ARC SHELTER
1.	ECL	CC		
2.	Alert, mobilize, activate	CC	CC	
4.	Communications	CC	CC	
6.	EW dose control		WA	
21.	Procedures, equipment personnel for Assistance Cntr.		CC, WA	
22.	Procedures, equipment personnel for Congregate Care			ARC**

### \*Locations

CC EOC - Clark County Emergency Operations Center - Vancouver, WA

CC AC - Clark County Assistance Center - Prairie High School, Brush Prairie, WA

ARC Shelter - Red Cross Shelter at Meadow Glade Seventh Day Adventist Church,  
Battle Ground, WA

### Organizations

CC - Clark County Department of Emergency Management

WA - Washington State Department of Health (WADOH)

ARC - American Red Cross - Clark County Chapter

\*\* Extent of play specified that exterior signs and maps to the shelter would be available, but the shelter would not be staffed or activated.



#### EXTENT OF PLAY AGREEMENTS

1. The Master Controller will be at the Assistance Center. He will be responsible for initiating and coordinating the conclusion of the drill. He will ensure that the drill proceeds in a manner that permits demonstration of all objectives. One controller will be assigned to each emergency response location to assist the Master Controller in this regard.
2. Trojan control room, TSC, CSC, and EOF will not be activated.
3. The Washington EOC will not be activated or subject to evaluation.
4. The Washington EOC participation will be limited to coordination with WADOH, DEM, other appropriate agencies and Clark County EOC.
5. The Assistance Center will not be set up prior to the start of the drill.
6. Only those agencies with a direct role to play in the drill will be notified of the simulated emergency at Trojan and given a warning message.
7. The general public and traffic will not be stopped, contacted or interfered with during the drill. All contacts with the public will be simulated.
8. FEMA Objective #2 (Alert, mobilize, activate) will be demonstrated by the Washington and Clark County EOCs notifying the appropriate State and county departments and the American Red Cross upon declaration of an alert.
9. Clark County will provide about 20 people to simulate the public at the Assistance Center. FEMA Objectives #21 and #22 will be demonstrated by the simulated evacuees at the Clark County Assistance Center. Some evacuees will have simulated contamination. The simulated contamination will be provided by FEMA and consists of a Coleman lantern mantle affixed to the evacuee in places where the WADOH monitor has been trained to look for contamination.
10. WADOH will be prestaged at the Assistance Center.
11. State DEM will use telephone for notification and communication.
12. The ARC shelter will not be staffed or activated, but maps to the shelter will be distributed at the AC, and signs will be placed at the Meadow Glade complex to identify which building contains the shelter.

Significant Events Log  
Clark County Assistance Center Drill, June 23, 1990

SCENARIO TIME	LOCATION	EVENT
0903	CRCA	Received "ALERT"
0914	CRCA	Completes initial ALERT fanout
0931	CRCA	Received Site-Area Emergency
0937	CRCA	SAE Fanout Notification Complete
0944	CCAC	"RACES" Arrives
0954	CCAC	Fire District #5 Arrives
0956	CCAC	Sheriff's Office Arrives
0958	CCAC Parking Lot	School Custodian Opened South Gate
1000	CCAC	Command Post Established
1002	CCAC	Dosimetry Coordinator Arrives
1004	CCAC CP	Received General Emergency
1005	CCAC	Men's DECON Established
1010	CCAC Parking Lot	External Security Established at Entrance of Parking Lot
1010	CCAC Parking Lot	Cars Cleared from Traffic Lane
1010	CCAC	SW District Health Staff Arrives
1010	CCAC	"RACES" Assigned to Command Post
1012	CCAC CP	DES Director and Deputy Arrive
1013	CCAC Parking Lot	Security Staff Established in Designated Areas
1015	CCAC	Dosimeter and Instruction Issued to CCSO
1015	CCAC	Info./Security Table Established
1025	CCAC CP	DOH-Health Physicist Arrives

Significant Events Log (Continued)  
Clark County Assistance Center Drill, June 23, 1990

SCENARIO TIME	LOCATION	EVENT
1025	CCAC	Physical Set-Up of Assistance Center is Complete
1027	CCAC	Security Staff Operational (all positions staffed)
1030	CCAC Parking Lot	Vehicle Monitors Operational (Ready)
1037	CCAC CP	Call to FAA (Seattle FSS) for Weather
1038	CCAC Parking Lot	First Vehicle Arrives at Vehicle Monitor Workstation
1040	CCAC CP	Evacuees Arrival Announced
1042	CCAC Parking Lot	Vehicle Monitoring Test Begins for Team #1
1047	CCAC CP	ARC Arrives
1052	CCAC Parking Lot	Vehicle Monitoring Test for Team #1 Complete
1055	CCAC DECON Workstation	DECON Workstations (Men and Women) are Operational
1055	CCAC	Personnel Monitors issued Dosimeters and Briefed
1056	CCAC Parking Lot	Vehicle Monitoring Test for Team #2 Begins
1101-1108	CCAC Personnel Workstation	Background check in Personnel Monitoring Area, Personnel Monitor Workstations Operational
1103	CCAC CP	Calls St. Joseph's Hospital and requests additional dosimetry
1108	CCAC Parking Lot	Vehicle Monitoring Test for Team #2 Complete
1110	CCAC Personnel Workstation	Personnel Monitoring Tests Begin





Significant Events Log (Continued)  
Clark County Assistance Center Drill, June 23, 1990

SCENARIO TIME	LOCATION	EVENT
1112	CCAC DECON Workstation	First Evacuee Decontaminated
1126	CCAC CP	Briefing: Two Contaminated Evacuees so far.
1156	CCAC	Personnel Monitoring Tests Complete
1156	CCAC	Drill Terminated by Controller

## 2. DRILL EVALUATION

### Assistance Center Operation -- CLARK COUNTY, WASHINGTON

**Objective #1:** Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through appropriate implementation of emergency functions and activities corresponding to ECLs as required by the drill scenario.

**Evaluation:** Met

**Narrative  
Summary:**

The ability to monitor, understand and use ECL terminology was demonstrated by Clark County DEM.

County procedures state that Clark County officials are notified of a Trojan emergency over NAWAS, but the extent of play agreement permitted all notifications to be made by telephone. Notification of ALERT was received at 0903 and notification of SAE was received at 0931 at the Clark Regional Communications Agency (CRCA). Notification of the GE was received at the Clark County Assistance Center (CCAC) at 1004.

**Past Issues  
Examined:**

Resolved: CL89-1 (see Appendix A for a description of this issue and how it was resolved).

Unresolved: None.

**Objective #2:** Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field based emergency functions.

**Evaluation:** Met

**Narrative  
Summary:**

Clark County demonstrated the ability to fully alert, mobilize and activate personnel for the Clark County Assistance Center at Prairie High School.

The SAE notification, which per the County procedures activates the CCAC, was received by the Clark Regional Communications Agency (CRCA) dispatcher at 0931. Notification of offsite personnel began immediately and was complete at 0937. County DEM personnel left CRCA for the Assistance Center at 0950.

The Clark County Sheriff's Office (CCSO) log indicates that departmental notifications were completed and the staff was briefed and dispatched by 0940. CCSO representatives arrived at the CCAC at 0956. Fire District #5 arrived at 0954. The two agencies established the Command Post at 1000. Other



agencies represented at the Assistance Center (American Red Cross, WA DOH, and Southwest District Health) arrived at the CCAC in a timely manner. Per the extent of play agreement, WA DOH personnel were prepositioned in the area.

Past Issues  
Examined:

Resolved: CL86-1, CL89-2, CL89-3, CL89-4 (see Appendix A for descriptions of these issues and how they were resolved).  
Unresolved: None.

Objective #4: Demonstrate the ability to communicate with all appropriate locations, organizations and field personnel.

Evaluation: Met

Narrative  
Summary:

Clark County demonstrated the ability to communicate with all appropriate locations, organizations and personnel.

Communication between the CRCA dispatch and the CCAC was by cellular phone. The CCSO and FD #5 both had two way radio systems which allowed them to remain in contact with the CRCA dispatch. The Clark County ARES (ham radio) group was present at the CCAC. A ham operator was assigned to each key staff person so that communication among all areas of the CCAC was possible. This system worked very well. Ham operators also would have provided a radio link to the Congregate Care Center if this facility was to have been activated.

We did not observe any communication system breakdowns or delays.

Past Issues  
Examined:

No issues outstanding for this objective.

Objective #6: Demonstrate the ability to continuously monitor and control Emergency Worker exposure.

Evaluation: Met

Narrative  
Summary:

Clark County demonstrated the ability to continuously monitor and control Emergency Worker exposure.

The CCAC procedures designate a member of FD #5 to serve as the dosimetry coordinator. This person is responsible for obtaining the EW supplies after they are delivered to the Center, for charging and resetting the dosimeters, for assembling the EW kits and for briefing the EWs on the use of dosimetry. The FD #5 staff person performed these duties very well.



The Clark County procedures define the following groups of workers as EWs: security, reception, vehicle monitors, initial monitors and decon monitors and recorders. Ham operators and Command Post staff are not to be issued dosimetry according to the procedures. However, these people were given dosimetry and it was realized that as a result, there was not enough dosimetry for the designated EWs. The FD #5 Operations Coordinator called St. Joseph's Hospital and found that they had 30 sets of dosimetry on hand. While this showed good judgement, in a real incident these resources may not have been available.

With the exception of the above incident, drill play followed the procedures of record.

**Drill**

**Issue #1:**  
(CL90-1)

Insufficient quantity of dosimetry. ARCA (K.3.a)

**Evaluation:**

Dosimetry was given out to all staff at the Assistance Center while the procedures call for it to be issued to only five groups of workers. There was not enough dosimetry for all people specified in the procedures.

**Recommendation:**

Revise procedures to include distribution of dosimetry to all staff. Provide sufficient quantity of dosimeters for all Assistance Center staff.

**Past Issues  
Examined:**

Resolved: CL89-11 (see Appendix A for description of this issue and how it was resolved).

Unresolved: None.

**Objective #21:**

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

**Evaluation:**

Met

**Narrative  
Summary:**

Clark County demonstrated the adequacy of procedures, facilities, equipment and personnel for the registration, monitoring and decontamination of evacuees at Prairie High School Assistance Center.

Clark County personnel from the Sheriff's Office, Fire District #5, SW WA Health District and American Red Cross began arriving at the Assistance Center at 0954. Facility set-up was completed at 1025 and staffed (in accordance with the extent of play agreement) by 1110, when the first evacuee was monitored. It took about 1 hour and 30 minutes to set-up the facility; including dressing out of monitors, handing out dosimetry and monitoring instruments, erecting signs, traffic cones,

barricades and posting of access controls. The ARC, in accordance with County procedures, set up three registration tables on the clean side of the facility (see figure 1). Each table had a registration log and standard Disaster Welfare Inquiry (DWI) forms.

Upon arrival at the facility, evacuees' cars were checked for contamination by vehicle monitors in the parking lot. If the vehicle was found to be contaminated, the driver was instructed to park the car in the area designated for contaminated vehicles. Vehicle monitors used CDV-700 instruments to survey the grill, vehicle wheels, and tires of each vehicle. A vehicle was considered contaminated if a reading above .1 mR/hr was detected. A time test of vehicle monitors showed that it took just over 3 minutes to monitor one vehicle. The Assistance Center procedures (concept of operations section C.1.b) says that a rate of 60 seconds per vehicle will be maintained and that 4 monitoring stations will be established. Washington State procedures indicate that 650 cars are expected to arrive at the Assistance Center. At a rate of 3 minutes per vehicle, the average monitor could survey 20 vehicles an hour. At this rate, the 4 monitors could monitor all the vehicles in about 8 hours.

We noted that the vehicle monitors were wearing paper booties which did not stand up to the rigors of outside use. The monitors should be allowed to wear their standard fire department/hazmat personal protection equipment.

After leaving their vehicles, evacuees were directed to enter the Assistance Center. When inside they were given shoe covers and an evacuee information sheet (see figure # 2). An information table and a first aid station were available. Evacuees then entered one of the monitoring lanes. A survey was performed to detect the presence of contamination. Monitors followed the procedure outlined in checklist #8 of the Assistance Center procedures. If a reading above .1mR/hr was found, the evacuee was directed to the decontamination facilities in the locker room area. If no contamination was found, evacuees were told to take off their shoe covers, given a green sticker confirming they were free of contamination, and directed to the ARC registration area.

The Prairie High School Assistance Center has staff and supplies for five Personnel Monitoring Workstations. The extent of play agreement specified that four workstations would be staffed. The four monitors were timed to obtain productivity rates. Results were:

<u>Monitor #</u>	<u># Minutes Observed</u>	<u># People Monitored</u>	<u>Average # seconds per person monitored</u>
1	17	6	170
2	9	4	135
3	9	5	109
4	19	8	142

---

average for four monitors: 139 seconds

Our calculations show that it took an average of 139 seconds, or about 2.3 minutes, to monitor one person. The staffing of the Personnel Monitoring Workstations for Clark County Assistance Center are based upon a productivity rate of 90 seconds per person (concept of operations section C.2.b). The average monitor would be able to process about 21 people per hour, allowing for a ten minute break each hour. At the demonstrated rate of productivity, it would take the five monitors over 23 hours to monitor all 2,438 evacuees.

The 1989 FEMA Clark County AC drill report (April 1990) stated that the AC should expect to receive 1,638 members of the general public and 800 school children from the Kalama school district. The current staffing level for monitoring evacuees does not meet FEMA criteria. Ten Personnel Monitoring Workstations would be required to meet the FEMA standard, assuming the productivity rate of 2.3 minutes per person as surveyed.

#### Drill

Issue #2: Protective clothing for vehicle monitors (J.12). ARFI

Evaluation: Vehicle monitors wore paper booties which were quickly destroyed from contact with the pavement.

Recommendation: Revise procedure to indicate the use of normal shoes.

#### Plan

Issue #1: Insufficient Personnel Monitoring Staff  
(CL90-2)

Evaluation: Five monitors at the Prairie High School Assistance Center would need over 23 hours to monitor all arriving evacuees at the rate of productivity demonstrated during the drill. FEMA guidance requires this to be accomplished in about 12 hours.

Recommendation: Procedures should be revised to indicate that 10 Personnel



Monitoring Workstations will be established. Necessary equipment and materials should be provided and added to existing supplies. Staffing arrangements and notification process should be revised. Plan issued. Personnel trained.

Past Issues  
Examined:

Resolved: CL86-2, CL86-3, CL89-5, CL89-6, CL89-7, CL89-8, CL89-12, CL89-14 (see Appendix A for descriptions of these issues and how they were resolved).

Unresolved: CL 89-13 (see Plan Issue #1).

Objective #22: Demonstrate the adequacy of facilities, equipment and personnel for congregate care of evacuees.

Evaluation: Met

Narrative  
Summary:

The American Red Cross, Clark County Chapter (ARC) adequately demonstrated the ability to provide congregate care of evacuees within the extent of play.

Per the extent of play agreement, ARC staff were to report to the Clark County AC when SAE notification was received to register evacuees and provide maps to the Congregate Care Center located in the Meadow Glade complex. Exterior signs were to be posted at the congregate care facility, but the facility was not to be activated or staffed.

A FEMA evaluator at the CCAC was provided with a map showing the way to the ARC Congregate Care facility at Meadow Glade. The evaluator was able to find the facility and observed that adequate signs were posted to clearly identify which building housed the CC facility.

Past Issues  
Examined:

Resolved: CL89-10 (see Appendix A for descriptions of this issue and how it was resolved).

Unresolved: CL89-9 (this was outside of exercise play and therefore not tested).

3. SUMMARY LISTING OF EXERCISE INADEQUACIES  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/23/90

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
CL90-1	6	ARCA	Dosimetry was given out to all staff at the assistance center but procedures call for it to be issued to only five groups of workers. As a result there was not enough dosimetry for all workers specified in the procedures. (K.3.a)	Revise procedures to include distribution of dosimetry to all staff. Provide sufficient quantity of dosimeters for all assistance center staff.  In a 8/13/90 letter, the county said that they have doubled (to 50) the number of dosimeters specified in the procedures. The county has received the additional dosimetry from WA DOH and PGE.	07/31/90
CL90-2	21	OTHR	The 5 monitors at Prairie HS Assistance Center would need over 23 hours to monitor all arriving evacuees at the rate of productivity demonstrated during the drill. FEMA guidance specifies that this be accomplished in about 12 hours. (J.12)	Revise procedures to call for 10 personnel monitoring workstations. Obtain additional supplies and equipment to service these additional lanes. Revise staffing arrangements and notification process.  In a 8/13/90 letter, the county said that monitoring stations will be increased to 10. Trained fire hazmat personnel will staff all 10 lanes. Plan	07/31/90

3. SUMMARY LISTING OF EXERCISE INADEQUACIES  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/23/90

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TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
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and procedures have been  
revised to reflect these  
changes.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CL86-1	ARCA	06/23/90	At the Clark County EOC, Dispatch staff did not use the standard Accident Notification Form.  Dispatchers were using checklist on old pages Z-1-19 while DEM Coordinator used Action Grid Z-1-18. The two lists are not the same.	1989 evaluator comments: The notification checklist and the Action Grid have not been made consistent. The DEM Director made all calls from the EOC without assistance from the Dispatch staff. He made no reference to the Clark County procedures and did not demonstrate that the suggested corrective action had been implemented.  1990 evaluator comments: The notification procedures were revised. During the 6/23/90 drill, the CRCA/EOC staff followed procedures during notification call outs.	.T.
CL86-2	ARCA	06/23/90	At the Clark County AC, there were no signs on the approach to the fair grounds or inside the reception facility. Personnel did not wear name tags and there was no way to tell who the staff members were.	1989 evaluator comment: As observed in the 1986 drill, there were no signs approaching the fairgrounds to direct people to the facility. There were no signs inside the Assistance Center facility. Personnel did not	.T.



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
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wear name tags.

During the 6/23/90 drill, adequate signs, both inside and outside the facility, were provided. Facility staff were clearly identified by name tags.

CL86-3	ARCA 06/23/90	The WDOH monitoring team began to monitor evacuees before the monitoring area had been completely set up.	1989 evaluator comments: The Clark County FNF Plan (Annex Z-1) dated 10/31/88 states that the CC Sheriff's Office is responsible for establishing a monitoring station in the equestrian building (p. Z-1-3). The SO performed mainly incident command functions and did not take the lead in setting up the monitoring station. WDOH personnel set up the station with some assistance from the SO. The WDOH plan states that the County will establish the monitoring area and necessary facilities according to predetermined criteria.	.T.
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APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
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1990 Evaluator comments:  
Revised procedures assign establishment of monitoring area and monitoring duties to Fire District #5 and Clark County Sheriff's Office, under supervision of a WA Health Physicist. Demonstrated set up and monitoring was in accordance with revised procedures.

CL89-1	ARCA	06/23/90	At the Clark Co. EOC, the DEM Director did not always use ECL terminology when making notification calls. During some calls, complete information, as contained in the Accident Notification Form, was given. Other times, very casual notification language was used.	1990 Evaluator Comment: The DEM director made notification calls in accordance with the revised notification checklist in the Assistance Center procedures. Proper ECL terminology was used.	.T.
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The DEM Director made no reference to CC Emergency Management Procedures while making notifications. (D.3)





APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CL89-2	ARCA 06/23/90	<p>County procedures state that the SO is to set up the monitoring and decontamination area at the Clark County Assistance Center. During the drill, WDOH staff did most of the work with some help from the Sheriff's Deputies. Activities of the Sheriff's Deputies centered mainly around incident command, but County procedures give them many operational duties as well.</p> <p>Clark County procedures do not give enough detail to adequately specify AC activation procedure or set up of monitoring area. Clark County procedures state that Fire District #6 will perform first aid services at the AC. The ARC disaster plan says that ARC will provide first aid. During the drill, neither group provided this service. (J12)</p>	<p>1990 Evaluator comment: Revised procedures assign Fire District #5 and the CCSO the responsibility to set up the monitoring area. This was accomplished in a timely matter by these groups. Procedures provide sufficient detail to properly set up the facility.</p>	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CL89-3	ARCA	06/23/90	Clark County procedures do not assign anyone the responsibility to alert the Ham radio operators of an emergency and instruct them to deploy.	1990 Evaluator Comment: The Amateur Radio Emergency Service was notified at both the ALERT and SAE ECLs. Checklist 7 in the revised Assistance Center procedures specify that amateur radio operators will be notified.	.T.
			During the drill, the CC DEM Director did not call for a Ham operator to be assigned to the Red Cross shelter. CC procedures (p Z-1-32) call for operators to be present at the shelter. (F.1)		
CL89-4	DEF	06/23/90	At the Clark County Assistance Center, there were no signs on the approach to guide evacuees. The AC staff did not wear name tags and it would be difficult to tell which people were staff members.	1990 Evaluator comment: A new facility has been designated for the Assistance Center which has adequate room for holding evacuees in bad weather. Adequate access control was demonstrated. Staff were clearly identified by uniform and/or name tags.	.T.
			The facility has inadequate space and accommodations for monitoring and		

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

<u>TRAC #</u>	<u>LEVEL</u>	<u>DATE TESTED</u>	<u>INADEQUACY</u>	<u>EVALUATOR COMMENTS</u>	<u>ISSUE CLOSED (TRUE/FALSE)</u>
			decontamination. Most of the 1700 evacuees plus 800 students expected to arrive at the AC would have to wait outside.		
			There was poor access control at the AC. Arriving evacuees could have entered any door since all were unlocked and none were staffed except the west entrance where evacuees were expected to arrive. (J.12)		
CL89-5	ARCA	06/23/90	When evacuees arrived at the Clark County AC, they underwent an initial registration by County Health personnel. They underwent a second registration moments later at the monitoring station. (J.12)	1990 Evaluator comment: Procedures have been revised to eliminate duplicate registration. ARC staff now perform this function after evacuees have been found to be free of contamination.	.T.
CL89-6	ARCA	06/23/90	There is no prepared information sheet which can be given to evacuees arriving at the Clark Co. AC facility.	1990 Evaluator comment: an information sheet was given to all evacuees as they entered the facility.	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			Evacuees have no way of knowing why they were there, what services were provided and where they could go after leaving the AC facility. (J.12)		
CL89-7	ARCA	06/23/90	American Red Cross Chapter House instructed personnel to proceed to the Clark County AC at the ALERT notification rather than waiting for the SAE as specified in the Clark County procedures. Personnel did not see the importance of the ECL system. Since other organizations are set up to respond on the basis of ECLs, ARC must also to ensure proper coordination of response. (D.3)	1990 Evaluator comment: The ARC response was coordinated. Representatives arrived at the Prairie HS AC after receiving the SAE notification.	.T.
CL89-8	ARCA	06/23/90	The Red Cross staff person was at the Clark Co. Assistance Center over 45 minutes before another staff person arrived with the ARC supply kit. Evacuees could not be directed	1990 Evaluator comment: ARC supplies arrived with the ARC representatives during the 6/23/90 remedial drill.	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			to shelter until maps, which were in the kit, were available. (J.10.h)		
CL89-9	ARCA	06/23/90	The Clark County Chapter of American Red Cross does not have provision for Disaster Health Services in its procedures as specified in ARC 3027 and ARC 3003. (J.10.h)	Extent of play agreement for the 6/23/90 drill stated that the ARC shelter would not be activated. Revision to ARC procedures was not verified.	.F.
CL89-10	ARCA	06/23/90	There were no signs along the route to the Meadow Glade shelter, or at the shelter itself to identify which building housed the shelter. Two groups were unable to find the correct building. (J.10.h)	1990 Evaluator comment: Adequate signs were displayed on the exterior of the Shelter facility to clearly indicate which building in the Meadow Glade complex housed the facility.	.T.
CL89-11	ARCA	06/23/90	Radiation monitors at the Clark County AC are not defined as EWs in the State plan even though they face potential exposure. (K.3.a)	1990 Evaluator comment: The Dosimetry Coordinator's checklist (#8) defines security, reception, monitoring and decontamination personnel as EWs and specifies	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
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that they be issued dosimetry.

CL89-12	ARCA	06/23/90	At the Clark County Assistance Center, no documentation was given to evacuees who were found to be free of contamination as specified in DSHS procedure 9.9.1 #10. The type of documentation to be issued is not specified in the procedures. (J.12)	1990 Evaluator comment: Adequate documentation was observed during the 6/23/90 remedial drill. Evacuees who were initially found to be free of contamination were given green stickers. Persons who had been decontaminated were given a copy of the personnel contamination charting work sheet as certification that contamination had been removed.	.T.
CL89-13	DEF	06/23/90	The DSHS plan and procedures do not specify how many monitors are needed at Clark County AC to monitor the expected 1638 people, 800 students and 655 vehicles. (A.4; J.12)	1990 Evaluator comment: Revised procedures for the Assistance Center specify that 5 monitors will be on staff. Four monitors (as specified in the extent of play agreement) were present during the remedial drill.	.T.

CL89-14	ARCA	06/23/90	Section 9 of WADOH procedures	1990 Evaluator comment:	.T.
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APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/23/90 CLARK CO. ASSISTANCE CNTR DRILL

<u>TRAC #</u>	<u>LEVEL</u>	<u>DATE TESTED</u>	<u>INADEQUACY</u>	<u>EVALUATOR COMMENTS</u>	<u>ISSUE CLOSED (TRUE/FALSE)</u>
			gives genaric guidelines for setting up the monitoring area at an AC. Since set up of this area is a county responsibility under Clark Co. procedures, specific procedures for the Clark Co. facility should be developed for the County. (J.12)	Specific instructions on how to set up the monitoring areas are contained in the Operation Coordinato's checklist (#3), and in the figures for the interior and exterior of the facility which are included in the revised procedures.	





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FINAL DRILL REPORT

Clark County Assistance Center  
STATE OF WASHINGTON

Drill Date: JUNE 29, 1989

Prepared by

Federal Emergency Management Agency  
Region X  
Bothell, Washington

April 1990

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## 1. INTRODUCTION

### EXECUTIVE SUMMARY

This drill was conducted to demonstrate the capability of Clark County, Washington, Department of Health (WADOH--formerly DSHS), and the American Red Cross (ARC) to respond to a radiological incident at the Trojan nuclear facility which would require the activation of the designated Assistance Center and appropriate Congregate Care Centers.

A previous drill was held at Clark County in August 1985. A remedial drill was held in June 1986. FEMA's findings for these drills indicated that planning was inadequate; i.e., there were insufficient arrangements for the operation of the Assistance Center and insufficient staff and equipment to perform radiological monitoring of evacuees and their vehicles.

The purpose of an Assistance Center is to provide a facility at which the following functions (services) are provided to the public:

1. Registration (name, address, status of monitoring--if contamination is found, document the monitoring results and decontamination efforts).
2. Receive assistance in contacting others and reuniting with others.
3. Receive referral and direction to Congregate Care Centers.
4. Receive monitoring and decontamination of persons and vehicles.

The Washington State Fixed Nuclear Facility Plan (FNF Plan) designates Clark County as one of the host counties that would establish an Assistance Center and Congregate Care Centers in the event of an emergency at the Trojan Nuclear Power Plant. According to the Cowlitz County Evacuation Plan, 8190 persons (permanent population) would be advised to evacuate into Clark County. In addition, 800 school children would be evacuated to the Clark County Assistance Center where they are to be held until reunited with their families.

At this drill, FEMA found that there were inadequate arrangements and plans to:

1. Register the public.
2. Provide temporary care and shelter for the 800 school children.
3. Monitor the evacuees and their vehicles.
4. Provide appropriate directions to the Congregate Care Center.

In addition, FEMA could not determine if adequate arrangements had been made for sufficient Congregate Care Centers.



After the drill, FEMA forwarded the draft drill report to the exercise participants. Following is a summary of Recommendations for Corrective Actions.

1. Designate appropriate facility for use as an assistance center including space and accommodations for temporary shelter of 800 school children. Revise Clark County Procedures for establishing and setting up Assistance Centers.
2. Revise Clark County and State Procedures for the registration process (develop one integrated registration form and process).
3. Recruit and train adequate number of staff to perform the monitoring duties for the expected population (1630 persons - general public, 800 school children, and 655 vehicles).
4. Demonstrate adequate planning and preparedness in a remedial drill to be held no later than June 30, 1990.

#### CURRENT SITUATION

A series of meetings and discussions has occurred between FEMA, Clark County DEM and Washington State DEM and DOH since we forwarded the initial draft drill report. Clark County has found a new facility, Prairie High School, to replace the facility described in this report. This facility was inspected by FEMA in December, 1989 and was found to be adequate.

Clark County has agreed to initiate corrective action for four items identified in this report as Washington State items (WS89-1 through WS89-4). In section 3 of this report, these items are shown as CL89-11 through CL89-14. They will be tracked by FEMA as Clark County drill issues. They will be closed out as Washington State issues.

A draft copy of the revised Clark County procedures was received by FEMA on April 13, 1990 which address the issues raised in CL89-1 through CL89-14. A remedial drill has been set up for June 23, 1990.

# **ASSISTANCE CENTER**

CLARK COUNTY FAIRGROUNDS

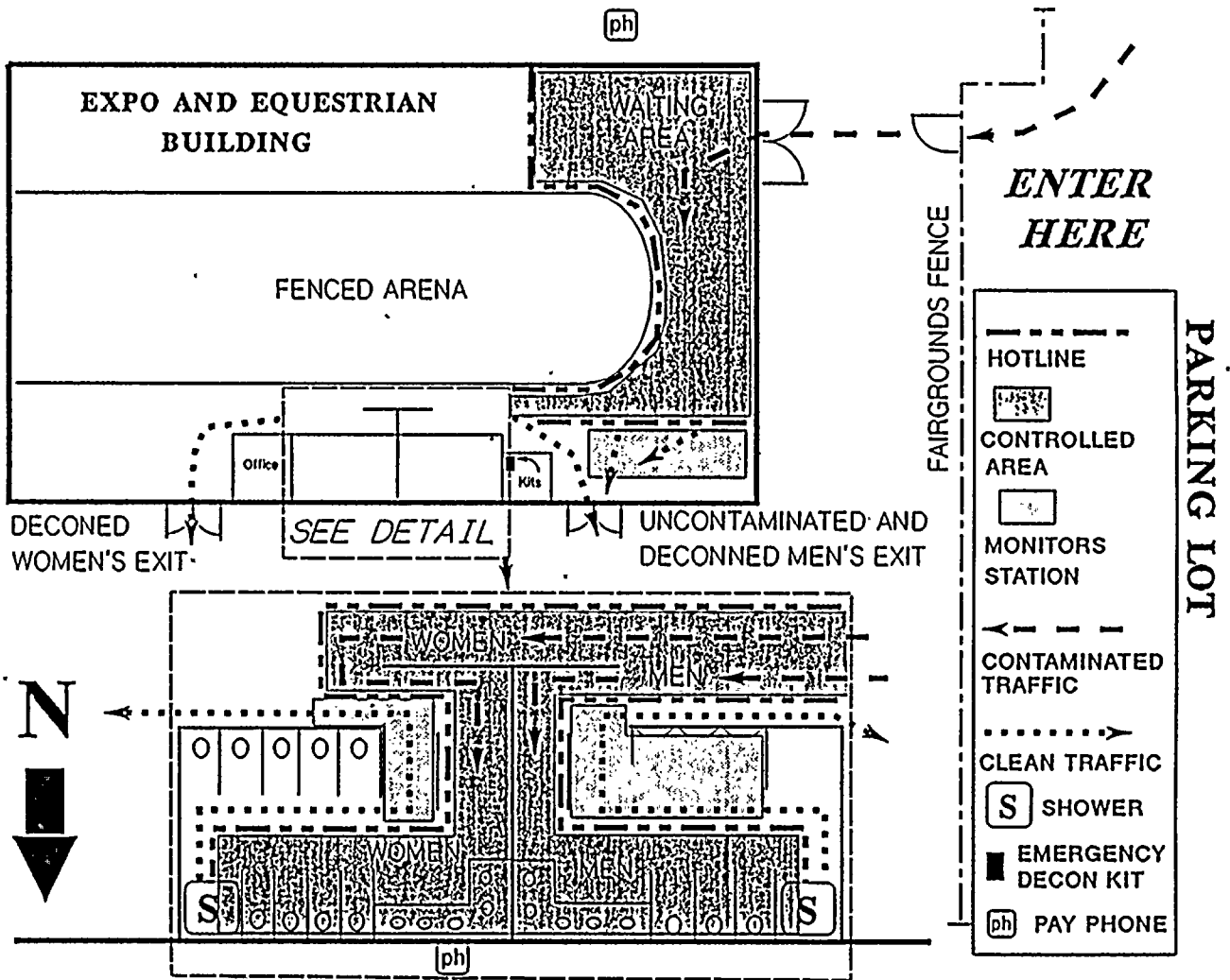


Figure 1. Layout of Clark County Assistance Center

(Note that a new Assistance Center has been identified since this drill was conducted).





## EXERCISE BACKGROUND

This drill was evaluated by FEMA RX. The criteria used in the evaluation are contained in NUREG-0654/FEMA-REP-1, Rev-1, FEMA's Exercise Evaluation Methodology (EEM) and the actions called for in the participants' plans and procedures.

Section 2 of this report contains the exercise evaluation. Each objective contains a statement of the objective, the outcome of the evaluation (met/not met) and a narrative summary of our observations which served as a basis for our evaluation. Where applicable, the narrative is followed by one or more exercise issues which fall into the following categories:

Deficiencies (DEF): demonstrated and observed inadequacies that would cause a finding that offsite preparedness was not adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power plant in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions.

Areas Requiring Corrective Actions (ARCA): demonstrated and observed inadequacies of performance. Although correction is required, they are not considered in and of themselves to adversely impact public health and safety.

Areas Recommended for Improvement (ARFI): issues observed that are not considered to adversely impact public health and safety. While not required, improvements in these areas would enhance an organization's level of emergency preparedness.

When exercise issues are found to exist, they are listed with a brief statement of the issue, a reference to the applicable NUREG-0654 element, and the level of the issue (DEF, ARCA or ARFI). This issue statement is followed by a more detailed narrative of the issues and FEMA's recommendation for corrective action. If the exercise issue is a Deficiency or ARCA, it is assigned a tracking number.

CLARK COUNTY ASSISTANCE CENTER DRILL SCENARIO  
June 29, 1989

<u>Time</u>	<u>Scenario Event</u>	<u>Expected Action</u>	<u>Controller Packet Responsibility</u>
0900	The Master Controller in the WA EOC notifies the WA EOC of a declaration of Alert.	<ol style="list-style-type: none"> <li>1. WA EOC notifies Clark County by phone of declaration of Alert and to notify American Red Cross (ARC) by telephone for Assistance Center participation.</li> <li>2. Clark County notifies ARC.</li> <li>3. Clark County EOC activation (limited).</li> </ol>	Open Controller Packet for notification of an Alert.
0930	The Master Controller notifies the WA EOC of the declaration of Site Area Emergency and the Protective Action Recommendation (PAR) to evacuate the Columbia River to 10 miles and to shelter to 10 miles.	<ol style="list-style-type: none"> <li>1. WA EOC notifies Clark County of Site Area Emergency and request activation of Assistance Center.</li> <li>2. Clark County will activate Assistance Center.</li> </ol>	Open Controller Packet for notification of a Site Area Emergency and PAR.
1000	The Master Controller in the WA EOC notifies the WA EOC of a General Emergency and PAR to evacuate river to 10 miles, evacuate plume EPZ to 5 miles (360°), shelter plume EPZ 5-10 miles (360°), wind direction from West to East, wind speed 5 miles per hour. Release underway which started at 0955.		Open Controller Packet for notification of a General Emergency and PAR.



# CLARK COUNTY ASSISTANCE CENTER DRILL SCENARIO (Continued)

June 29, 1989

<u>Time</u>	<u>Scenario Event</u>	<u>Expected Action</u>	<u>Controller Packet Responsibility</u>
1020	The Master Controller in the WA EOC notifies the WA EOC of a wind speed change to 8 miles per hour.	Open Controller Packet for notification of the change wind speed.	
1030	Evacuees start arriving at Clark County Assistance Center	1. Evacuees registered, screened, and monitored as necessary at Clark County Assistance Center.	Clark County Assistance Center Controller will provide some evacuees with simulated contamination (Colemanmantles).
1100	Last evacuees arrive at Clark County Assistance Center.		
1200	Drill Complete.		

## DRILL OBJECTIVES AND LOCATIONS

No.	FEMA Objective Description	<u>LOCATION/ORGANIZATIONS</u> *		
		CC EOC	CC AC	ARC SHELTER
1.	ECL	CC	CC	ARC
2.	Alert, mobilize, activate	CC	CC	ARC
4.	Communications	CC	CC	CC
6.	EW dose control		WA	
21.	Procedures, equipment personnel for Assistance Cntr		CC, WA	
22.	Procedures, equipment personnel for Congregate Care			ARC

### \*Locations

CC EOC = Clark County Emergency Operations Center - Vancouver, WA

CC AC = Clark County Assistance Center - Clark County Fairgrounds

ARC Shelter = Red Cross Shelter at Meadow Glade Seventh Day Adventist Church,  
Battle Ground, WA

### Organizations

CC = Clark County Department of Emergency Management

WA = Washington State Department of Health (WADOH), (formerly DSHS)

ARC = American Red Cross - Clark County Chapter



### DRILL LIMITATIONS

1. The Master Controller will be in the Washington EOC. He will be responsible for initiating and coordinating the conclusion of the drill. He will ensure that the exercise proceeds in a manner that permits demonstration of all objectives. One controller will be assigned to each emergency response location to assist the Master Controller in this regard.
2. Trojan control room, TSC, CSC, and EOF will not be activated.
3. The Washington EOC will not be activated or subject to evaluation.
4. The Washington EOC participation will be limited to coordination with WADOH, DEM, other appropriate agencies and Clark County EOC.
5. The Assistance Center will not be set up prior to the start of the drill.
6. Only those agencies with a direct role to play in the drill will be notified of the simulated emergency at Trojan and given a warning message.
7. The general public and traffic will not be stopped, contacted or interfered with during the drill. All contacts with the public will be simulated.
8. FEMA Objective #2 (Alert, mobilize, activate) will be demonstrated by the Washington and Clark County EOCs notifying the appropriate state and county departments and the American Red Cross upon declaration of an alert.
9. Clark County will provide about 20 people to simulate the public at the Assistance Center. FEMA objectives 21 and 22 will be demonstrated by the simulated evacuees at the Clark County Assistance Center. Some evacuees will have simulated contamination. The simulated contamination will be provided by FEMA and consists of a Coleman lantern mantle affixed to the evacuee in places where the WADOH monitor has been trained to look for contamination.
10. WADOH will be prestaged at the Assistance Center.
11. State DEM will use telephone for notification and communication.





Significant Events Log  
Clark County Assistance Center Drill, June 29, 1989

SCENARIO TIME	EXERCISE EVENT	COMMENT
0911	ALERT notification	WA EOC to Clark EOC
0915	DEM arrives at AC	
0927	ALERT notification	Clark EOC to Sheriff
0932	SAE notification	WA EOC to Clark EOC
0935	Begin set up of Assistance Center	
0938	ALERT notification	Clark EOC to ARC Chapter house
0940	Mobilization begins	Sheriff to EOC: Dispatch Fire District #6
0943	ARC Disaster plan activated	Clark Co ARC
0944	Deploy to Assistance Center	Clark EOC to Fire District #6
0945	GE notification	WA EOC to Clark EOC
0945	Standby at Assistance Center	Clark ARC to Food Service
0946	Report to AC	ARC to designated staff
0950	Report to AC	Clark EOC to SWDH
0950 to 1030	Rad Monitors set up monitoring stations	
0950	Ham Operators arrive at AC	
0951	SWDH personnel arrive at AC	



Significant Events Log (Continued)  
Clark County Assistance Center Drill, June 29, 1989

SCENARIO TIME	EXERCISE EVENT	COMMENT
0952	1st ARC staff person arrives at AC	ARC kit not available on site
0953	Request radio support at Clark Co. AC	DEM director to Ham Radio Coordinator
0954	GE notification	Clark EOC to AC
0957	GE notification	Clark EOC to WSP
0959	AC declared activated	Note: monitoring stations not activated until 1030.
1000	Chapter Chairman arrives at ARC chapter house	
1003	Amateur Radio link established between AC and EOC	
1005	ARC staff deploy to Clark County EOC	
1007	Incident Command briefing at Assistance Center	
1010	Request activation of WSP liaison to command post	AC to WSP
1015	Ham Operators set up complete	
1021	Ham radio arrives at ARC Chapter House	Note: ARC not requested to activate at this time
1030	Assistance Center	First evacuees arrive
1040	ARC notified to deploy to Assistance Center	CC to ARC
1040	Last evacuees arrive at AC	

Significant Events Log (Continued)  
Clark County Assistance Center Drill, June 29, 1989

SCENARIO TIME	EXERCISE EVENT	COMMENT
1041	First evacuee was processed and arrived at ARC station	No ability to direct to shelter
1041	ARC Chapter House	Sent supplies to shelter
1042	ARC feeding staff notified to prepare meals for EWs at AC	
1045	Notification of AC & Shelter activation	ARC Chapter to ARC NW
1046	ARC staff person with Shelter Kit arrives at AC	
1100	Last person clears monitoring	
1105	Evacuees sent to shelter	
1110	ARC feeding staff arrived at AC	
1130	Drill Terminated	

## 2. DRILL EVALUATION

### 2.1.1 Assistance Center Operation -- CLARK COUNTY, WASHINGTON

Objective #1: Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through appropriate implementation of emergency functions and activities corresponding to ECLs as required by the drill scenario.

Evaluation: Not Met

Narrative  
Summary:

The Clark County Emergency Response Plan (pp Z-1-19) specifies the following notification process at the ALERT level: CRCA dispatch notifies DEM Director, DEM Clark County Coordinator, Skamania County DEM Coordinator and Clark County Sheriff to standby. The DEM Director is instructed to notify the Health Liaisons, the Chairman of the County Commissioners, Clark County PIO, American Red Cross Chapter Manager, Public Works Director and Educational Services District 112 to standby. At SAE level all of the above parties are notified to respond per their SOPs. Due to extent of play agreements, only the DEM CC Coordinator, Sheriff, and ARC Chapter manager calls were to be made.

Although WA EOC transmitted ECL information (both verbally and on the faxed notification form) when notifying the CC EOC, ECL information was not consistently used by CC when making the notification call outs. Call outs were frequently made using very casual language such as "looks like there is trouble at Trojan, standby".

ECLs were received at offsite locations as follows:

	<u>CC EOC</u>	<u>CC AC</u>	<u>ARC</u>
Alert	0911	0915	not received
SAE	0932	0934*	0938*
GE	0945	0954	1040

\*Notification call was received but no reference to applicable ECL level was made.

At the Assistance Center (AC), there was some confusion about whether the Site Area Emergency (SAE) notification was received. When asked by an evaluator if they had received this notification, the Incident Commander said he was not sure. The SAE notification was received at the CC EOC at

## DRILL EVALUATION FOR CLARK COUNTY

0932. The DEM Director, who was making the call outs, placed calls to the AC at 0934 and 0943 to "discuss preplanning activities". The DEM Director did not use the term SAE in notifying the CC AC and the ARC.

In making the notification call to the Red Cross at the time of the SAE, the DEM Director did not specify that the call he was making was the SAE notification and did not request that the ARC activate the shelter. See discussion of notification process under Objective 2 on page 14.

There was no status board or any other indication at the AC as to the current ECL level.

Issue #1:  
(CL89-1)

Inconsistent use of ECL terminology and type of information transmitted during notification call outs made by CC DEM Director. ARCA (D.3)

### Evaluation:

The DEM Director did not always use ECL terminology when making notification calls. During some calls, complete information (as contained in the accident notification form) was given. Other times very casual notification language was used.

The DEM director made no reference to CC Emergency Management Procedures while making notifications.

We note that we made similar observations during the 1986 remedial drill (see pages 12 and 13 of the June 1986 drill report).

### Recommendation:

Revise procedures. The set given to FEMA prior to the drill (dated 5/16/86) gives no guidance on how to log the notification call. Use a notification form for copying down incoming ECL and PA information at the EOC. Delegate notification call responsibility to a staff member to allow the Director to concentrate on decision making and incoming calls. Train staff to include ECL status during notification process.

Objective #2:

Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field based emergency functions.

Evaluation:

Not Met



## DRILL EVALUATION FOR CLARK COUNTY

### Narrative Summary:

Clark County did not demonstrate the ability to alert and activate personnel and facilities in accordance with their Plan.

### NOTIFICATION

The Clark County Emergency Response Plan (pp Z-1-19) specifies the following notification process at the ALERT level: CRCA dispatch notifies DEM Director, DEM Clark County Coordinator, Skamania County DEM Coordinator and Clark County Sheriff to standby. The DEM Director is instructed to notify the Health Liaisons, the Chairman of the County Commissioners, Clark County PIO, ARC Chapter Manager, Public Works Director and Educational Services District 112 to standby. At SAE level all of the above parties are notified to respond per their SOPs. Due to extent of play agreements, only the DEM CC Coordinator, Sheriff, and ARC Chapter manager calls were to be made. We note that all calls were made by the DEM Director with no assistance from the Dispatcher. Call out was begun at 0915 and was complete by 1008. The ARC was not notified at the ALERT level. At the SAE level, a call was placed to ARC, but the DEM Director did not say that it was the SAE notification and did not request that ARC activate the shelter. The DEM Director did not refer to the call out list contained in the CC Procedures.

We observed several instances where activation of staff was not keyed by call out notifications. Per extent of play agreements, WADOH monitors were pre positioned at the AC. The Clark County Sheriff's representative was also pre positioned although this was not permitted under extent of play agreement. The call to the SWDH staff was made at 0950. The staff arrived at the AC at 0951. It appears that their arrival was preplanned and was not keyed by the notification call.

There appears to be no provision in the CC Procedures for alerting the ham radio operators of an emergency and directing them to respond.

The Clark County DEM Coordinator arrived at the AC 0915, at which time the AC activation process began. We note that the CC Procedures (pp Z-1-22) do not direct the Coordinator to go to the AC.

### ACTIVATION AND OPERATION



## DRILL EVALUATION FOR CLARK COUNTY

The DEM Coordinator declared that the AC was activated at 0959. However, the monitoring station set up was not complete until 1030 and the ARC supplies, including maps to the shelter did not arrive until 1046. Actual activation time, therefore, was 1046.

CC Procedures do not specify the manner in which the Assistance Center facility is to be set up. Procedures should specify traffic flow, vehicle monitoring, routing of evacuees inside the facility, the registration procedure, and monitoring area set up. There is no provision to provide information (signs and handouts) to evacuees regarding the services to be provided at the AC; i.e., registration, First Aid, process involved; referral to Congregate Care Centers. We note that there are no diagrams or other guidance in the plan to aid in setting up the Assistance Center.

The Sheriff's Office has the major responsibility at the Assistance Center. Per page Z-1-3, they are responsible for assuming incident command at the AC and for establishing a command post, PIO area, reception area and table, first aid station, monitoring station, and contaminated/non contaminated areas within the building.

The Sheriff's Office did set up a command post and a reception area. They assisted, but did not take the lead, in setting up the monitoring area and contaminated/clean areas. They did not perform any other listed responsibilities.

Fire District #6 personnel are responsible for staffing the first aid station, providing fire support to the Assistance Center and providing decontamination support to the Assistance Center, which may include decontamination of vehicles. Fire District personnel were on hand at the AC and did assist the Sheriff's Deputies as required. They did not staff a first aid station (there was not one to staff) and did not provide decontamination support.

Clark County Procedures state that the monitoring and decontamination areas are to be set up by the County Sheriff's Deputies (pp Z-1-3, items #5 and #6). However this was done by WADOH personnel with some assistance from the Sheriff's Deputies. Set up of the monitoring and decontamination areas began at 0950 and was complete at 1030. The first evacuee arrived at the AC at 1030.

We observed almost no access control at the AC facility. All doors to the facility were unlocked and could have entered any door thereby adding to confusion at the AC. This possibility was made even more likely by the fact that there were no signs



## DRILL EVALUATION FOR CLARK COUNTY

anywhere along the access route to the facility directing evacuees to the correct entrance. The players acknowledged a lack of staff to secure all entrances and stated that in a real emergency all doors would be manned.

We also note that there were no staff assigned to traffic control, parking or access control to other areas of the fairgrounds.

We note a discrepancy in the Clark County Procedures regarding who should provide the First Aid services at the AC. Pages Z-1-3, item #4, and Z-1-4, item 5.b of the procedures say that CC Fire District #6 provides these services. The ARC Disaster Plan for Clark County (unnumbered, last page of CC Procedures) says that the First Aid Station will be staffed by one or two ARC volunteers.

Issue #2:  
(CL89-2)

Activation and Staffing of Assistance Center  
ARCA (J.12)

### Evaluation:

CC Procedures state that Sheriff's Deputies are to set up the monitoring and decontamination area at the Assistance Center. During the drill WADOH staff did most of this job with some help from Sheriff's Deputies. Activities of Sheriff's Deputies centered mainly around incident command, yet CC Procedures give them many operational duties as well.

CC Procedures do not adequately specify process and responsibility for AC Activation and Operation:

- \* There are no procedures describing traffic control at the AC. Although the Sheriff's office is assigned this duty (pp Z-1-3), there was no one performing this function during the drill.

- \* There are no procedures to instruct AC personnel on where to go or who to report to when they arrive at the AC. During the Drill, the SWDH representatives were at the AC for 20 minutes before they knew where they were supposed to be and what they were supposed to do.

- \* There is no means for the Incident Commander to quickly find out who has reported for duty and what is the status of AC activation: a status board detailing these items is needed.

- \* CC Procedures do not specify how the AC should be set up for



## DRILL EVALUATION FOR CLARK COUNTY

monitoring, first aid, PIO and incident command.

\* CC Procedures do not define what the responsibilities of the Incident Commander (IC) entail. As generally understood, the IC is responsible for management of all aspects of incident operations. This includes much more than merely coordinating staff activities, as was observed during the drill. (refer to the Field Operations Guide, published by Oklahoma State University, Stillwater, OK 74078 for full description of IC duties).

The Clark County Emergency Procedures state that Fire District #6 personnel will perform First Aid services. The American Red Cross Disaster Plan (included in the CC Procedures) states that ARC personnel will provide First Aid services. We note that no one provided First Aid services during the drill. The apparent placement of the First Aid Station would have been beyond the decontamination station, thus making the First Aid Station inaccessible to most of the evacuees.

CC Procedures do not specify the manner in which the monitoring area is to be set up. Procedures should specify traffic flow, vehicle monitoring, routing of evacuees inside the facility, the registration procedure, and monitoring area set up.

### Recommendation:

Revise plan to clearly specify AC Set-Up Procedures and responsibilities. Provide procedures for personnel reporting for duty. Train Sheriff's Deputies in operational aspects of Assistance Center Procedures and incident command functions. Include diagrams showing location of the various functions to be carried out at the AC.

Designate location for First Aid Station so that such services would be available to arriving evacuees. Eliminate discrepancy of staffing of the First Aid Station from the CC Procedures.

Issue #3:  
(CL89-3)

Activation of Ham Radio Operators. ARCA (F.1)

### Evaluation:

CC Procedures do not assign anyone the responsibility to alert the Ham Radio Operators of an emergency and instruct them to deploy.



## DRILL EVALUATION FOR CLARK COUNTY

During the drill, the DEM Director did not call for a Ham Operator to be assigned to the ARC shelter. CC Procedures (pp. Z-1-32) call for operators to be present at the shelter.

### Recommendation:

Revise procedures to assign this responsibility. Train staff to follow existing procedures for deployment of Ham Operators.

**Objective #4:** Demonstrate the ability to communicate with all appropriate locations, organizations and field personnel.

**Evaluation:** Met

### Narrative Summary:

Clark County demonstrated the ability to communicate with all appropriate locations during this drill, except the ARC shelter. Commercial telephone was the primary communication system at the Clark County EOC, Assistance Center and ARC Chapter House. Since there are no phone lines at the AC, communication at this location was by cellular phone. Supplemental and back up communication was provided by 14 Ham Radio Operators. Operators were located at the CC EOC, CC AC and ARC Chapter House. The Emergency Coordinator for the Ham Operators did an excellent job of relaying messages and helping the Incident Commander at the AC.

There was not a Ham Operator at the ARC Shelter and no back-up communication was available with this location. CC Procedures (pp. Z-1-32) call for operators to be present at the shelter.

**Objective #21:** Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees.

**Evaluation:** Not Met

### Narrative Summary:

Clark County did not demonstrate adequate procedures for the registration of evacuees. The lack of detail in the Clark County Emergency Management Plan and the demonstrated preparedness indicates that Clark County is not prepared to provide evacuees with appropriate care and registration services. The designated facility does not provide adequate space and accommodations. The primary County organizations with response duties at the AC are the Sheriff's Office, Fire District #6 and SWD Health Liaison.

## DRILL EVALUATION FOR CLARK COUNTY

No signs were displayed on the approach to the Assistance Center to guide evacuees. AC staff did not wear name tags to identify themselves as AC workers. We note that we made the same recommendations for signs and name tags at the AC in our 1986 evaluation.

As evacuees arrived, they entered the west entrance of the facility. There was room inside for only about 100 people waiting to be monitored. Most people would have to wait outside with no shelter from inclement weather. The facility has inadequate space and accommodations for monitoring and decontamination operations. The AC facility must be ready to accommodate up to approximately 1700 people plus 800 school children who would be evacuated to the AC until they could be picked up by parents.

There was poor access control at the AC. Arriving evacuees could have entered any door since all were unlocked and none were staffed except the west entrance where evacuees were expected to arrive.

The SWDH staff is responsible for conducting preliminary screening of evacuees at the AC and for coordinating radiation related advice and decisions with WADOH. The SWDH representatives had not been trained on their role and could not effectively answer questions put to them by the evacuees. They did not know the purpose of the registration procedure and did not realize that WADOH was having evacuees fill out another form just a few yards away.

The map given to evacuees identified the shelter only as "Meadow Glade." Two groups (evacuees and evaluators) went to the wrong building in the Meadow Glade complex.

Issue #4:  
(CL89-4)

Inadequate provision for arriving evacuees.  
Deficiency (J.12)

### Evaluation:

No signs were displayed on the approach to the Assistance Center to guide evacuees. AC staff did not wear name tags to identify themselves as AC workers. We note that we made the same recommendations for signs and name tags at the AC in our 1986 evaluation.

The facility has inadequate space and accommodations for monitoring and decontamination operations. The AC facility must be ready to accommodate up to approximately 1700 people plus 800 school children who would be evacuated to the AC





## DRILL EVALUATION FOR CLARK COUNTY

until they could be picked up by parents. The majority of these people would be lined up outside the facility waiting to get in.

There was poor access control at the AC. Arriving evacuees could have entered any door since all were unlocked and none were staffed except the west entrance where evacuees were expected to arrive.

### Recommendation:

Designate appropriate facility for use as an assistance center. Revise plan and train staff.

Issue #5: Inadequate registration process at Assistance  
(CL89-5) Center ARCA (J.12)

### Evaluation:

When evacuees arrived at the AC, they underwent an initial registration by SWDH personnel. They underwent a second registration moments later at the monitoring station.

### Recommendation:

Combine these registration processes. County personnel could complete WADOH form and give it to the evacuee who would take it with him/her to the monitoring area for completion by WADOH staff.

Issue #6: Lack of information for evacuees. ARCA (J12)  
(CL89-6)

### Evaluation:

There is no prepared information sheet which can be given to evacuees as they arrive. During the drill, evacuees had no way of knowing why they were at the Assistance Center, what services were provided, and where they could go after leaving the AC.

### Recommendation:

Develop handout. Revise plan.

## 2.1.2 CONGREGATE CARE OPERATIONS - AMERICAN RED CROSS/CLARK COUNTY

**Objective #1:** Demonstrate the ability to monitor, understand and use emergency classification levels (ECL) through appropriate implementation of emergency functions and activities corresponding to ECLs as required by the scenario.

**Evaluation:** Not Met

### **Narrative**

**Summary:** The Clark County Chapter of American Red Cross (ARC) demonstrated the ability to activate their portion of the Clark County Disaster Plan. However, they did not demonstrate the ability to key responses on the basis of ECL categories. This was hampered by the fact that timely ECL notification did not come from the CC EOC.

When the ARC Chapter House receives the Site Area Alert (SAE) notification, they are to put staging area, shelter and other personnel on standby status (per pp. Z-1-30 of CC Procedures). When notification of a General Emergency (GE) is received at the Chapter House, the above personnel are to be instructed to activate the staging area and shelter operations.

At 0938 the ARC received an "ALERT" notification from the CC EOC. Since the CC EOC had received an SAE notification at 0932, we assume that this is the ECL message that should have been sent to ARC by the EOC. ARC activated their Disaster Plan at 0943 when the Chapter Chairman was requested to come to the Chapter House to stand by. Soon after this, ARC food service and registration personnel were directed to proceed to the Assistance Center. The first ARC staff person arrived at the AC at 0952, but could do nothing until a second ARC staff person arrived with the supply kit at 1046.

By deploying staff to the AC before the SAE notification was received, Chapter personnel said they were responding based on experience rather than by the CC plan. The rationale was that the traffic would be too heavy for efficient movement later on.

We noted that ARC personnel did not appear to understand the significance of the ECL-keyed response system. One person in a leadership role stated that "We either set up or we don't, so [the ECL level] doesn't really matter".

**Issue #7:** ECL system not used by ARC to trigger response.  
**(CL89-7)** ARCA (D.3)



## DRILL EVALUATION FOR CONGREGATE CARE OPERATIONS (ARC)

### Evaluation:

ARC Chapter House instructed personnel to proceed to the Assistance Center when notified of the ALERT rather than waiting for SAE as specified in the CC Procedures. Personnel did not see the importance of the ECL-based response system. Since other organizations are set up to respond on the basis of ECLs, ARC must also to ensure proper coordination of response.

### Recommendation:

Train staff on ECL response system to coordinate ARC and other Clark County organizations' responses.

**Objective #2:** Demonstrate the ability to fully alert, mobilize and activate personnel for both facility and field-based emergency functions.

**Evaluation:** Met

### Narrative Summary:

The Clark County Chapter of ARC demonstrated the ability to alert, mobilize and activate its personnel during the Assistance Center drill. The Chapter was notified directly of the event since the call came during business hours. Had the call come after hours, the duty worker would have taken the call and begun notification process per the plan. The Chapter Manager was in charge and called staff from his list. Notification proceeded in an orderly fashion with volunteers responding from home. Second and third shift capability was adequately demonstrated: 15 calls were made and 6 staff members were able to respond immediately.

The first ARC staff member arrived at the Assistance Center at 0952 to direct evacuees to the Meadow Glade shelter. However, the ARC supply kit containing maps to the shelter did not arrive until 1046.

The Chapter followed their plan, however the plan is incomplete in that it does not address ARC requirement (ref. ARC 3027, p. 22; ARC 3003, p. 8) for Disaster Health Services participation. The shelter did have an R.N. present to provide health care, and health problems presented by the evacuees were solved by the nurse. But the provision for health care supervision specified in the above referenced procedures was not available. We note that the Chapter could have called for a nursing supervisor and one would have been made available.



DRILL EVALUATION FOR CONGREGATE CARE OPERATIONS (ARC)

Issue #8: Delayed deployment of supplies to Assistance  
(CL89-8) Center ARCA (J.10.h)

Evaluation:

ARC staff person was present at the AC over 45 minutes before supply kit arrived. Evacuees could not be directed to shelter until maps, which were in the kit, were available.

Recommendation:

ARC should consider pre positioning a supply kit at the Clark County fairgrounds AC facility so that the ARC portion of the AC can be fully activated as soon as the first staff person arrives.

Issue #9: Provision for Disaster Health Services ARCA  
(CL89-9) (J.10.h)

Evaluation:

Disaster health services provision as specified in ARC 3027 and ARC 3003 are not included in the Clark County ARC Chapter Disaster Plan.

Recommendation:

Bring ARC Chapter Disaster Plan in line with National guidance.

Objective #22: Demonstrate the adequacy of facilities, equipment and personnel for congregate care of evacuees.

Evaluation: Met

Narrative  
Summary:

The Clark County Chapter of ARC demonstrated the adequacy of facilities, equipment and personnel for congregate care.

Per the ARC Plan, the Meadow Glade shelter was put on stand by and then activated to shelter evacuees sent from the staging area at the Clark County fairgrounds. The Shelter Manager was trained in shelter management and was able to specify shelter set up procedures for various functions such as nursing, feeding and sleeping. Registration procedure used chapter developed forms. Supplies brought from the Chapter

DRILL EVALUATION FOR CONGREGATE CARE OPERATIONS (ARC)

arrived shortly before the first evacuees. Cots, blankets and administrative supplies were adequate for start up of the shelter. More supplies were readily available for the 200 person capacity of the shelter.

When the shelter neared capacity, the manager would notify ARC to send further evacuees to another designated shelter. Although signs to identify the shelter were available, they were not used.

Issue #10:  
(CL89-10)

No signs or identification at shelter  
ARCA (J.10.h)

Evaluation:

There were no signs at Meadow Glade shelter itself to identify which building housed the shelter. Two different groups were unable to find the correct building.

Recommendation:

Have specific directions with each sign kit as to where, how and when each sign should be used. Train staff.





## 2.2 STATE OF WASHINGTON

Objective #6: Demonstrate the ability to continuously monitor and control Emergency Worker exposure.

Evaluation: Met

### Narrative

Summary: Radiation Monitors at the Assistance Center were issued TLDs. WADOH Procedures do not define radiation monitors as emergency workers, although they face potential exposure.

Issue #1: Definition of Emergency Worker ARCA (K.3.a)  
(WS89-1)

Evaluation: See above.

### Recommendation:

Revise plan and procedures to include Assistance Center radiation monitors as emergency workers. Specify type of dosimetry to be issued to radiation monitors at Assistance Centers.

NOTE: By agreement of all parties, this issue has been reassigned to Clark County as CL89-11.

Objective #21: Demonstrate the adequacy of procedures, facilities, equipment and personnel for the registration, radiological monitoring and decontamination of evacuees.

Evaluation: Met

### Narrative

Summary: According to the extent of play, the Radiological Monitoring Team (3 Corps of Engineers personnel and 2 WADOH staff) were prestaged at the AC before the drill began. The Procedures call for the County Sheriff's Office to set up the monitoring and decontamination area. However as described elsewhere in this report, this job was done by WADOH staff with some assistance from County personnel. It took 45 minutes to set up the monitoring area.

There were two registration processes that evacuees had to go through. See CL89-5 in Clark County Section (page 20).

The State is responsible for completing the personnel monitoring and decontamination record.



## DRILL EVALUATION FOR WASHINGTON STATE

The plan does not specify the number of staff needed for this function. During the drill, one person was assigned this job.

At the demonstrated rate of 3 minutes per person for registration, this person would have been able to register 240 people in 12 hours. The number of evacuees expected during a 12 hour period is about 1700, plus 800 school children. Therefore there is insufficient staff to allotted to this function.

All evacuees were checked for radiological contamination. The WADOH Procedures describe a survey process and estimates that it will take about 3 minutes per person to complete the monitoring process. This rate was demonstrated by the 3 monitors. Based upon staff available, about 720 people could have been monitored over a 12 hour period -- if the staff did not take any breaks. Approximately 8190 people will evacuate from the Trojan EPZ to Clark County. Federal guidance says that the State must demonstrate the ability to monitor 20% of the plume EPZ population (i.e., 1638 people, plus 800 school children) in 12 hours. Again, the staff dedicated to this function is insufficient.

Three of the 11 evacuees had Coleman lantern mantles placed on them to simulate contamination. The monitors were able to detect one of the mantles. We note that the sources did not approach the trigger level of 1000 cpm or 10 times background for defining an evacuee as contaminated. Since proper monitoring technique was demonstrated, this explains why more of the sources were not detected.

If a person was found to be contaminated, he/she was sent to decontamination areas located in the mens and womens restrooms. Spot contamination was to be washed with soap and water. Larger areas of contamination would be treated by having the evacuee shower in the facility provided. If an individual could not be decontaminated after three attempts, they would be sent to a designated medical facility.

Evacuees were not provided with documentation that they had been decontaminated. This is a requirement for people going to ARC shelter. No provisions were made to provide evacuees with replacement clothing.

The parking area at the AC could hold several hundred cars and appears to be adequate for the 650 cars that would be expected during an emergency at Trojan. Plan and procedures do not specify the process to be used to segregate contaminated and uncontaminated vehicles. No one has been assigned the task of monitoring vehicles.



DRILL EVALUATION FOR WASHINGTON STATE

Issue #2: No documentation that evacuees were free of  
(WS89-2) contamination was issued by the State ARCA (J.12)

Evaluation:

No documentation was given to evacuees who were free of decontamination as specified in WADOH Procedure 9.9.1 #10. Type of documentation is not specified in procedures.

Recommendation:

Revise procedures and train staff.

NOTE: By agreement of all parties concerned, this issue has been reassigned to Clark County as CL89-12.

Issue #3: Insufficient staff for monitoring process DEF  
(WS89-3) (A.4; J.12)

Evaluation:

The WADOH Plan and Procedures do not specify how many monitors are needed at Clark County Assistance Center to monitor the expected 1638 people, 800 students, and 655 vehicles. We note that this is an outstanding deficiency. The State is working towards correction of this problem and is providing progress reports to FEMA on a regular basis.

Recommendation:

Revise plan to specify the number of monitors and their jobs, by shift, at the Assistance Center. Recruit and train staff. Demonstrate capabilities in a remedial drill.

NOTE: By agreement of all parties concerned, this issue has been reassigned to Clark County as CL89-13.

Issue #4: Procedures for setting up monitoring station.  
(WS89-4) ARCA (J.12)

Evaluation:

Section 9 of the WADOH Procedures gives generic guidelines for setting up the monitoring area at the AC. Since set up of this area is a county responsibility under CC Procedures, procedures specific to the CC facility should be developed and included in CC Procedures.

DRILL EVALUATION FOR WASHINGTON STATE

Recommendation:

Ensure that Set Up Procedures specific to CC AC for personnel and vehicle monitoring are included in Clark County Procedures.

NOTE: By agreement of all parties concerned, this issue has been reassigned to Clark County as CL89-14.

Issue #5: Procedure for handling people with fixed contamination  
(WS89-5) ARCA (J.12)

Evaluation:

WADOH Procedures call for sending people who cannot be decontaminated after three attempts to a hospital. Instead, these people should be sent to a radiation screening program which includes bio assays and whole body count equipment. A hospital will not be able to do anything more than has already been attempted at the Assistance Center.

Recommendation:

Revise procedures and train staff.

Note that this issue remains a Washington State issue and has not been assigned to Clark County.

3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
CL89-1	1	ARCA	At the Clark Co. EOC, the DEM Director did not always use ECL terminology when making notification calls. During some calls, complete information, as contained in the Accident Notification Form, was given. Other times, very casual notification language was used.  The DEM Director made no reference to CC Emergency Management Procedures while making notifications. (D.3)	Revise procedures. Currently, the CC procedures give no guidance on how to log the notification call. Use a Notification Form for copying down incoming ECL and PA information at the EOC. Delegate notification call responsibility to a staff member to allow the Director to concentrate on decisionmaking and incoming calls. Train staff to use ECL terminology during notification process.	06/30/90
CL89-2	2	ARCA	County procedures state that the SO is to set up the monitoring and decontamination area at the Clark County Assistance Center. During the drill, WDOH staff did most of the work with some help from the Sheriff's Deputies. Activities of the Sheriff's Deputies centered mainly	Revise Clark County AC procedures to adequately specify Assistance Center set up procedure.	06/30/90



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2  
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3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			around incident command, but County procedures give them many operational duties as well.		
			Clark County procedures do not give enough detail to adequately specify AC activation procedure or set up of monitoring area.		
			Clark County procedures state that Fire District #6 will perform first aid services at the AC. The ARC disaster plan says that ARC will provide first aid. During the drill, neither group provided this service. (J12)		
CL89-3	2	ARCA	Clark County procedures do not assign anyone the responsibility to alert the Ham radio operators of an emergency and instruct them to deploy.	Revise procedures. Train staff to follow existing procedures.	06/30/90
			During the drill, the CC DEM Director did not call for a Ham operator to be assigned to		

3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			the Red Cross shelter. CC procedures (p Z-1-32) call for operators to be present at the shelter. (F.1)		
CL89-4	2	DEF	At the Clark County Assistance Center, there were no signs on the approach to guide evacuees. The AC staff did not wear name tags and it would be difficult to tell which people were staff members.	Designate appropriate facility for use as an assistance center. Revise procedures and train staff.  A new AC facility has been located and approved by FEMA.	06/30/90
			The facility has inadequate space and accommodations for monitoring and decontamination. Most of the 1700 evacuees plus 800 students expected to arrive at the AC would have to wait outside.		
			There was poor access control at the AC. Arriving evacuees could have entered any door since all were unlocked and none were staffed except the west entrance where evacuees		



3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			were expected to arrive. (J.12)		
CL89-5	21	ARCA	When evacuees arrived at the Clark County AC, they underwent an initial registration by County Health personnel. They underwent a second registration moments later at the monitoring station. (J.12)	Combine registration processes. County personnel could complete WDOH form and give it to evacuee to deliver to monitoring area.	06/30/90
CL89-6	21	ARCA	There is no prepared information sheet which can be given to evacuees arriving at the Clark Co. AC facility. Evacuees have no way of knowing why they were there, what services were provided and where they could go after leaving the AC facility. (J.12)	Develop information sheet. Revise procedures.	06/30/90
CL89-7	1	ARCA	American Red Cross Chapter House instructed personnel to proceed to the Clark County AC at the ALERT notification	Train ARC staff on ECL response system in order that ARC response is coordinated with other Clark County response	06/30/90



3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC.#	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			rather than waiting for the SAE as specified in the Clark County procedures. Personnel did not see the importance of the ECL system. Since other organizations are set up to respond on the basis of ECLs, ARC must also to ensure proper coordination of response. (D.3)	organizations.	
CL89-8	21	ARCA	The Red Cross staff person was at the Clark Co. Assistance Center over 45 minutes before another staff person arrived with the ARC supply kit. Evacuees could not be directed to shelter until maps, which were in the kit, were available. (J.10.h)	ARC should pre position the kit at the Clark County fair grounds facility so that ARC portion of the Assistance Center can be operational as soon as the first staff person arrives.	06/30/90
CL89-9	21	ARCA	The Clark County Chapter of American Red Cross does not have provision for Disaster Health Services in its procedures as specified in ARC 3027 and ARC 3003. (J.10.h)	Bring Clark County ARC Chapter procedures in line with National guidance.	06/30/90





3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
CL89-10	22	ARCA	There were no signs along the route to the Meadow Glade shelter, or at the shelter itself to identify which building housed the shelter. Two groups were unable to find the correct building. (J.10.h)	Develop signs, if they do not already exist. Have specific directions with each sign kit as to where, how and when each sign should be used. Train staff.	06/30/90
CL89-11	6	ARCA	Radiation monitors at the Clark County AC are not defined as EWs in the State plan even though they face potential exposure. (K.3.a)	Revise procedures to include Assistance Center radiation monitors as EWs. Specify type of dosimetry to be issued to radiation monitors at ACs.  Note: this issue has been reassigned from WA to Clark County (originally was WS89-1).	06/30/90
CL89-12	21	ARCA	At the Clark County Assistance Center, no documentation was given to evacuees who were found to be free of contamination as specified in DSHS procedure 9.9.1 #10. The type of documentation to be issued is not specified in the	Revise procedures and train staff.  Note: this issue has been reassigned from WA to Clark County. (originally WS89-2).	06/30/90

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3. SUMMARY LISTING OF EXERCISE INADEQUACIES: CLARK CO.  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
			procedures. (J.12)		
CL89-13	21	DEF	The DSHS plan and procedures do not specify how many monitors are needed at Clark County AC to monitor the expected 1638 people, 800 students and 655 vehicles. (A.4; J.12)	Revise procedures to specify the number of monitors and other staff required per shift. Recruit and train staff. Demonstrate capabilities in a remedial drill.  Note: This issue has been reassigned from WA to Clark County. The County will address this issue in procedure revisions. (Originally WS89-3).	06/30/90
CL89-14	21	ARCA	Section 9 of WADOH procedures gives generic guidelines for setting up the monitoring area at an AC. Since set up of this area is a county responsibility under Clark Co. procedures, specific procedures for the Clark Co. facility should be developed for the County. (J.12)	Ensure that set up procedures specific to Clark Co. AC for personnel and vehicle monitoring are included in CC procedures.  Note: this issue has been reassigned from WA to Clark County. The County will address the issue in procedure revisions. (Originally WS89-4).	06/30/90

12.3



3. SUMMARY LISTING OF EXERCISE INADEQUACIES: WA STATE  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
WS89-1	6	ARCA	Radiation monitors at the Clark County AC are not defined as EWs in the State plan even though they face potential exposure. (K.3.a)	Revise procedures to include Assistance Center radiation monitors as EWs. Specify type of dosimetry to be issued to radiation monitors at ACs.  Note: This issue has been reassigned to Clark County as CL89-11.	NOT APPLICABLE
WS89-2	21	ARCA	At the Clark County Assistance Center, no documentation was given to evacuees who were found to be free of contamination as specified in DSHS procedure 9.9.1 #10. The type of documentation to be issued is not specified in the procedures. (J.12)	Revise procedures and train staff.  Note: This issue has been reassigned to Clark County as CL89-12.	NOT APPLICABLE
WS89-3	21	DEF	The DSHS plan and procedures do not specify how many monitors are needed at Clark County AC to monitor the expected 1638 people, 800 students and 655 vehicles. (A.4; J.12)	Revise procedures to specify the number of monitors and other staff required per shift. Recruit and train staff. Demonstrate capabilities in a remedial drill.	NOT APPLICABLE

3. SUMMARY LISTING OF EXERCISE INADEQUACIES: WA STATE  
CLARK COUNTY ASSISTANCE CENTER DRILL  
DATE OF DRILL: 06/29/89

TRAC #	OBJ#	LEVEL	INADEQUACY	FEMA RECOMMENDATION	COMMITMENT DATE FOR CORRECTION
<p>Note: this issue has been reassigned to Clark County as CL89-13.</p>					
WS89-4	21	ARCA	Section 9 of WADOH procedures gives generic guidelines for setting up the monitoring area at an AC. Since set up of this area is a county responsibility under Clark Co. procedures, specific procedures for the Clark Co. facility should be developed for the County. (J.12)	Ensure that set up procedures specific to Clark Co. AC for personnel and vehicle monitoring are included in CC procedures.  Note: This issue has been reassigned to Clark County as CL89-4.	NOT APPLICABLE
WS89-5	21	ARCA	DSHS procedures call for sending people who cannot be decontaminated after 3 attempts to a hospital. Instead, these people should be sent to a radiation screening program which includes bio assays and whole body counting equipment. (J.12)	Revise plans and train staff.  Note that this is the only WA issue from the 6/29/89 Clark County drill that was not reassigned to Clark County.  A 3/7/90 letter from WA gave a 7/91 commitment date for correction of this issue.	07/01/91

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/29/89 CLARK CO. AC DRILL  
CLARK COUNTY ISSUES  
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TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CL86-1	ARCA	06/29/89	At the Clark County EOC, Dispatch staff did not use the standard Accident Notification Form.	1989 evaluator comments: The notification checklist and the Action Grid have not been made consistent.	.F.
			Dispatchers were using checklist on old pages Z-1-19 while DEM Coordinator used Action Grid Z-1-18. The two lists are not the same.	The DEM Director made all calls from the EOC without assistance from the Dispatch staff. He made no reference to the Clark County procedures and did not demonstrate that the suggested corrective action had been implemented.	
CL86-2	ARCA	06/29/89	At the Clark County AC, there were no signs on the approach to the fair grounds or inside the reception facility. Personnel did not wear name tags and there was no way to tell who the staff members were.	1989 evaluator comment: As observed in the 1986 drill, there were no signs approaching the fairgrounds to direct people to the facility. There were no signs inside the Assistance Center facility. Personnel did not wear name tags.	.F.
CL86-3	ARCA	06/29/89	The WDOH monitoring team began to monitor evacuees before the monitoring area had been	1989 evaluator comments: The Clark County FNF Plan (Annex Z-1) dated 10/31/88	.F.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 6/29/89 CLARK CO. AC DRILL  
CLARK COUNTY ISSUES  
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TRAC #	DATE LEVEL TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
		completely set up.	states that the CC Sheriff's Office is responsible for establishing a monitoring station in the equestrian building (p. Z-1-3). The SO performed mainly incident command functions and did not take the lead in setting up the monitoring station. WDOH personnel set up the station with some assistance from the SO. The WDOH plan states that the County will establish the monitoring area and necessary facilities according to predetermined criteria.	
CL86-4	ARCA 06/29/89	At the Clark County AC, WDOH had only 1 monitoring instrument (plus a backup) even though they had two team members available.	1989 evaluator comment: The Assistance Center radiological monitoring kit used during the 6/89 drill contained 10 CDV-700 instruments. Adequate backup equipment was therefore demonstrated. However, the number of prepositioned instruments is insufficient in view of the number of radiation monitors required.	.T.



REMEDIAL DRILL REPORT

Cowlitz County EOC  
STATE OF WASHINGTON

JULY 24, 1990

Licensee: Portland General Electric  
Trojan Nuclear Plant

Prepared by

Federal Emergency Management Agency  
Region X  
Bothell, Washington

September 1990



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## 1. INTRODUCTION

### EXECUTIVE SUMMARY

This drill was conducted to demonstrate the capability of Cowlitz County, Washington to respond to a radiological incident at the Trojan nuclear facility which would require the activation of the emergency operations center in Longview.

This was a remedial drill based on the Trojan biennial exercise which was evaluated by FEMA on November 15, 1989. At that time, FEMA found four deficiencies with regard to Cowlitz EOC operations:

- CZ89-5: The EOC mistakenly issued a PA over EBS to shelter to 10 miles when no shelter PA had been agreed to;
- CZ89-3: The EOC did not coordinate with other organizations after issuing an incorrect PA over EBS;
- CZ89-6: The EOC did not demonstrate the ability to issue accurate and timely EBS messages;
- CZ89-10: The EOC had inadequate procedures for establishing ACPs. No agency was assigned responsibility for staffing the Columbia river ACPs identified in the procedures.

In addition, two issues from the 1987 exercise were not resolved during the November, 1989 exercise:

- CZ87-7: The establishment of ACPs did not correspond to the PAs in effect. For example, the public was instructed to shelter to 10 miles, but only 2.5 mile ACPs were established;
- CZ87-8: There were no river ACPs identified and no transportation resources available to assist river evacuees or people calling the public concern phone number requesting transportation.

Since the November exercise, Cowlitz County has revised their procedures to address the above inadequacies, added to the EOC staff, conducted staff training and revised the process of producing and disseminating EBS messages. During the remedial drill, FEMA found all exercise inadequacies tested had been resolved.



## EXERCISE BACKGROUND

This drill was evaluated by FEMA RX. The criteria used in the evaluation are contained in NUREG-0654/FEMA-REP-1, Rev-1, FEMA's Exercise Evaluation Methodology (EEM) and the actions called for in the participants' plans and procedures.

Section II of this report contains the exercise evaluation. Each objective contains a statement of the objective, the outcome of the evaluation (met/not met) and a narrative summary of our observations which served as a basis for our evaluation. Where applicable, the narrative is followed by one or more exercise issues which fall into the following categories:

Deficiencies (DEF): Demonstrated and observed inadequacies that would cause a finding that offsite preparedness was not adequate to provide reasonable assurance that appropriate measures can be taken to protect the health and safety of the public living in the vicinity of a nuclear power plant in the event of a radiological emergency. Because of the potential impact of deficiencies on emergency preparedness, they are required to be promptly corrected through appropriate remedial actions.

Areas Requiring Corrective Actions (ARCA): Demonstrated and observed inadequacies of performance. Although correction is required, they are not considered in and of themselves to adversely impact public health and safety.

Areas Recommended for Improvement (ARFI): Issues observed that are not considered to adversely impact public health and safety. While not required, improvements in these areas would enhance an organization's level of emergency preparedness.

When exercise issues are found to exist, they are listed with a brief statement of the issue, a reference to the applicable NUREG-0654 element, and the level of the issue (DEF, ARCA or ARFI). This issue statement is followed by a more detailed narrative of the issues and FEMA's recommendation for corrective action.



# DRILL SCENARIO TIMELINE

0845 ALERT declared by Trojan  
(due to reactor coolant pump seal leakage greater than 50 gpm).  
PAR: Evacuate public from exclusion area.

0900 Cowlitz EOC is activated.

0915 SAE declared by Trojan  
(due to reactor coolant pump seal leakage increasing to beyond the capacity of the charging system).  
PAR: Notify public, Relocate schools to 10 miles, Evacuate Columbia River to 10 miles.

0945 GE declared by Trojan  
(due to failure of the Emergency Core Cooling System which resulted from loss of offsite power and diesel backup).  
PAR: Shelter to 5 miles, continue previous PAs.

1015 Trojan tells EOC: Indications of fuel melting due to loss of ECCS.  
PAR: Evacuate to 10 miles, continue school relocation and river clearance.

1130 ECCS restored, drill terminated.



DRILL OBJECTIVES and EXTENT OF PLAY

The following objectives and associated extents of play were evaluated at the Cowlitz County EOC by FEMA during this remedial drill:

Objective #3: Demonstrate the ability to direct, coordinate and control emergency activities.

Corrective Actions  
to be tested: CZ89-3

Extent of play: Other offsite organizations will not be playing in the drill, so coordination must be simulated. EOC staff will be limited to those positions required to demonstrate that deficiencies have been corrected.

Objective #11: Demonstrate the ability to make appropriate Protective Action Decisions, based on projected or actual dosage, EPA PAGs, availability of adequate shelter, evacuation time estimates and other relevant factors.

Corrective Actions  
to be tested: CZ89-5

Extent of play: Same as Objective #3

Objective #12: Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate officials.

Corrective Actions  
to be tested: CZ89-6

Extent of play: There will be no actual siren sounding, EBS broadcast or test. Columbia County and radio station KOHI will not be playing.

Objective #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.

Corrective Actions  
to be tested: CZ89-6

Extent of play: There will be no actual siren sounding, EBS broadcast or test. Columbia County and radio station KOHI will not be playing.



Objectives for Cowlitz EOC Drill / pg 2.

Objective #18: Demonstrate the ability and resources to implement appropriate protective actions for the impacted permanent and transient plume EPZ population, including transit dependent, special needs and institutionalized people.

Corrective Actions

to be tested: CZ89-9, CZ89-11

Extent of play: One call to a representative individual listed on the database will be simulated. One call to each special population group listed in the Trojan Call List will be simulated through a call from the EOC to a control cell.

Objective #20: Demonstrate the organizational ability and resources necessary to control evacuation traffic flow and to control access to evacuated and sheltered areas.

Corrective Actions

to be tested: CZ89-10, CZ87-7, CZ87-8

Extent of play: No field activity will be demonstrated during the drill.

Significant Events Log  
Cowlitz County EOC Drill, July 24, 1990

SCENARIO TIME	LOCATION	EVENT
0845	EOF to EOCs	Notification of ALERT.
0845	EOC to 3 Risk School Districts and 2 Host School Districts	ALERT Notification - PAR: prepare to evacuate schools.
0848	EOC to EOF & other EOCs	Cowlitz Co. EOC is Operational.
0854	EOC	Briefing #1 - All other EOCs are operational.
0904	EOC	Briefing #2.
0911	EOC	Briefing #3 - Recommend Kalama School District to relocate.
0913	EOC to JIC & Trojan	News Release #1 regarding Alert.
0917	EOF to EOCs	SAE - PAR: Evacuate Schools to 10 mi., Evacuate River to 10 miles.
0918	Cowlitz EOC to Columbia EOC	Agree on PAs; sound siren & EBS at 0930.
0920	EOC to Special Populations	Notification of SAE.
0922	EOC to KBAM	EBS Message "B" released to EBS Operator.
0924	EOC	Briefing #4 regarding SAE PA.
0927	EOC to JIC & WA DEM	Faxed copy of EBS Message #1.



Significant Events Log (Continued)  
Cowlitz County EOC Drill, July 24, 1990

SCENARIO TIME	LOCATION	EVENT
0930	ANS Activation #1	EBS #1 Sequence consisting of: 0930 Siren activation 0930 EBS tone 0931 Cowlitz County B message 0934 Columbia County tape 0939 OR State tape Completed above at 0943
0931	EOC	Briefing #5 re: siren activation and public notification.
0935	EOC	Support Resources calls Special Populations (day care, etc.) regarding standby for possible evacuation.
0940	EOC	Emergency Medical Coordinator makes request to ambulance company re: projected need for transportation assistance for Special Populations.
0940	EOC to JIC & WA DEM	News Release #2 re: SAE.
0941	EOC	Briefing #6. Director asks for briefing from each EOC section.
0943	EOC	Sheriff announced Declaration of Emergency signed by County Commissioners.
0945	EOC	Operations Group Chief announces Columbia and Cowlitz River landing barricades in place.
0946	EOF to EOCs	GE-PAR: Shelter to 5 miles, Evacuate Schools to 10 mi., River Evacuation to 10 mi., No radiation release.

Significant Events Log (Continued)  
Cowlitz County EOC Drill, July 24, 1990

SCENARIO TIME	LOCATION	EVENT
0946	EOC	Operations Group Chief directs ACPs to 5 miles.
0948	Cowlitz EOC to Columbia EOC	Agree on PAs; sound siren and EBS at 1000.
0950	EOC	Notification of GE & PAs to Industries.
0951	EOC	Briefing #7.
0952	EOC	EBS Message "D" selected and given to EBS Operator.
0953	EOC to JIC & WA DEM	Faxed Copy of EBS Message #2.
0959	EOC	Operations Group Chief requested update on ACPs from all jurisdictions.
1000	ANS Activation #2	EBS #2 Sequence consisting of: 1000 Siren activation 1000 EBS tone 1001 Cowlitz County tape 1004 Columbia County tape 1008 OR State tape Completed above at 1012
1010	EOC	Operations Group Manager states that 5 mi. ACPs are in place.
1011	EOC to JIC & WA DEM	News Release #3.
1015	EOC	Briefing #8.
1016	EOF to EOCs	GE PAR: Evacuate to 10 miles. Evacuate Schools to 10 mi. River Evacuation to 10 mi.
1017	EOC	Operations Group Chief directed TCPs and ACPs to 10 miles.

Significant Events Log (Continued)  
Cowlitz County EOC Drill, July 24, 1990

SCENARIO TIME	LOCATION	EVENT
1019	EOC	GE Notification to Industries.
1022	EOC	EBS message "H" is selected and given to EBS Operator.
1026	EOC to JIC & WA DEM	Faxed copy of EBS Message #3.
1027	EOC	Briefing #9.
1030	ANS Activation	EBS #3 Sequence consisted of: 1030 Siren sounded 1030 EBS tone 1030 Cowlitz Co. tape 1035 Columbia Co. tape 1040 OR State tape Completed above at 1045
1030	EOC	Briefing #10 - Exercise is Terminated.
1030	EOC to JIC & WA DEM	Press Release #4.
1041	EOC to JIC & WA DEM	Press Release #5.
1041		Drill Terminated.





## 2. DRILL EVALUATION

Objective #3: Demonstrate the ability to direct, coordinate and control emergency activities.

Evaluation: Met

Narrative  
Summary:

Cowlitz County demonstrated the ability to direct, coordinate and control emergency activities. The Emergency Management Director was in charge of the emergency response at the EOC. The Director initiated 10 staff briefings during the drill.

After each PAR call from the EOF, we noted that the Director made contact with Columbia County to ensure that PA decisions, siren times and EBS message content were coordinated.

An internal message system was in use and file copies of all internal messages were kept.

All activities were conducted in accord with the County draft procedures.

Past Issues  
Examined:

Resolved: CZ89-3. Unresolved: None. (See Appendix A for details.)

Objective #11: Demonstrate the ability to make appropriate Protective Action Decisions, based on projected or actual dosage, EPA PAGs, availability of adequate shelter, evacuation time estimates and other relevant factors.

Evaluation: Met

Narrative  
Summary:

Cowlitz County demonstrated the ability to make appropriate PA decisions, based upon recommendations from the utility. The extent of play agreement stated that offsite organizations other than the Cowlitz EOC would be simulated.

The following Protective Action (PA) Decisions were made:

DECISION TIME

PA DECISION

0845	-Evacuate exclusion area.
0917	-Evacuate schools to 10 miles; Clear Columbia River.
0946	-Shelter public 0 to 5 miles.
1016	-Evacuate general public 0 to 10 miles.

Decision making was rapid and efficient and was effectively coordinated with Columbia County.

Past Issues

Examined: Resolved: CZ89-5. Unresolved: None. (See Appendix A for details.)

Objective #12: Demonstrate the ability to initially alert the public within the 10-mile EPZ and begin dissemination of an instructional message within 15 minutes of a decision by appropriate officials.

Evaluation: Met

Narrative

Summary: Cowlitz County demonstrated the ability to alert the public and issue an instructional message within 15 minutes of each PA decision time.

PARs were received from the utility at 0845, 0917, 0946 and 1016. PA decisions were made by the Emergency Management Director (EMD) after consultation and coordination with Columbia County.

The correct EBS script was selected, edited and authorized by the EMD and forwarded to the EBS operator located in the 911 communications area of the EOC. The EBS operator coordinated siren times and message content with KBAM and Columbia County. After sirens were sounded, the Cowlitz County prerecorded EBS message tape was played and followed by the Columbia County and Oregon messages. This sequence was repeated until a new message with updated PAs was authorized. Copies of the EBS messages were faxed to the JIC and the Washington State EOC. This process worked very well.

The executive table and support resources groups executed special population notifications to schools, daycare, nursing homes, hospital and industries per procedures. We note that it would be helpful for each person making calls to have



either the accident notification form or other prepared script to ensure that consistent and accurate information is given to all parties. We observed that some staff did write their own script to ensure consistency.

Past Issues

Examined: Resolved: CZ89-6. Unresolved: None. (See Appendix A for details.)

Objective #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.

Evaluation: Met

Narrative Summary: Cowlitz County demonstrated the ability to coordinate, formulate and distribute accurate information and instructions to the public. Detailed narrative is contained under Objective #12.

Past Issues

Examined: Resolved: CZ89-6. Unresolved: None. (See Appendix A for details.)

Objective #18: Demonstrate the ability and resources to implement appropriate protective actions for the impacted permanent and transient plume EPZ population, including transit dependent, special needs and institutionalized people.

Evaluation: Met

Narrative

Summary: Cowlitz County demonstrated the ability to implement PAs for permanent and transient plume EPZ populations. The extent of play for this objective specified that one call to each special population group listed on the Trojan Call List would be simulated through a call from the EOC to a control cell. Vehicle dispatch was not to be demonstrated.

This objective was demonstrated by the Emergency Medical Coordinator and the Resource Coordinator. The Emergency Medical Coordinator called St John's Medical Center, a nursing home and a person from the mobility impaired database to inquire if they needed evacuation assistance. For the institutional calls, the EMC recorded the number of patients at the facility, whether they were ambulatory and the type of assistance needed using Attachment 2 of the Emergency Medical Coordinator's procedures. The call to the mobility impaired individual was recorded on Attachment 4 of these procedures.



The Resource Coordinator placed calls to a daycare center and a private school and made inquiries similar to those noted above. Results of these calls were recorded on Attachments 2 and 4 of her procedures.

**Past Issues**

**Examined:**

Resolved: CZ89-9, CZ89-11. Unresolved: None. (See Appendix A for details.)

**Objective #20:**

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

**Evaluation:**

Met

**Narrative**

**Summary:**

Cowlitz County demonstrated the ability to activate ACPs and TCPs to control evacuation traffic flow and control access to evacuated and sheltered areas. The extent of play agreement for this objective specified that no field activity would be demonstrated.

The operations group at the Cowlitz EOC was able to simulate the deployment of ACP and river closure teams successfully. River and other ACPs were established according to the priority system contained in each representative's procedures. Minor errors in record keeping were quickly identified and corrected by police officer representatives who deployed their jurisdiction's resources. The operations Group was able to demonstrate redeployment of ACPs from the 5 mile area to 10 miles when notified of the 10 mile evacuation PA.

One problem with the procedures used by the group was noted. ACP #47 was not manned in the redeployment to 10 miles because it does not appear in the Longview Police Attachment #4 page 2. The Operations Group Chief noted that this ACP had not reported in as established, but the drill terminated before the problem was recognized and corrected. This procedure should be revised to include this ACP location. We also noted that the ACP location map was updated periodically. However it was difficult to read or understand the information displayed. The use of this board should be reevaluated and if possible, the entries on the map should be made easier to see.

**Past Issues**

**Examined:**

Resolved: CZ87-7, CZ87-8, CZ89-10. Unresolved: None. (See Appendix A for details.)

### 3.0 Summary Listing of Remedial Drill Inadequacies

No inadequacies were identified during this drill.



APPENDIX A

RESULTS OF PAST EXERCISE ISSUES WHICH WERE EXAMINED DURING THE 7/24/90  
COWLITZ COUNTY EOC REMEDIAL DRILL.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CZ87-7	DEF	07/24/90	The organizational ability of CC to manage an orderly evacuation of the EPZ was not demonstrated. The public was instructed to shelter to 10 miles, but only 2.5 mile ACPs were established. Access was allowed into the remainder of the EPZ for almost 2 hours, until the 10 miles ACPs were established. (J10j)	11/15/89 Evaluator comment: ACPs were reported in the EOC as being established for 10 miles when, in some cases ACPs at less than 10 miles were actually directed to be established. Some ACP staff were never notified of the 10 mile evacuation PA or directed to redeploy to 10 mile ACPs. NOTE: THIS ISSUE HAS BEEN RECLASSIFIED AS A DEFICIENCY.  In a 3/9/90 letter, Cowlitz County said that they will revise procedures to include a priority for setting up ACPs. Revised procedures will be demonstrated in a remedial drill in July, 1990.  07/24/90 Evaluator Comment: The EOC Operations Group was able to coordinate a multi jurisdictional ACP effort. This included establishing ACPs at the 5 mile limit, Closing river access points and redeploying ACPs to 10	.T.

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				miles when notified of the 10 mile evacuation PA. We note that the revised procedures include a priority system for establishing ACPs.	
CZ87-8	DEF	07/24/90	Access control points were not established along the Columbia River or at proper locations to implement recommendations for PAs regarding shelter. Adequate resources were not identified to provide transportation assistance to the evacuees from the River, or to provide transportation assistance to those identified through rumor control and evacuation verification. (J10j)	11/15/89 Evaluator comment: ACPs were not established at the public boat launch ramps for the evacuation of the Columbia River. The Cowlitz Co. Sheriff procedures (Ammend. 15 to CCT1-B) indicates ACP #s WS57 - WS65 are to be used to establish access control at the ramps. However, instructions for implementing these ACPs have not been developed. The procedures used by the Operations Group did not contain these ACPs. Discussion with the EOC manager indicated that ACPs WS57 - WS65 have not been implemented due to lack of resources.	.T.
			See DEF #3 (p 158) in 1987 exercise report.		

In a 3/9/90 letter, Cowlitz

APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				<p>County said that they will revise procedures to include ACPs along the Columbia River. Procedures will be revised to include provisions for transportation assistance. Also see County response to CZ89-10. Changes will be in place for the July, 1990 remedial drill at the EOC.</p> <p>07/24/90 Evaluator comment: Although field activities were simulated, all jurisdictions represented in the Operations Group at the EOC were able to direct personnel and equipment to the proper ACPs for the PA in effect. River ACPs have been included in the revised procedures and were directed to be staffed.</p>	
CZ89-3	DEF	07/24/90	No coordination with other organizations after incorrect PA was issued over EBS. (A2a)	<p>07/24/90 Evaluator comment: The Cowlitz County Sheriff was observed to consult and coordinate with Columbia County prior to reaching a decision on the utility PAR.</p>	.T.



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
CZ89-5	DEF	07/24/90	Ability to make appropriate PAs. (J9)	<p>He then selected the appropriate pre recorded EBS message and instructed the EBS operator to sound the sirens at the agreed to time and air the message he had chosen. Excellent coordination was observed both inside the EOC and with other organizations involved in decision making.</p> <p>07/24/90 Evaluator Comment: .T. During the remedial drill, the Sheriff was able to select the appropriate prerecorded EBS message for the PA decision in effect. The EBS operator was instructed to air this message and the Decision Table had the means to monitor the EBS broadcast to ensure that the appropriate message reached the public.</p>	
CZ89-6	DEF	07/24/90	Ability to formulate correct and timely EBS messages. (E6)	<p>07/24/90 Evaluator comment: .T. The EBS process has been streamlined through the development of a series of</p>	



APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
				prerecorded messages based on possible situations, such as a 10 mile evacuation PA when school is in session. This by itself will eliminate some of the problems observed in this issue.	
				During the remedial drill we observed excellent coordination between the Sheriff/Decisionmaker and the EBS operator. After a PA decision was made, the Sheriff carefully confirmed his understanding of the PA with the EOF and Columbia County. He selected the appropriate EBS text and instructed the EBS operator to initiate the EBS sequence by sounding the sirens at the agreed to time and air the selected Cowlitz County message followed by those of Columbia County and Oregon. This process worked very well.	20





APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			for persons identified as mobility impaired to be called and offered transportation assistance. (J10.d)	Procedures for the Emergency Medical Coordinator have been revised to include the use of the database to call people listed to see if they need transportation assistance. During the remedial drill, the EMC followed this procedure and used the database to call a representative person from the list.	
CZ89-10	DEF	07/24/90	Procedures contain inadequate instructions for establishing ACP locations: no order of priority and no assignment of responsibility. (J10.j)	07/24/90 Evaluator comment: Cowlitz County procedures have been revised to include a priority for establishing ACP locations. River ACP responsibilities have been assigned. During the remedial drill, the Operations Group staff demonstrated their understanding of this system and the ability to use it to establish the correct ACP locations.	.T.
CZ89-11	OTHR	07/24/90	Notification of special populations - conflicting	07/24/90 Evaluator comment: Cowlitz County procedures have	.T.



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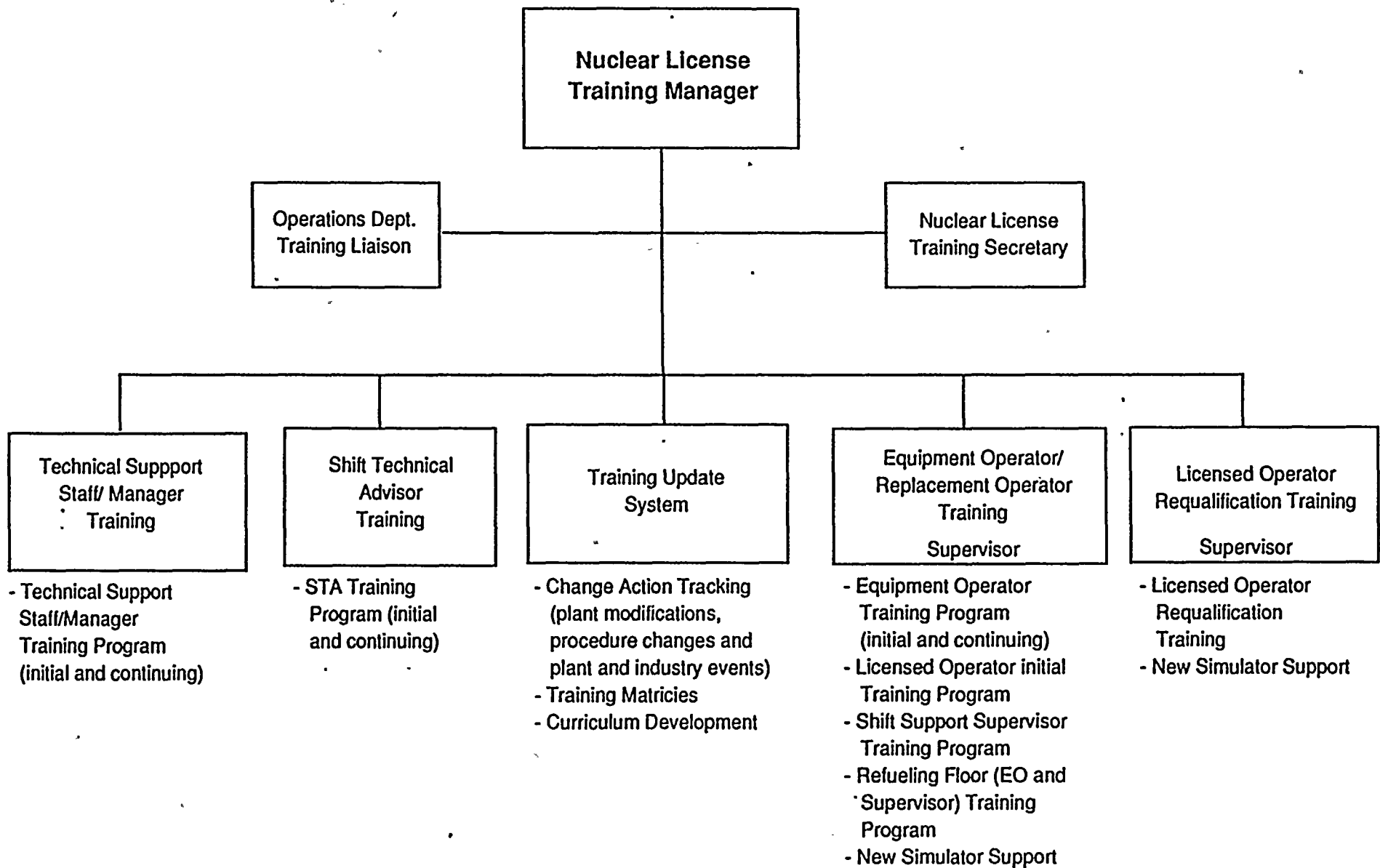
APPENDIX A: RESULTS OF ISSUES TESTED  
DURING 7/24/90 COWLITZ CO. EOC DRILL

TRAC #	LEVEL	DATE TESTED	INADEQUACY	EVALUATOR COMMENTS	ISSUE CLOSED (TRUE/FALSE)
			procedures.	been revised to clearly indicate which EOC staff person has responsibility to call each special population segment. During the remedial drill, the staff responsible for making these calls demonstrated that calls could be made to each special population group without error or omission.	

# Washington Public Power Supply System

WNP-2 Nuclear License Training Department  
(26 Personnel Assigned)

ATTACHMENT I



Background Profile for Timothy J. Powell  
Supervisor, Nuclear License Training RO/EO

EDUCATION: Washington State University - Pullman, Washington  
Courses included: Chemistry (3½ yrs), Biology (4 yrs), Calculus (1 yr), Physics (1 yr).  
Graduated with highest honors (Summa Cum Laude) with a Bachelor of Science Degree in Zoology.

LICENSE: Senior Reactor Operator - WNP-2 (BWR-5)  
NRC License No. SOP-50186-1  
Earned SRO license at WNP-2 on March 3, 1986, and maintained an active SRO through December 1, 1989.

EMPLOYMENT HISTORY

Washington Public Power Supply System (7 yrs)

Principal Engineer - NSA/ISEG (11/89 to 5/91)

Provided independent reviews of plant procedures and modification packages. Furnished technical assessments of operational activities, plant systems, and equipment. Participated as a member of the Configuration Management Quality Action Team. Functioned as the Team Leader during Safety System Functional Inspections.

Senior Engineer - Operations (8/88 to 11/89)

Established a Work Control Center and functioned as its coordinator. Created and revised procedures associated with the Work Control Center and the Clearance Order/Danger Tag process. Developed clearance orders to support maintenance activities. Maintained an active SRO license.

System Engineer/Shift Technical Advisor (7/84 to 8/88)

Provided the control room with technical support during normal power operations. Advised the Shift Manager during plant transients and special tests. Obtained and maintained an active SRO license and STA certification.

Other nuclear power related experience (6 yrs)

Performed electrical system testing in preparation for nuclear plant startup. Proposed and implemented design changes to correct circuit deficiencies. Developed cable termination notes and details. Reviewed construction documentation. Assisted contractors in specifying equipment.



**Background Profile for David Topley**  
**Supervisor, Nuclear License Training, Requalification**

**EDUCATION:** Clarkson University - Potsdam, New York  
Bachelor of Science Degree - Civil and Environmental Engineering  
Graduated - May 1974

**LICENSE:** Professional Engineer License, NY State, 1979  
Senior Reactor Operator (SRO) NMP1  
Senior Reactor Operator (SRO) NMP2  
INPO SRO Peer Evaluator

**EMPLOYMENT HISTORY**

**NIAGARA MOHAWK POWER CORPORATION, Syracuse, NY**

**SUPERINTENDENT OPERATIONS - NINE MILE POINT UNIT 2 (9/90 to 5/91)**

Responsible for directing and coordinating shift operations at the nuclear generating station in order to effect the safe, reliable and efficient production of electricity in a manner consistent with applicable rules, regulations and licensing requirements. Required to maintain senior reactor operator license.

**ASSISTANT SUPERINTENDENT OPERATIONS - NINE MILE POINT UNIT 2 (11/89 to 9/90)**

Under the direction of the Superintendent Operations, assisted in directing and coordinating shift operations at the nuclear generating station. Required to maintain senior reactor operator license.

**STATION SHIFT SUPERVISOR - NINE MILE POINT UNIT 2 (7/84 to 9/89)**

Provide full supervisory control of station operations subject to the supervision of the Superintendent Operations. Acted as SRO of record on many startup and power ascension tests and activities. Required to maintain senior reactor operator license.

**ASSISTANT STATION SHIFT SUPERVISOR/SHIFT TECHNICAL ADVISOR**  
**NINE MILE POINT UNIT 1 (1/80 to 6/84)**

Maintained full supervisory control of station operations subject to the general supervision of the Station Shift Supervisor. Assumed the duties of the Shift Technical Advisor when required. During periods of extended plant outages, assigned as site liaison between corporate engineering and contractor organizations on several major plant modifications. Involved in the development of Unit 1 EOPs.

**OTHER JOB EXPERIENCE - NUCLEAR AND COMMERCIAL**

Two years as Lead Engineer on the analysis and design of modifications for Nine Mile Point Unit 1 and several of Niagara Mohawk's fossil generating plants. Also responsible for the structural design on various institutional, educational and commercial building projects.







## INTEROFFICE MEMORANDUM

DATE: May 6, 1991  
TO: Technical Training Staff  
FROM: D.R. Kobus, Manager, Technical Training (1028)  
SUBJECT: FEEDBACK ON PLANT PROCEDURES

### REFERENCE:

This memo is intended to reiterate the division policy on expectations for providing feedback on plant procedures.

A significant amount of the training accomplished in the division involves details of the plant procedures. This affords many opportunities to critique the adequacy of and suggest improvements to these procedures by the training staff and students, both of whom are very well qualified to do such. This feedback is desired and encouraged by the plant staff and is a critical element of the process to achieve our goal of continued improvement.

You are expected to take advantage of these opportunities and take the time necessary to document suggestions. The easiest way is to mark up the pages of the procedure and send them in the mail to the procedure control group contact. I do consider this a part of the service we provide, therefore, it is a part of our job. Do not be discouraged if your suggestion is not always included, since there may be other factors you are not aware of that must be considered. Each and every suggestion that is used is one step on the way toward the goal and is appreciated.

The procedure control group contacts by functional area are:

OPERATIONS	DW Merhar
MAINTENANCE	DE Morgan
HEALTH PHYSICS	ME Tuel
CHEMISTRY	AL Alexander

DRK/lb

WNP-2 REQUALIFICATION PROGRAM ROOT CAUSE  
PDR 291-0175 CORRECTIVE ACTION PLAN  
DATE: May 16, 1991 PAGE: 1

#1 Upgrade Nuclear Licensed Operator Regualification Training  
Program Content (What is taught)

Completion date codes are:

(R=Prior to NRC Reexamination)

(C=First post outage regual cycle [9/91])

(Y=December 1991)

- R1-1. Develop and implement a remediation program for the identified operators.
- R2-1. Revise the current simulator scenario bank and develop new scenarios as necessary to meet the current management expectations.
- R3-1. Revise simulator ISCT's in order to meet the current management requirements.
- Y1-1. Revise the JPM's to eliminate unnecessary critical steps and include negative response steps.
- Y2-1. Revise the written examination bank to reduce the number of negative response questions.
- Y8-1. Incorporate appropriate lessons learned into the Licensed Operator initial training curriculum.
- Y9-1. Conduct a reverification and revalidation of the static portion of the exam to assure the scope of the exam is proper relative to the number of participants and availability of reference materials.
- Y11-1. Upgrade the static examination process by linking the associated exam bank to specific learning objectives.



WNP-2 REQUALIFICATION PROGRAM ROOT CAUSE  
PDR 291-0175 CORRECTIVE ACTION PLAN  
DATE: May 16, 1991 PAGE: 2

#2 Upgrade Nuclear Licensed Operator Regualification Training  
Program Methods (How it is taught)

Completion date codes are:

(R=Prior to NRC Reexamination)  
(C=First post outage regual cycle [9/91])  
(Y=December 1991)

- R4-2. Develop and implement dynamic simulator training that will heighten the level of intensity for crew training sessions to prepare the operators for the current management examination philosophy.
- R5-2. Periodically revise the scenario structure to ensure variety so the scenarios do not become predictable to the operators.
- R8-2. Conduct refresher training for the simulator training staff focusing on the identified needs from the examination process.
- R9-2. Upgrade the simulator training techniques to emphasize operator performance as expected in the plant, spend more of the time coaching and provide for role.reversals at the SRO level.
- R10-2. Brief the operators on changes implemented by Revision 6 of the Examiner Standards.
- R27-2. Ensure that simulator instructors always enforce proper communications, event diagnosis, command and control and procedural compliance in training and evaluation scenarios.
- C6-2. Evaluate the identified physical differences between the simulator and the plant to determine if short term changes are necessary.
- Y3-2. Increase the use of video taping in order to evaluate operating crew performance during simulator sessions.
- Y6-2. Conduct static simulator examination practice as part of the on-going regual program.
- Y12-2. Review the update lecture material selection process to eliminate duplicate training received through the required reading process.



WNP-2 REQUALIFICATION PROGRAM ROOT CAUSE  
PDR 291-0175 CORRECTIVE ACTION PLAN  
DATE: May 16, 1991 PAGE: 3

#3 Enhance the Nuclear Licensed Operator Regualification Training  
Program Approach, Organization and Management Involvement  
(Program Improvements)

Completion date codes are: (R=Prior to NRC Reexamination) (C=First post outage regual cycle [9/91]) (Y=December 1991)

- R15-3. Develop an improved monitoring plan for increased QA oversight of EOP training.
- R17-3. Improve the training management structure.
- R18-3. Write a department instruction that delineates the duties and responsibilities of the Operations Liaison.
- R19-3. Write a memorandum to the training staff to encourage continued feedback on procedure enhancements.
- R21-3. Conduct an assessment of the remediation process with a team of experts drawn from other utilities.
- R22-3. Increase management oversight to include the simulator remediation training process.
- R26-3. Assign utility personnel to the simulator evaluation staff to prevent a lack of continuity due to the unforeseen departure of the current contract employees.
- C1-3. Develop a more coordinated approach to regualification program scheduling to effectively maintain operating skills and provide adequate examination preparation for the operating crews.
- C10-3. Review the observation evaluation program simulator evaluation goals to ensure they are adequate for Plant Management to regularly observe simulator regual training and evaluation sessions.
- Y7-3. Attempt to achieve more timely agreement on the content of future NRC examinations (at least 30 days prior to the examination).
- Y13-3. Obtain a copy of the NRC National Examination Schedule and assign responsibility to contact the utility after the examination for lessons learned.
- Y14-3. Evaluate continuing operator regualification training through refueling outages.

WNP-2 REQUALIFICATION PROGRAM ROOT CAUSE  
PDR 291-0175 CORRECTIVE ACTION PLAN  
DATE: May 16, 1991 PAGE: 4

#4 Improve operator performance with the EOP's (The Goal!)

Completion date codes are:

(R=Prior to NRC Reexamination)

(C=First post outage requal cycle [9/91])

(Y=December 1991)

- R6-4. Review examination results with all licensed operators requiring remediation.
- R7-4. Re-examine all affected operator candidates prior to NRC re-evaluation.
- R11-4. Issue a memorandum from plant and senior management to describe management expectations relative to procedure usage to all license holders, licensed operator trainers, shift technical advisors, applicable TSC emergency staff and licensing and assurance personnel who monitor operations and operations training activities.
- R12-4. Conduct a meeting with all license holders, trainers and STA's at which plant and senior management will describe the challenges of the current situation, the actions being taken to correct deficiencies and improve performance and will entertain suggestions for additional actions.
- R14-4. Review and revise PPM 1.3.1, "Conduct of Operations", to clarify direction to the operations personnel regarding the use of the 10 CFR 50.54(x) exemption.
- R23-4. Clarify the hierarchy of adherence to cooldown rates relative to RPV level control.
- R24-4. Clarify the use of HPCS versus the operational philosophy that use should be minimized because of thermal shock, cool down and cold water reactivity addition concerns.
- R25-4. Conduct training on the expected EOP deviation process and the expectations for implementation when deviations are required.
- C4-4. Conduct additional EOP training (including bases) with the remaining crews.
- C5-4. Train the remaining crews on management expectations for EOP usage.





WNP-2 REQUALIFICATION PROGRAM ROOT CAUSE  
PDR 291-0175 CORRECTIVE ACTION PLAN  
DATE: May 16, 1991 PAGE: 5

#4 Improve operator performance with the EOP's (continued)

- C7-4. Train the operating crews on the lessons learned from the deficiencies encountered in the Operational Evaluation.
- C9-4. Implement and train the operators on changes to the EOP's necessary as a result of the examinations and associated feedback.
- Y4-4. Conduct additional classroom and simulator training for CRO's on the EOP's (including bases).
- Y5-4. Incorporate additional emphasis on "Transient Management" training.
- Y10-4. Conduct a Human Factors evaluation of WNP-2 EOPs.
- Y15-4. Staff all crews with 3 Licensed Reactor Operators.
- Y17-4. Resolve remaining EOP issues by continuing to work through the BWROG to resolve EOP concerns such as the ATWS instability phenomenon.



REQUALIFICATION PROGRAM ACTION PLAN  
DATE: May 16, 1991 PAGE: 1

ACTIONS TO BE COMPLETED PRIOR TO THE NRC RE-EXAMINATION

(Note: Open items are shaded)

R1-1. Develop and implement a remediation program for the identified operators.

Responsibility: Barmettlor, McKay

Response/comments: A 3 phase program has been developed focusing on; plant systems review, EOP training and transient management. Written examinations and skill performance evaluations will be used throughout to assess training effectiveness.

Status: Implementation is on schedule.

R2-1. Revise the current simulator scenario bank and develop new scenarios as necessary to meet the current management expectations.

Responsibility: Nuclear License Training

Response/Comments: New simulator scenarios are being developed as part of the remediation program. This will ensure operators are trained and able to evaluate, prioritize and handle complex emergency situations. Many of the new scenarios are now of the same complexity as those utilized by the NRC (i.e. requirements of ES-604).

Status: In progress.

R3-1. Revise simulator ISCT's to meet the current management requirements.

Responsibility: Nuclear License Training

Response/Comments: This effort will cover generic as well as specific tasks and be incorporated in a department instruction (4.2). These ISCT's are based upon the guidance provided in the examiners standards.

Status: Completed

REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 2

R4-2. Develop and implement dynamic simulator training that will heighten the level of intensity for crew training sessions to prepare the operators for the current management examination philosophy.

Responsibility: Nuclear License Training

Response/Comments: Various approaches to responding to this recommendation will be evaluated during the next few training cycles. The most effective and practical will then be institutionalized.

Status: Open

R5-2. Periodically revise the scenario structure to ensure variety so the scenarios do not become predictable to the operators.

Responsibility: Nuclear License Training

Response/Comments: This practice will be made an on-going process during the selection and/or development of scenarios.

Status: This will be an on-going process.

R6-4. Review examination results with the licensed operators requiring remediation.

Responsibility: Nuclear License Training

Response/Comments: This recommendation has been completed as part of the formal remediation program.

Status: Completed.

R7-4. Re-examine all affected operator candidates prior to NRC re-evaluation.

Responsibility: Nuclear License Training

Response/Comments: This recommendation will be completed as a part of the formal remediation program.

Status: Open



REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 3

- R8-2. Conduct refresher training for the simulator training staff focusing on the identified needs from the examination process. Examples are:
- o operator monitoring and data collection
  - o questioning techniques
  - o conduct of scenario critiques
  - o use of root cause techniques

Responsibility: Barmettlor

Response/comments: This training included the evaluation program improvements recently implemented. The possible use of root cause techniques has been evaluated and found to be impractical due to timeliness requirements. In the future, more effective data collection and use will be realized through the new simulator audio and video capabilities.

Status: Completed

R9-2. Upgrade the simulator training techniques to emphasize operator performance as expected in the plant, spend more of the time coaching and provide for role reversals at the SRO level by:

- o placing more emphasis on training versus evaluating
- o rewarding the control room staff for directing appropriate actions (i.e. through restoration of equipment) outside the control room.
- o requiring completion of physical actions by the operators
- o providing feedback to individual operators via critique sheets in both pass and fail situations

Responsibility: Nuclear License Training

Response/Comments: As schedules permit, more training time will be incorporated into the on-going R/Q training cycles. Increased attention will be placed on the post scenario critique process in order to enhance scenario quality.

Status: Open





REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 4

- R10-2. Brief the operators on changes implemented by Revision 6 of the Examiner Standards.

Responsibility: Nuclear License Training  
Response/Comments: Response to this recommendation is considered complete. The annual examination and remediation program have been conducted in accordance with this revision.

Status: Completed

R11-4. Issue a memorandum from plant and senior management to describe management expectations relative to procedure usage to all license holders, licensed operator trainers, shift technical advisors, applicable TSC emergency staff and licensing and assurance personnel who monitor operations and operations training activities.

Responsibility: Baker, McKay  
Response/comments: Solicit commitment to abide by this direction by signature from the operators.

Status: Open. The memo has been drafted.

R12-4. Conduct a meeting with all license holders, trainers and STA's at which plant and senior management will describe the challenges of the current situation, the actions being taken to correct deficiencies and improve performance, and will entertain suggestions for additional actions.

Responsibility: Oxsen, Baker  
Response/comments: This will be videotaped. Tentatively scheduled for 5/16.

Status: Open

- R13. The remediation program module on management expectations will require review to ensure there is appropriate focus on EOP performance.

Responsibility: McKay  
Response/comments: The operators in remediation training will receive this module in the remediation process and the remaining operators will receive this module as soon as possible thereafter.

Status: Completed



REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 5

R14-4. Review and revise PPM 1.3.1, "Conduct of Operations", to clarify direction to the operations personnel regarding the use of the 10 CFR 50.54(x) exemption.

Responsibility: McKay

Response/comments: Training on this clarification will be completed as necessary.

Status: Open. Must go to POC by 5/15 at the latest.

R15-3. Develop an improved monitoring plan for increased QA oversight of EOP training.

Responsibility: Bouchey

Response/comments: This activity should also assist in getting the operators accustomed to scrutiny.

Status: Open

R16. The analysis for the requalification, operational evaluation and the SRO involved in the replacement operator examinations will be assimilated and sent to Region V NRC management.

Responsibility: Barmettlor

Response/comments: This will be described in the letter to the NRC as a follow-up to the 5/2/91 meeting.

Status: The analysis has been completed and sent to Phil Johnson. This may be revised as further scrutiny of the examinations dictates.

R17-3. Improve the training management structure.

Responsibility: Nuclear License Training

Response/Comments: Actions taken consisted of:

- o Two Supervisors will be in place in the Nuclear License Training Department by the end of May 1991. Candidates for both positions have been selected. The nuclear license training department is being reorganized to support the assimilation of the new supervisors.
- o A new operations liaison has been assigned to training. This position assumes the role of lead evaluator during simulator training. This individual is expected to provide more aggressive evaluation and feedback.

Status: Completed

REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 6

- R18-3. Write a department instruction that delineates the duties and responsibilities of the Operations Liaison.

Responsibility: Nuclear License Training

Response/Comments: The instruction has been completed and issued as LTI 7.4.

Status: Completed

- R19-3. Write a memorandum to the training staff to encourage continued feedback on procedure enhancements.

Responsibility: Barmettlor, Kobus

Response/comments: The memo stated the policy, expectations and process to be utilized.

Status: The memo has been promulgated.

R20. Evaluate the support required for the remediation training process and obtain the necessary resources. Assess the logistics for the possibility of increased training if our evaluation process indicates the need (ie. overtime, outage schedule impact, etc.).

Responsibility: Barmettlor, McKay

Response/comments: The NRC examinations will not be started until we believe the operators are ready.

Status: Open. A request will be made to augment the training staff with 2 contractors on a short term basis.

R21-3. Conduct an assessment of the remediation process with a team of experts drawn from other utilities.

Responsibility: Oxsen, Barmettlor, Little

Response/comments: Written objectives have been completed. John Little is the coordinator for this activity. The assessment will occur the week of 5/20/91. Team members have been identified (one person) from each of the following plants; Hatch, Quad Cities, Nine Mile Point, Fermi, and Clinton. They will observe at least 2 scenarios on all 3 crews.

Status: Open. The utility response has been very positive.



REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 7

- R22-3. Increase management oversight to include the simulator remediation training process.

Responsibility: Baker

Response/comments: The current oversight schedule has been revised to include simulator time.

Status: Completed

- R23-4. Clarify the hierarchy of adherence to cool down rates relative to RPV level control.

Responsibility: Operations

Response/Comments: Response to this recommendation has been incorporated into the remediation program. All remaining crews will receive this training as part of the lessons learned from the Operational Evaluation.

Status: Completed and implemented in other actions.

- R24-4. Clarify the use of HPCS versus the Operational philosophy that use should be minimized because of thermal shock, cool down and cold water reactivity addition concerns.

Responsibility: Nuclear License Training, Operations

Response/Comments: Response to this recommendation has been incorporated into the remediation program. All remaining crews will receive this training as part of the lessons learned from the Operational Evaluation.

Status: Completed and implemented in other actions.

- R25-4. Conduct training on the expected EOP deviation process and the expectations for implementation when deviations are required.

Responsibility: Nuclear License Training, Operations

Response/Comments: This guidance should be clarified in the unlikely event that deviations are necessary. The revision to PPM 1.3.1 should be approved on 5/15, at which time training can be accomplished.

Status: Open



REQUALIFICATION PROGRAM ACTION PLAN

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- R26-3. Assign utility personnel to the simulator evaluation staff to prevent a lack of continuity due to the unforeseen departure of the current contract employees.

Responsibility: Nuclear License Training  
Response/Comments: Actions have already been taken to fully address this recommendation. In the future, the utility staff will always play a key role in the simulator training and evaluation process.

Status: Completed.

- R27-2. Ensure that simulator instructors always enforce proper communications, event diagnosis, command and control and procedural compliance in training and evaluation scenarios.

Responsibility: Nuclear License Training  
Response/Comments: This activity will be stressed as part of the management oversight and QA monitoring effort. It will also be part of the duties and responsibilities assigned to the Operations Liaison. Our organizational consultant will be assisting to improve the effectiveness of this effort.

Status: This effort will be on-going.

R28. Evaluate the effectiveness of the management expectations presentations.

Responsibility: Bouchey  
Response/comments: This effort will be completed by Licensing and Assurance personnel.

Status: Open

R29. Evaluate the transient management training portion of the remediation program.

Responsibility: Bouchey  
Response/comments: This effort will be completed by Licensing and Assurance personnel.

Status: Open



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R30. Continue increased QA oversight of control room activities emphasizing adherence to procedures.

Responsibility: Bouchey

Response/comments: This is one of the primary methods to assess effectiveness of recent training. This item will remain open until all personnel have completed the annual examinations.

Status: Open

R31. A management action plan will need to be generated which identifies all actions and due dates.

Responsibility: Kobus, Barmettlor

Response/comments: This plan should capture all actions from the root cause, as well as any additional actions in the appropriate level of detail.

Status: Completed. The plan will be a living document.

R32. Prepare a letter to the NRC which describes the additional actions taken in response to the 5/2/91 meeting and contains the management action plan.

Responsibility: Kobus

Response/comments: This package should also contain attachments to support the actions taken prior to the NRC re-examination. Should be mailed by May 16th.

Status: Completed

R33. Prepare a presentation for Region V NRC management personnel to present additional actions as a follow-up to the 5/2/91 meeting.

Responsibility: Kobus

Response/comments: This presentation will occur on 5/20.

Status: Completed



REQUALIFICATION PROGRAM ACTION PLAN

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ACTIONS TO BE COMPLETED

BY THE END OF THE FIRST POST-OUTAGE R/Q CYCLE [9/91]

C1-3. Develop a more coordinated approach to requalification program scheduling to effectively maintain operating skills and provide adequate examination preparation for the operating crews.

Responsibility: Nuclear License Training

Response/Comments: In the future all scheduling responsibilities will be assigned to the R/Q supervisor.

Status: Open

C2. Develop the 24 month requalification program schedule including; major systems topics; simulator scenario schedule; static exam practice schedule; JPM practice schedule; update lecture schedule; annual exams; etc.

Responsibility: Nuclear License Training

Response/Comments: The schedule development has been delayed due to the impact of the program failure. The R/Q supervisor will be assigned this responsibility.

Status: Open

C3. Complete the 1991 licensed operator annual examinations for the remaining operators.

Responsibility: Nuclear License Training

Response/Comments: This exam should not be given until the NRC has re-examined the failed operators. An exemption request has been forwarded to Region V. We plan to conduct the exam in phases to allow adequate preparation time and lessons learned training. This will include enhanced transient management training emphasizing EOP usage during complex scenarios.

Status: A schedule has yet to be developed. To date no response has been received from the NRC.

REQUALIFICATION PROGRAM ACTION PLAN

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C4-4. Conduct additional EOP training (including bases) with the remaining crews.

Responsibility: Nuclear License Training

Response/Comments: This will be completed as part of the lessons learned from the Operational Evaluation. The curriculum that will be used will be portions the one utilized for the remediation of the failed operating crews.

Status: Open

C5-4. Train the remaining crews on management expectations for EOP usage, including:

- o communications
- o command and control
- o entry and exit conditions
- o STA responsibilities
- o interpretations
- o deviation process

Responsibility: Nuclear License Training, Operations

Response/Comments: The formal remediation training program addresses all of the items in this recommendation and will be applied to all license holders.

Status: Open

C6-2. Evaluate the identified physical differences between the simulator and the plant to determine if short term changes are necessary, such as:

- o location of fuse pullers
- o labeling keys
- o identify the location of selected simulator back panels

Responsibility: Nuclear License Training

Response/Comments: Each of the items will be evaluated and appropriate changes made to emulate the in-plant arrangement. If it is not prudent to change the simulator at this point, the differences will be identified to the operators.

Status: Open

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C7-4. Train the operating crews on the lessons learned from the deficiencies encountered in the Operational Evaluation.

Responsibility: Nuclear License Training  
Response/Comments: Major portions of the formal remediation training program will be utilized to address the lessons learned for the remaining operating crews.

Status: Open

C8. Develop and implement a crew training program for Crew "B". Crew performance must be evaluated by the NRC prior to allowing them to operate above Mode-3.

Responsibility: Nuclear License Training  
Response/Comments: The crew training program will be derived from portions of the remedial training curriculum. Implementation is currently scheduled to begin during the second week in June.

Status: Open

C9-4. Implement and train the operators on changes to the EOP's necessary as a result of the examinations and associated feedback.

Responsibility: Baker, McKay, Messersmith  
Response/comments: Several changes have been recommended. Plant management will decide which changes will be made prior to the completion of the human factors evaluation.

Status: Open

C10-3. Review the observation evaluation program simulator evaluation goals to ensure they are adequate for Plant Management to regularly observe simulator requal training and evaluation sessions.

Responsibility: Plant Manager  
Response/Comments: The current goals do not reflect the desired level of involvement. A revision was already in process.

Status: Open

REQUALIFICATION PROGRAM ACTION PLAN

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C11. Conduct a team inspection of the nuclear license training programs to assess corrective action effectiveness and overall program adequacy.

Responsibility: Bouchey .

Response/comments: This effort will be completed by Licensing and Assurance personnel in July 1991 and July 1992. They intend to utilize internal as well as external reviewers to accomplish a broad scope multi-disciplined assessment. This will be in addition to the other review activities previously described.

Status: Open

REQUALIFICATION PROGRAM ACTION PLAN

DATE: May 16, 1991 PAGE: 14

ACTIONS TO BE COMPLETED BY DECEMBER 1991

Y1-1. Revise the JPM's to eliminate unnecessary critical steps and include negative response steps.

Responsibility: Nuclear License Training

Response/Comments: All JPMs will be reviewed over the next several months and revised as necessary.

Status: Open

Y2-1. Revise the written examination bank to reduce the number of negative response questions.

Responsibility: Nuclear License Training

Response/Comments: Will be completed as part of the on-going exam bank review and revision process.

Status: Open

Y3-2. Increase the use of video taping in order to evaluate operating crew performance during simulator sessions.

Responsibility: Nuclear License Training

Response/Comments: No formal action will be taken in response to this recommendation until the new simulator is operational..

Status: Open

Y4-4. Conduct additional classroom and simulator training for CRO's on the EOP's (including bases).

Responsibility: Nuclear License Training

Response/Comments: Response to this recommendation is one of the primary focuses of the remediation training program. Revised learning objectives have been approved that identify the minimum knowledge requirements for all licensed operators.

Status: Open

Y5-4. Incorporate additional emphasis on "Transient Management" training.

Responsibility: Nuclear License Training

Response/Comments: Response to this recommendation is one of the primary focuses of the remediation training program. This will provide conditioning for the operators to handle more complex scenarios.

Status Open

REQUALIFICATION PROGRAM ACTION PLAN

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Y6-2. Conduct static simulator examination practice as part of the on-going requal program.

Responsibility: Nuclear License Training  
Response/Comments: Time for additional practice will be incorporated into future R/Q training cycles.

Status: Open

Y7-3. Attempt to achieve more timely agreement on the content of future NRC examinations (at least 30 days prior to the examination).

Responsibility: Nuclear License Training  
Response/Comments: Prior to all future R/Q NRC examinations the utility staff will attempt to arrange NRC review of the proposed examination materials at least 30 days prior to the examination. If necessary they will travel to the NRC and formally present the package. Further, the utility training staff will maintain regular contact with the appropriate NRC points of contact to keep cognizant of any changes to the examinations.

Status: Open

Y8-1. Incorporate appropriate lessons learned into the Licensed Operator initial training curriculum.

Responsibility: Nuclear License Training  
Response/Comments: Prior to the commencement of the next Licensed Operator initial training class, all relevant lessons learned will be incorporated.

Status: Open

Y9-1. Conduct a reverification and revalidation of the static portion of the exam to assure the scope of the exam is proper relative to the number of participants and availability of reference materials.

Responsibility: Nuclear License Training  
Response/Comments: When all future static examinations are validated, the validation process will use full operating crews with the same numbers of reference materials that will be utilized in the conduct of an actual NRC examination.

Status: Open





REQUALIFICATION PROGRAM ACTION PLAN

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Y10-4. Conduct a Human Factors evaluation of WNP-2 EOP's.

Responsibility: Operations  
Response/Comments: The human factors evaluation is scheduled to begin in June, and will be completed in 1991. This will be accomplished by a team of independent experts on contract. Licensing and Assurance personnel will participate as deemed necessary.

Status: The contractor has been selected.

Y11-1. Upgrade the static examination process by linking the associated exam bank to specific learning objectives.

Responsibility: Nuclear License Training  
Response/Comments: As part of the on-going revision and development process actions will be taken to ensure a strong correlation between static test items, the appropriate learning objectives and the exam bank.

Status: Open

Y12-2. Review the update lecture material selection process to eliminate duplicate training received through the required reading process.

Responsibility: Nuclear License Training  
Response/Comments: To the extent practical, more credit will be taken for the required reading program in order to eliminate duplicate training. Where possible, the material could be covered in a plant systems review or simulator scenario.

Status: Open

Y13-3. Obtain a copy of the NRC National Examination Schedule and assign responsibility to contact the utility after the examination for lessons learned.

Responsibility: Nuclear License Training  
Response/Comments: The R/Q supervisor will be tasked with maintaining a timely awareness of industry wide lessons learned associated with the R/Q examination process through various means, including monitoring the national exam schedule.

Status: Open

REQUALIFICATION PROGRAM ACTION PLAN

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Y14-3. Evaluate continuing operator requalification training through refueling outages.

Responsibility: Plant Manager

Response/Comments: Based on the remediation program taking place this refueling outage, it appears that this is a possibility and may be prudent when the need is justified.

Status: Open

Y15-4. Staff all crews with 3 Licensed Reactor Operators.

Responsibility: Operations

Response/Comments: The long term intent of the Operations Department is to staff each crew with 3 CRO's.

Status: Open. Actual staffing is subject to budget and availability.

Y16. Evaluate possible improvements in the solicitation and utilization of student feedback in the requalification training program.

Responsibility: Barmettlor

Response/comments: Improving critiques will indirectly improve student feedback, however, it appears that we could benefit by directly appealing for structured feedback.

Status: Open

Y17-4. Resolve remaining EOP issues by continuing to work through the BWR06 to resolve EOP concerns such as the ATWS instability phenomenon.

Responsibility: McKay

Response/comments: This action rests with plant management and may be a protracted process. The impact on the training program in the interim is minimal.

Status: Open

Y18. Evaluate the current measurement tools for non-technical skills and implement improvements to enhance the training evaluator and management staff effectiveness in this area.

Responsibility: Mixon

Response/comments: The Supply System organizational consultant is currently pursuing this objective.

Status: Open



WNP-2

LICENSED OPERATOR ANNUAL R/O EXAM

REMEDIATION PROGRAM

May 14, 1991. Rev 3

XX

R. Barmett

Manager Nuclear Licensed Training

REMEDATION PROGRAM  
FOR WNP-2

The following program has been developed, based on the results of the independent Root Cause Analysis and the exam analysis conducted by the Nuclear License Training Department. The remediation training program is designed to prepare the operators for the NRC administered Regualification Examination referenced under bullet two (2) of Confirmatory Action Letter V-91-01, Rev. 1. This program covers lessons learned during the Annual Regualification Exam, the Operations Evaluation, and, to a limited extent, the Replacement Operator License exam.

The first section of the remediation program consists of eight (8) hours of systems refresher training in the classroom. The systems selected for training are based on the weaknesses noted on the written portion of the exam and system weaknesses from the dynamic scenarios. A two hour written exam will be administered, consisting of a classroom exam and a static scenario exam in the simulator. The static exam selected will reinforce the systems covered in the classroom.

The second section of the program consists of four (4) hours of training in the classroom and forty-two (42) hours in the simulator. The classroom training includes management expectations of operator performance, Operation Evaluation review, and a review of PPM 5.0.7 "EOP Users guide". The simulator portion stresses EOP usage during dynamic situations and covers the major flowpaths on the EOP Flow Charts.

During the simulator portion of the EOP training, personnel communications and command and control will be stressed. The use of the "freeze" function will be used extensively to stress the requirements of PPM 1.3.1, Conduct of Operations, relating to communications.

At the end of the second section, a two (2) hour written exam will be given. This exam will be a closed book exam and cover the EOPs, including actions and bases.

The third section of the remediation program will consist of twenty-four (24) hours of simulator training with the emphasis on Transient Management. This training will emphasize prioritizing actions when dealing with multiple flowpaths in the EOPs.

At the end of third section, a formal dynamic scenario evaluation will be given. The simulator examination will consist of one evaluation scenario for each SRO in the SM and the CRS positions. The ROs will be evaluated in at least two (2) RO positions. The evaluations will be based on criteria stated in ES-604 .



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One operator will be required to retake the written portion of the examination. Based on an interview with the operator involved and an exam analysis, the operator will attend and will be required to successfully complete the systems portion of the remediation program. He will then be required to complete a self study program based on the exam analysis results, covering individual weaknesses. Additionally, he will be given a copy of the WNP-2 L + C exam bank and the Static Scenario exam bank for self-study and review. The operator will then be required to participate in at least four (4) static scenarios in the simulator with an instructor. He will also be required to pass an exam consisting of four (4) other static scenarios and an L + C examination.

One other operator will be required to retake the JPM portion of the examination. Based on a personal interview and an exam analysis, the operator will attend and will be required to successfully complete the systems portion of the remediation program. He will also be required to complete a self study program, with the emphasis on procedural compliance. He will be given a copy of the WNP-2 JPM exam bank for self-study and review. He will then take a practice plant walkthrough consisting of a minimum of at least six (6) plant JPMs and four (4) control room JPMs. He will then be required to pass a walkthrough examination consisting of six (6) plant JPMs and four (4) control room JPMs. The formal examination JPMs will be different than the JPMs utilized in the practice walkthrough. The walkthroughs and examination will be evaluated in accordance with the standards described in ES-603.

PROGRAM DESCRIPTION

SECTION I. - SYSTEMS REMEDIATION

An examination analysis of the Limits and Controls and static scenarios administered for the annual regualification examination was conducted to determine areas of possible operator knowledge weakness associated with plant systems. As described in the examination analysis, the selection criteria for identifying weaknesses included any subject area in which less than 85% of the test item responses were correct.

In addition, the operator performance during the annual simulator exam and the Operations Evaluation, including post scenario question and answers, was reviewed to identify weak areas associated with plant systems knowledge.

As a part of the WNP-2 remediation plan, a classroom review will be conducted covering the subjects identified below. The review will be approximately ten hours in length, composed of five, two hour segments. A two (2) hour written exam will be given during the final two hours of this section. This exam





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will consist of a classroom, closed book, written and a static exam in the simulator at the end of Section II, covering systems and EOPs.

A. TOPICS FOR SYSTEMS REVIEW

1. ECCS REVIEW

a. RCIC

1. Automatic initiation signals

2. Response to initiations

- Manual
- Auto

3. Response to high RPV level

4. Valve interlocks

- suction valves
- test return valves
- steam supply valves

4. System Isolations

- Valve response to isolation signals

b. HPCS

1. Automatic initiation signals

2. Response to initiations

3. System response to high RPV level

4. Specific valve interlocks

- Suction valves
- Injection valve
- Test return valves to SP and CST

5. Response to a loss of offsite power

6. Reporting requirements following inadvertent initiation

c. LPCS

1. Auto initiations

2. Specific valve interlocks



REMEDIATION PROGRAM  
FOR WNP-2

- Injection valve
  - Test return valve
- 3. Response to loss of off site power
  - sequencing of pump start
- d. RHR
  - 1. Automatic initiations
  - 2. Response to initiations
  - 3. Specific valve interlocks
    - Injection valve
    - Test return valve
    - CTMT spray valves
    - WW spray valves
    - HX bypass valve
  - 4. Response to loss of off site power
    - sequencing of pump
- e. ADS
  - 1. Automatic initiation
  - 2. Effect of Control switch on operation of valves
  - 3. Methods of closing valves following auto initiation

2. REACTOR PROTECTION SYSTEM

- a. Response to half and full actuation signals
  - 1. Scram inlet and outlet valves
  - 2. Backup scram valves
  - 3. Scram pilot solenoids
  - 4. Backup scram solenoids
  - 5. SDV vent and drain valves
- b. Power supplies to RPS system
  - 1. RPS MG sets



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2. Effect of blown fuse on a single group of rods
  - Without a half scram signal on the other division
  - With a half scram signal on the other division
- c. Effect of Rx mode switch on scram signals
  1. Which ones are bypassed and when
- d. Relationship of IRM and APRM scram signals
  1. In RUN mode
  2. In STARTUP mode
  3. In STARTUP mode on range 10

3. ARI OPERATION

- a. Initiation signals
- b. Effect of initiation on
  1. SDV vents and drains
  2. Scram inlet and outlet valves

4. FULL CORE DISPLAY INDICATIONS

- a. Use of indications to determine status of control rods
- b. Identification of an ATWS condition
- c. Methods of verifying all rods in
- d. Identification of rod drift
- e. Identification of rod drop

5. MSIV ISOLATIONS

- a. Initiation signals

6. SRV OPERATION

- a. Set points for safety and relief valves
- b. Methods to determine if set point has been



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reached

7. DIESEL GENERATOR OPERATION (Div 1,2, and 3)

- a. Automatic start signals
- b. Automatic trip signals
  - 1. With auto initiation signal
  - 2. Without auto initiation signal
- a. Use of indication to determine status of DG.
  - 1. Lockout indications
  - 2. Power available lights
  - 3. DG output breaker indications

B. OTHER SYSTEMS REVIEWS

1. Total ECCS systems review to LOCA signal

- a. With off-site power available
- b. Without off-site power available

2. Technical Specifications

- a. TSAS for inop control rods
  - only one rod
  - more than one in a control cell

3. Flow measurement

- a. Recirc loop flow
- b. Total core flow
- c. Determining value of flow input to APRMs

C. SYSTEMS EXAMINATION

- 1. Written exam following the classroom lectures, consisting of a classroom closed book exam and a static scenario exam. These exams will take two (2) hours total.





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SECTION II. - EOP REMEDIATION/MANAGEMENT EXPECTATIONS

A. MANAGEMENT EXPECTATIONS

This portion of the remediation program will cover management's expectations towards the use of the EOPs and conduct of operations. Operations Management will present this section. This is scheduled for a two (2) hour classroom session.

B. REQUAL EXAM/OPS EVAL /HOT LICENSE EXAM REVIEW

This review will be based on lessons learned during the annual Requal, Operations Evaluation, and, to a limited extent, the Replacement Operator License exam. The review will be given in the classroom, highlighting problems encountered with the use of EOPS, communication, and command and control. Prioritizing of actions during multiple failure events will be discussed. This training is scheduled to last two (2) hours.

C. EOP REMEDIATION SCENARIOS

Based on the exam analysis, weaknesses were noted in the usage of EOPs, communications, and the command and control function by the crews involved. The usage of EOPS and effective teamwork skills are essential to operating under degraded conditions. The freeze function of the simulator will be used extensively during these scenarios to correct any deficiencies noted during the exam or at any time during the remediation process.

This section of the program will cover approximately forty-two (42) hours. The EOP training will be a mixture of dynamic simulator and classroom discussion conducted on the simulator floor. The classroom portion will overview each procedure pertaining to the scenarios. The intent of the overview is to emphasize sequence of mitigation strategies, conditions requiring strategy changes, steps in all major flowpaths, and to address common mistakes/problems associated with executing each flow path. At the end of this section, a comprehensive written test will be given covering the EOPs.

The following scenarios have been developed for training and evaluation purposes relative to the EOPs.

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1. DEH Fails causing high RPV/P (1 CRD stuck out)

- a. RPV/P increases
- b. Rx scrams @ 1037#
  - Carry out scram actions
  - Recognize stuck rod, inform crew
- c. SRVs open @ 1076# causing RPV/L to swell and trip RFPs
  - Establish RPV/P < 1037# with SRVs or TBPVs in manual
  - Restore/Maintain RPV/L +13" to +54.5" with CBPs, RCIC, HPCS, or restart a RFP.

NOTE: Establish pressure control with SRVs and level control with preferred systems.

2. Turbine Trip/Loss of TR-S

- a. Rx Scram
- b. DEH pressure closes BPVs
  - Establish RPV/P < 1037#
- c. RCIC steam line ruptures (system isolates) and the HPCS pump trips
  - Start CRD for RPV/L control
  - Attempt recover injection systems
- d. @ -50", verify containment isolations
  - Note the failure of an MSIV to isolate
  - Manually shut the MSIV
- e. @ -129",
  - Reset ADS timers
  - Align LP systems for injection
- f. Between -129" and -161", HPCS is recovered
  - Restore and maintain RPV/L +13" to +54.5" with HPCS without exceeding 100 F/hr

NOTE: Pressure control with SRVs, failed isolation valve, level control to TAF, and pursuit of a failed system.



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3. Loss of High Pressure Feed (Recovery With LP ECCS)

- a. Condensate pumps trip resulting in a loss of Feed
  - Initiate a manual scram
- b. RPV/L decreases
  - Initiate RCIC/HPCS to restore RPV/L
- c. HPCS and RCIC trip
  - Attempt to restore HP injection systems
  - Utilize available HP systems
- d. RPV/L reaches -50"
  - Verify isolations
  - Utilize SRVs to control RPV/P < 1037#
  - Note the failure of 2 SRVs to operate
- e. SP/T reaches 90 F
  - Place RHR in SP Cooling
- f. RHR-P-2A trips @ approx -100"
  - Report the failure to the CRS and crew
- g. RPV/L reaches -129"
  - Align LP injection systems for level restoration
  - Reset ADS timers to prevent actuation
- h. SM-8 Locks out at approx -135"
  - Note the loss of Division II power
  - Realize only one injection system is available
  - Align Alternate injection systems
- i. RPV/L reaches TAF
  - Emergency Depressurize the RPV
  - Note the failure of 2 ADS SRVs to open
  - Open 2 additional SRVs
  - Restore RPV/L to +13" to +54.5" with LPCS

NOTE: Containment control, emergency depressurize and restore RPV level with low pressure ECCS systems.

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4. Loss of High Pressure Feed (Recovery With Alt Systems)

- a. Loss of power to TR-S
- b. Spurious reactor scram
  - Carry out Scram actions
  - Initiate RCIC and/or HPCS to maintain RPV/L
- c. SM-4 Locks out
  - Note the loss of Division III power and HPCS pump
  - Inform CRS and crew
- d. TR-B Locks out and DG-2 fails to auto close in
  - Inform CRS/crew
  - Attempt to manually close DG-2/8 (will close)
- e. RCIC isolates
  - Recognize loss of RCIC and inform crew
- f. RPV/L reaches -50"
  - Verify isolations
- g. SP/T reaches 90 F
  - Initiate SP cooling
  - Note the broken shaft on RHR-P-2B
- h. DG-1 trips
  - Note the loss of Division I power and inform crew
  - Attempt to recover DG-1
  - (Engine restarts and trips again) Direct maintenance to investigate the failure
- i. RPV/L reaches -129"
  - Align RHR-P-2C for injection (RHR-V-42C is failed closed)
  - Reset ADS timers to prevent initiation
  - Recognize less than two injection systems available
  - Align alternate injection systems
- j. RPV/L reaches TAF



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- Emergency Depressurize RPV

k. RPV/P reaches 470#

- Recognize failure of RHR-V-42C to open
- Attempt to open the valve (CR and local - won't open)
- Complete alignment of alternate injection systems
- Restore RPV/L to +13" to +54.5" with RHR-SW X-tie

NOTE: Loss of high pressure feed and recovery with Alternate Systems.

5. RPV Flooding

a. PAM level transmitter "A" fails upscale

- Note the loss and check plant response

b. Level instrument leg fails (X-flow check valve seats)

c. Another reference leg fails resulting in a L-8 trip

- Carry out scram actions
- Utilize CBPs for RPV/L control (HPCS and RCIC will not be available due to the indicated high level)

d. Another reference leg fails

- Recognize complete loss of level indication
- Exit PPM 5.1.1
- Execute PPM 5.1.3, Emergency Depressurization
  - ) Note the failure of 3 SRVs to open
  - ) Inform crew and open additional SRVs

e. Seven SRVs open

- Execute RPV Flooding
  - ) Isolate RCIC/MSLs/and MSL drains
  - ) Inject with available systems
  - ) Establish RPV/P  $\geq 60\# > SP/P$
- Attempt to restore RPV/L indication
  - ) Request I&C assistance

f. Flood-up and Upset instruments are restored



REMEDIATION PROGRAM  
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NOTE: RPV Flooding.

6. Loss of D/W Cooling

- a. Failure of RCC causes RRC-P temperatures to increase
  - Scram the reactor and trip RRC-Ps
- b. DW/T&P increase
  - Utilize SGT to maintain DW/P between 0 and 1.68#
  - Begin a cooldown at < 100 F/hr
  - Maintain RPV/L with RFPs

NOTE: First steps of drywell pressure control.

7. Steam LOCA in D/W

- a. Small steam leak increases DW/P to 1.68#  
HPCS-V-4 fails to open on DW/P  
RHR-P-2C min flow valve fails to open
  - Carry out scram actions
  - Maintain RPV/L with RFPs
  - Monitor DEH control of RPV/P
  - Initiate WW sprays
  - Note the HPCS-V-4 failure and inform the crew
  - Note the failure of RHR-P-2C min flow valve, inform the crew, and trip the pump
- b. WW/P increases to 8#
  - Initiate DW sprays with either RHR loop
- c. SP/T reaches 90 F
  - Initiate SP cooling with other RHR loop
- d. MSIVs isolate (loss of tunnel cooling) & RPV/P increases
  - Maintain RPV/P < 1037# with SRVs
  - Utilize CBPs/RCIC for RPV/L control
  - Initiate a cooldown at < 100 F/hr
- e. DW/P is reduced to < 1.68#
  - Terminate sprays to prevent negative pressure

NOTE: Containment pressure control

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8. Steam Cooling

- a. Earthquake initiates:
  - High vibration on RRC-Ps
  - High vibration on RFPs
  - Turbine trip
  - TR-S lockout
  - Small D/W water LOCA (10 minute Ramp)
- b. Reactor scrams (Turbine Trip)
  - Take scram actions
  - Maintain RPV/L between +13" & +54.5" with RCIC/HPCS
- c. MSIVs close on loss of power
  - Control RPV/P with SRVs
- d. SM-4 Lockout
  - Note the loss of Division III power and inform crew
- e. Loss of TR-B
  - Note the loss of power and inform crew
  - Verify EDGs close onto busses
  - Verify SW restarts
- f. DW/P reaches 1.68# (LPCS fails)
  - Initiate SP spray with either RHR loop
  - Note the failure of LPCS to start/inform the crew
  - Request assistance to restore LPCS
- g. DG-2 trips differential current
  - Note the loss and inform the crew
  - Request assistance to restore the Bus
- h. RPV/L reaches -50"
  - Verify Isolations
- i. WW/P reaches 8# (RHR-V-16A fails shut)
  - Initiate DW spray with RHR-P-2A
  - Recognize the failure of RHR-V-16A/inform crew
  - Direct manual opening of the valve (won't open)

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- j. RCIC trips on high DW/P
    - Note the loss and inform the crew
    - Recognize < 2 injection systems available
    - Direct fire water to condensate x-tie
  - k. RPV/L reaches -129"
    - Align RHR-P-2A for RPV/L restoration
    - Reset ADS timers
  - l. Report that Fire Water cannot be x-tied and RHR-P-2A trips
    - Recognize loss of all injection systems and execute steam Cooling
  - m. RPV/L decreases to < -285"
    - Recognize the loss of RPV/L indication
    - Execute Emergency Depressurization
    - Execute RPV Flooding
      - ) Isolate MSLs/MSL drains/RCIC
      - ) Inject into the RPV with SLC and CRD
  - n. LPCS is returned to operation
    - Inject with LPCS until RPV/L indication is available
    - Exit RPV Flooding
    - Restore RPV/L to +13 to +54.5" with LPCS
- NOTE: Steam Cooling.

9. Steam LOCA in D/W Requiring E/D

- a. Moderate steam LOCA develops (Ramp) resulting in DW/P > 1.68# (RHR-P-2B shaft shears and HPCS-V-4 fails shut)
  - Carryout scram actions
  - Maintain RPV/L with RFPs
  - Initiate WW spray with either RHR loop
  - Recognize shaft shear of RHR-P-2B and inform crew
  - Recognize failure of HPCS-V-4 & inform crew
  - Direct action to investigate HPCS-V-4
- b. WW/P reaches 8# (RHR-V-16A fails to open)
  - Initiate DW spray
  - Recognize failure of DW spray valve & inform crew



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- c. MSIVs close on loss of tunnel cooling
  - Establish RPV/P control < 1037# with SRVs
  - Utilize RCIC for RPV/L control
- d. RCIC trips on high DW/P
  - Direct EO to open HPCS-V-4 manually
- e. HPCS-V-4 is opened manually
  - Restore RPV/L to +13" to +54.5" with HPCS
- f. WW/P reaches PSPL (failure of 3 ADS SRVs)
  - Emergency Depressurize RPV
  - Recognize SRV failures and inform crew
  - Open SRVs until 7 are open

NOTE: Emergency depressurize due to containment pressure.

10. Water LOCA (Restore RPV/L with LP ECCS)

- a. Water LOCA develops (~.35 with 10 minute ramp)
- b. SW-P-1A trip on DG start
- c. TR-S and TR-B loose power
  - Recognize power loss and inform crew
  - Request BPA restore power
- d. DW/P reaches 1.68# (HPCS-P-1 trips upon initiation)
  - Utilize available systems to maintain RPV/L
  - Carry out scram actions
  - Verify isolations and DG starts
  - Initiate WW spray with either RHR loop
  - Recognize the SW-P failure and trip DG-1 within 2 minutes
  - Trouble shoot SW-P-1A
  - Recognize HPCS failure and investigate
- e. DW/P reaches 8#
  - Initiate DW spray
- f. RCIC trips on high exhaust pressure
  - Recognize loss and inform crew

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g. Either one of the following:

- RPV/P reaches 220#
  - ) Control injection with RHR-B/C to restore RPV/L to +13" to +54.5"
- RPV/L reaches TAF
  - ) Emergency Depressurize the RPV
  - ) Restore RPV/L when RPV/P reaches 220#

NOTE: Level restoration with LOCA.

11. Water LOCA (Spray Cooling)

- a. HPCS Surveillance
  - HPCS motor trips (motor fault)
- b. TR-S and TR-B loose power (lines down - wind storm)
  - Recognize power loss and inform crew
  - Request BPA restore power
- c. Water LOCA develops ({1.0 with 15 minute ramp)
- d. DW/P reaches 1.68# (RHR-V-42A is failed shut)
  - Carry out scram actions
  - Initiate RCIC for RPV/L control
  - Verify isolations and DG-1 start starts
  - Initiate WW spray with A-RHR loop
- e. Fire alarm in DG-2 Room
- f. DG-2 trips (DG heavily damaged by fire)
  - Respond to the fire
- g. DW/P reaches 8#
  - Terminate WW spray
  - Initiate DW spray
- h. RCIC trips on high exhaust pressure
  - Recognize loss and inform crew
- i. RPV/L reaches TAF



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- Emergency Depressurize the RPV
- Verify RHR-A and LPCS align for injection
- Note failure of RHR-V-42A, inform crew
- Direct EO to manually open RHR-V-42A (will not open)

j. RPV/L stabilizes below TAF but above -210"

- Recognize and remain in Steam Cooling
- Return RHR-P-2A to DW spray

NOTE: Spray cooling during water LOCA conditions.

12. Containment Flooding

- a. Report from EO of Condensate header rupture at Condensate pumps, all Condensate pumps trip
  - Initiate manual scram
  - Start RCIC/HPCS for RPV/L control (HPCS-V-4 failed shut)
  - Recognize HPCS failure, investigate (won't open manually)
- b. RPV/L decreases slowly with RCIC feeding
- c. Fire alarms in SM-7 Room, SM-7 Locks-out
  - Respond to SM-7 fire
  - Fire is extinguished, SM-7 heavily damaged
- d. Water LOCA develops (~1.0 with 15 minute ramp)
- e. DW/P reaches 1.68# (RHR-P-2B shaft sheared)
  - Verify isolations and DG-2 start
  - Recognize failure of RHR-P-2B
- f. RHR-P-2C trips
  - Investigate loss of RHR-P-2C (Can't be recovered)
- g. RPV/L continues to decrease
  - Recognize < 2 injection systems available
  - Align Alternate injection systems
- h. RCIC trips on high exhaust pressure
- i. RPV/L reaches TAF
  - Emergency Depressurize RPV
  - Attempt to restore RPV/L with RHR-SW x-tie



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j. RPV/L stabilizes < TAF w/o spray flow

- Recognize conditions, enter containment flooding (Containment flooding must be discussed due to simulator limitations)

NOTE: Containment Flooding.

13. SP Leak into RHR-A Room with Moderate LOCA

a. Water LOCA develops in D/W (0.15, 7 minute ramp)  
b. DW/P reaches 1.68# (RHR-P-2A trips immediately)

- Carry out scram actions
- Maintain RPV/L +13" to +54.5" (RFW/RCIC/HPCS)
- Verify DEH maintains RPV/P <1037#
- Initiate WW spray with B-RHR loop

c. DW/P reaches 8# (RHR-V-17B fails shut)

- Initiate DW spray with B-RHR
- Recognize failure and attempt to open valve manually (valve will not open)

d. SP/T reaches 90 F

- Initiate SP Cooling

e. MSIVs close (high Tunnel Temperature)

- If required, use SRVs for RPV/P control

f. RHR-P-2A suction breaks into room

g. RHR-A room high temperatures, and water levels, and pump loses suction

h. SP/L decreases

- Enter PPM 5.3.1
- Monitor HCLL due to lower SP level
- Monitor other areas for high level and temperatures
- Attempt to make-up water to SP per PPM 2.4.4
- Attempt to isolate the leak

i. Emergency depressurize RPV if SP/L is below HCLL

- DW/P reaches PSPL

NOTE: Monitor and track HCLL and emergency depressurize when exceeding the limit.

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14. Radiation Release via MSL Rupture

- a. Inboard MSIV fails open, TBPVs failed shut, one CRD stuck
- b. Loss of feed heaters
  - reduce power 20% via RRC
- c. MSL high rad due to full severity fuel-clad rupture
  - Manually scram reactor
  - Note BPV failure and maintain RPV/P < 1037 with SRVs
  - Control RPV/L between +13" and +54.5" with RCIC/HPCS
  - Note the CRD failure to insert and inform crew
- d. RPV/P spike fails MSL in Tunnel
  - Note high temperature and flow
  - Verify Isolations and attempt to shut open inboard MSIV
- e. TB high radiation and Vent Exhaust alarms
  - Monitor TB HVAC
  - Warn plant personnel of radiation hazard
- f. STA projects an off site dose of 75 mR
  - Declare SAE
- g. STA projects increasing off-site dose eventually exceeding 1R/hr
  - Emergency Depressurize the RPV
  - Declare a GE with appropriate PARs

NOTE: Rad release.

15. Electric ATWS

- a. RPS fail to scram electrically, ARI failure
- b. 1 CBP trips resulting in a trip of both RFPs
  - Manually scram reactor
  - Recognize the ATWS and initiate ARI
  - Recognize the ARI failure and run RRC to minimum



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- Shift RRC-Ps to slow speed
  - Verify power > 5% and trip RRC-Ps
  - Inhibit ADS
  - Direct RPS fuse removal/holding SDV test PBs
- c. RPV/L decreases to -50", MSIVs close
- Establish RPV/P control <1037# with SRVs
  - Initiate RCIC for RPV/L control
  - Verify isolations
- d. RPS fuses removed, rods inserted
- Exit PPM 5.1.2, execute PPM 5.1.1
  - Restore RPV/L to between +13" & +54.5" with either:
    - ) HPCS
    - ) Reducing RPV/P and utilizing CBPs
  - Reinstall RPS fuses

NOTE: Electric ATWS.

16. ATWS (Reset/Rescram)

- a. Hydraulic ATWS with partial (most) rod insertion
- b. Turbine trips
- Carry out scram actions
  - Recognize partial rod insertion, inform crew
  - Inhibit ADS
  - Initiate ARI
- c. RRC-P will runback and down-shift due to RPV/L
- Verify power below 5% (not trip RRC-Ps)
  - Restore and maintain RPV/L +13" to +54.5" with RFW
  - Reset ARI
  - Recognize that the scram can be reset
    - ) Reset the scram
    - ) Drain SDV
    - ) Initiate a scram
    - ) Repeat until all rods are inserted

NOTE: Scram/Reset/scram hydraulic ATWS

17. Isolated Hydraulic ATWS Requiring SLC and Driving Rods

- a. Full hydraulic ATWS
- b. Turbine trips resulting in:
- RPV/P spike tripping RRC/Ps
  - SRV actuations causing RPV/L swell and

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tripping RFPs

- ) Carryout scram actions
- ) Recognize ATWS, inform crew
- ) Initiate ARI
- ) Establish RPV/P control < 1037# with SRVs
- ) Inhibit ADS
- ) Verify RRC-Ps tripped
- ) Bypass ARI (timing not important)

c. RPV/L reaches -50", MSIVs close

- Verify isolations
- Utilize RCIC/CBPs to control RPV/L -161" to +54.5"
- Prevent HPCS injection until SLC is operating

d. SP/T reaches 90 F

- Place both RHR systems in SP Cooling

e. SP/T approaches 110 F

- Direct SLC injection (before 110 F SP/T)
- If required, utilize HPCS for RPV/L control

f. Rod insertion

- Start 2nd CRD-P
- Direct EO to shut CRD-V-34
- Bypass RWM & RSCS
- Insert rods @ P-603

NOTE: Isolated hydraulic ATWS, requiring SLC and driving rods.

18. Hydraulic ATWS (Level/Power Control)

- a. Full hydraulic ATWS, SLC-P-1A fails
- b. MSIVs fail shut causing RPV/P spike tripping RRC/Ps and actuating SRVs

- Carryout scram actions
- Recognize ATWS, inform crew
- Initiate ARI
- Establish RPV/P control < 1037# with SRVs
- Inhibit ADS
- Verify RRC-Ps tripped
- Verify isolations
- Utilize RCIC/CBPs to control RPV/L -161" to +54.5"
- Prevent HPCS injection until SLC is operating
- Bypass ARI (timing not important)
- Monitor SP/T

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- c. SP/T reaches 90 F
  - Place both RHR systems in SP Cooling
- d. SP/T approaches 110 F
  - Direct SLC injection (before 110 F SP/T)
  - Recognize failure of SLC-P
  - If required, utilize HPCS for RPV/L control
- e. SP/T > 110 F, RPV/Q > 5%, SRVs open, and both SLC pumps are not injecting into the RPV
  - Declare SAE
  - Throttle RPV injection to reduce RPV/L until:
    - ) RPV/Q < 5%, or
    - ) RPV/L is between -161" and -192", or
    - ) All SRVs are shut w/ DW/P < 1.68#
  - Maintain RPV/L until all rods in or SLC-Tk-1 is at 2250 gal
- f. Rod insertion
  - Start 2nd CRD-P
  - Direct EO to shut CRD-V-34
  - Bypass RWM & RSCS
  - Insert rods @ P-603.

NOTE: Hydraulic ATWS in level/power control.

19. Hydraulic ATWS (Vent O/P Areas)

- a. CRD-P-1A trips
  - Start CRD-P-1B
- b. Full hydraulic ATWS
- c. Loss of TSW-P-1A, TSW-P-1B will not start
  - Carryout scram actions
  - Recognize ATWS, inform crew
  - Initiate ARI
  - Inhibit ADS
  - Run RRC to minimum and x-fer RRC-P to slow
  - Trip RRC-Ps
  - Reset ARI
- d. Turbine trip (high temperature failure) with BPVs stuck shut
- e. RPV/P increases, SRVs open, RPV/L swells and

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trips RFPs

- Establish RPV/P control < 1037# with SRVs
- Utilize RCIC/CBPs/HPCS to control RPV/L -161" to +54.5"
- Monitor SP/T

f. SP/T reaches 90 F

- Place both RHR systems in SP Cooling

g. 2nd CRD-P trips

- Investigate loss, attempt to restore

h. SP/T approaches 110 F

- Direct SLC injection (before 110 F SP/T)

i. If SP/T > 110 F, RPV/Q > 5%, SRVs open

- Declare SAE

j. Rod insertion

- Direct EO(s) to vent Over-Piston areas of CRDs

NOTE: Hydraulic ATWS and vent the overpiston area.

20. Hydraulic ATWS With Loss of HP Injection (Requiring E/D)

a. Full hydraulic ATWS

b. Turbine trips and TR-S fails to close in

- Carryout scram actions
- Recognize ATWS, inform crew
- Initiate ARI
- Inhibit ADS
- Run RRC to minimum and x-fer RRC-P to slow
- Trip RRC-Ps (may trip due to loss of power)
- Reset ARI
- Request assistance to restore power

c. RPV/P increases opening SRVs

d. Pressure spike starts small LOCA (.08 sev)

- Establish RPV/P control < 1037# with SRVs
- Utilize RCIC to control RPV/L -161" to +54.5"
- Monitor SP/T

e. DW/P reaches 1.68# (HPCS trips upon initiation)





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- Recognize failure of HPCS, inform crew
- Initiate WW spray with either RHR loop
- Investigate loss of HPCS
- f. SP/T reaches 90 F
  - Place both RHR systems in SP Cooling (one loop also in SP spray)
- g. RPV/L reaches -50"
  - Verify isolations
- h. SP/T approaches 110 F
  - Direct SLC injection (before 110 F SP/T)
  - Follow up on HPCS availability
- i. If WW/P reaches 8#
  - Place one loop of RHR in DW spray
  - Monitor WW/P and DW/P for 1.68#
- j. Large RCIC steam leak develops and isolates system
  - Recognize failure of last HP injection system
- k. If SP/T > 110 F, RPV/Q > 5%, SRVs open or high DW/P
  - Declare SAE
- l. Rod insertion
  - Start 2nd CRD-P
  - Direct EO to shut CRD-V-34
  - Bypass RWM & RSCS
  - Insert rods @ P-603
- m. RPV/L continues to decrease
  - Execute PPM 5.5.1 to allow throttling LP injection
- n. RPV/L reaches -192"
  - Terminate and prevent all injection
  - Execute Emergency Depressurization
  - Do not allow injection (except SLC & CRD) until RPV/P decreases to 139#

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o. As RPV/P approaches 200#, HPCS is returned to service

- Utilize HPCS to restore RPV/L to > -161"

NOTE: Hydraulic ATWS with loss of high pressure injection and an emergency depressurization.

SECTION III. - TRANSIENT MANAGEMENT

The following scenarios have been developed from scenarios in the previous section. These scenarios are designed to force the operators into multiple flowpaths of the EOPS. The focus of this section is to prioritize actions to correctly manage multiple failure transients.

The Transient Management training program is divided into two parts. The first part is a classroom presentation that focuses on review of priorities for core cooling, RPV integrity, Primary Containment integrity, Secondary Containment integrity and rad release control.

The second part of the training is conducted on the simulator with the objective of ensuring the operating crews are able to quickly analyze the degraded plant conditions and their priorities per the EOP's with respect to protecting the plant and ensuring the Health and Safety of the public.

The Transient Management training is scheduled to be completed in approximately 24 hours. In order to complete all 16 scenarios, additional time will be provided, if required, to ensure each crew participates in all scenarios.

The scenarios will be divided into a combination of training and evaluation scenarios. Listed below is a synopsis of each of the 16 Transient Management scenarios.

Additionally, during the conduct of the Transient Management training, a classroom training session will be conducted which covers the recent revisions to PPM 1.3.1 "Conduct of Operations".

**Scenario Descriptions**

**Scenario # 1**

Loss of High Pressure Makeup, Suppression Pool Leak, Bypass Valves Fail Open, Stuck Control Rods, Emergency Depressurization and Momentary Entry to RPV Flooding (Fuel Zone RPV/L Indication LT -285).

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**Scenario # 2**

DEH/P Controller output fails low A & B, TT, Loss of TRS, RCIC Break w/o Isolation, HPCS Failure and Restoration, SCN/T Increase to GT MSOT in two areas will mandate Emergency Depressurization.

**Scenario # 3**

LOCA/Alternate Injection, Loss Of Offsite Power, Loss Of DIV I DG due to trip of SW-P-1A, Loss Of All ECCS, Emerg Depress and SW X-Tie Utilized To Restore RPV/L.

**Scenario # 4**

Stm Leak DW, RRC-FCV-60A/B Lockup on HI DW/P, Partial Hyd ATWS, HPCS-V-4 Fails Closed and RHR-V-64C Fails Closed on pump start.

**Scenario # 5**

Loss of Hp Sources, Small LOCA, Loss of Power, Steam Cooling, Emergency Depressurization, RPV Flooding

**Scenario # 6**

Small Steam LOCA, Brk S1-1 FO, B-7 Brk FO, DG1-7 Brk Fails To Auto Close, HPCS-V-4 Fails To Auto Open, RHR-P-2C Shaft Shear and RCIC Trip On High Exhaust Pressure, Three SRV'S Fail To Open On, ADS Initiation.

**Scenario # 7**

MSIV closure, Hydraulic ATWS, Unisolable RCIC leak to Secondary Containment, Emergency Depressurization

**Scenario # 8**

Loss of Feedwater With a LOCA/Hydraulic ATWS

**Scenario # 9**

Earthquake, Loss Of Offsite Power, Hydraulic ATWS, RCIC-V-13 Fails Closed, HPCS DG Failure, LPCS-P-1 Shaft Shear, Emergency Depressurization, Restoration of RPV/L with throttled ECCS injection. (RHR-V-48B and RHR-V-21)

**Scenario # 10**

DEH Controller Failure resulting in Fuel Damage, Stuck Control Rods, Unisolable Steam Leak in the Tunnel, Release to the Environment, Emergency Depressurization.



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**Scenario # 11**

Earthquake, Partial Hydraulic ATWS, SP Level Decrease Due to RHR Suction Line Break, SP Level Decreases to Less than HCLL Emergency Depressurization, RPV Level Increase Via Sources Feeding into the Downcomer.

**Scenario # 12**

Loss Of All RPV/L Indication, Hydraulic ATWS, Emergency Depressurization, RPV Flooding, Failure of Both SLC Pumps.

**Scenario # 13**

Trip of Both RRC pumps, Electric ATWS, Power Oscillations, Fuel Element Failure, Small LOCA in the Dry Well.

**Scenario # 14**

Dropped Rod, Hydraulic ATWS, Fuel Failure, MSL Break to the TB, Two MSIV's in the Same Line Fail Open, Offsite Release Greater than 1 R/Hr, Emergency Depressurization.

**Scenario # 15**

Loss of Feed, Small LOCA, Suppression Pool Leak, SP/L LT 17 Feet, Emergency Depressurization via RCIC, MSIV bypass and Equalization

**Scenario # 16**

Station Blackout, RCIC Line Break, Steam Cooling, Emergency Depressurization, DG #2 Return to Service, RPV Flooding, RPV/L Restoration Using LPCS or RHR A.

**SECTION IV. - DYNAMIC SCENARIO EVALUATION**

Following the Transient Management portion of the remediation program, a dynamic scenario evaluation will be given. The exam will consist of one evaluation scenario for each SRO in the SM and the CRS positions. The ROs will be evaluated in at least two (2) RO positions.

The evaluation scenarios will be developed using the scenarios from the requal exam and the Ops Eval, and scenarios developed for use during the Transient Management portion of the program. Evaluations will be based on the criteria in ES-604. The evaluations will take approximately six (6) hours to complete.

**SECTION V. - WRITTEN/JPM EXAM REMEDIATION**

Based on the results of the written exam, the JPM based



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program will be instituted. This program will cover the failure on the written portion of the exam and the failure on the JPM portion.

- A. JPMS - The JPM failure resulted from the candidate's incorrect performance of the local start of the Div I DG, and incorrect answers for three knowledge questions. In preparation for a re-examination, the candidate will be required to successfully complete, as a minimum, the following:
1. The operator will be given a copy of the WNP-2 JPM bank. This will give him full access to the exam material for review.
  2. The operator will be required to complete a self study course based on weaknesses from the JPM exam. An emphasis will be placed on procedural compliance.
  3. Attend and successfully complete the systems portion of the remediation program.
  4. Take a plant walkthrough consisting of six (6) plant JPMS and four (4) control room JPMS. The JPMS selected will include at least 2 DG local start JPMS and 4 control room JPMS. All questions from each JPM will be asked. This will take approximately 6 hours.
  5. He will then be required to pass a walkthrough exam consisting of six (6) plant JPMS and four (4) control room JPMS. These will be required to be different than the JPMS on the practice walkthrough. This walkthrough will be evaluated to the standards of ES-603.
- B. Written - The failure on the written exam resulted from failure of the simulator static scenario portion. In preparation for a re-exam the candidate will be required to successfully complete the following:
1. The operator will be given a copy of the WNP-2 L + C Exam Bank and the Static Scenario exam bank. This will allow him to have access to the exam materials.
  2. The operator will be required to complete a self study program based on the exam analysis, covering individual weaknesses.
  3. Attend and successfully complete the systems portion of the remediation program.





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4. Review four selected static scenarios including panel indications, system responses, and EOPs in the simulator with an instructor. This will take approximately 4 hours.
5. Successfully complete four selected static scenarios that are different than those selected for the review. This will take approximately 4 hours. Additionally, the operator will be required to successfully complete a 2 hour L + C examination.

SECTION VI.- SCHEDULE

The remediation training schedule has been developed and approved by the operations department. The schedule was developed using four (4) basic criteria:

1. There is more value in training given in twenty (20), four (4) hour sessions than in ten (10), eight (8) hour sessions.
2. Two weeks of training a month before the exam is unsatisfactory.
3. The exam crews must be trained together as actual post-outage operating crews (i.e.. crews X and Y).
4. Outage support requires at least eight (8) hour shifts to ensure continuity.

The three (3) training crews for the R-6 Outage are as follows:

<u>"X"</u>	<u>"Y"</u>	<u>"Z"</u>
G. Kozlik	R. Conserriere	M. Kappl
W. Estes	P. Taylor	W. Sawyer
E. Villarruel	G. Bishop	G. Lockhart
A. Herrington	W. Green	Ops CRO
G. Westergard	M. Lambel	Ops CRO
	J. Rueckert	

Training will be Monday through Saturday only. The crews on Day Shift will attend training from 1500 to 1900. The crews on Swing Shift will attend training from 1000 to 1400. The one hour available between training sessions is to allow for travel and shift turnover.

Due to scheduling commitments, in conjunction with the refuel outage, there has been a concern over crew fatigue. The period of time in question has been the 4 hour block of training following an 8 hour shift in the plant. Management



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is aware of the potential problem. The Shift Manager, the Lead Evaluator, and Operations and Training Management have been monitoring crew performance for signs of fatigue-induced problems.