Omaha Public Power District
1623 Harney Omaha, Nebraska 68102
402/536-4000

September 26, 1984
LIC-84-332

Mr. J. T. Collins, Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76011

Reference: Docket No. 50-285

Dear Mr. Collins:

Fort Calhoun Station
1984 Emergency Preparedness Exercise

As discussed with Mr. J. B. Baird of your office on September 25, the District is providing the additional information concerning the 1984 Fort Calhoun Station emergency preparedness exercise requested by FEMA. Although this response is not explicitly required, it is being submitted to help expedite the resolution of any concerns related to the scenario. It is suggested that it would be more appropriate for FEMA to provide their input at an earlier time because it is virtually impossible to change the scenario at this point in time.

FEMA's request is contained in Enclosure 1, and the District's response is contained in Enclosure 2.

Sincerely,

W. E. Miller
Assistant General Manager

Enclosures

cc: Mr. Patrick J. Breheny
Regional Director
Attn: Marlee Carroll
Federal Emergency Management Agency
Region VII
Old Federal Office Building, Room 300
911 Walnut Street
Kansas City, Missouri 64106

Mr. Joseph Keller
Attn: Brad Salmonson
Exxon Nuclear Idaho Co., Inc.
P. O. Box 2800
Idaho Falls, Idaho 83401

IE35
Not RIV

Federal Emergency Management Agency

Region VII 911 Walnut Street Kansas City, Missouri 64106

SEP 21 1984

MEMORANDUM FOR: Dr. J. K. Gasper, Omaha Public Power District

THROUGH: Frank Begley, Division Chief
Natural & Technological Hazards Division

FROM: Marlee Carroll, Senior Technological Hazards Specialist
Natural & Technological Hazards Division

SUBJECT: Review of State and Local Objectives, State Scenario, and Utility Scenario/Controller Package for the Fort Calhoun Emergency Preparedness Exercise Scheduled for October 24, 1984

In an attempt to expedite our response to you concerning our needs for additional scenario data, we requested that Brad Salmonson, Senior Scientist, Special Programs, Idaho National Engineering Laboratory [INEL (Westinghouse Idaho Nuclear Company, Inc.)] courtesy copy his comments relative to the detailed scenario provided for the October 24, 1984, Fort Calhoun exercise.

Mr. Salmonson has raised several issues which still must be resolved before FEMA can approve the scenario. Therefore, please contact him, if clarification is necessary for providing this additional data and submit one copy to both Joe Keller, atten: Brad Salmonson and another to Pat Breheny, Regional Director, atten: Marlee Carroll at FEMA for receipt no later than Friday, September 28, 1984.

If telefaxing is necessary you may contact:

Brad Salmonson, INEL	208-526-3499	conf. = 208-526-3506
Marlee Carroll, FEMA	816-374-6713	conf. = 816-374-6907

If you have any further questions, feel free to contact me at 816-374-2161.

Attachment: Salmonson letter, September 19, 1984

cc: Fran Laden, Deputy Director, Nebraska Civil Defense Agency (cover memo only)
Jack Crandall, Director, Iowa Office of Disaster Services (cover memo only)
J.B. Baird, Chief, Emergency Preparedness Section (cover memo and attachment)

ENCLOSURE 1
(4 pages)

DESIGNATED ORIGINAL
Certified by Rheanne Clark

Westinghouse Idaho
Nuclear Company, Inc.
Box 4000
Idaho Falls, Idaho 83403

BJS-20-84

September 19, 1984

Marlee Carroll
Senior Technological Hazards Specialist
Federal Emergency Management Agency
Region VII
911 Walnut Street
Kansas City, MO 64106

Dear Ms. Carroll:

Subject: Review of State and Local Objectives, State Scenario, and Utility Scenario/Controller Package for the Ft. Calhoun Emergency Preparedness Exercise Scheduled for October 24, 1984

I have reviewed the above subject materials and offer these comments and suggestions. The utility scenario/controller package does not contain sufficient information about radioactivity release source terms, or offsite radiological data, to determine whether all state and local exercise objectives will be met by the scenario. The following suggestions for additions to the utility scenario/controller package are offered to provide a basis for an effective evaluation of the offsite state and local responses.

- As we discussed in our September 19, 1984 telephone conversation, in order to have a larger affected population, Sector C should be included as an affected sector. This would mean that the wind should initially originate at approximately 215° and then shift through 247.5° to 270°. Also, it is important that the first wind shift should not occur until plant conditions are such that an evacuation from 0-2 and 2-5 miles are warranted, e.g., this would mean that projected doses in excess of 1 rem whole body and/or 5 rem thyroid could be expected up to a distance of 5 miles. Offsite controller messages should be generated with regard to initial meteorological conditions and the potential for wind shifts during the day as well as the projected duration of the potential release.

- Iowa general state objectives numbers 2, 7, and 11 will require offsite radiological data for predetermined state monitoring locations. PAG recommendations will be based upon the actual field data.

The offsite monitoring data must be generated based upon the radiation detection instrumentation and procedures which will be used by the Iowa field monitoring teams. Data for the predetermined monitoring locations which are outside of the affected sectors may be taken as actual instrument reading since these areas should correspond to actual background conditions (this would also apply to the affected sectors at times prior to a release of radioactivity from the plant).

The field team controller data needs to be in the correct format such that proper calculations can be performed as required by state general objective number 2 (exposure rate data in mR/hr, air sample data for iodine in cpm, and possible recovery/reentry data in either mR/hr or cpm).

General objective number 7 requires a demonstration of KI decision-making. The present scenario does not indicate whether the PAG driving force will be due to the potential external exposure to noble gas or inhalation exposure due to the presence of radioiodine in the gaseous release. In order to effectively evaluate the KI decision-making process, a measureable amount of radioiodine should be present, although it need not be high enough to exceed the PAG's if external exposure is the main driving force for the scenario.

General state objective number 11 requires offsite demonstrations of recovery and re-entry activities. This implies the need for a 24 to 48 hour time jump in the offsite scenario and corresponding offsite radiological data which may be needed to support the recovery and re-entry activities.

- For completion of our evaluation of the offsite radiological data it will be necessary to have source term data for noble gas and radioiodine release in units of curies per second (Ci/sec) or microcuries per second (μCi/sec). Also, the Iowa state scenario indicates that radiological data coordination between the utility and the state will be demonstrated. This implies that it may be necessary to have controller messages containing the noble gas and radioiodine source term data available for provision to the state liaison representative in the EOF. Transmittal of this information to the state EOC and FCP may be necessary in the event that the state requests this data for dose projection calculations.

All of the above suggestions are directed toward meeting the Iowa state and local exercise objectives. Although Nebraska state objectives d, k, and m may require some form of radiological data for controller use, it is expected that these objectives can be met by use of the controller messages for source term and meteorological data. Again, the Nebraska offsite field monitoring data can be based upon actual instrument measurements of the existing background conditions.

If you have any questions, please contact me at FTS 583-3314 or (208) 526-3314.

Sincerely,

B. J. Salmonson

B. J. Salmonson, Sr. Scientist
Special Programs

jr

cc: M. Lawless - FEMA
C. Siebentritt - FEMA
Dr. J. K. Gasper - OPPD

ENCLOSURE 2

The District has reviewed the comments contained in Enclosure 1 and offers the following information.

- In a scenario development meeting between the District and the States of Iowa and Nebraska on August 23, 1984, the State of Iowa requested that the plume be directed into a sector or sectors which would involve both Harrison and Pottawattamie Counties. The State of Nebraska requested that the plume not enter any sectors in Nebraska. It was jointly decided that the plume would be in Sector E. The District later added a release to Sector D when little or no radioactive material was escaping the plant and then shifted the plume to Sector E when a major radioactive release occurred to satisfy the needs of the State of Iowa. All controller packages, including offsite controller packages, contain meteorological data which will be provided to participants if the participant can demonstrate the capability to obtain this data in a "real life" situation.

- The District will provide actual field data in the controller packages for use in PAG recommendations. The whole body dose data will be provided in terms of rem/hr and the iodine concentration will be provided in terms of μCi/cc. It is not possible for the District to provide iodine data in the form of cpm because the District does not have access to the outside agency detector efficiencies or procedures to calculate μCi/cc from cpm. The District does not provide our offsite monitor team with cpm data for iodine concentration determination. Rather, our observers verify that the field teams can utilize their instrumentation and procedures to determine concentration for a given count rate. Preliminary offsite monitoring location data is included in this enclosure.

- The current scenerio provides little or no release of iodine. Because of the plant release path chosen, little or no iodine release to the environment is anticipated. The District has chosen to make the scenario as realistic as possible.

- The District provides an onsite scenario which is coordinated with offsite scenarios. Offsite activities that do not require interface with the onsite scenario are not explicitly covered in the onsite scenario. This is the case for recovery and re-entry activities 24 to 48 hours after initiation of the exercise.

- The source term data is given in the following table. This source term data will not be available to exercise participants. Radiological release data will be available to outside agencies using pre-established procedures during the exercise.

ENCLOSURE 2 (Continued)

FORT CALHOUN STATION
1984 EMERGENCY PREPAREDNESS EXERCISE

Source Term Data (Ci/sec)

Time	Noble Gas	Iodines
0715	3.12E-05	0.0
0730	4.06E-05	0.0
0745	4.69E-05	0.0
0800	5.62E-05	0.0
0815	6.25E-05	0.0
0830	9.37E-05	0.0
0845	1.09E-04	0.0
0900	1.19E-04	0.0
0915	1.39E-04	0.0
0930	1.56E-04	0.0
0945	1.88E-04	0.0
1000	2.19E-04	0.0
1015	2.50E-04	0.0
1030	2.81E-04	0.0
1045	3.06E-04	0.0
1100	1.98E00	0.0
1115	1.88E+01	0.0
1130	2.26E+02	0.0
1145	9.60E+01	0.0
1200	9.40E+01	0.0
1215	1.11E+02	0.0
1230	1.34E+02	0.0
1245	1.58E+02	0.0
1300	1.81E+02	0.0
1315	2.05E+02	0.0
1330	2.17E+02	0.0
1345	0-0	0.0

OPPD/IOWA

EMERGENCY MONITOR D2

1.4 Mi @ 71°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D3

2.4 Mi @ 65°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D4

4.2 Mi @ 75°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D5

4.7 Mi @ 65°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D6

5.6 Mi @ 68°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D8

7.8 Mi @ 66°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR D9

8.6 Mi @ 69°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E1

0.2 Mi @ 90°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (µCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	2.4E+02	0
1130	2.0E+03	0
1145	2.0E+04	0
1200	8.1E+03	0
1215	8.4E+03	0
1230	9.3E+03	0
1245	1.1E+04	0
1300	1.3E+04	0
1315	1.5E+04	0
1330	1.7E+04	0
1345	1.7E+04	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E2

1.4 Mi @ 84°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	1.4E+00	0
1130	1.2E+01	0
1145	1.3E+02	0
1200	5.2E+01	0
1215	5.3E+01	0
1230	6.0E+01	0
1245	7.2E+01	0
1300	8.2E+01	0
1315	9.9E+01	0
1330	1.1E+02	0
1345	1.1E+02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E3

2.7 Mi @ 83°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	1.1E-01	0
1145	9.5E-01	0
1200	1.1E+01	0
1215	4.8E+00	0
1230	4.6E+00	0
1245	5.4E+00	0
1300	6.3E+00	0
1315	7.7E+00	0
1330	8.9E+00	0
1345	9.6E+00	0
1400	1.1E+01	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E4

3.9 Mi @ 95°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	2.4E-01	0
1200	2.8E+01	0
1215	1.2E+01	0
1230	1.2E+01	0
1245	1.4E+01	0
1300	1.6E+01	0
1315	1.9E+01	0
1330	2.3E+01	0
1345	2.4E+01	0
1400	2.6E+01	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E5

4.6 Mi @ 89°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	1.1E+00	0
1200	1.1E+01	0
1215	1.3E+02	0
1230	5.4E+01	0
1245	5.3E+01	0
1300	7.4E+01	0
1315	8.9E+01	0
1330	8.9E+01	0
1345	1.1E+02	0
1400	1.2E+02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E6

5.2 Mi @ 88°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	7.1E-01	0
1200	6.7E+00	0
1215	8.5E+01	0
1230	3.4E+01	0
1245	3.4E+01	0
1300	3.8E+01	0
1315	4.9E+01	0
1330	5.7E+01	0
1345	6.3E+01	0
1400	7.1E+01	0
1415	7.2E+01	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E7

6.2 Mi @ 88°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	5.0E-01	0
1215	6.2E+01	0
1230	2.5E+01	0
1245	2.5E+01	0
1300	2.8E+01	0
1315	3.5E+01	0
1330	4.1E+01	0
1345	4.6E+01	0
1400	5.2E+01	0
1415	5.3E+01	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E8

7.3 Mi @ 81°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E9

8.1 Mi @ 89°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	4.1E+00	0
1230	4.7E+01	0
1245	2.0E+01	0
1300	1.9E+01	0
1315	2.3E+01	0
1330	2.8E+01	0
1345	3.2E+01	0
1400	3.7E+01	0
1415	4.0E+01	0
1430	4.4E+01	0
1445	< 1.0E-02	0

OPPD/IOWA

EMERGENCY MONITOR E10

9.5 Mi @ 86°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	1.5E-01	0
1230	7.6E-01	0
1245	9.2E+00	0
1300	3.7E+00	0
1315	3.9E+00	0
1330	4.6E+00	0
1345	5.3E+00	0
1400	6.2E+00	0
1415	7.8E+00	0
1430	8.6E+00	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F1

0.3 Mi @ 113°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F3

1.7 Mi @ 104°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F5

4.9 Mi @ 111°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F6

5.4 Mi @ 110°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F7

6.6 Mi @ 107°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F8

7.4 Mi @ 107°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0

OPPD/NEBRASKA

EMERGENCY MONITOR F9

8.5 Mi @ 109°

Time	Whole Body Dose (mRem/hr)	Iodine Concentration (μCi/cc)
0730	< 1.0E-02	0
0745	< 1.0E-02	0
0800	< 1.0E-02	0
0815	< 1.0E-02	0
0830	< 1.0E-02	0
0845	< 1.0E-02	0
0900	< 1.0E-02	0
0915	< 1.0E-02	0
0930	< 1.0E-02	0
0945	< 1.0E-02	0
1000	< 1.0E-02	0
1015	< 1.0E-02	0
1030	< 1.0E-02	0
1045	< 1.0E-02	0
1100	< 1.0E-02	0
1115	< 1.0E-02	0
1130	< 1.0E-02	0
1145	< 1.0E-02	0
1200	< 1.0E-02	0
1215	< 1.0E-02	0
1230	< 1.0E-02	0
1245	< 1.0E-02	0
1300	< 1.0E-02	0
1315	< 1.0E-02	0
1330	< 1.0E-02	0
1345	< 1.0E-02	0
1400	< 1.0E-02	0
1415	< 1.0E-02	0
1430	< 1.0E-02	0
1445	< 1.0E-02	0