

The Department of Environmental Quality's
Review of
The Federal Emergency Management Agency's
July 16, 1981
Post Exercise Evaluation Report

State of Iowa and Clinton and Scott Counties
Exercise for Radiological Accidents
at
Quad Cities Nuclear Station - Cordova, Illinois
May 20, 1981

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INTRODUCTION

This report addresses the comments and recommendations made by federal observers of the May 26, 1981 "Exercise Cordova" in the Federal Emergency Management Agency (FEMA) Post Exercise Evaluation Report dated July 16, 1981. To facilitate comparisons to the FEMA report, this document is organized as follows: Specific federal comments and recommendations are grouped together by subject matter and reproduced in their entirety in this document. These are enclosed in quotes indented and single spaced. The Department of Environmental Quality's (DEQ) responses immediately follow the initiating FEMA comment.

Because the grouping of recommendations by subject results in a slightly different numerical order, Appendix A identifies where specific federal comments can be found.

COMMENTS

EXERCISE SCENARIO

"The exercise scenario was developed jointly by the Illinois Emergency Services Agency (ESDA) and the Illinois Department of Nuclear Safety in cooperation with the Commonwealth Edison Company, the operator of the Quad Cities Nuclear Station. The State of Iowa chose not to participate in the scenario development.

At 8:00 a.m., the plant reported a loss of coolant accident in Unit #1. A Site Emergency was declared at 8:30 a.m., notification procedures followed. At 9:03 a.m., the station was placed in a General Emergency classification due to 48,000 R/hr dry well activity and the failure of a Standby Gas Treatment System (SBGTS) valve. An imminent release was anticipated. At 11:00 a.m., the release was occurring through the SBGTS. By 2:12 p.m., the broken valve was repaired and the release terminated; total release duration was approximately three hours. At 2:52 p.m., the plant was in cold shutdown status.

EVENT OR CONDITION

Normal conditions	prior to 0800
LOCA - Site Emergency (wind speed 10 MPH from the SSW)	0800
General Emergency Condition (imminent release predicted)	0900
Release Occurs	1100
End of Release	1400
Increase in Wind Speed - 15 MPH from SSW	1415
Cold Shutdown	1430

Generally, scenario deficiencies were found in the following areas:

1. The exercise scenario did not call for exercising evacuation procedures. Likewise, the low level I¹³¹ release did not necessitate the decision for the use of KI for emergency workers.
2. The scenario lacked sufficient information on the events to be simulated in the exercise. The Iowa Plan states that the scenario will include a list of simulated events and a narrative sum-

mary describing the expected activities both real and simulated and advance materials for the observers. None of this was available. While Iowa chose not to reveal the date, time or scenario details prior to the exercise in the interest of realism, the observers' tasks were made much more difficult by the lack of knowledge of the real and simulated events taking place.

3. The exclusion of Scott County from the plume exposure did not require an adequate response to fully demonstrate local capabilities.

RECOMMENDATIONS:

1. Future exercises must demonstrate evacuation procedures for the off-site population.
2. A larger I131 content in the release should be a part of the exercise to adequately test KI decisions, the use of protective clothing and the adequate testing of the ingestion pathway response.
3. A detailed scenario must be prepared and submitted to the Federal observers prior to the exercise. Only in this manner can the performance of the players be better appraised. The observers cannot function efficiently if they are unaware of scenario events.
4. All jurisdiction must be included in the off-site activities of the exercise."

Re-entry and Recovery

"STATE - LOCAL:

Because of the lack of evacuation decision during the exercise, this element was not demonstrated. However, at both the State and local EOCs, termination of the exercise was extremely rapid. No discussion was observed concerning possible need for decontamination of facilities, establishing centers for screening affected area residents and providing further assurances to the public on the safety of the area.

RECOMMENDATIONS:

58. Evacuation of residents should be a part of the exercise to adequately test re-entry procedures.

Exercise and Drills

(no comments)

"RECOMMENDATIONS:

60. Future exercises must clearly demonstrate the ability of the state and local jurisdictions to respond to an emergency at the Quad Cities facility in accordance with established plans. The exercise must include the mobilization of state and local personnel and resources."

The scenario was sorely difficult in terms of complexity and detail. The scenario is currently the power company's responsibility. With the input of the participating states, the power company is the least appropriate agency to be responsible for an evaluative exercise. Likewise none of the actual participants should have any indication of scenario details.

The DEQ is not going to recommend any action (including an evacuation) solely because it is "supposed" to take place in an exercise. Rather any reasonable action will be recommended which provides the best protection of public health and the environment based on the evaluation of the data transmitted to the Department.

ASSIGNMENT OF RESPONSIBILITY (ORGANIZATIONAL CONTROL)

"STATE:

The exercise demonstrated a lack of awareness by responding organizations of their responsibilities or who was in control of emergency operations.

5. A detailed SOP for the state personnel at the EOF and Scott County should be developed."

There were instances of confusion. However, this exercise showed a substantial improvement on the part of almost all agencies. Organizational difficulties that were experienced in this exercise can be overcome relatively easily either by adequate briefing and instructions of staff by individual agencies or by continued realignment of agency roles. SOPs must be agency specific. The Department of Environmental Quality (DEQ) is in the process of testing and completing such a document and, in fact, was using it during this exercise.

"The State Plan calls for state response control at three locations: the State EOC in Des Moines, the Scott County EOC and the utility EOF. The descriptions of the functions of these three locations did not represent actual practice in the exercise."

Defer to Office of Disaster Services.

"The state liaison in the EOF had no authority to speak for Iowa despite his presence at the principle point of activity.

6. A qualified spokesperson representing the Iowa government must be assigned to the EOF."

The State of Iowa had three liaisons at the EOF representing three separate agencies of government and fulfilling three distinct roles. If referring to the DEQ liaison, the commentator missed his purpose. The appropriateness of this

comment as it applies to other agencies is left to the Office of Disaster Services and the Department of Health.

"The organizational control in the State EOC was very loose. On occasion, observers felt that the internal organization had "broken down".

Overall state operations were inadequately supervised. As a result, little coordination occurred between the State EOC and local government, the EOF or Illinois officials. Little coordination or discussion occurred among the agencies even within the State EOC.

7. An individual must exert overall control and leadership over the entire emergency operation, not just within the EOC."

The organizational control of the State EOC was loose. However, it worked. Individual agencies did the jobs assigned to their staff. That control appeared to break down is more reflective of the observer's familiarity with the organization than it is reflective of an organizational fault.

Little coordination was observed between the State EOC and other control points because the scenario didn't support additional communications. Idle chatter was purposely suppressed. Where coordination or discussion was necessary to respond to the scenario, it occurred. Some communication difficulties existed but would not have been corrected by more chatter.

If the organization of the State EOC is an irreparable flaw, the Office of Disaster Services and the Governor's Office have more than adequate authority to take whatever action is necessary though it would need to be coordinated with the affected agencies to be effective.

"The ability to operate an extended period was not demonstrated. Shift changes were demonstrated only by Health, Conservation and DOT. The ODS staff was particularly hard pressed for extended operations. The entire staff was required for the limited operations during this exercise with no reserve for continuous operations.

8. A shift change should be demonstrated in future exercises to check the ability of the state agencies to operate on a continuous and extended basis."

Shift changes were not demonstrated by the DEQ. However, the DEQ had established a three (3) shift capability and has since demonstrated one shift change.

"The Health Department Plan calls for a disease prevention representative to be present at the utility EOF. No Health representative participated in the exercise outside the State EOC.

9. The disease prevention representatives from the Health Department should be present in the utility EOF as provided in the Health Department Plan."

Defer to Department of Health.

Here followed observations and recommendations 10, 11 and 12 regarding Scott and Clinton County EOCs. Responses to these items is deferred to the Office of Disaster Services.

EMERGENCY RESPONSE SUPPORT AND RESOURCES

"STATE:

The state adequately demonstrated the capability of contacting the various Federal support organizations. Each of the state agencies is responsible for contacting and providing liaison with their Federal counterparts. The Federal agencies were contacted initially for notification but little liaison, in the form of situation updates or periodic communications, was maintained.

The State Plan calls for the Department of Environmental Quality (DEQ) to verify with NRC, DOE and EPA the accuracy of the state's radiological assessment. This was not accomplished."

RECOMMENDATIONS:

13. The exercise participants should effect greater communications with Federal counterpart agencies beyond mere notification. "Liaison" implies situation updates and the establishment of dialogue for possible advice and assistance as the emergency develops.
14. Procedures should be developed by DEQ for accomplishing the accident assessment verification with NRC, DOE and EPA as required by the State Plan."

For verification to be of use it must provide timely data that can be interpreted. A number out of a "black box" is not only worthless but (as demonstrated by such numbers originating from other control points) actually hinders response. In this exercise, projections were being carried out by the Power Company, State of Illinois, Department of Health, DEQ and University Hygienic Laboratory. Within the constraints of the assumptions and methods being used by each, they were consistent. To further delay response while waiting on an additional projection would not have shown much wisdom, particularly since we did not have the details available to evaluate the reasonableness of the projection. Until it is demonstrated to the Department that such delays will materially im-

prove response actions the Department will continue to exercise its judgement as to when the Federal agency assessment capabilities will be used to support response efforts. This is consistant with the State Plan as we read it.

TRAINING

CLASSIFICATION SYSTEM

"STATE:

The state agency participants did not adequately demonstrate a uniform or consistent knowledge of the emergency classifications and the associated emergency action levels.

LOCAL:

Scott and Clinton Counties did not adequately demonstrate their working knowledge of the emergency classification and action scheme. A lack of response agency participation in Scott County and non-familiarity with REP in Clinton County were the principle contributors.

RECOMMENDATIONS:

See Recommendation Nos. 62, 64 and 65."

Exercise and Drills

(no comments)

"RECOMMENDATIONS:

61. Drills must be performed in accordance with fully developed state and local plans for those individuals with emergency response responsibilities. These drills must be performed prior to an exercise in order to assess the adequacy of the training."

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RADIOLOGICAL EMERGENCY RESPONSE TRAINING

"STATE - LOCAL:

Attempts were made, particularly in Clinton County, to equate this radiological emergency to previously experienced disasters. This is attributable to a lack of familiarity with the threat and the unique decisions and responses required in a radiological emergency.

Numerous participants were in the State EOC to receive training during the exercise.

RECOMMENDATIONS:

62. Appropriate familiarization with local plans and response training for procedures unique to REP emergencies should be provided to all local officials and response personnel expected to be involved in an accident at the Quad Cities.
63. Training on duties and responsibilities must be accomplished prior to the exercise. The exercise is not an appropriate basic training vehicle for personnel.
64. Training should be provided to selected staff, both at the state and local levels, to acquaint them with the basics of reactor operations. In this manner, each jurisdiction will have personnel in place to adequately assess the severity of the situation as information on plant conditions is received from the utility.
65. Training should be accomplished with all state and local response organizations to insure their thorough working knowledge of the emergency classification scheme. Appropriate response actions should be formulated for each classification level and fully coordinated into the training program."

Training in standard operating procedures and technical details is desperately needed. DEQ particularly feels this need due to its greatly upgraded response capabilities involving enough staff to adequately fulfill data handling and evaluation responsibilities over three plus (3+) shifts. However, DEQ in particular (and all state agencies in general) has very limited staff resources available for this function. Even these must be pulled from other activities of some significance to the agency's mandate. Providing minimal procedural train-

ing and even the most informal technical training strains the Department's resources to the limit. The DEQ cannot commit the resources necessary to develop and utilize any but the most simplistic training exercises. The DEQ does take its role very seriously (as evidenced by the resources it has committed to this function). However, until additional resources are made available the DEQ will continue to view these exercises primarily as training exercises.

To correct the training deficiencies the Department initiated a procedural training program and a very limited technical training program prior to the Fort Calhoun exercise. These programs are expected to continue as resources allow.

NOTIFICATION METHODS AND PROCEDURES

"STATE - LOCAL:

The notification to state agencies by ODS and the staffing of the State EOC by the responding agencies was timely. Notification required only 10 minutes and the respective agencies began reporting for duty within 10 minutes. Full staffing by state agencies was accomplished 30 minutes later. The Red Cross Representative, however, was not notified and reported to the EOC only after calling to find out if the exercise was still being conducted on that day.

Notification to the local jurisdiction did not include Clinton County.

The notification/warning of the public was not demonstrated at either county jurisdiction. Additionally, had the physical notification taken place in a timely manner, the information and instructions to be broadcast to the public took over 1.5 hours to coordinate at the state level (see comments in Section G).

RECOMMENDATIONS:

15. The physical means for alerting the public in a timely manner must be demonstrated. For Scott and Clinton Counties, this would mean the physical movement of the appropriate emergency vehicles on assigned routes, the activation of weather radio and Emergency Broadcast System, the testing of the cable TV interface, plus the testing of all other designated warning systems.
16. Procedures must be developed for the instantaneous broadcast of information to the public on the nature of the emergency and what their actions should be. Discussion and coordination must take place among the state, the local jurisdictions and the utility to determine the most timely method for achieving this initial information release to the public.
17. All the local jurisdictions must be included on the initial notification by the State ODS.
18. The Department of Social Services should establish procedures for notifying and activating Red Cross representation in the EOC."

Despite successful notification, major problems were evident at the next exercise. These have since been addressed.

Response to the specific recommendations is deferred to the agencies mentioned.

EMERGENCY COMMUNICATIONS

"STATE - LOCAL:

The physical capabilities were adequate in all locations. The ability to communicate promptly was clearly demonstrated between the State EOC and local government and between field assessment teams and the Scott County EOC.

The only physical communications tool lacking was a method of hard copy transmission. This was especially evident during attempts to coordinate press releases. Hard copy would also have been helpful for the transmission of field assessment data to the State EOC.

19. A method of hard copy communication should be implemented to alleviate voice transmission errors. The Law Enforcement Teletype System, available in all EOC locations would be an ideal tool for this purpose. Its use for support of REP emergencies should be investigated."

Hard copy transmittal of data is an absolute necessity to assure accurate timely transmittal of large quantities of data of the types involved in such incidents. To effect this the DEQ had hard copy capabilities at the State EOC and the plant EOF. Likewise current DEQ procedures provide a second telecopier (provided during the last exercise) at the State EOC for use in transmitting data from local EOCs and other State EOCs where such capability exist. Concurrent with this is the need to use data forms with a lot of data per page. This is not the case with current Illinois (or Nebraska) forms. To correct this the DEQ has developed more compact forms for use by DEQ staff in transmitting data with these machines during continuing monitoring efforts.

"Principle weaknesses were in the utilization of the communications capabilities. Neither Clinton nor Scott Counties actively demonstrated the communications capabilities available with response organizations.

20. In future exercise, the available communications systems in support of local response organizations should be demonstrated."

Defer to Office of Disaster Services.

"Little communication was observed between the State EOC and local EOCs. What communications existed was instructional with little or no discussion of events and their significance.

21. More interactive communications is required between the State EOC and the Clinton and Scott County EOCs. Active discussion should take place among all affected parties."

When decisions must be made and implemented under very tight time constraints, it is inappropriate to tie up limited communication channels and staff resources discussing it among those not actually making the decision. If other parties need this chat, then the proper criticism is of their training or professionalism.

"The Nuclear Accident Reporting Systems (NARS) did not function as described in the State and Local Plans. Neither Scott nor Clinton Counties were ever contacted directly by the utility on NARS. Even the notification to Scott and Clinton Counties of the Site and General Emergency conditions came through the Illinois ESDA. The Iowa EOC did not initiate any communication over NARS directly to the plant EOF. All such communication flowed through ESDA who controlled all traffic flow from Iowa to the EOF. Clinton County was never notified of the emergency situation. Frequently they overheard NARS communications on the status of the situation which was stated to be for "Illinois only".

22. Procedures should be developed on the use of the NARS. Direct communications must be designed into those procedures between the Iowa EOC, Clinton EOC and Scott EOC directly to the plant EOF. Directing NARS traffic through ESDA is time consuming, open to error and inefficient.
23. A NARS net control, preferably at the plant EOF, should be designated."

The NARS system is a very useful tool to connect the technical expertise needed to discuss effectiveness of various options. However it is woefully inadequate to handle all the traffic which may be seeking to use i.e. (Note: More recent Fort Calhoun exercise). In particular, data and other "routine messages" (as

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opposed to evaluations and crises messages) should NOT be transmitted over this network. It is too important to have to compete with other traffic. Therefore separate data lines must exist between the State EOC and the various data sources. To avoid transmittal errors, this data must be transmitted (or at least confirmed) by hard copy.

Here followed comments and recommendations 24, 25 and 26 regarding Public Information. The DEQ defers to the Office of Disaster Services and the Governor's Office on this subject.

EMERGENCY FACILITIES AND EQUIPMENT

"STATE EOC:

The state demonstrated an adequate capability to physically support an emergency response. The EOC facility provided adequate space and communications equipment.

Physical security was provided by uniformed building security officers at the EOC entrance. However, the door to the ODS Office was unattended and would have provided unrestricted access to the EOC operations area by the public and news personnel.

Visual displays and maps of the area were very well conceived and displayed.

27. The State EOC should have a visual display which would instantaneously advise all participants of major changes in plant status. This information is extremely important and must be timely as every agency has required procedures based on each classification level."

Although it was not properly utilized during this exercise, a set of "status maps" and a "status board" is available for this purpose and was so used in the next exercise.

- "28. Coordination should be accomplished with all state agencies having a representative in the EOC to determine their expected telecommunications load. Upon completion of this process, the telephone assignments should be matched with anticipated needs to facilitate information flow from the EOC."

This is quite valid. In addition, it is appropriate to review the very presence of some of the agencies.

"The telephones in the Scott County EOC were located very close together, causing potential for excessive noise and confusion when all lines were in use.

There was insufficient space for the State Rad Team Coordinator to operate at the Scott County EOC.

31. Phones in the Scott County EOC should be relocated to minimize confusion should they be in simultaneous use.
32. A dedicated position in the Scott County EOC must be provided for the State UHL Field Team to operate, especially if the EOC portion of the team is expanded as recommended by this report."

The timely performance of DEQ's role is so heavily dependent on fast transmittal of accurate data from the University Hygienic Laboratory (UHL) Field Teams. Therefore, the availability of adequate support for UHL staff is extremely important.

This should also include:

- 1) a dedicated facilities phone line
- 2) a compatible telecopier
- 3) easy access to NARS channels (or similar communication lines)
- 4) adequate desk space.

Here followed comments and recommendations 29, 30, 33 and 34 regarding EOC security and communication channel to the Clinton EOC. In these matters DEQ defers to the Office of Disaster Services.

ACCIDENT ASSESSMENT

"STATE:

The state, operating through the University Hygienic Laboratory, clearly demonstrated its ability to gather field monitoring data, analyze the data and provide a rapid assessment of the situation. This included good activation, mobilization, transportation techniques, good communications between the field teams and the Forward Operating location in the Scott County EOC, plus good equipment and proper monitoring techniques.

However, beyond the Forward Operating location in Scott County, the system broke down. The State Plan calls for assessment to be calculated at the Forward Operating location by the UHL Field Team Coordinator and assessments, recommended protective actions and the raw field data to be relayed to the DEQ staff at the State EOC for coordination of the protective action decisions. This sequence of events did not work properly. By 11:45 a.m., the UHL Team Coordinator had made his calculations based on actual field measurements and attempted to relay the necessary data along with his recommended protective actions to the State EOC. He was told that his information was not required as the calculations had already been accomplished. State EOC observers believe that the DEQ calculations could only have been projections based on plant release data. While these calculations are necessary prior to the receipt of actual field measurements, they should not be considered as the only basis for response decisions.

35. The DEQ staff at the State EOC should utilize the assessment calculations performed at the Forward Operating location by the UHL Field Team Coordinator. Field data plus the EOC calculations based on the plant release information should be the total basis upon which to recommend protective actions.

The UHL Team Coordinator rapidly became overloaded attempting to communicate with the field teams, preparing calculations, coordinating with local officials and relaying information to the State EOC.

40. The UHL Team Coordinator, located at the Scott County EOC, should have additional personnel at that location to assist primarily with communications.

The UHL Team Coordinator in Scott County received no information from either the plant or the State EOC on decisions or technical data.

41. The accident assessment function is a cooperative one. All parties; the plant, the State EOC and the field team must be in constant communication. The NARS is the ideal system for effective conference communication."

Calculations were made, at the State EOC, based on information available whenever new data (of whatever nature) was received that did not merely confirm previous calculations. The UHL Team Coordinator was informed of this in any communications with DEQ staff. The assumptions by the federal observer that review was limited to selected types of data or that UHL's recommendation was dismissed out of hand are incorrect.

The excessive workload placed on the UHL Team Coordinator was anticipated, particularly with the projection tools available to him. Recommendations are merely that, the responsibility for decision making remains at the State EOC. That is one reason why the DEQ expanded its capabilities. Recognizing this in addition to DEQ and DOH responsibilities and skills at the State EOC, it is felt that the UHL Team Coordinator's primary mission is to obtain and transmit field data.

Implicit in this role is the utilization of the UHL's considerable skills in evaluating the reliability and accuracy of this data. Finally, UHL experience is very valuable in evaluating the significance of the projected dose rate. Only as a final and last resort should these functions be directed to the relatively mechanical projection task. This is even more the case when the methods available to the UHL Team Coordinator are technically inferior to and slower than those available at the State EOC and when meteorological expertise in the use of these tools is also available at the State EOC.

Note also the proper use of the NARS system as discussed per Recommendations 22 and 23.

"Considerable confusion occurred between the large (9 personnel) DEQ staff and the representatives from the Health Department. Because of

no clear cut lines of authority between these two agencies, considerable duplication of effort was observed.

36. DEQ and Health Department personnel should more closely coordinate their efforts. Clearer lines of authority and responsibility must be established for each agency during emergency operations to most effectively utilize personnel to avoid duplication of effort."

The appropriate DEQ and Health Department personnel were seated immediately adjacent to each other and coordinated their independent projections from plant and field data to serve as a verification cycle. This "duplication" is valid and timely. DEQ supported this effort to confirm the modeling utilized in the HP 9830A. Criticism of this action seems rather odd in light of Recommendation #14 and the associated comments.

"Difficulties arose in the State EOC in understanding what was happening at the plant and the consequences of events when information was received. No one at the State EOC was well enough versed in plant operations to understand the events taking place within the facility and correlating these events to possible off-site consequences. The DEQ staff manager in the EOC was not familiar with the DEQ plan. No operating procedures were observed in actual use during this exercise.

37. Personnel in the State EOC must be capable of interpreting events at the plant and correlating them to potential off-site consequences. This can be accomplished by either training EOC accident assessment personnel or arranging for a utility representative to be located in the EOC.
38. The accident assessment team in the State EOC must be familiar with and closely consult standard operating procedures during all emergency situations, simulated or actual, to assure coordinated decision making."

The state does have limited capability to evaluate plant performance. This does need to be substantially improved. However (or maybe because of this) no circumstances developed in this scenario where both the DEQ evaluator and the DOH representative felt they did not adequately understand the situation to take the action necessary to fulfill their role. On the contrary, additional information

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was sought to further define operating constraints and was not available in the scenario.

Standard operating procedures were used by DEQ personnel (though some significant problems did exist prompting training programs since initiated). It seems odd that this was not observed since one federal employee pointedly asked if the DEQ Radiation Response Plan (containing these procedures and laying immediately in front of DEQ staff during the exercise) was adequate.

"Inadequate information was provided to the local jurisdictions concerning the severity of the accident.

39. Procedures need to be developed by DEQ to provide essential accident assessment information to local jurisdictions so that timely decisions can be taken based on actual radiological information.

No procedures are in place to provide radiation to Clinton County from either the state or the UHL Team Coordinator in Scott County.

42. Clinton County must be kept apprised of all radiation levels and field measurements. This information must be provided in a timely manner by either the UHL Team Coordinator in Scott County or the State EOC."

In reading pages F-14 and F-15 of the Iowa Emergency Plan, no assessment or protective action decision making is expected of local jurisdictions. Rather, this is a State EOC function. (Note: DEQ responsibilities 5c, h, i, k, l; DOH responsibilities 8a, 2, 22c; and Governor's responsibilities 29 (Pages F-9, 10, 12, 17 and 19)). Local jurisdictions are charged with implementing and, therefore, need to be told relevant details necessary to implement these decisions (17, Pages F-14 and F-15). Raw data and tentative assessments and recommendations are not only not necessary but can serve only to confuse the issue and clutter communications.

PROTECTIVE RESPONSE

"STATE - LOCAL:

The State Plan includes a range of protective actions for the health and safety of the population within the 10 mile EPZ. Protective Action Guidelines are provided which clearly delineate the actions to be taken based on the calculated projected dose to the population.

The protective actions initiated by the agriculture representative were timely and in exact accordance with the plan. When the Site Emergency was received he referred to his plan, saw that it called for the automatic placement of animals on stored feed and immediately initiated this protective action through the County Extension Agents.

The State Departments of Transportation, Conservation and Public Safety successfully analyzed the situation and took appropriate actions to close Highway 67 and to effectively control air and rail traffic through the threatened area. Coordination was accomplished with Illinois concerning the closing of the Mississippi River to barge and recreational traffic.

Insufficient Conservation Commission employees were available in the Clinton County area to accomplish evacuation of recreational areas and marinas.

The exercise demonstrated several procedural and judgmental deficiencies in the protective actions decision making process. When the plant first declared a GENERAL EMERGENCY there was no release, but it was deemed as being imminent. With the declaration was a recommended protective action to evacuate a two mile radius, evacuate to 5 miles downwind and shelter from 5 to 10 miles downwind. Iowa chose instead to recommend shelter in the 2 mile radius and sheltering out to 6 miles downwind.

The Iowa DEQ calculated a dose rate of 1.5 R/hr. They interpreted this rate to fall within the 1-5 rem whole body PAG for the general populace. No duration of the release was given by the utility and none was requested by Iowa officials. Clinton County estimated six hours to evacuate Camanche, resulting in a projected dose in excess of the 5 rem maximum allowable under the PAGs.

43. The contradiction of recommendations from the plant during a GENERAL EMERGENCY must be reevaluated. Without a release upon which to base a protective action decision, the off-site jurisdiction must follow the first hand knowledge, expertise and recommendations of the plant.

45. Additional training is needed by DEQ and Health Department personnel on the application of protective action guide parameters."

Table 2 (Page F-2-4) of the "Iowa Emergency Plan" (a reprint of Table 5.1 from EPA's "Manual of Protective Action Guides . . ."), footnote (a) states, "These actions are recommended for planning purposes. Protective action decisions at the time of the incident must take existing conditions into consideration." It appears that Iowa is being criticized for doing so.

What is of concern is total dose. The dose rate calculations and six hours of release at peak rates are nonsensical based on material available for release (inventory in containment dry well). Iowa confirmed and reconfirmed throughout the exercise that this inventory was firm and was not being replenished. Based on this the calculated worse case total dose in downtown Camanche (5 miles) was 0.3 rem. (Note: 11:50 - 12:00 p.m. projection.) It is assumed that the 1.5 R/hr dose rate noted in the comments was a peak dose projection which was 1.2 - 1.5 rem between 1.5 and 2 miles downwind at a location along the east bank of the Mississippi River (i.e., in Illinois): Peak total dose in Iowa occurred on the west bank of the Mississippi River slightly under three (3) miles downwind. This total dose was approximately 0.6 rem. This analysis certainly does not justify evacuation. In fact, Table 2 by itself suggests that sheltering is an over-reaction.

Even so Iowa chose to shelter out to six (6) miles because of the practical absurdity of telling the citizens on the south side of a street (or city) to do one thing while assuring those on the north side (downwind) that everything's okay (downtown Camanche is 5 miles from the plant).

The statement is made that "the off-site jurisdiction must follow the . . . recommendations of the plant". The DEQ totally rejects this claim. If, contrary

to dictionary definitions, the federal agencies really believe "recommendations" to mean "requires" then it is suggested that state (and local) involvement is superficial and appropriate agreements (or legislation) should be prepared to remove these jurisdictions from the process.

On the other hand, the recommendation that additional training is needed is quite appropriate even though the discussion upon which it is based appears misguided.

"The decision to shelter the population in Iowa as opposed to Illinois' decision to evacuate once the release had begun must be examined carefully. No coordination was observed between Iowa and Illinois during the decision making process for immediate protective actions.

44. Procedures must be established for close coordination between Iowa and Illinois of protective action decisions before they are implemented. The political ramifications and the erosion of public confidence in government to protect the health and safety of the citizens must be considered, especially since power plant accidents do not respect political boundaries."

As soon as a protective action is taken a boundary is created. It may be a road, an "arc", a "keyhole", a river or a political boundary (state or local). Once created, the reaction of the concerned citizen on one (or the other) side of this boundary is dependent on the trust the individual has in his government together with how closely he categorizes himself with the individuals on the other side of the boundary. It seems that a mile wide river that is also a state boundary would cause less concern than a county road or even a "gap" in the location of farmsteads down the road where a "neighbor" is on the other side of the boundary. The concern over differing orders was (and remains) blown out of proportion. Adequate coordination occurred for Iowa to reject the modeling assumption being used by Illinois and the automatic trigger approach to evacua-

tions and for Iowa to realize that Illinois was equally adamant. Likewise both states were aware of the differing populations and ease of implementation that this presented to the two states. (Note: Follow-up discussions of 12:45 and 1:20.) At that point no further discussion was productive and both states acted as they felt was best. This seems much more rational for a time constrained problem.

"The UHL Team Coordinator, located in the Scott County EOC, recommended evacuation of the population based on his calculations from actual field readings. This recommendation was not followed nor considered during the discussion of appropriate protective actions.

46. Procedures should be developed to require active participation in the protective action decision making among all sources of assessment information; the plant, the State EOC and the field monitoring teams."

UHL recommended "if continuing-recommend evacuate Camanche, or shelter if lower contract" based on B2 and B3 data (210 mR/hr and 11 mR/hr respectively) transmitted at the same time that IDNS projections of 1 R/hr @ Camanche were transmitted (approximately 12:00). The sheltering order was issued @ 9:56 a.m. It was based on total dose available for release and plume dispersion projections. Field data was confirmatory in nature. It did not indicate more severe action unless the "creation" of additional material was assumed. The recommendation was considered but was considered consistent with the other data already evaluated.

"The decision to shelter as opposed to evacuate is not justified in light of a June 20, 1980 letter from ODS stating "We do not intend to use the shelter in place option... the evacuation option is the best course of action".

47. The Iowa State response does not reflect the State's apparent policy on evacuation -vs.- sheltering. If sheltering has now become the more favored option, strong consideration should be given to the use of KI in conjunction with the use of the shelter in-place option."

The Iowa Emergency Plan addresses sheltering as a protective action in Tables 2 and 3 (Pages F-2-4 and F-5). It was the DEQ's understanding that the letter quoted in the federal comments was addressing the use of sheltering (with KI) in lieu of an evacuation. That was not the question under review (however it may have appeared to the observer) even though the DEQ will recommend evacuations where sheltering is not available (i.e., marinas and campgrounds). Acknowledging that changing state capabilities may well suggest changes in the State Plan, it is still inappropriate to base this comment on peripheral correspondence.

Here followed three (3) recommendations (48, 49 and 50) regarding the Departments of Agriculture and Conservation Commission. The DEQ defers to these agencies on these matters.

Recommendations 51 and 52 (and the associated comments) deal with use of dosimetry devices and potassium iodide for personnel exposure control. Recommendations 53 through 57 (and the associated comments) deal with the availability of medical and public health facilities. The DEQ defers to the Department of Health and Office of Disaster Services on these matters.

RE-ENTRY AND RECOVERY

"STATE - LOCAL:

Because of the lack of evacuation decision during the exercise, this element was not demonstrated. However, at both the State and local EOCs, termination of the exercise was extremely rapid. No discussion was observed concerning possible need for decontamination of facilities, establishing centers for screening affected area residents and providing further assurances to the public on the safety of the area.

RECOMMENDATIONS:

59. Following the cold shutdown notification from the utility, even without evacuation, procedures should be established for public recovery by reassuring the public of the safety of returning to their normal routine, establishment of centers for screening affected residents for health effects and the possible need for physical decontamination of public and private property."

The sheltering recommendation (and action) was based on noble gas concentrations. Previous sampling reports (Note: hard copy clarification from DEQ Liaison @ 1:00 and 1:10 p.m.) (REAC @ 12:45, UHL @ 1:00 p.m. and others) supported this. Sampling at 2:28 and 2:35 at B1 and B2 (received 2:40 p.m. from REAC) indicated "no deposition". Hard copy received through DEQ Liaison indicated "1423 Environmental samples results - No GRD Contamination Found". In light of this information, it did not appear necessary to take any further action. If more detailed surveys and evaluations are expected it was not evident in any guidance DEQ received.

0-17-01

SUMMARY

A significant number of deficiencies were noted during the May 20, 1981 Exercise Cordova by DEQ staff, other state agency staff and federal observers. These fall into two general categories: specific operating details and general role responsibilities.

Most of the comments regarding specific operating details which were made by the federal observation team were based on misunderstandings (or invalid assumptions) regarding what actually took place. This type of review only makes it more difficult for the actual response agencies to improve their capabilities because it distracts their very limited staff resources from more productive activities.

The federal observers also appear to have a view of proper organizational relationships at odds with the approach utilized in Iowa. In particular there appears to be an attitude that the state's role is to validate the plant's decisions. The Iowa Emergency Plan assigns specific tasks to various state and local agencies in order to fulfill Iowa's responsibilities. At key points decisions must be made. Ultimately the only opinion that matters is the decision maker's. However nice it would be if everyone agreed, other's opinions are (and should remain) no more than recommendations. If the observers truly believe that state and local governments "must follow the ... recommendations of the plant" then it is suggested that appropriate legislation be sought to place what are currently the state's responsibilities directly on the utility.

Appendix A

FEMA Recommendation Cross Reference

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* Deferred to other agency.