



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

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May 14, 2001

Mr. J. V. Parrish (Mail Drop 1023)
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SUBJECT: FEDERAL EMERGENCY MANAGEMENT AGENCY'S REPORT

Enclosed is a copy of the Federal Emergency Management Agency's (FEMA) exercise evaluation report of the May 1, 2001, food control area drill at the Columbia Generating Station.

The report indicates that FEMA observed no deficiencies or areas requiring corrective action during the drill.

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

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

Sincerely,

A handwritten signature in black ink that reads "Gail M. Good".

Gail M. Good, Chief
Plant Support Branch
Division of Reactor Safety

Docket: 50-397
License: NPF-21

Enclosure:
As stated

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Final Report
Food Control Area Drill
Columbia Generating Station
(formerly WNP-2)

Licensee: Energy Northwest

Drill Date: March 14, 2001

Report Date: May 1, 2001

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION X
130 228th Street, SW
Bothell, WA 98021-9796

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I. EXECUTIVE SUMMARY

This report covers an out-of-sequence drill conducted on March 14, 2001, for the Columbia Generating Station nuclear power plant site, formerly known as Washington Nuclear Plant No. 2 (WNP-2). Staff of the Washington State Department of Health and the operating utility, Energy Northwest, participated in the Food Control Area Drill to demonstrate their capability to provide dose assessment for the ingestion pathway. The drill was held at the Emergency Operating Facility (EOF) of the Columbia Generating Station and was evaluated by the Federal Emergency Management Agency (FEMA).

The drill was held in accordance with FEMA's regulation 44 CFR 350 and FEMA policies and guidance concerning the exercise of State and local Radiological Emergency Response Plans (RERPs) and procedures. The drill was limited to the demonstration of FEMA's Radiological Emergency Preparedness (REP) Program's Exercise Objective 26, Criterion 1, and verification of corrective actions for two Areas Requiring Corrective Action (ARCA) identified in the Biennial Exercise for the Columbia Generating Station on September 12 and 13, 2000.

There were no Deficiencies or ARCAs identified as a result of the drill conducted on March 14, 2001. Two ARCAs from the previous Biennial Exercise were successfully demonstrated and closed.

II. INTRODUCTION

Following the accident at the Three Mile Island Nuclear Station in March of 1979, the President directed FEMA to assume the lead responsibility for all offsite nuclear planning and response. FEMA's Radiological Emergency Preparedness (REP) Program was developed in response to President Carter's Directive of December 7, 1979. The principle guidance for FEMA's REP Program is described in 44 Code of Federal Regulations (CFR) Parts 350, 351 and 352 and NUREG-0654/FEMA REP-1, Revision 1.

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

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

- Taking the lead in offsite emergency planning as well as taking the lead in the review and evaluation of RERPs and procedures developed by State and local governments;
- Determination of whether such plans and procedures can be implemented on the basis of observation and evaluation of exercises of the State and local government plans and procedures;

- Responding to requests by the U.S. Nuclear Regulatory Commission (NRC) pursuant to the Memorandum of Understanding between the NRC and FEMA dated June 17, 1993 (Federal Register, Vol. 58, No. 176, September 14, 1993); and
- Coordinating the activities of other Federal agencies which have responsibilities in the radiological emergency planning process, including the following:
 - U.S. Nuclear Regulatory Commission,
 - U.S. Environmental Protection Agency,
 - U.S. Department of Energy,
 - U.S. Department of Health and Human Services,
 - U.S. Department of Transportation,
 - U.S. Department of Agriculture,
 - U.S. Department of the Interior, and
 - U.S. Food and Drug Administration.

Representatives of the agencies listed above serve on the FEMA Region X Regional Assistance Committee (RAC), which is chaired by FEMA.

The drill was conducted in accordance with the extent of play agreement and drill scenario. The extent of play agreement between FEMA and the Offsite Response Organizations (OROs) defined the manner in which a particular response function was to be demonstrated by the players. The agreement was designed to test the capability of the RERPs 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 findings presented in this report are based on the evaluations of the Federal Evaluator Team, with final determinations made by the FEMA Region X Regional Assistance Committee (RAC) Chairperson, and approved by the Regional Director.

The criteria utilized in the FEMA evaluation process are contained in:

- FEMA Rule 44 CFR 350.5;
- FEMA/NRC document NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980;
- FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991;
- FEMA-REP-15, "Radiological Emergency Preparedness Exercise Evaluation Methodology," September 1991; and
- the expected actions called for by the plans and procedures of the participants.

Section III of this report, entitled "Drill Overview," presents basic information and data relevant to the drills.

Section IV, "Drill Evaluation and Results," presents detailed information on the demonstration of applicable drill objectives at each jurisdiction or function evaluated.

III. DRILL OVERVIEW

Contained in this section are data and basic information relevant to the March 14, 2001, drill, which tested specific aspects of the offsite emergency response capabilities in the area surrounding the Columbia Generating Station. This section of the drill report includes descriptions of the plume and ingestion pathway emergency planning zones (EPZ) and a listing of organizations that participated in the drill.

A. Plume Emergency Planning Zone Description

The Columbia Generating Station is located at the Northeast corner of the U.S. Department of Energy's (US DOE) Hanford Reservation. It is about ten miles north of the city of Richland and three miles west of the Columbia River. The Columbia Generating Station is a boiling water reactor with a turbine generator rated at 1,250 megawatts (peak gross). It is operated by Energy Northwest, formerly known as the Washington Public Power Supply System.

The topography of the ten-mile Plume EPZ is relatively flat except for a range of hills southwest of the site and bluffs and rolling hills to the north and to the east of the site along the Columbia River. The land is arid and desert-like except where it is irrigated.

The total resident population of the ten-mile EPZ is estimated at 3,044. Only about 858 of these residents live in Benton County where the Columbia Generating Station is located. The other 2,186 residents live across the Columbia River to the east in Franklin County. There are no residents within three miles of the site.

The transient population of the ten-mile EPZ could total 14,945 depending on the time of the year. This estimate is comprised of: 7,926 industrial employees, mostly in Benton County, 4,244 migrant farm workers, mostly in Franklin County, and 2,775 recreationists, mostly along the east bank of the Columbia River and at the Off-Road Vehicle Park on the southwestern edge of the EPZ.

The land use within the Benton County portion of the ten-mile EPZ is predominantly vacant except for scattered industrial sites, recreational sites, and some residents on the southern edge of the EPZ. The land use within the Franklin County portion of the EPZ is predominantly diversified agricultural production facilitated by irrigation. There are six recreation areas within the EPZ: Horn Rapids Park, Horn Rapids Off-Road Vehicle Park and Rattlesnake Mountain Shooting Facility in Benton County; the Wahluke Hunting areas and Ringold Fishing Area in Franklin County; and the Columbia River.

B. Ingestion Pathway Emergency Planning Zone

The fifty-mile Ingestion Pathway EPZ encompasses all or parts of eight counties in Washington State, two counties in Oregon, and the northeast corner of the Yakima Indian Reservation. The eight Washington Counties are Adams, Benton, Franklin, Grant, Kittitas, Klickitat, Walla Walla, and Yakima. Since only small and unpopulated portions of Kittitas and Klickitat Counties are within the fifty-mile EPZ, these counties are not active participants in the Offsite Radiological Emergency Preparedness Program for the Columbia Generating Station. Likewise, the Yakima Tribal Nation is not an active participant. South of the plant site, the fifty-mile EPZ extends approximately 15 miles into the Oregon counties of Morrow and Umatilla.

The topography of the fifty-mile Ingestion Pathway EPZ is similar to that of the ten-mile EPZ. The land use is predominantly diversified agricultural production facilitated by irrigation. However, the fifty-mile EPZ also includes a number of cities and towns, as well as major transportation routes.

The largest resident population within the fifty-mile EPZ is south and southeast of the Columbia Generating Station in the Tri-Cities of Kennewick and Richland, in Benton County, and Pasco, in Franklin County. Their combined population is approximately 116,000.

Other population centers within the fifty-mile EPZ include the cities of Moses Lake, approximately 14,760 residents, at the north edge of the EPZ in Grant County, Washington; Sunnyside, approximately 12,500 residents, west of the Columbia Generating Station in Yakima County, Washington; and Hermiston, approximately 11,500 residents, south of the power plant in Umatilla County, Oregon.

Major transportation routes that cross through the fifty-mile EPZ include: Interstate Highway 90, north of the power plant in Grant County; Interstate Highways 82, west of the power plant and extending south into Oregon; Interstate Highway 84, south of the power plant in Oregon; and State Route 395, in Adams, Benton, and Franklin Counties. Significant amounts of wheat and other products are shipped by barge on the Columbia and Snake Rivers, which cross through the fifty-mile EPZ. The Tri-Cities Airport in Pasco, Washington serves as the regional airport for much of the population within the fifty-mile EPZ. The airport is approximately 17 miles southeast of the power plant.

C. Drill Participants

The following agencies, organizations, and units of government participated in the Food Control Area Drill on March 14, 2001.

STATE OF WASHINGTON

Energy Northwest
Washington State Department of Health

IV. DRILL EVALUATION AND RESULTS

Contained in this section are the results and findings of the evaluation of the response group that participated in the FEMA evaluated Food Control Area Drill on March 14, 2001. The purpose was to test a selected part (dose assessment) of the offsite emergency response capabilities of State and local governments in the 50-mile EPZ surrounding the Columbia Generating Station.

The Dose Assessment function was evaluated on the basis of its demonstration of criteria delineated in drill objectives contained in FEMA-REP-14, REP Exercise Manual, dated September 1991. Detailed information on the drill objective and extent of play agreement used in the drill are found in Appendix 3 of this report.

A. Status of Location or Function Evaluated

This subsection provides information on the evaluation of each participating jurisdiction and functional entity in a jurisdiction based format. Presented below is a definition of the terms used in this subsection of FEMA REP exercise and drill reports relative to objective demonstration status.

- **Met** – Listing of the demonstrated exercise objectives under which no Deficiencies or ARCAs were assessed during this drill and under which no ARCAs assessed during prior drills remain unresolved.
- **Deficiency** – Listing of the demonstrated exercise objectives under which one or more Deficiencies was assessed during this drill. Included is a description of each Deficiency and recommended corrective actions.
- **Area Requiring Corrective Actions** – Listing of the demonstrated exercise objectives under which one or more ARCAs were assessed during the current drill or ARCAs assessed during prior drills remaining unresolved. Included is a description of the ARCAs assessed during this drill and the recommended corrective action to be demonstrated before or during the next drill for these jurisdictions.
- **Not Demonstrated** – Listing of the exercise objectives not demonstrated as scheduled during this drill, and the reason they were not demonstrated.
- **Prior ARCAs – Resolved** – Descriptions of ARCAs assessed during previous drills that were resolved in this drill, and the corrective actions demonstrated.
- **Prior ARCAs – Unresolved** – Descriptions of ARCAs assessed during prior drills that were not resolved in this drill. Included is the reason the ARCA remains unresolved, and recommended corrective actions to be demonstrated before or during the next drill for these jurisdictions.

The following are definitions of the two types of exercise issues.

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

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

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

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

1. WASHINGTON STATE

1.1 Emergency Operating Facility (EOF) / Meteorology and Unified Dose Assessment Center (MUDAC) – These functions are located in the basement of Energy Northwest's Support Facility near the Columbia Generating Station.

a. MET: Objective 26.

The capability to recommend an initial Food Control Area, based on pre-planned default assumptions, and to later recommend a modified Food Control Area, based on laboratory results of food samples, was demonstrated in an out-of-sequence drill on March 14, 2001. In accordance with the pre-drill agreement, the drill was an independent demonstration limited to a small number of Washington State Department of Health and Energy Northwest staff working in the MUDAC.

An excellent controller briefing set the initial conditions. The participants used MUDAC Procedure 13.13.1 to process the data and Appendix A of the Washington State Department of Health Plan for Derived Intervention Levels (DIL). The participants were given the latitude and longitude of sample locations where field teams (simulated) had measured 500 and 20 $\mu\text{R/hr}$ exposure rates. These data points were imported into a mapping program that was available on two separate computers in the MUDAC. The participants drew the 500 and 20 $\mu\text{R/hr}$ isodose lines. Measurements were made of the distance from the point of release to each of the isodose lines. The MUDAC procedure contained two approaches to obtain the distance to the projected 0.4 $\mu\text{R/hr}$ locations on the extended lines. The participants attempted to use the pre-calculated distance tables in Procedure 13.13.3, Attachment 8.4. However, they quickly discerned that the distances in the tables were inappropriate for the situation. The staff used the second approach where distances were calculated using equations given in Section 7.8.1.f of the procedure. A 0.4 $\mu\text{R/hr}$ isodose line was constructed on the mapping program.

The final step in this process was the preparation of a map showing the recommended Food Control Area. In an actual event, the map would be sent to the counties and State, or States, so that a Food Control Boundary could be established by the decision-makers. The Dose Assessor ensured that the lines on the map were clearly marked with the exposure rates and designated as either Relocation or Food Control Areas. This action, along with the revision of Procedure 13.13.3, Section 7.8.1.k, closes previous ARCA 69-00-26-A-07.

The Controller provided the participants with a map showing the simulated Food Control Boundary, which would have been established by the decision makers, and laboratory analysis results from 20 samples. The MUDAC team plotted the sample locations using the mapping program. The team reviewed the results and compared the measured values with the Derived Intervention Levels (DILs). Any sample that contained any nuclide equal to or greater than the DIL for that nuclide was marked on the map in red and those below the DILs were marked in yellow. The team discussed the results and the Dose Assessment Coordinator drew a revised Food Control Area based on the location of the samples that were below the DILs. This map was clearly labeled and was ready for transmission to the offsite authorities as a Protective Action Recommendation. The revision of the plan and procedures and the appropriate use of the revised procedure closes previous ARCA 69-00-26-A-06.

The MUDAC team worked well together throughout the drill. The staff verified each other's calculations and actions. The Dose Assessor followed each step in the procedure carefully and marked each step as it was completed. This process eliminated several minor missteps along the way. The Dose Assessor and the Dose Assessment Coordinator each had several useful job aids with which they were familiar. These aids helped the process greatly and it is suggested that they be documented in the procedure for use by MUDAC staff who may have less experience.

The need for changes in other areas of the MUDAC Procedures and the Washington State Department of Health Procedures were noted and recommended changes will be provided in separate correspondence.

All activities described in the demonstration criteria for Objective 26, Criterion 1, were carried out in accordance with the current plan and procedures, unless deviations were provided for in the extent of play agreement.

- b. **DEFICIENCY: NONE**
- c. **AREAS REQUIRING CORRECTIVE ACTION: NONE**
- d. **NOT DEMONSTRATED: NONE**
- e. **PRIOR ARCAs-RESOLVED:**

Issue No.: 69-00-26-A-06

Description: The recommended Food Control Area (FCA) was inconsistent with current Federal guidance. Per MUDAC procedures, Dose Assessment staff calculated a 2 $\mu\text{R/hr}$ isopleth to define the initial FCA PAR that was transmitted to the State and County EOCs. Current (1998) Federal guidance requires the area to be calculated based on the most limiting radioisotopes. The release data in the scenario for this exercise indicates that the FCA PAR should have been based on an isopleth of approximately 0.1 $\mu\text{R/hr}$, which would be a larger area. The smaller area recommended in the FCA PAR could have resulted in the release of food for human consumption that contained I-131 up to 20 times the FDA guidance. (NUREG-0654, I.8, J.10, J.11, N.1.a)

Corrective Action Demonstrated: MUDAC procedure 13.13.3 has been revised to be consistent with the current FDA guidance concerning protective action recommendations for food products. Based on recommendations of a working group, in which a FEMA advisor participated, the procedure calls for the initial FCA PAR to be based on a calculated 0.4 $\mu\text{R/hr}$ isopleth, rather than the previous 2 $\mu\text{R/hr}$ isopleth. The revision of the procedure and the successful demonstration of its application for the drill scenario closed this ARCA.

Issue No.: 69-00-26-A-07

Description: The basis for the FCA PAR was not identified. The Dose Assessor at the Oregon ECC requested from MUDAC a FCA map based on a 0.2 $\mu\text{R/hr}$ isopleth. Apparently, it was a Controller's decision that the MUDAC staff should calculate a 2 $\mu\text{R/hr}$ isopleth only, due to time constraints. However, the MUDAC staff failed to notify the Oregon ECC of this decision. Therefore, when the Oregon ECC received a facsimile containing a map of the recommended FCA delineated by an isopleth that was not labeled, they assumed it was calculated on the 0.2 $\mu\text{R/hr}$ value they had requested. In fact, it was a 2 $\mu\text{R/hr}$ isopleth. As noted above under ARCA 69-00-26-A-06, the smaller area recommended in the FCA PAR could have resulted in the release of food for human consumption that contained I-131 up to 20 times the FDA guidance. (NUREG-0654, I.8, J.10, J.11)

Corrective Action Demonstrated: The Dose Assessor ensured that the lines on the PAR maps were clearly marked with the exposure rates and designated as either Relocation or Food Control Areas. This action, along with the revision of Procedure 13.13.3, Section 7.8.1.k, closes this ARCA.

f. **PRIOR ARCAs-UNRESOLVED: NONE**

APPENDIX 1 ACRONYMS AND ABBREVIATIONS

The following is a list of the acronyms and abbreviations that were used in this report.

ARCA	Area(s) Requiring Corrective Action
CDE	committed dose equivalent
CFR	Code of Federal Regulations
DIL	Derived Intervention Level
DOH	Department of Health (Washington State)
ECC	Emergency Coordination Center
EMD	Emergency Management Division
ENW	Energy Northwest
EOC	Emergency Operations Center
EOF	Emergency Operations Facility
EPIP	Emergency Plan Implementing Procedure
EPZ	Emergency Planning Zone
FCA	Food Control Area
FDA	U.S. Food and Drug Administration
FEMA	Federal Emergency Management Agency
ICF	ICF Consulting
MDA	minimum detectable activity
MUDAC	Meteorology and Unified Dose Assessment Center
NRC	U.S. Nuclear Regulatory Commission
NUREG-0654	NUREG-0654/FEMA-REP-1, Rev. 1, " <i>Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,</i> " November 1980
ORO	Offsite Response Organization
ORV	Off-Road Vehicle
PAD	Protective Action Decision
PAG	Protective Action Guides
PAR	Protective Action Recommendation
PPM	Plant Procedures Manual
pCi/kg	picocurie per kilogram
R	Roentgen
RAC	Regional Assistance Committee
RCA	Radiation Control Area
Rem	Roentgen Equivalent Man
REP	Radiological Emergency Preparedness
RERP	Radiological Emergency Response Plan
TEDE	total effective dose equivalent
μR/hr	microroentgen per hour
USDOE	United States Department of Energy
WADOH	Washington State Department of Health
WA	State of Washington
WNP-2	Washington Nuclear Plant Number 2

APPENDIX 2

DRILL EVALUATORS

The following personnel evaluated the Food Control Area Drill for the Columbia Generating Station on March 14, 2001. The organization, which each evaluator represents, is indicated by the following abbreviations:

ICF - ICF Consulting
FEMA - Federal Emergency Management Agency

<u>EVALUATION SITE</u>	<u>EVALUATOR</u>	<u>ORGANIZATION</u>
EOF/MUDAC	J. Keller L. Moore	ICF FEMA

APPENDIX 3

OBJECTIVES AND EXTENT OF PLAY AGREEMENT

This appendix lists the exercise objectives scheduled for demonstration in the Food Control Area Drill for the Columbia Generating Station, which was held on March 14, 2001. The extent of play agreement approved by FEMA Region X for the drill is also included in this appendix.

The exercise objectives, contained in FEMA-REP-14, "Radiological Emergency Preparedness Exercise Manual," September 1991, represent a functional translation of the planning standards and evaluation criteria of NUREG-0654/FEMA-REP-1, Rev. 1, "Criteria for the Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," November 1980.

Because the exercise objectives are intended for use at all nuclear power plant sites, and because of variations among offsite plans and procedures, an extent of play agreement was prepared by all agencies involved and approved by FEMA to provide evaluators with guidance on expected actual demonstration of the objectives.

A. Objectives

Listed below is the specific radiological emergency preparedness exercise objective scheduled for demonstration during the drill.

OBJECTIVE 26: INGESTION EXPOSURE PATHWAY – DOSE PROJECTION AND PROTECTIVE ACTION DECISION MAKING

Demonstrate the capability to project dose to the public for the ingestion exposure pathway and to recommend protective actions.

B. Extent of Play Agreement

The extent of play agreement on the following pages was submitted by the Washington Department of Health and approved by FEMA Region X, as indicated on the correspondence. The extent of play agreement includes any significant modifications or changes in the level of demonstration for each exercise objective listed in Subsection A of this appendix.



Federal Emergency Management Agency

Region X
130 228th Street, Southwest
Bothell, WA 98021-9796

March 8, 2001

Susan May, Section Manager
Washington State Department of Health
Division of Radiation Protection
P.O. Box 47827
Olympia, WA 98504-7827

Subject: Columbia Generating Station Food Control Area Drill, March 14, 2001.

Dear ^{Susan}Ms. ~~May~~:

This letter provides general approval of the proposed objectives, limitations and scenario submitted to us on March 6 for the Food Control Area Drill to be held on March 14, 2001. We do, however, have the following concerns with the materials submitted. As indicated below, Attachment A of the Health Department Procedures needs to be submitted to us for review and some changes in the food sample data are required prior to the drill.

1. The agreements made during the rehearsal drill should be followed as much as possible. Although the agreements are generally reflected in the "Work Scope," we are concerned with the designation of a controller who did not participate in the rehearsal drill.
2. The decision to use only 20 samples with about half above the DILs, rather than the 30 samples below the DILs, will necessitate good controller intervention in order to get to the desired end point.
3. We need to receive a copy of Appendix A of the DOH Procedures, which reflect the changes recommended at the rehearsal drill. This is critical since PPM 13.13.3 refers to the State plans and procedures.
4. The controller should provide a description of the State and County PAD for the initial food control boundary. The participants need to have this so that intelligent decisions can be made when recommending an adjusted food control area. I have no problem with not sending either the initial or adjusted food control area recommendations out of the MUDAC. At the rehearsal, we all agreed to have the controller provide the initial food control boundary to the participants. The limitations to plot only on the computer will inhibit the consideration of the State and local decisions.

5. The scenario data provided for the drill has a couple of problems.
 - a. The laboratory sheets indicate the MDA, generally meaning the "minimum detectable activity," for all the nuclides listed. This value is 1.0E+02 pCi/unit for all nuclides except Sr-91, which is not shown as being present in any sample. The problem is, Ru-103 consistently shows an analysis results below the MDA except for the hottest samples. For the colder samples, other nuclides are also shown below the MDA, e.g., #2.
 - b. The laboratory sheets indicate all results in terms of pCi/unit. The sheets also show the sample units as "grams" and the sample quantity as 100. The definition of unit is not clear; it could be 100 grams or 1 gram. It is not clear how these laboratory results were converted to pCi/kg that is the unit shown on "Sample Reference Sheet" supplied with the scenario package.
 - c. The use of "peas" as a sample is potentially confusing. Peas should be considerably less contaminated than the strawberries or apricots from the same location. Peas grow in a protected environment, i.e., the pod. Samples that include the pod would be significantly hotter than those without the pod.
6. We are also concerned about the limited time scheduled for the drill. The participants will be processing about five times the number of samples than in the rehearsal drill and yet less time has been scheduled. Great care will have to be exercised to avoid compromising the objectives if we hold to the proposed schedule.

If you have any questions on these comments, please contact me at (425) 487-4743. If your questions are related to Joe Keller's technical review of the drill materials, I can ask him to contact you directly.

Sincerely,



Larry E. Moore, Chairman
Regional Assistance Committee

cc: J. Berkey/R. Cowley, WA DOH/DRP
F. Klauss/R. Jorgenson, Energy Northwest
M.A. Peterson, WA EMD
J. Keller, ICF
M. Mills, EFSEC
D. Henry, OR Energy
V. Quinn/D. Mauldin, FEMA PT-CR-RP

Food Control Area Demonstration Work Scope (Exercise-only)

The purpose of this exercise demonstration is to address two Areas Requiring Corrective Action (ARCA) from the September 2000 Ingestion Exercise for Columbia Generating Station. The first involves ensuring procedures are developed to address the newly incorporated DIL's and the current Food Control Methodology. The second identifies the need to properly label maps used by other agencies. Those fixes will be demonstrated on March 14, 2001.

Objective 26: Ingestion Exposure Pathway- Dose Projection and Protective Action Decision Making, demonstrate the capability to project dose to the public for the ingestion pathway and to recommend protective measures.

Objective: Successfully demonstrate the methodology for calculating an initial Food Control Area (FCA) boundary based on a default value and re-evaluate the initial FCA boundary based on actual laboratory analysis. The FCA boundary adjustment will use the method described in 13.13.3 Section 7.14 Laboratory Analysis Data. MUDAC 69-00-26-A-06

Limitation: The adjusted FCA boundary will not be transmitted to offsite agencies. For this exercise only, the Dose Assessor will demonstrate the boundary adjustments as stated in 13.13.3 Section 7.14. The Dose Assessor and the Dose Assessment coordinator will be the only players and will share the roles of the field team coordinator and the State Health Liaison as stated in procedure 13.13.3.

Objective: Properly label all MUDAC generated maps that are sent to offsite agencies. MUDAC 69-00-26-A-02 **Limitation:** There will be no transmittal to offsite agencies.

Participants:

Dose Assessor:	Kathy Fox Williams (WDOH)
Dose Assessment Coordinator:	Debra Mc Baugh (WDOH)
Dose Assessor:	Larry Morrison (ENW)
Evaluators:	Joe Keller (FEMA)
Controller:	Mark Henry (WDOH)

Drill: March 14, 2001 (10:00-1:00pm)
Location: MUDAC

Timeline:

10:00-10:15am	Meet at the MUDAC sign in
10:15-10:30am	Discuss the exercise, answer final questions from players
10:30-10:50am	Start exercise, Turnover package from day one presented to players as a briefing from the controller (limitation: The day one turn over is not being evaluated.) Turnover Package will include the initial PAR and the revised PAR generated on Day two. (Limitation: these two PARs are not being evaluated, they are only provided as supporting information.)

10:50-12:30pm

1. Actual evaluated exercise objectives will use EPIP 13.13.3 Sections 7.8.1 c. -k, 7.14- 7.14.4, and 7.14.6-7.14.8 (Limitation: section 7.14.4 will only be plotted on a computer for this exercise.)

2. Dose Assessment of pre-staged Delorme isopleth map
3. Calculate FCA boundary distances.
4. Identify and draw the initial Food Control Area boundary.
5. Properly label the FCA boundary map for transmittal to offsite agencies. The Map will be handed to the controller.
6. Evaluate and adjust the initial FCA based on actual laboratory analysis following Procedure 13.13.3 Section 7.14(Limitation: play is limited to Food Control Area Boundary.)
7. Draw the adjusted FCA boundary, if necessary.
8. Deliver the adjusted FCA boundary map to controller
9. End of play

12:30-1:00pm wrap up and critique the exercise

APPENDIX 4

DRILL SCENARIO

The drill scenario on the following pages was submitted by the Washington Department of Health and approved by FEMA Region X for the Food Control Area Drill conducted on March 14, 2001, at the Columbia Generating Station NPP site.

Columbia Generating Station Food Control Exercise (Scenario)

March 14, 2001

Narrative update:

Today is Wednesday June 13. Yesterday, Columbia Generating Station declared a General Emergency due to events subsequent to the plant experiencing an Operating Basis Earthquake. The event caused the reactor core to be uncovered for about 1 hour with approximately 1 to 2% of the fuel pins damaged. There was a release of radioactive material from the plant through the Turbine Building via an unisolated main steam line. This release lasted for about 1 hour. Dose projections indicated doses greater than 1 Rem TEDE and 5 Rem CDE thyroid at 1.2 miles.

The meteorological conditions at the time of the release were:

Wind speed – 6 mph

Wind direction – from 280° to 100°

Stability class – D

No precipitation

The plant has been stabilized and no further releases exceeding Technical Specification limits are anticipated. Plant staff has begun recovery operations. The lead in MUDAC has been transferred to the Washington State Department of Health in accordance with PPM 13.13.3.

Protective Actions:

All Sectors were evacuated to 2 miles, sectors 1 and 2 were evacuated from 2 to 10 miles, and sectors 3 and 4 were sheltered from 2 to 10 miles.

An Initial Return PAR was issued discontinuing sheltering in Sectors 3 and 4 and allowing for return to the Horn Rapids ORV Park.

A Relocation Area PAR along with a Revised Return PAR has been issued designating the Relocation Area. Franklin County is working on the decision package and an implementation plan based on the measured 500 microR/hr isodose line.

Agricultural Advisories are still in place from yesterday.

The air space has been re-opened.

Items Included in Package from Previous Activities:

- Classification Notification Forms for: Site Area Emergency - #2, General Emergency - #3, and termination of the release - #7 (other forms were either not available or considered not essential for this exercise).
- QEDPS 10-mile plume projection
- Initial Return PAR
- Initial Relocation Area PAR
- Relocation Area PAR map
- Revised Return PAR
- Emergency News Releases (4 – 1 from Washington State, 3 from Energy Northwest)

Items for Player Use During Exercise:

500 microR/hr and 20 microR/hr Excel file (3-14-01.txt) (tab delimited format) for developing the initial FCA

sample location Excel file (3-14 food locations.txt) (tab delimited format) for developing the revised FCA

laboratory data sheets for samples (20)

Items for Controller / Evaluator use only:

Sample analysis Excel spreadsheet (samples – ex3-13 .xls) – these show the complete isotopic mix at each location (some isotopes are not on the lab sheets since they do not have an established DIL), sample #, location, and DIL ratios.

Plot of 500 microR/hr, 20 microR/hr, and 0.4 microR/hr isopleths along with sample locations (hard copy and street atlas file – 3-14 food.sa7)