

March 10, 1986

MEMORANDUM FOR: William J. Lazarus  
Emergency Preparedness and Radiological  
Protection Branch  
Division of Radiation Safety and Safeguards  
Region I

FROM: Donald J. Perrotti  
Emergency Preparedness Branch  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

SUBJECT: SEABROOK EXERCISE REPORT

Enclosed is my final report on the assigned activities at the operations support center during the Seabrook exercise on February 26, 1986. There are minor changes to the information provided to you during the exercise. The items regarding Team 9 dose estimate and use of respirators have been deleted. One item related to OSC staffing levels illustrated in the emergency plan and ER-3.5 has been added. This report has been sent electronically by 5520.

If you need additional information, please call me on 492-4865 (FTS).

Original signed by:

Donald J. Perrotti  
Emergency Preparedness Branch  
Division of Emergency Preparedness  
and Engineering Response  
Office of Inspection and Enforcement

Enclosure:  
Input to Seabrook Exercise  
Report

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ENCLOSURE

Input to Seabrook Exercise Inspection Report

Operations Support Center (OSC)

The OSC is located on the first floor of the Administration and Service Building. The facility was laid out per Figure 6.6 of the emergency plan. The OSC was activated and operational within 30 minutes of the declaration of the Alert condition. There was no evidence of pre-staging OSC personnel. There was no prompting by controllers observed during the exercise.

Plant status briefings to the OSC staff by the OSC Coordinator were timely, thorough and accurate. The intra-OSC public address system was very effective in providing clear information to all areas of the OSC. The OSC Coordinator maintained continuous contact with the Site Emergency Director at the Technical Support Center (TSC) through a dedicated OSC Communicator.

Key personnel arriving at the OSC signed in on the OSC Tag Board. It was noted subsequent to the exercise that the OSC Tag Board, Figure 8.5 of the emergency plan (Amendment 56) and Figure 5 of ER-3.5 (Rev. 01) are not consistent with regard to the OSC staffing levels.

OSC personnel used approved procedures. The OSC Coordinator and Radiological Controls Coordinator (RCC) maintained logs. Status boards contained accurate information and they were kept current.



The OSC Coordinator was knowledgeable of his duties and maintained excellent control of all OSC activities. Teams were thoroughly briefed and de-briefed for each activity. Approximately 18 teams were dispatched from the OSC. Observations were made of the fire brigade team, PASS team, CBS pump survey team and containment air sampling team. All observed teams appeared to be knowledgeable of their duties and followed OSC procedures, except for one member of the CBS pump survey team (Team 2) who violated "Steps Off Pad" procedures. The HP technician on the team provided corrective actions in this instance. It was noted that ER-3.2 (Rev. 02) does not contain a current copy of ER-3.2B, "Emergency Team Briefing/Debriefing Form." However, loose copies of the updated Form ER-3.2B were used during the exercise. Form ER-3.2B is discussed further below.

Personnel radiation exposure was controlled under ER-4.3. Emergency dose limit extensions were obtained prior to the teams' departure from the OSC, as appropriate. Accumulated radiation exposure was logged in on ER-4.3B, "Emergency Exposure Tracking Form." However, the dose of 10 mrem received by Team 2 was not logged in on ER-4.3B. ER-3.2 and -4.3 do not clearly specify how doses received by team members are to be transferred to Form ER-4.3B when radiation work permits (RWPs) are not used. It was observed that extremity dosimetry was not considered for Team 9 even though the simulated sample dose rate was 40 R/hr on contact. The inspector noted that ER-3.2B, "Emergency Team Briefing Form",

does not have provisions for the RCC to specifically indicate extremity dosimetry. The form contains check off spaces for TLDs and SRPDs only. It was also noted the ER-4.3, "Radiation Protection During Emergency Conditions", does not specifically address extremity dosimetry.

Habitability checks of the OSC were made frequently. Noise level was generally at a low level. Communications between the OSC and the TSC and control room were satisfactory. The OSC appeared to be properly equipped to perform its functions during this scenario. Just prior to the termination of the exercise at 1545, the OSC Coordinator discussed long-term recovery actions with the OSC staff. About 15 minutes earlier, the OSC and TSC discussed shift relief for long-term contingency.

Based on the above observations, the following items should be considered to improve the emergency preparedness program:

- ° Review Figure 8.5 (plan), Figure 5 (ER-3.5) and OSC Tag Board for consistency.
- ° Stress to all OSC personnel the proper use of Step-Off Pads.
- ° Incorporate the updated copy of Form ER-3.2B into ER-3.2.

- ° Provide specific instructions in ER-3.2 and -4.3 regarding transferring radiation doses received by the emergency teams to Form ER-4.3B.
- ° Provide a check-off space for extremity dosimetry on Form ER-3.2B. Also provide for consideration of extremity dosimetry in ER-4.3 (See ER-3.2 and -6.2, which both address use of extremity TLDs).

Persons Contacted

G. St. Pierre, Unit Supervisor (OSC Coordinator)  
W. Cash, HP Supervisor (Radiation Controls Coordinator)  
T. Ferrando, Consultant, Power Mgt. Services (Lead OSC Controller)

Inspection Onsite Hours - 27

Chronology of Events - Attached



Chronology

0730 Arrived at OSC, controllers in place

0811 Exercise announcement, Alert declared, 1st team response personnel directed to assigned area, non-assigned personnel to assembly area. Message was repeated

0812 OSC personnel started checking in

0819 OSC Coordinator directed all incoming personnel to sign in on accountability listing

0824 Minimum staffing for OSC completed

0825 Plant Announcement (PA) concerning fire brigade to report to Chlorine Building

0828 PA - Message 1-1

0829 First habitability check made of OSC

0835 Plant update to OSC staff

0840 OSC completely operational

0848 Plant update to OSC staff

0850 Noted that OSC log is being maintained per ER-3.2

0853 Plant update to OSC staff

0854 OSC Coordinator requested info from TSC on future needs

0855 TSC requested spare air bottles to be carried to Chlorine Bldg. - OSC Coordinator requested wind direction, health hazards, etc,

0904 TSC cancelled its 0855 request

0907 Instruction from TSC - Chlorine Bldg. buttoned up, nobody allowed  
access

0908 Plant update to OSC staff

0914 Team 2 briefed by alternate Control Room Operator

0917 Followed Team 2 into plant to survey CBS pump

0921 Team 2 arrived at CBS pump room - HP tech checked direct rad and  
spreadable contamination levels

0924 Team 2 waiting on scenario catch-up

0928 Inspector checked cal sticker and source check tag on radiation  
survey meter - no anomalies

0930 Controller provided info to Team 2 on explosion of junction box  
and fire at CBS pump

0933 Team 2 contacted OSC, via radio, to relay info on radiation levels  
and fire conditions

0937 Team 2 arrived back at step off pad (SOP). First maintenance person  
violated SOP procedure - HP tech corrected

0939 While at SOP, Site Area Emergency was declared

0940 Fire team arrived at SOP

0942 Followed fire team into plant - noted that fire team was fully suited  
up, including SCBA. Team checked operation of SCBAs

0945 3 fire team members at top of stairwell, 2 other continue down to  
scene of fire

0948 Arrived at scene of fire

0953 Fire out, fire team leader posted one member for firewatch for 30 minutes, others to return to OSC

0957 Relief fire watch arrived at scene - was briefed by fire team leader

1000 Fire team leader notified OSC of fire watch

1014 Heard radio message - normal level in RHR vault; fire watch instructed to return to OSC

1026 Inspector arrived at OSC, observed OSC log being maintained

1026 Plant update to OSC staff

1027 RCC got met update from HP Coordinator at TSC

1029 PA - reactor trip

1031 Plant update to OSC staff

1032 NRC Region I representative arrived at OSC

1036 Observed OSC Coordinator planning to pre-stage teams to expedite repair/corrective actions

1042 Team 5 briefed to go to valve CBS-V-11

1043 RCC gives update to NRC - RI rep.

1043 General emergency declared

1043 Incoming info - main steam line increase to 10 R/hr

1047 RCC determines to send monitoring team to site boundary for rad survey

1051 Team 5 dispatched to Vault A



1058 Plant update to OSC staff

1101 Some confusion at OSC as to whether valve CBS-V-11 is to  
be opened or closed

1102 Team 5 instructed to return to OSC

1103 OSC habitability check performed

1108 OSC Coordinator gave instructions to Team 5 on valve CBS-V-11

1111 OSC Coordinator gave update to NRC - RI rep

1113 Team 5 reported rad level of 10 R/hr on valve

1114 Team 5 instructed to leave the valve area, return to OSC  
staying clear of personnel access hatch

1120 Inquiry about PASS sample - not available until RHR is operating

1121 Team 7 reports on status of switch gear - OSC Coordinator sends  
Team 7 to check on breaker for valve CBS-V-11

1121 Report from TSC - RHR in service

1122 Plant update to OSC staff

1126 Further instructions to Team 7 on breaker for valve CBS-V-11

1132 Team 6 returned to OSC

1137 Observed RCC considering rad hazards on containment air sample  
(Team 8)

1145 Team 8 briefed on cont. air sample hazards - avoid "West pipe chase".  
Team 8 also received inst. on operation of explosive atmosphere  
monitor by fire team member due to potential presence of high  
hydrogen gas concentration in containment/air sample

1150 Team 9 briefed and dispatched from OSC to attempt opening CBS-V-11  
1150 OSC habitability check completed  
1153 Followed Team 8 - going to "East pipe chase" for containment air  
sample  
1156 Arrived at sampling station, general area 100 mr/hr, contact reading  
40 R/hr  
1159 Team 8 in hydrogen analyzer room - general area 4 R/hr  
1205 Sample obtained - Team 8 returned to Chem Lab  
1238 PA on Train A, primary containment cooling water  
1244 Plant update to OSC staff  
1247 Reviewed Team 8 Emergency Team Briefing Form - no extremity dosimetry  
specified  
1303 Reviewed ER-4.3B, Emergency Exposure Tracking Form. Noted Team 2  
had not logged in 10 mr dose  
1316 Plant update to OSC staff  
1306 PA - personnel stay clear of primary auxiliary building  
1325 Plant update to OSC staff  
1338 Followed Team 13 - PASS sample  
1348 Arrived at PASS station, about 100 mr/hr general area  
1403 PASS team checked rad levels  
1404 Chem tech checked pocket dosimeter  
1410 Obtained 10 cc sample (simulated)  
1430 Returned to OSC

1439 Plant update to OSC staff

1459 Team 18 preparing for survey of turbine hall

1501 Incoming info - cont. monitor down to  $2 \times 10^5$  R/hr

1505 TSC & OSC Coordinators discuss shift relief

1534 Plant update to OSC staff

1544 Plant update to OSC staff, OSC Coordinator called key players  
to discuss recovery actions

1545 PA - exercise terminated

1552 OSC Coordinator continues to discuss long term recovery with OSC  
staff