AD-A136 977 NUCLEAR WEAPON ACCIDENT EXERCISE 1983 (NUWAX-83) AFTER ACTION REPORT VOLUME 1(U) DEFENSE NUCLEAR AGENCY WASHINGTON DC 17 OCT 83 1/1

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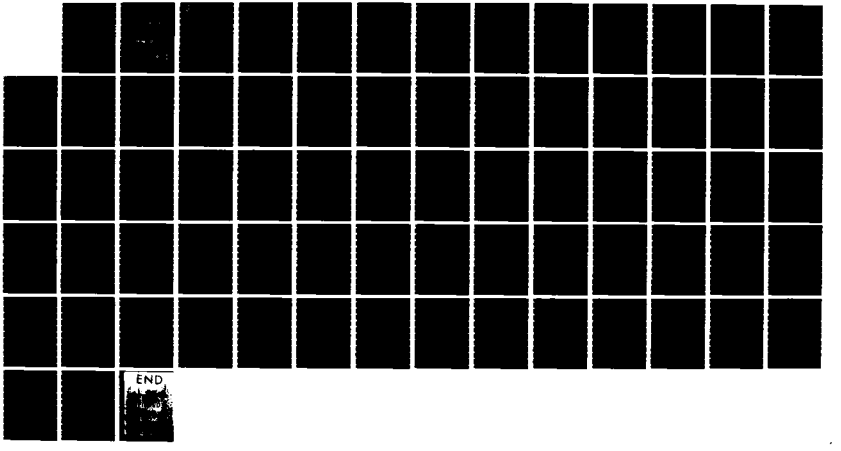

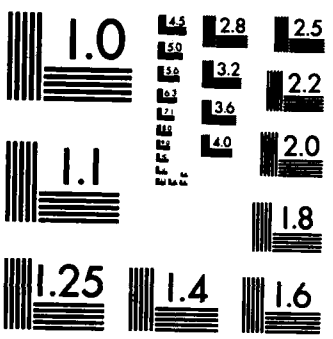

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JOINT DEPARTMENT OF DEFENSE/DEPARTMENT OF ENERGY/FEDERAL EMERGENCY MANAGEMENT AGENCY

NUCLEAR WEAPON ACCIDENT EXERCISE

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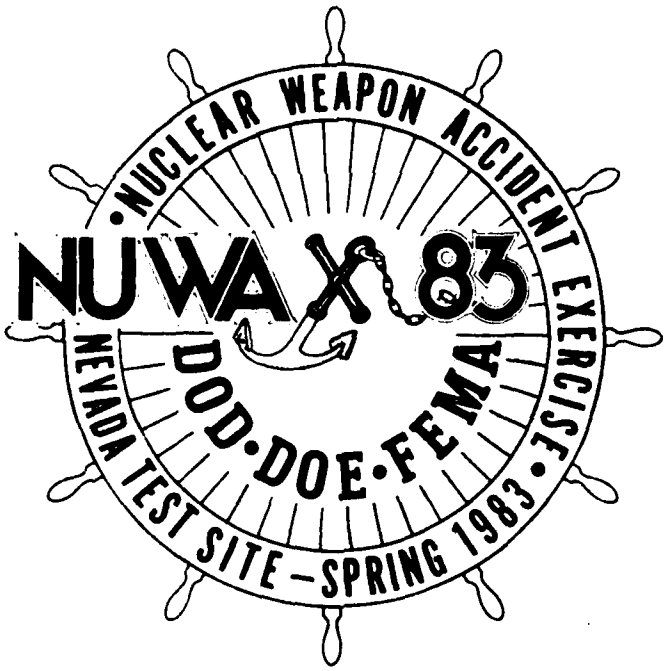
AFTER ACTION REPORT

VOLUME I - EXECUTIVE QUICK LOOK



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DEFENSE NUCLEAR AGENCY
FIELD COMMAND
KIRTLAND AIR FORCE BASE, NEW MEXICO 87115

FCO

17 OCT 1983

SUBJECT: Joint Department of Defense/Department of Energy/Federal Emergency Management Agency Nuclear Weapon Accident Exercise 1983 (NUWAX-83) After Action Report, Volume I.

SEE DISTRIBUTION

1. Attached is Volume I, Executive Quick Look, of the NUWAX-83 After Action Report. This volume contains an exercise overview and those lessons learned which were observed by the Exercise Joint Task Group.

2. Volume II of the NUWAX-83 After Action Report, scheduled for publication at a later date, will consist of Volume I, with a slightly expanded overview, additional lessons learned as submitted by the major player - participants, and an exercise chronology. Volume II will be geared toward those individuals whose duties require a more detailed knowledge of nuclear weapon accident response.

3. This report has been cleared for public release. Additional copies of the report can be obtained through the National Technical Information Service, Springfield, Virginia.

1 Incl
Volume I

WARREN E. AUT
Rear Admiral, USN
Commander

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TABLE OF CONTENTS

SECTION A

OVERVIEW

1. BACKGROUND:

a. A joint Department of Defense, Department of Energy, and Federal Emergency Management Agency Nuclear Weapon Accident Exercise, NUWAX-83, was conducted during the period 5-10 May 1983 by the Defense Nuclear Agency. The exercise included the United States Navy, the Department of Energy, the Federal Emergency Management Agency, and the Commonwealth of Virginia (COV) as the major participating players. NUWAX-83 was the third such full-scale exercise of the nuclear weapon accident response capabilities and was conducted at the Department of Energy's Nevada Test Site (NTS). The scenario had artificialities specifically incorporated to provide maximum play for the widest possible variety of participants. In actual nuclear weapon transport, the United States employs stringent safety requirements in order to prevent aircraft accidents, such as portrayed in the NUWAX-83 scenario. For instance, flight over populated areas is specifically avoided, or at least minimized, when otherwise impossible to avoid. In a similar vein, the U.S. has never had a fire or high explosive component explosion involving a nuclear weapon and a helicopter.

b. NUWAX-79 was the first large scale nuclear weapon accident exercise conducted by the United States. It was a time compressed exercise of limited scope. It did, however, involve the DOE and all four Services in order to increase accident response awareness throughout the DOD. Play in the Washington area was minimal, as were off-site communications, and interfaces with other Federal departments and agencies which might have direct or supporting responsibilities. The U.S. Army provided the Initial Response Force

and the U.S. Air Force provided the Service Response Force. No attempt was made to include state or local authorities. This limited approach to improvement of the national nuclear weapon accident response capabilities reflected existing perceptions of current capabilities and what was initially achievable.

c. NUWAX-81 built upon and expanded evaluation of the advances made since NUWAX-79. Major goals included involvement of Federal, civil and military headquarters and their field response activities. Further, NUWAX-81 was intended to involve a state emergency response organization and, as practicable, to simulate local government and civilians in the accident environment. The State of California was a major planner and participant in this exercise. The value of using a live radioactive contaminant for realism and the lack of an alternative area with a suitable Environmental Impact Statement (EIS) dictated a return to the Nevada Test Site. In NUWAX-81 the U.S. Air Force provided the Initial Response Force (IRF) and the U.S. Army provided the Service Response Force (SRF). This expanded the exercise of both Services and permitted an evaluation of the role played by Army's Director of Military Support (DOMS), who is responsible for coordinating the off-site DOD support to the Civil Sector through FEMA, should the President declare a major disaster or emergency as a result of a nuclear weapon accident. NUWAX-81 allowed previously developed improvements to be verified and expanded awareness in the Federal and state governments about the need to develop and practice nuclear weapon accident response. The need for jointly ratified response agreements between various entities which would respond to an accident of this type was demonstrated. In general, the overall national nuclear weapon accident response capability was successfully exercised and evaluated.

2. OBJECTIVES OF NUWAX-83:

a. The major objectives of NUWAX-83 were as follows:

(1) To build upon and logically extend the experience of previous exercises and provide for the continued growth of the various Federal response capabilities.

(2) To expand the level of participation within the Federal government, state government (through play by the Commonwealth of Virginia), and local communities.

(3) To exercise the U.S. Navy in a primary response role.

b. Functional areas were designated to facilitate the evaluation and analysis of the exercise activities. These areas were as follows:

(1) Command and Control

(2) Radiological Safety and Control

(3) Communications

(4) Security

(5) Casualty Handling/Medical Operations

(6) Weapon Operations

(7) Public Affairs

(8) Logistics and Service Support

(9) Legal Affairs

(10) Site Restoration

3. EXERCISE SCENARIO:

a. Basic Staging:

(1) A Navy CH-46 Sea Knight helicopter located at the (simulated) Naval Ordnance Facility (NOF), Port Gaston, VA, was loaded with three nuclear

weapons for a logistical movement to a nearby naval station. The CH-46 helicopter was escorted by a second CH-46 containing a security reaction force of 15 marines. About 5 kilometers beyond the boundary of the NOF, the security force helicopter encountered difficulty and was required to make an immediate forced landing. The load carrying helicopter then attempted to return to NOF Port Gaston, the nearest DOD facility. Over the (simulated) town of Port Gaston, VA, and just before crossing the NOF boundary on his return to the RED LABEL area, the pilot of the logistical helicopter issued an abrupt "MAY DAY". Immediately thereafter, one rotor of the logistical helicopter came loose and cut into the fuselage. The helicopter then separated into two sections and crashed; the front portion of the helicopter and some debris landed approximately 50 meters from the gate inside of the NOF fence with debris catching on fire, while the smaller rear section hit near the city park and was, likewise, on fire. Some type of cargo had fallen from the separating helicopter hitting the ground near the fence line and exploding. One of the fence maintenance personnel working in the area was killed by flying debris. In addition, one civilian Navy employee and sailor were injured. Marine guard(s) at the gate were injured and a sailor and his girlfriend in the park were hurt by the flying debris. Two residents of the trailer park were killed by debris from the crash. Four other residents had minor injuries and walked to the outskirts of the trailer park to observe the fire. A group of bystanders quickly began gathering outside the perimeter fence to observe the activity.

(2) Civilians from Port Gaston witnessed the crash and explosion and notified Port Gaston and Jefferson County police, fire, and rescue units. Both Naval Ordnance Facility and Jefferson County police, fire, and rescue units responded. The Marine security force on the escort ship was unable to respond immediately, but arrived shortly thereafter.

b. Crash Damage to Cargo:

(1) A W-55 SUBROC fell with the front portion of the wreckage and remained inside the helicopter wreckage.

(2) A B-57 bomb fell from the front portion of the helicopter and underwent a high order high explosive detonation upon impact. This resulted in destruction of the weapon, the spread of classified contaminated debris, and produced an area of downwind radioactive contamination.

(3) Another B-57 bomb fell with the first one and was separated from it by the explosion. The physics package of the second B-57 was thrown off of military property while the parachute section remained inside the NOF boundary.

c. Radioactive Fallout Pattern: Area contamination produced by the B-57 bomb undergoing high explosive detonation included the seafood restaurant, part of a nearby mobile home park, and a small industrial park.

d. Civilian Involvement: Following the crash and explosion, local citizens called the Jefferson County and Port Gaston Police departments and local fire and rescue units. Rescue units responded to the accident site. Contamination resulting from the accident was spread by the unsuspecting populace. Local resources were heavily taxed in dealing with the contamination and restoration.

4. EXERCISE OPERATIONS:

a. NUWAX-83 was an exercise that maximized effects of an on-base nuclear weapon accident with severe off-base consequences. Challenging accident recovery problems were provided to the Federal, state, and local response personnel. A Joint Task Group (JTG), composed of approximately 300 personnel, furnished exercise control, evaluation, and support both at the NTS and at Emergency Operations Centers in the Washington Area. JTG umpires functioned as both exercise controllers and evaluators at the accident site and in the Washington Area.

b. Some 600 player participants representing the DOD, DOE, FEMA, other Federal agencies, and the Commonwealth of Virginia (COV) responded to the accident. The Port Gaston NOF and the town of Port Gaston were constructed prior to the exercise and were populated for several days before STARTEX. NUWAX-83 differed from previous NUWAX exercises in that the scenario was based on an accident at an established town area. During the exercise, the NOF and accident site were under the operational control of the on-scene commander and the town was governed by the local authorities.

c. There were in excess of 150 official visitors, and 30 media personnel who observed NUWAX-83 operations. In addition, there were 71 official observers, including foreign observers from the United Kingdom, who attended the exercise for periods ranging from three to seven days.

d. In Washington, surrogates played in the place of most key decision makers. The surrogates' actions and comments during the exercise may not necessarily have depicted the actions and comments their respective principals

might have injected into exercise play. Since the Washington Control Group also simulated a number of external exercise interfaces, the players were, in many instances, unable to coordinate with their normal points of contact as they would in an actual situation.

e. Washington area commands and agencies which participated in Exercise NUWAX-83 were the:

(1) Department of Defense

(a) Assistant Secretary of Defense (Public Affairs)

(b) Assistant to the Secretary of Defense (Atomic Energy)

(c) Organization of the Joint Chiefs of Staff

(d) Department of the Army

(e) Department of the Navy (to include CINCLANTFLT HQ, Norfolk, VA)

(f) Department of the Air Force

(g) Defense Nuclear Agency

(2) Department of Energy

(3) Federal Emergency Management Agency

(4) Department of Health and Human Services

Public Health Service

(5) Environmental Protection Agency

(6) Department of Agriculture

(7) Department of Interior

(8) Department of Housing and Urban Development

(9) Department of Commerce

(10) National Communications System

(11) National Red Cross.

5. LESSONS LEARNED AND RECOMMENDATIONS:

a. Details of the major lessons learned from NUWAX-83, and recommendations for corrective action to improve accident response, are included in Section B. These major lessons learned are considered to be the most significant in the context of upgrading the national nuclear weapons accident response capabilities. They are based on direct umpire/controller observations and were also summarized for key players/planners at an exercise critique held 12-13 May 1983 at the DOE's Nevada Operations Office.

b. The complete list of lessons learned and accompanying recommendations, will be published in the final NUWAX-83 After Action Report which will include both lessons learned from Section B, this Volume, and additional lessons learned based on player inputs. Also included in Volume II will be extracts from those after action reports received from each of the major player agencies.

6. SUMMARY OF NUWAX-83:

a. Overall, NUWAX-83 must be considered a great success. The objectives of the exercise were achieved and new lessons were learned. Previously developed improvements were verified and the need for further development of response capabilities was recognized by the federal and state agencies involved. It was obvious that the NUWAX series of exercises had greatly improved the experience and knowledge level of virtually all the response agencies that deal with this type of problem.

b. There was unanimous support from both planners and players for continuing the NUWAX exercise series. NUWAX-83 reaffirmed that only through

jointly conducted field exercises can the degree of realism be achieved that allows for a critical exercise test and evaluation of current nuclear weapon accident response procedures and doctrine. Comparison of NUWAX-83 deficiencies and lessons learned with those of earlier exercises clearly illustrates major improvements and understanding of the inherent problems in a nuclear weapon accident by the response community.

c. NUWAX-83 was a learning experience of great benefit to the response community. It was conducted in a no-fault environment and thus has permitted a complete and very candid evaluation in this After Action Report. There is no intention to single out individuals or groups for criticism; the objective is to improve response planning and procedures. In fact, individual and group performance should be highly commended. The leadership demonstrated in the response clearly reflected extreme dedication, sense of purpose, and continued improvement in virtually every area.

7. SIGNIFICANT CONCLUSIONS FROM LESSONS LEARNED AT NUWAX-83: Progress in improvement to the national capability to respond to a nuclear weapon accident has been extensive over the past four years. NUWAX-83, itself a significant advance in scope, provided a number of important lessons. From these latest lessons, there appear to be several specific areas which offer the greatest opportunity to further enhance our response capability. These include:

a. Radiological Guidelines: The absence of coordinated radiological procedures which would rapidly identify and quantify the radiological problem remains an area of weakness. While there are adequate resources and expertise available for response, there is no coordinated plan to define the existing

problem. The public information and relations programs are hampered by a lack of concensus on health physics and there are no coordinated federal site restoration guidelines for use in discussi .i with state or local government officials. It is not hard to forecast the challenges facing the total federal response force under the existing conditions. Some examples are:

(1) The need to avoid undue public alarm during all phases of accident response.

(2) The need to assure contaminated civilians that they have been properly decontaminated.

(3) The need to achieve agreement with state and local agencies that buildings, land, etc., have been cleaned up to a level of safety that has broad support among the scientific community. In the absence of some agreed criteria, the economic impact and legal aspects could be overwhelming.

The Government's credibility will be challenged without a clearly established course of action which defines the actual problem. The most significant radiation exposure normally occurs during the passage of the contaminated cloud immediately following the accident, and before protective or preventive measures can be implemented. The degree of hazard to people in the contaminated area after cloud passage is not precisely determinable. However, it is much smaller than the hazard during cloud passage. Extensive, but as yet uncompleted, work to develop coordinated guidelines for clean up standards has been conducted. The difficulty in predicting radiological effects in a plan which attempts to cover all accident conditions

may be impossible. For this reason, the first effort should be slanted toward formulating guidelines.

Information on the hazard, based on exposure time, to unprotected personnel should be generated. This information should be compiled and used as a guide to minimize public and response force risk and to limit the spread of contamination.

b. Federal, State and Local Planning: NUWAX-83 incorporated state and local participation in a major nuclear weapon accident exercise. NUWAX-83 experience reaffirmed the necessity for emergency pre-planning and coordination between DOD nuclear facility commanders and civil authorities. Prompt, effective, coordinated reaction will depend on the degree of pre-planning and mutual knowledge of responsibilities and capabilities established prior to an accident. The complexities of the response required, the initial confusion resulting from inadequate information flow, the hazards to life and the threat of radioactive contamination all demand coordinated pre-planning. Since NUWAX-79, DOD, FEMA and DOE have been striving to improve coordination with state and local authorities. DOD has directed that the Services cooperate with and assist FEMA in developing radiological emergency plans with appropriate state and local authorities for those DOD fixed facilities where the potential exists for an accident involving radioactive material. Local military installation commanders must plan to coordinate or interface with state and local officials during their radiological accident exercises within the limits permitted by security classification guidelines and the ability of the local governmental agencies to participate. The basic

DOD policy of "neither-confirming-nor-denying" the presence of nuclear weapons under normal day-to-day conditions somewhat constrains accident pre-planning and joint military/civilian exercises. Nevertheless, there is a need for some form of military-civil government interface to take place. Actions are in progress to resolve the dichotomy between security requirements and the need to enhance nuclear weapon accident coordination. It is imperative that military installation commanders be provided clear guidance and assistance that will enable them to plan effectively with their civilian counterparts.

c. Expansion of Training Opportunities: Ever since the preparatory planning for NUWAX-79, numerous recommendations for revisions of regulations and operating procedures have been made. The efforts toward refinement and improvement have resulted in several revised editions of the draft NARP, new formal courses of instruction, and many revisions of DOD operating procedures. Lessons learned from major exercises have been briefed widely. It is extremely important that the response agencies at the Federal, state, and local levels train to the standards and with the equipment which have been identified as necessary. Retirement and transfers continue to drain the cadre of experienced personnel. Since the probability of having an accident has been lowered in the 1970's and 80's, it is understandable that even those individuals who are tasked by their Services to respond to an accident have tended in the past to downplay this responsibility and focus on the many day-to-day problems facing them. However, NUWAX-83 has clearly indicated that response forces currently recognize the magnitude of their responsibility and have made significant advances in almost every area. This level of training must be maintained and expanded to enable the critical mission of nuclear weapon accident response to be fulfilled.

SECTION B

LESSONS LEARNED

1. COMMAND AND CONTROL: (Washington Play):

a. TOPIC. Notification (National Military Command Center (NMCC)).

(1) COMMENT/DISCUSSION: The NMCC received the initial BROKEN ARROW report (voice) from a Commander in Chief, Atlantic Fleet (CINCLANTFLT) Public Affairs Officer (PAO) at 051611Z May 1983. This notification used the flag words BROKEN ARROW and revealed only that a helicopter had crashed at the Naval Ordinance Facility (NOF), Port Gaston, VA. A post-exercise reconstruction of this event indicates that the Service Response Force (SRF) PAO had called the CINCLANTFLT PAO and requested him to inform the Office of the Secretary of Defense (OSD) and Navy Public Affairs Offices of the helicopter accident. The CINCLANTFLT PAO inadvertently reached the NMCC and subsequently gave his report to all participants in the telephone conference convened by the NMCC. This report created initial confusion in the NMCC, partly as a result of a poor telephone connection. Additionally, it did not contain the elements of information required in a BROKEN ARROW report. The NMCC had significant difficulty in understanding the report, who was sending the report, and who to contact to obtain additional information regarding casualties, damage, weapon types, location of the crash, etc.

(2) CONCLUSION: The initial BROKEN ARROW report received by the NMCC did not contain sufficient information and did not come through the normal operations channel. There is no record indicating that a proper OPREP-3 BROKEN ARROW voice report was submitted by on-site or CINCLANTFLT operations personnel in accordance with JCS Pub 6.

(3) RECOMMENDATION: That the Navy should review OPREP 3 reporting procedures and emphasize the importance of correct, complete BROKEN ARROW reporting.

b. TOPIC. Notification Procedures (DOE EOC).

(1) COMMENT/DISCUSSION: Review of the Department of Energy (DOE) notification process indicates:

(a) The initial NMCC conference call with CINCLANTFLT did not include a specific location and the types of weapons involved.

(b) DOE first received the accident details from the DOE JNACC and then contacted the NMCC in a secure mode for coordination.

(c) The NMCC did not retransmit the BROKEN ARROW report to DOE and FEMA for over 2.5 hours.

(2) CONCLUSION: The DOE did not receive adequate information from DOD elements during the initial hours following the accident notification. Reporting instructions should include HQs DOE/EOC and FEMA EICC as timely readdressees on all BROKEN ARROW record copy reports.

(3) RECOMMENDATION: That the ATSD(AE) stress the importance of timely, accurate reporting, and verify that DOE and FEMA are included as readdressees on all pertinent nuclear weapon accident reports.

c. TOPIC. Notification Procedures (FEMA Emergency Information Coordination Center (EICC)).

(1) COMMENT/DISCUSSION: The information provided by the reporting command in the initial NMCC BROKEN ARROW conference call was sufficient to alert the FEMA EICC, but insufficient to cause FEMA to notify those agencies and offices within the Federal Government which have response requirements. Information regarding radiation contamination was unknown for an extended period. When FEMA notifications did begin, the process took over one hour to complete.

(2) CONCLUSION: Federal agencies can not act decisively on incomplete information. Reporting organizations must ensure that complete and accurate information is provided as rapidly as possible.

(3) RECOMMENDATION: That reporting Services/Agencies insure they obtain complete information as soon as possible, notify all appropriate agencies, and provide information updates as often as necessary.

d. TOPIC. Transfer of National-Level Command and Control (NMCC).

(1) COMMENT/DISCUSSION:

(a) The Department of Defense, Department of Energy, and Federal Emergency Management Agency concluded the Joint Agreement for response to nuclear weapons accidents in January 1981. This agreement contains the following provisions: "The NMCC will be responsible for initial national-level command and control and response of Department of Defense (DOD) resources and personnel until conditions have stabilized, at which time command and control will be transferred to the Responsible Service operations center". This agreement has been incorporated into the 10 March 1981 DOD Instruction 5100.52, "Radiological Assistance in the Event of an Accident Involving Radioactive Materials".

(b) During NUWAX-83, the transfer of national-level command and control of the accident from the NMCC to the Navy Command Center (NCC) occurred at 051858Z May 1983. The turnover in control occurred as a result of the Navy having elements in close proximity to the crash site and good communications with the on-scene commander (OSC). Additionally, the NCC indicated a desire to assume command of the situation, although conditions at the accident site were still not completely clear. For example, some information indicated that one weapon remained unaccounted for.

(2) CONCLUSION:. The NMCC transferred command and control of the accident to the NCC smoothly and efficiently. However, the stabilization criteria providing for transition of operational control in the Washington area during a nuclear weapon accident response operation were not clearly defined.

(3) RECOMMENDATION: That the Assistant to the Secretary of Defense (Atomic Energy) (ATSD(AE)), in coordination with the Services and the Organization of the Joint Chiefs of Staff (OJCS), review criteria for the transfer of national-level command and control of nuclear weapon accident response operations and take corrective action as required.

e. TOPIC. National-level Command and Control (Navy Command Center (NCC)).

(1) COMMENT/DISCUSSION:

(a) The NMCC is responsible for initial national-level command and control and response of DOD resources and personnel. When conditions have stabilized and as directed by the Secretary of Defense or his authorized representative, the NMCC will transfer command and control to the responsible Service operations center.

(b) The NMCC transferred command and control responsibility to the NCC at 051858Z, approximately 3 hours after the accident. The NCC Crisis Team (CT) Director had indicated a readiness to accept control. At this point, the NCC had assessed and assimilated all information which the NMCC had acquired regarding the accident. Although many details concerning the accident, such as location of nuclear weapons, were not known even at the site, the NCC had communications links with the NOF Port Gaston, where the crash occurred.

(c) When the NCC assumed control, information in the NMCC and NCC revealed that the Navy Regional Response Force (RRF) was providing emergency services and had established a National Defense Area (NDA), that the Service Response Force (SRF) was enroute, and that special teams were requested.

(d) The NCC approach for accomplishing national-level control during the initial phases was to monitor on-scene activity and to query the OSC only after all other sources for required information were exhausted. Generally, the NCC CT would communicate with the OSC only after assessing the likelihood that the requested data was available to the OSC and the requirement for the information was sufficiently urgent to warrant the query. To assess urgency, the CT evaluated the utility of the information and the consequences of not having it.

(e) The relatively low level of NCC communications to the OSC could be attributed, upon analysis, to two principal factors; the first was exercise artificiality, and the second was insufficiently defined procedural

responsibilities. The subsequent paragraphs address each of these factors in turn.

(f) With regard to exercise artificialities, two points are germane. First, the PREMIER TASK VI exercise prepared Washington-area participants for NUWAX-83. Several key members of the NUWAX-83 NCC CT participated in Exercise PREMIER TASK VI. The second point is that the level of active participation by other Washington-area organizations was not at a sufficiently high level of authority to induce the sense of urgency which normally accompanies those organizational interactions. For example, FEMA, DOE, and DNA were represented at briefings in the NCC by the individuals of those organizations assigned as representatives to the CT. While the participation of those representatives substantially enhanced coordination among their respective organizations, their presence at briefings did not generate the dialogue or incisive questions normally asked by senior officials. Questions asked by senior officials frequently drive requests for additional information.

(g) The second major point focuses on the assignment of specific procedural responsibilities associated with national-level command and control of a nuclear weapon accident response. The Navy CT, having a response plan in place, forces at the accident site, and communications with the OSC, essentially had established command and control. However, directives pertaining to transfer of national level command and control do not address specific functions and procedures, normally accomplished by the NMCC, which the Service should assume at the time of transfer.

(2) CONCLUSION:

(a) Participation by senior officials of Washington-area response organizations was inadequate to stimulate exercise play.

(b) The Navy approach to national-level command and control resulted in a level of dialogue between the NCC and the accident site well below that expected by exercise planners. Exercise artificialities and the lack of assigned procedural responsibilities for the responsible Service also contributed to the low level of dialogue. Although keeping queries to the OSC to a minimum is good procedure, it is doubted that the NCC will always be able to "run interference" during an actual accident if, in fact, senior officials in Washington wish to address their questions specifically to the OSC.

(3) RECOMMENDATIONS:

(a) That the ATSD(AE), in coordination with the Services and OJCS, review and specify the functional responsibilities of the responsible Service upon assumption of national-level control coordination.

(b) That the Defense Nuclear Agency encourage participation by senior officials of Washington-area response organizations in future NUWAX exercises.

f. TOPIC. NMCC Play Subsequent to Transfer of National-Level Command and Control (NMCC).

(1) COMMENT/DISCUSSION: Transfer of national-level command and control from the NMCC to NCC occurred at 051858Z May 1983. Subsequent to this transfer, the OJCS Nuclear Accident/Incident Response (NAIR) Team was dispatched to the NCC to provide for OJCS coordination and assistance as required. Following an information exchange, the NAIR Team was released by the NCC Officer in charge. During subsequent NUWAX-83 play, the NMCC was tasked for various information requirements; however, in each instance the actions were referred to the NCC.

(2) CONCLUSION: DOD and Joint Staff elements had little involvement in Exercise NUWAX-83 subsequent to the transfer of command and control to the NCC.

(3) RECOMMENDATION: That the Joint Staff operating from the NMCC continue to aggressively monitor accident response operations after the transfer of command and control to a Service operations center has been accomplished. The Joint Staff and appropriate DOD response teams should be prepared to respond on short notice to inquiries from the National Command Authority and other senior Government officials.

g. TOPIC. Command Post Management (Navy Command Center).

(1) COMMENT/DISCUSSION:

(a) Service command centers have been identified as responsible for command and control of DOD response forces and personnel when directed by the NMCC. The Service command center, like the NMCC, may establish a specialized team for supporting the on-scene commander's operations at the accident site.

(b) For NUWAX-83, the NCC convened the Navy Nuclear Weapons Accident/Incident Recovery Crisis Action Team (CT). This team consisted of representatives from five functional areas: Radiation Health, Explosive Ordnance Disposal (EOD), Public Affairs, Security, and Legal Affairs. Additionally, representatives from FEMA, DNA, and DOE were present to advise on matters within the perview of their respective parent organizations.

(c) The primary function of the CT was monitoring activity at the scene of the accident. The CT accomplished this function principally through reports from the on-scene commander, press and wire service releases, and reports from the scene through FEMA and DOE channels. The CT within the NCC Crisis Action Center (CAC) maintained the status of actions and charts depicting the crash site, the NDA, and contaminated areas.

(d) The major sources of information from the accident scene for the NCC were two daily situation summaries which the OSC submitted. These reports described the current situation, key events since the previous report, and a plan of action for the following day. The NCC retransmitted this the reports, received as an AUTODIN message, to organizations other than those to whom it was addressed when the information content warranted.

(2) CONCLUSION: The NCC Crisis Team was comprised of personnel who were qualified in nuclear weapons accident response procedures. This resulted in a capability to effectively use reports from various on-scene sources, minimizing the need for ad hoc queries. The usefulness of the Navy CT was validated during NUWAX-83.

(3) RECOMMENDATION: That any Service Operations Center not having an augmentation capability such as the Navy CT consider making provisions for such an element.

h. TOPIC. Interagency/Service Coordination (DOE EOC).

(1) COMMENT/DISCUSSION: At 051855Z May 1983, the DOE EOC received word by means of an NMCC conference call that an NDA had been established and that a press release had been made indicating nuclear weapons were present. The DOE Emergency Operations Center (EOC) did not receive a hard copy message containing the specifics of either event.

(2) CONCLUSION: The DOE EOC lacked adequate information concerning the initial press release acknowledging the presence of nuclear weapons and details indicating the boundary of the NDA.

(3) RECOMMENDATION: That nuclear weapon accident response elements, and particularly public affairs, ensure the Departments of Defense and Energy, and FEMA are included as addressees on all pertinent reports and press releases.

i. TOPIC. Command Post Management (DOE EACT).

(1) COMMENT/DISCUSSION: The DOE Exercise Emergency Action Coordination Team (EACT) met on 10 May 1983, following completion of weapons recovery, to discuss the next phase (site restoration) of operations. The EACT representative from the office of Defense Programs proposed transferring the leadership responsibility for coordinating EACT response actions from the DOE office of Defense Programs to the office of Environmental Protection, Safety, and Emergency Preparedness. This transfer would not alter the composition of the EACT response team. Members of the EACT accepted the proposal, and the Director approved the transfer of leadership responsibility. The DOE EACT rationale behind the proposal was based on removal of the DOD weapons and the shift in focus of operations to cleanup and site restoration.

(2) CONCLUSION: The DOE EACT Director effectively coordinated a shift in team leadership from the DOE Office of Defense Programs to the DOE Office of Environmental Protection, Safety, and Emergency Preparedness following recovery and movement of the nuclear weapons and classified materials.

j. TOPIC. Interagency/Service Coordination (Army Operations Center (AOC)).

(1) COMMENT/DISCUSSION: Complying with instructions from the NMCC Deputy Director for Operations (DDO), JNACC alerted various response elements including Army Radiological Advisory Medical Team (RAMT) and Radiological

Control (RADCON) Teams. Army representatives objected to direct JNACC notification of Army units. The DDO's instruction to JNACC did not necessarily require direct notification, but JNACC could have implied authority with a statement in the January 1981 Joint DOD, DOE and FEMA Agreement which states: "The JNACC will select and notify specialized teams capable of responding to the accident or significant incident, inform the NMCC, Service, and DOE operations centers of actions taken, and when requested by the Services, coordinate the deployment of specialized teams".

(2) CONCLUSION: JNACC's procedures used to alert Army units during NUWAX-83 conflicted with Army procedures governing command and control of Army units.

(3) RECOMMENDATION: That the ATSD(AE) endeavor to clarify the Joint Agreement wording in question during the next revision of that document. Further defining the manner of "coordination" should allow the task to be accomplished consistent with Army procedures.

2. COMMAND AND CONTROL (FIELD PLAY)

a. Topic: Exchange of Liaison Officers

(1) COMMENT/DISCUSSION: Several of the major participating agencies did not respond with the capability, or did not recognize the need, to exchange liaison officers with the other major response elements. This was corrected to some degree as the exercise progressed, but was never fully implemented. FEMA was the notable exception which did provide liaison officers very early in the exercise.

(2) CONCLUSION: The ability to communicate to a particular agency through a member of that agency is invaluable. Much time and effort was saved when liaison officers were utilized. When utilized, information and confusion were reduced due to liaison officers being able to accurately and directly relay data on joint activities to their individual organizations.

(3) RECOMMENDATION: That Service response elements, DOE and FEMA insure the exchange of liaison officers at the earliest opportunity after arrival at the accident scene. If not already addressed, Services/agencies should include guidance to accomplish this in applicable directives and SOP's.

b. TOPIC. Operations Center Activities

(1) COMMENT/DISCUSSION: All of the major participants in the exercise maintained operations centers. In general, the operations centers did well at tracking the progress of activities which were their major responsibility. The same was not always true when the operations centers were attempting to track joint activities or activities directed by another organization. In many instances it appeared that the operations centers had not responded with all the maps, charts, etc. which are necessary to track the numerous on-going activities. For example, it was noted that one operations center had less than half of the special teams that eventually responded listed on the status board. This operations center failed to note the arrival and status of the teams, to note the capabilities of the teams, to establish effective coordination with the teams, to obtain team data on a timely basis for utilization, and to review various reports submitted by the teams. It is critical that the chain of command controlling the operations centers insure that the current

status of all germane activities is tracked and that the information is supplied to all necessary recipients. The partial lack of this type of information sometimes resulted in conflicting actions and duplication of effort. In addition, situation reports which were transmitted to headquarters and outside agencies were often late or incomplete because of the lack of current, valid information.

(2) CONCLUSION: It is of extreme importance that operations centers are adequately manned and properly equipped to track the status of all pertinent activities. There should be an evident chain of command from any forward operations center (command post) to primary operations centers and current information should be passed both up and down the chain as often as possible. This will greatly enhance overall control of response activities.

(3) RECOMMENDATION: That the Services, DOE, and FEMA insure prior adequate preparation of operations center equipment and materials, and that operations center personnel be further trained in the specifics of management of a nuclear weapon accident exercise. Operations centers should be established with the flexibility to perform or track activities which have not been foreseen.

c. TOPIC. Standardization of Response Procedure

(1) COMMENT/DISCUSSION: OPNAVINST 3440.15 dated 30 November 1981 is the directive used by CNO to respond to nuclear weapon accidents. Because of its limited distribution (see OPNAVINST 3440.15, pages 12 and 13), numerous response agencies are unaware of Navy procedures. At the direction of JCS, DNA developed a Nuclear Weapon Accident Response Procedures (NARP) Manual

which provides a compendium of existing procedural guidance for a joint response to accidents involving nuclear weapons. Lessons learned from previous joint exercises (NUWAX-79 and 81) have been incorporated into the NARP.

(2) CONCLUSION: There were numerous non-Navy response elements which were utilizing the NARP as primary guidance and response efforts were hampered because of variances in recommended procedures.

(3) RECOMMENDATION: That there be wider distribution of OPNAVINST 3440.15 to appropriate response agencies. Also, that DNA and Navy carefully resolve any conflicts and potential confusion between OPNAVINST 3440.5 and the recommended procedures in the NARP Manual prior to the NARP becoming a final document.

d. TOPIC. Standardization of Terminology

(1) COMMENT/DISCUSSION: On various occasions response elements misunderstood the exact status of the weapons due to lack of understanding of the terms "rendered safe" and "nuclear safe". The actual situation was that weapons had been declared "nuclear safe" but not "high explosive safe". This lack of knowledge of technical jargon could easily cause extreme problems for the federal establishment. For example, if a federal spokesman asked "Can a weapon cause a nuclear explosion?" and the respondent answered "No, the weapon has been rendered safe (meaning nuclear safe)", the media would undoubtedly be briefed that the weapon was safe. A consequent high explosive detonation would be disastrous to the credibility of the federal government.

(2) CONCLUSION: This type of misunderstanding must be prevented due to the major problems that could occur. The scenario is realistic in that it occurred in NUWAX-83 on more than one occasion.

(3) RECOMMENDATION: That there be wide dissemination of this potential problem to response forces which deal with weapons recovery. It is recommended that weapons not be declared "safe" to the general audience of response agencies except when the weapon is both nuclear and high explosive safe. Services/Agencies should include guidance to identify and deal with this potential problem in applicable directives and SOP's, if not already existing there.

e. Topic. Joint Radiological Control Center (JRCC)

(1) COMMENT/DISCUSSION: A JRCC appeared to naturally evolve on D+1 to control the specialized teams and radiological data being generated. However, there was never an element which was clearly in charge of the JRCC and some of the functions which should have been performed by the JRCC were overlooked. It was felt that the JRCC was more a reaction to the bewildering array of specialty teams that descended on the accident site than a pre--planned organization for overall coordination.

(2) CONCLUSION: The JRCC should have been established as early as possible on D-Day. There should have been an agency designated to take the lead in the organization and operations of the JRCC. Radiological safety/-health physics elements from each participating federal and state agency should provide representation to the JRCC. All specialized elements (ARAC, ATRAP, ARG, RADCON, RAMT, OEHL, RAP, CDCE, DNA Advisory Team, etc.) should, if possible, provide representation to, or coordinate often, with the JRCC. Essentially, the JRCC should manage all radiological matters pertaining to a particular event.

(3) RECOMMENDATION: That the Services and the DOE establish a JRCC as soon as possible for management of radiological affairs. The JRCC should have membership from the affected states(s) also. Services/Agencies should include guidance to accomplish this in applicable directives and SOP's if not already in existence. In addition, all radiological response agencies should arrive at an accident site with a list of personnel, equipment and materials, associated capabilities, and logistical support required.

f. TOPIC. Joint Office of Communications Control (JOCC)

(1) COMMENT/DISCUSSION: A JOCC was established on D+2 to control the literal explosion of communications resources that appeared for NUWAX-83. This was accomplished by initiating a single point of contact for communications to alleviate the confusion caused by the numerous resources that were available. For example, there were 22 different VHF radio nets activated near Port Gaston by the afternoon of D+1.

(2) CONCLUSION: A JOCC should have been established as early as possible on D-Day. There should be a specific element or activity designated to take the lead in the organization and operations of the JOCC. Ideally, this would be a representative from the Office of Manpower, National Communications System who will have Federal level responsibility and authority for coordinating communications at the scene in accordance with the National Plan for Communications Support in Emergencies and Major Disasters. All response elements with communications assets should provide if possible, representation to the JOCC, or coordinate on a frequent basis with the JOCC. Essentially, the JOCC should manage and coordinate all communications resources available to the event being reacted to.

(3) RECOMMENDATION: That the Services, DOE, FEMA and the appropriate state(s) participate in the establishment of a JOCC as soon as possible for management of communications affairs. If not already provided for, Services/Agencies should include specific guidance regarding communications control in applicable directives and SOP's. In addition, all response agencies with communications should arrive at the accident site with a written list of communications equipment, required frequencies, associated capabilities, and logistical support required, ready for submission to the JOCC.

g. TOPIC. Joint Information Center (JIC)

(1) COMMENT/DISCUSSION: A JIC was organized and in operation early on D-Day. There was considerable confusion within the JIC due to the lack of procedural rules for the press, a badging program for the press, and the uncoordinated release of information by individual participants. However, by D+2 these problems had been solved and the JIC was functioning well. On D-Day, it appeared that the JIC was sometimes utilized as a place to which media could be referred when a question or line of inquiry proved difficult for a Public Affairs Officer at another location. In several instances, no better or more current information was available at the JIC than where the question was originally posed. It should be noted that the establishment of a JIC at the earliest opportunity is an excellent procedure, but that the JIC cannot take the place of a responsible public affairs officer responding to an accident scene as soon as possible. Those individuals responsible for immediately providing emergency public information must concentrate on that function and leave the administrative details of establishing the JIC to

others. The concept of a JIC is intended to provide a method of coordinated release of information by the major response participants and will, of necessity, take a few hours to establish as a valid operation. Prior to a functioning JIC being established, the various public affairs officers should attempt to coordinate the information as well as possible and to release pertinent information in a manner which will protect their credibility. Media should not be referred to the JIC, or elsewhere, unless it is known that a valid answer can be provided.

(2) CONCLUSION: The JIC was established, as necessary, but was not as effective as possible because of the lack of procedural rules, press credentials, and the release of information which had not always been coordinated. These problems were corrected by D+2.

(3) RECOMMENDATION: That the Services, DOE, FEMA and the appropriate state(s) combine to establish a JIC as soon as possible for the management of public affairs information, but that its establishment should not take precedence over the fact finding and reporting of emergency public information. Service/Agency guidance must accomplish this through applicable directives and SOP's. The directives/SOP's should stipulate that all media queries should be referred to the nuclear weapon accident site and that on-scene public affairs officers should response as soon as possible based on local information and coordination, and meet the media initially without waiting for the establishment of the JIC.

3. COMMUNICATIONS (WASHINGTON PLAY):

a. TOPIC. BROKEN ARROW Record Report (Washington Area).

(1) COMMENT/DISCUSSION: The AUTODIN record copy of the BROKEN ARROW report sent by FLASH precedence from NOF Port Gaston, was marked CONFIDENTIAL

(CFRD), and contained a date/time group of 051613Z May 1983. The JCS, Navy , and CINCLANTFLT message centers recorded a time of receipt (TOR) of 051743Z May 1983. The time of file (TOF) on the message was 051510. The reason for this TOF 50 minutes before the planned exercise start time is it is believed to have been incorrectly recorded and should have read 051710. The total communications time grossly exceeded the standards for FLASH precedence message traffic. Details of the accident not reported to the NMCC in the initial voice report were contained in the record copy report. Therefore, if responsible administrative and communication center personnel had processed the OPREP-3 BROKEN ARROW report in compliance with established procedures, essential accident information possibly could have been available to the NMCC, NCC, and CINCLANTFLT much sooner.

(2) CONCLUSION: The BROKEN ARROW record report encountered unsatisfactory processing and transmission delays, causing an excessively late TOR at the NMCC, NCC, and CINCLANTFLT.

(3) RECOMMENDATION: That Navy exercise planners review the data relating to the BROKEN ARROW report record copy and determine what caused the unacceptably late TOR of the message at major command centers.

b. TOPIC. Telephone Circuit Limitations (Washington Area).

(1) COMMENT/DISCUSSION: Communications between Washington-area and Port Gaston accident response elements were initially marginal because circuits to the site and telephone extensions on the site were limited. These limitations were not unrealistic; most accident locations would not be serviced by extensive, sophisticated communications resources. Most would require additional support to accommodate the demands of response elements

arriving at the scene. As NUWAX-83 players became familiar with the communications constraints and traffic routing alternatives, information exchange improved and details of the accident situation became clearer.

(2) CONCLUSION: The limited telephone circuits and lines available between Washington and the Port Gaston accident site impeded information flow, particularly during the initial hours of accident response, but should not be construed as unrealistic; most accident locations would not have extensive, sophisticated communications resources immediately available.

c. TOPIC. Interagency/Service Coordination (DOE EOC)

(1) COMMENT/DISCUSSION: DOE information sources indicated that an NDA was established, but its limits and boundaries were not specified. Further, for other than DOE elements, the status of deploying elements was not known to the DOE EOC.

(2) CONCLUSION: Information flow between DOE and other Federal Departments and agencies during the early response phase of the exercise was inadequate to maintain a current situation status in the DOE EOC.

(3) RECOMMENDATION: That the ATSD(AE) coordinate with the Secretary of Energy and Director, FEMA, to establish a Federal Emergency exchange system which will ensure rapid, timely information exchange during nuclear weapon accident response operations.

d. TOPIC. Interagency/Service Coordination (DOE EOC)

(1) COMMENT/DISCUSSION: DOD response elements did not advise the DOE EOC of briefings for senior officials and Members of Congress on D-Day and D+1. Considering the important technical support role DOE elements assume in

responding to a nuclear weapon accident, it would seem desirable and professionally prudent to request a senior DOE official to be present at important initial briefings. During Exercise PREMIER TASK VI, senior DOE officials did attend the principal briefings, but during Exercise NUWAX-83, a procedure to request DOE participation was not used.

(2) CONCLUSION: During D-Day and D+1, DOD response procedures were inadequate to ensure that a senior DOE official was present at important briefings. The presence of a senior DOE official at principal briefings involving a nuclear weapon accident would certainly be helpful, if not essential.

(3) RECOMMENDATION: That the ATSD(AE) take steps to ensure that a senior DOE official is invited to attend all principal briefings following a nuclear weapon accident.

e. TOPIC. Interagency/Service Communication (DOE EOC)

(1) COMMENT/DISCUSSION: DOD elements (NMCC NAIR Team and NCC) did not send liaison officers (LNO) to the DOE EOC. During the response and weapons recovery phases of a nuclear weapon accident, the presence of a DOD LNO at the DOE would be beneficial. The LNO would have exposure to all actions including discussions on pertinent issues, decisions and directives regarding deployments, etc. The LNO could collect pertinent information and ensure that it is available in a timely manner within DOD.

(2) CONCLUSION: The lack of a DOD LNO at the DOE EOC impeded information exchange during the response and weapons recovery phases of exercise play.

(3) RECOMMENDATION: That the ATSD(AE) recommend the Services to provide for dispatch of an LNO to the DOE EOC, if personnel are available, upon notification of a nuclear weapon accident.

f. TOPIC. Deceptive Reporting (DOE EOC)

(1) COMMENT/DISCUSSION: Officials at the accident site released information indicating nuclear weapons were safely secured inside NOF Port Gaston under DOE control. When DOE EACT personnel requested the ARG to verify facts contained in the report, they were told that the report was false and was a deliberate attempt to divert public attention from a simulated barge movement of the weapons.

(2) CONCLUSION: A false report concerning weapons status confused DOE EACT personnel and may be the type of action which could severely damage the integrity and credibility of the Government officials in their dealings with the public.

(3) RECOMMENDATION: That the Secretaries of Defense and Energy review policies and provide explicit guidance to senior members of the nuclear weapon accident community regarding how much and what type of information should be released regarding the movements and disposition of weapons.

4. COMMUNICATIONS(FIELD PLAY)

a. TOPIC. Joint Office for Communications Control (See page 29, para 2f, Command and Control).

b. TOPIC. Repeaters for "Brick" Radios (Motorola Type)

(1) COMMENT/DISCUSSION: It was noted during the exercise that most of the response agencies utilize some type of "brick" radios. These radios worked well and were generally dependable, except for those instances when

communications were degraded by exceeding the maximum 5-8 mile range of the radios. This occurred primarily because NOF, Port Gaston was approximately eight miles from the accident site.

(2) CONCLUSION: Repeaters are likely to be needed when responding with "brick" radios. It should be noted that each repeater utilized will require one additional frequency for communications whereas "brick" would require only one frequency to transmit and receive.

(3) RECOMMENDATION: That the responsible Services, DOE and FEMA, develop the ability to respond with appropriate repeaters for the "brick" type radio systems to provide for a minimum communications range of 10-16 miles. The repeaters should only be used when necessary to keep frequency utilization to a minimum.

5. CASUALTY CARE (WASHINGTON PLAY)

a. TOPIC. Processing Contaminated Human Remains (Washington Area).

(1) COMMENT/DISCUSSION: During NUWAX-83 play, there was little evidence in the Washington area that adequate procedures exist for the handling of contaminated remains. There were several exercise implementers which asked questions regarding the release of contaminated remains. In each instance, the question was referred to another Federal agency and the desired exercise objective of identifying the appropriate Federal guidelines and procedures was not achieved.

(2) CONCLUSION: Actions by Washington area exercise participants were insufficient to identify procedures governing the processing and release of radioactive contaminated remains.

(3) RECOMMENDATION: That DNA, in coordination with the Department

of Health and Human Services, initiate actions to identify the Federal procedures for processing and disposing of contaminated remains and publish the procedures or appropriate references in the NARP Manual, as a minimum.

b. TOPIC. Casualty Reporting (Washington Area).

(1) COMMENT/DISCUSSION: Officials at the scene did not report completion of identification of deceased individuals until 081735Z May 1983. Reports from the site varied from 7 deceased to 15, and finally to 12. During an actual accident situation, the uncertainty and time required to account for deceased individuals could become a major public affairs issue and/or embarrassment.

(2) CONCLUSION: Casualty reporting was inadequate though it is unclear as to whether exercise artificialities contributed to the problem.

(3) RECOMMENDATION: That, as a matter of SOP, officials at the accident scene avoid giving out interim, tentative, or unconfirmed casualty figures. Because of the sensitive nature of casualty data, it should be a matter of policy that any Service/Agency with an accident response role not provide data which later have to be revised.

6. CASUALTY CARE (FIELD PLAY):

a. TOPIC. Systematic Casualty Care

(1) COMMENT/DISCUSSION: Casualty care in the exercise medical facilities was very good and, in the case of the Navy, was exceptional. However, there appeared to be no overall systematic method of searching for, receiving, verifying, and recording casualties in the field. This caused some exercise casualties to receive less than timely care during the early portions of the exercise. Examples were casualties which were not transported to a

medical facility as rapidly as was possible, and field medical tags not being completed on all casualties.

(2) CONCLUSION: Casualty care would have been improved by a systematic method or procedure which was closely coordinated between the medical response agencies.

(3) RECOMMENDATION: That the Services, DOE, FEMA, and the applicable state(s) coordinate at the earliest opportunity on medical procedures. If not already provided for, Services/Agencies should include guidance to accomplish this in applicable directives and SOP's.

7. PUBLIC AFFAIRS (WASHINGTON PLAY):

a. TOPIC. Interagency/Service Coordination (DOE EOC).

(1) COMMENT/DISCUSSION: The DOE EOC did not receive copies of any press releases made by the players in the Washington area or the JIC at the NTS. In essence, the scope and details of public affairs play was not evident at the DOE EOC.

(2) CONCLUSION: The DOE received insufficient public affairs information to gain an appreciation of what the coordinated PA response to the simulated accident involved.

(3) RECOMMENDATION: That Public Affairs personnel include the principal Federal Departments and agencies in all news release actions to ensure that all Federal personnel are aware of PA actions.

8. PUBLIC AFFAIRS (FIELD PLAY)

a. TOPIC. Joint Information Center (See page 30, para 2g, Command and Control).

b. TOPIC. Confirmation of the Presence of Nuclear Weapons.

(1) COMMENT/DISCUSSION: The most critical items in the area of

public affairs at a nuclear weapon accident are the provision of emergency information and the confirmation of the presence of nuclear weapons. Current directives allow an on-scene commander to determine if the confirmation of nuclear weapons at an accident site is an operational necessity. The Navy's confirmation of the presence of nuclear weapons occurred approximately 2½ hours after STARTEX of this exercise. However, the confirmation at the accident site actually occurred about 15 minutes earlier when a state policeman screamed at onlookers to "stay back, "there's nuclear bombs in there!" This situation points up the major problem that exists with "neither confirm nor deny". Civilian authorities will immediately release any information felt even remotely necessary to protect the population, while it has generally been the policy of the DOD to "neither confirm nor deny" the presence of nuclear weapons for the longest period possible consistent with public safety/alarm.

(2) CONCLUSION: The initial confirmation of the presence of nuclear weapons should be made by the DOD Service responsible in coordination with Federal, State, and local officials, if possible. The lack of confirmation by DOD while other authorities are confirming, or when the situation has clearly indicated to most observers that nuclear weapons are present could be disastrous to the credibility of the DOD. A problem of this type would adversely impact numerous activities which are required to be completed at a later time in the accident response. Coordination and cooperation between Federal, state, and local authorities would be harmed.

(3) RECOMMENDATION: That Service responding force commanders exercise the option within DOD policy which currently allows the on-scene commander to make the determination of "confirm or deny" when necessary.

The responsible Service should be the entity which performs this action and the action should not be delayed to the extent that the DOD's credibility is damaged. If not already provided for, Service SOP's should include guidance to accomplish this rapidly once an accident has occurred.

9. SECURITY (FIELD PLAY)

a. TOPIC. Provision of Weapons Locations for Security Force.

(1) COMMENT/DISCUSSION: Player security forces were not briefed on the exact locations of all known nuclear weapons and components at the accident site. Consequently, the security force made wrong assumptions about the weapons locations and a serious breach of the simulated security requirement was committed.

(2) CONCLUSION: The security forces should be informed of the location of nuclear weapons and components to be guarded, and coordination with the security forces should be accomplished when moving the weapons.

(3) RECOMMENDATION: That the Services insure that security forces are adequately briefed on weapons locations as soon as the information becomes known. The Services should include guidance to accomplish this in applicable directives and SOP's.

b. TOPIC. Establishment of National Defense Area (NDA).

(1) COMMENT/DISCUSSION: The Naval on-scene commander established a small, practical, and controllable NDA for the exercise which fully met all requirements. However, OPNAV Inst 3440.15, Enclosure 7, Tab A, Paragraph 2a(3), requires an NDA of 1,000 yards beyond the normal fragmentation range of most weapons when an accident is off federally controlled property. This

requirement is too inflexible to allow the on-scene commander to make a decision based on a particular accident.

(2) CONCLUSION: Published guidance was not followed by the on-scene commander because the actual needs in the field indicated a much more appropriate course of action.

(3) RECOMMENDATION: That OPNAVINST 3440.15, Enclosure 7, Tab A, Paragraph 2a(3), be changed to indicate more flexible guidance in the establishment of an NDA. In addition, the guidance in Paragraph 2a(3) should be reviewed and clarified.

10. LEGAL AFFAIRS (WASHINGTON PLAY).

a. TOPIC. National Defense Area (NDA).

(1) COMMENT/DISCUSSION: The Department of Defense developed the concept of an NDA to provide a means to safeguard DOD classified information and material on non-Federal lands within the United States. This concept is based on an interpretation of existing law, but has not been tested in the courts. A decision to establish an NDA on non-Federal land may be subject to legal challenge by the owners of that land. The Department of Defense and its components must be prepared, therefore, to defend its position or rapidly readjust the position to comply with court orders. In preparing to defend the NDA concept, DOD attorneys should be identified for immediate dispatch to the accident scene with prepared legal positions. Should a challenge be registered, the DOD attorneys would represent the position of the Federal Government.

(2) CONCLUSION: The legal implications of nuclear weapon accident response operations have attained a level of complexity which logically should

require that the DOD General Counsel and the Department of Justice actively participate in future NUWAX-type exercises and in any real accident situation.

(3) RECOMMENDATION:

(a) That the ATSD(AE) review plans to defend the NDA concept with the DOD General Counsel and appropriate representatives of other Federal Departments and agencies and that the DOD General Counsel and the Department of Justice actively participate in future nuclear weapon accident exercises.

b. TOPIC. Funding (Washington Area).

(1) COMMENT/DISCUSSION: During NUWAX-83 play, the issue of funding surfaced, however, it did not generate any Washington level decisions or guidance. Many of the difficult questions regarding the funding of site restoration and accompanying claims still were being negotiated when the exercise ended. The lack of comptroller participation in the exercise was an artificiality that prevented this area from being addressed adequately; however, it was apparent that funding guidance was insufficient to resolve the problems.

(2) CONCLUSION: The issue of funding was not realistically played in the Washington area during NUWAX-83.

(3) RECOMMENDATION: The ATSD(AE) should review nuclear weapons accident response funding guidance with the DOD Comptroller and other appropriate agencies to ensure that appropriate funding authorities can be arranged quickly in the event of an actual accident.

11. LEGAL AFFAIRS (FIELD PLAY)

a. TOPIC. Jurisdiction In and Around National Defense Area (NDA).

(1) COMMENT/DISCUSSION: An exercise actor (looter) was held by the

Marine security unit in the radiologically contaminated area without anti-contamination clothing for over one and a half hours due to confusion between local authorities and the Marine security unit on exactly who had jurisdiction. The Marines' security force believed its jurisdiction was strictly limited to the NDA and refused to proceed outside that area. Local authorities apparently believed there was radiological contamination in the area and would not take the looter into custody. The looter was eventually transferred through the Port Gaston Police to the FBI, back to the Port Gaston Police who then transferred him back to the Marine security unit. The looter was then transferred to the Naval Investigative Service and finally to the Navy Command Security Officer. Chain of custody was not maintained on material evidence relating to the crime. Neither the Marine security force nor the Port Gaston Police advised the looting suspect of his constitutional rights before interrogation. Several instances occurred where the looting suspect's simulated health and safety were not taken into consideration even though the exercise play was taking place in a radiologically contaminated area.

(2) CONCLUSION: In effect, a "jurisdictional no-man's land" was created where the local and federal authorities each refused to function. Communications and coordination between the local authorities (police) and Marine security were confused, inadequate, and were not followed through when necessary. The Military Judge Advocate was never informed or consulted on the jurisdictional problems while the suspect was being transferred through numerous law enforcement authorities.

(3) RECOMMENDATION: That the Services, DOE and FEMA develop detailed

plans for addressing jurisdictional problems which will arise in connection with the creation of an NDA. These plans should stress the use of advisement of constitutional rights and regard for the health and safety of suspects. Military Judge Advocates should be consulted at the earliest opportunity when jurisdictional problems arise. 12. SITE RESTORATION (WASHINGTON PLAY):

a. TOPIC. Site Restoration Planning (Navy).

(1) COMMENT/DISCUSSION:

(a) The Exercise CNO expressed the opinion that site restoration planning represents a significant problem for the OSC. The availability of qualified local Service personnel to interact with Federal and state officials in addressing site restoration planning requirements is extremely limited.

(b) Site Restoration is a technically demanding effort which requires a broad range of expertise. It includes all of the functions involved in assessing the magnitude of the decontamination and site restoration problem, and preparing a site restoration plan. It also includes restoring the affected area to an acceptable condition in accordance with the plan.

(c) The DNA Nuclear Weapon Accident System Description, dated April 23, 1982, contains a proposed procedure intended to solve the site restoration problem. The proposed procedure is a formation of a Federal Site Restoration Support Group comprised of technically qualified representatives from all appropriate Federal Departments and agencies. The group would provide Federal site restoration planning and operational support to the state through the FEMA representative at the scene. Officials at Port Gaston formed a similar group to address cleanup standards and to develop the overall plan

for restoration. This group included representation from FEMA, Jefferson County, the Commonwealth of Virginia, Navy, DOE, EPA, Department of Interior, DNA, HHS, and the US Air Force Contamination Disposal Coordinating Element.

(2) CONCLUSION: The OSC's efforts to plan for the recovery and removal of classified defense information resulting from a nuclear weapon accident are complicated by the added task of contributing to site restoration planning.

(3) RECOMMENDATION: That the ATSD(AE) review, determine, and establish clear assignment responsibility for site restoration.

b. TOPIC. Precedence for Cleanup and Restoration (DOE EOC).

(1) COMMENT/DISCUSSION: The DOE EOC received a draft copy of a proposed site restoration plan being considered by site players just prior to termination of the exercise. The draft proposed plan for disposition of the contaminated area was unacceptable to DOE personnel. Their rationale for disagreement was that the proposed plan did not reflect and analyze a course of action requiring immediate cleanup and restoration of the area to its former status and use.

(2) CONCLUSION: The precedent to undertake nearly complete site restoration was established at Palomares, Spain and Thule, Greenland, and should be considered as a potential site restoration requirement in the future, whether in an exercise or actual accident environment.

(3) RECOMMENDATION: That the Secretary of Energy and the Assistant to the Secretary of Defense (Atomic Energy) amend the Joint DOD/DOE/FEMA agreement for nuclear weapon accident response and include the requirement to address complete cleanup and restoration of accident sites to their former

status and use as one of the primary restoration options to be considered.

c. TOPIC. Cleanup Standards (Washington Area)

(1) COMMENT/DISCUSSION: Exercise participants in the Washington area and at Port Gaston addressed the issues of cleanup and decontamination during NUWAX-83; however, there is no agreement among Federal agencies regarding the radiological safety standards which apply. Players were tasked to develop a site restoration plan without knowing the standards which would apply to the effort. This observation has been made in each major nuclear weapon accident exercise thus far.

(2) CONCLUSION: Currently, there is no agreement among Federal agencies as to the radiological safety standards to apply for cleaning up and decontaminating an area as a result of a radiological accident.

(3) RECOMMENDATION: That the ATSD(AE), in coordination with the Secretary of Energy and the Administrator, EPA, intensify efforts to establish radiological safety standards for use in site restoration following an accident involving release of radiological materials.

13. SITE RESTORATION (FIELD PLAY)

a. TOPIC. Lack of Guidelines for Radiological Contamination Clean-up.

(1) COMMENT/DISCUSSION: See pages 9-11, and pages 45 and 46, Radiological Guidelines.

(2) CONCLUSION: The lack of a guideline for radiological clean-up of an accident site has existed during the entire NUWAX series of exercises. This problem has been illuminated during each exercise as well as at several real-world accident sites.

(3) RECOMMENDATION: That the ATSD(AE), in coordination with the Secretary of Energy and the Director, EPA, form a joint task group to develop radiological contamination clean-up criteria and guidelines at the Federal level.

14. RADIOLOGICAL SAFETY AND CONTROL (WASHINGTON PLAY)

a. TOPIC. Atmospheric Release Advisory Capability (ARAC) (Washington Area)

(1) COMMENT/DISCUSSION. Washington area exercise participants were extremely pleased with and complimentary of the revised ARAC plot format. Non-technically qualified personnel have had difficulty in understanding previous versions of the ARAC plot. During NUWAX-83, the ARAC plot was understandable and useful to all participants.

(2) CONCLUSION: The revised ARAC plot represented a significant improvement when compared to earlier products. Exercise players were able to interpret the plots quickly and to use them in briefings presented to senior officials.

(3) RECOMMENDATION: That the ARAC Center, Lawrence Livermore National laboratory (LLNL), continue to use the revised ARAC prediction format because it is more meaningful and understandable to response and decision makers

b. TOPIC. Dissemination of the Atmospheric Release Advisory Capability (ARAC) Prediction (NMCC, NCC, DOE EOC, and FEMA EICC).

(1) COMMENT/DISCUSSION: The NMCC Operations Team (OT) received the ARAC plot from the ARAC Center at 051745Z May 1983 by telefax. The DOE EOC received the plot from the ARAC Center at 052015Z May 1983. The excessive

delays in receipt of ARAC plots by principal national-level command centers reinforces the observation made in Exercise PREMIER TASK VI that dissemination is a time consuming process warranting improvement. ARAC plot data provides the first estimate of the potential consequences of a nuclear weapon accident. The ARAC predicted consequences could become an extremely critical element in determining courses of action if there are no military survivors at the scene and if response forces must travel long distances to reach the site.

(2) CONCLUSION: ARAC plot data could be an essential element in accident response decision making processes and, therefore, LLNL should have a procedure in place which ensures rapid dissemination of the plots to principal national-level command and operations centers.

(3) RECOMMENDATION: That the ATSD(AE), in coordination with the Secretary of Energy, should develop and implement an expeditious APAC plot distribution system for use throughout the entire nuclear weapon accident response community.

c. TOPIC. Aerial Measuring System (AMS) (DOE EOC).

(1) COMMENT/DISCUSSION: The DOE Aerial Measuring System (AMS) team conducted an actual survey of the NTS exercise site on 5 May 1983. Readings were processed and products (marked aerial photos) were air-expressed to the DOE EOC (Germantown) overnight. Products arrived at the DOE EOC at approximately 061440Z May and distribution was made immediately to other Washington-area command and operations centers. The AMS data, however, was presented in technical measurements (microcuries/sq meter (uCi/m^2). DOE personnel, therefore, initiated action to transpose the data into proposed

protective action guidelines, contained in the ARAC plots received on 5 May, to the AMS plots.

(2) CONCLUSION: AMS material was received in Washington on a timely basis. DOE personnel found it necessary to transpose protective action guidelines, contained on ARAC plots, to the AMS plots to make the material more meaningful to non-technical players.

(3) RECOMMENDATION: That the DOE initiate action to insure AMS material includes protective action guidelines similar to those reflected on the revised format used for the ARAC plots.

d. TOPIC. Disposition of Contaminated Waste (DOE EOC).

(1) COMMENT/DISCUSSION: The NUWAX-83 scenario depicted an increasing tempo of public opposition to nuclear war, nuclear weapons, and the transport of radioactive materials. On 9 May 1983, the ARG Team Leader requested DOE guidance on disposition of contaminated waste. DOE EOC personnel commenced a process of deliberate, careful consideration of available facts, report indicators, and potential future public actions. They also considered actual past experiences and the action taken to cope with problems. By 10 May, problem indicators highlighted the need for preparation of various alternatives to accommodate the contaminated waste at the accident site until it could be moved without undue risk. At ENDEX, DOE EOC personnel were refining alternatives to cope with the problem.

(2) CONCLUSION: The DOE EOC action to provide the ARG team leader with disposition instructions for contaminated waste was comprehensive and thorough. The alternatives being considered at ENDEX, e.g., store temporarily

at NOF Port Gaston, load containers on barges and move by water, move by special train, etc., would have provided senior officials sufficient options with which to satisfy a broad range of problem situations.

15. RADIOLOGICAL SAFETY AND CONTROL (FIELD PLAY)

a. TOPIC. Joint Radiological Control Center (See pages 28 and 29, para 2e, Command and Control).

b. TOPIC. Contamination Control Station/Line Procedures.

(1) COMMENT/DISCUSSION: Three Contamination Control Stations (CCS's) were operated during NUWAX-83, one by the JTG, one by the COV, and one by the Navy. Initial processing of people by all was slow but improved with time and practice. Although capable of processing response force personnel none of the CCS's would have been capable of efficiently handling the numbers of indigenous personnel who would have required processing in an actual accident. As an example of the time required for processing, all personnel were withdrawn from the RCA at 1800 on D-Day at which time approximately 60 people required processing through the Navy CCS. Processing was not completed until 2015 using a dual line. Processing time was approximately four minutes per person. To place the problem in perspective it should be noted that it was simulated that 815 residents were evacuated from the area on the basis of initial ARAC plots. The Navy firefighters were left in socks, pants, and T-shirts while processing through the CCS. No provisions were made for returning the firefighters to their quarters or providing them replacement clothing. It should be anticipated that many bystanders will be left in similar, or worse, circumstances and it is not appropriate to abandon them

when they depart the CCS. Personal and organizational equipment, e.g., RADIAC instruments, cameras, rifles, protective masks, web gear and turn out gear were contaminated during the course of the exercise. Existing guidance on CCS operations states equipment should be placed on a table or ground sheet while the individual is processed and the equipment monitored out separately. Contaminated equipment and clothing were held at the CCS. Contaminated items held at player CCS's were not individually bagged and contaminated personal clothing was placed in the same bag with anti-C's. Player CCS procedures did not initially include provision for decontamination of equipment and materials used or removed from the RCA. There was no effective receipting system for personal or organizational items which could not be immediately decontaminated. This would create a major accountability problem for organizational equipment and a major legal problem for claims involving personal possessions. The Navy hotline included shower facilities with a holding bladder for personnel decontamination, however, no such facilities were available at the COV hotline.

(2) CONCLUSION: Current CCS methods are inadequate for processing large numbers of people. Guidance on CCS operations needs to include release limits and procedures for receipting for articles held for decontamination. Equipment decontamination, at least on a limited scale, is required at the CCS.

(3) RECOMMENDATION: That the Services, DOE and FEMA (for the benefit of State planners) include specific, detailed guidance on receipting for contaminated articles and the re-clothing of personnel in applicable

directives and SOP's. Better procedures and equipment with which to rapidly process large numbers of potentially contaminated personnel need to be developed, identified, or obtained.

c. TOPIC. Evacuation of Personnel From a Contaminated Area.

(1) COMMENT/DISCUSSION: According to umpire logs, evacuation from the contaminated area started at 1024 and was completed at 1120. The details of the timing and method of the simulated evacuation of the 815 residents from the area on D-Day are unknown, however, it is questionable whether adequate procedures existed at the time. It is estimated that at 4 minutes per person (see page 50, para 15b(1)), approximately 54 manhours of personnel monitoring would be required. The actual time involved would depend upon the availability of suitable instruments and qualified personnel to conduct such an operation. Minimal availability can be expected prior to D+1. Alternative methods could be developed to process the people without RADIAC instruments, but procedures for such processing are not established. Such processing would require shower facilities, a receipting procedure for personal possessions, and a supply of clothing to be issued. Alternatively, the potential health hazard of leaving people in their homes and providing instructions to remain inside, bag clothes worn outside, and other instructions concerning the safety and eating and drinking until monitors can define high risk areas and remove people in an orderly manner should be investigated.

(2) CONCLUSION: Evacuation to prevent the spread of contamination will be a time consuming task. Due to exercise constraints, evacuation procedures probably have not been realistically evaluated.

(3) RECOMMENDATION: That the Services, DOE and FEMA review, and correct as appropriate, the existing guidance on anticipated problems with timely evacuation.

d. TOPIC. Air Samplers.

(1) COMMENT/DISCUSSION: Only a limited number of air samplers were observed in use by the players. The Navy briefly deployed a STAPLEX air sampler approximately two miles downwind immediately after the accident, and operated a STAPLEX sampler at the Field Command Post as a background sampler, one at the CCS, and one immediately down wind of the crater. The latter sampler was placed and largely ignored. It should be noted that the EOD Initial Response Force spent over one hour emplacing the air sampler by the crater. All other operations were at a standstill while this was being accomplished. The requirement for the EOD Team to emplace an air sampler is contained in a Navy Yorktown OPSORD. The number and type of air samplers utilized by the COV and the specialized teams is unknown, however, one air sampler was taken to the perimeter of the contaminated area at a downwind location and air samples of short duration taken. In contrast with player operations, the JTG RADCON Division operated 11 air sampler stations continuously during the exercise. No significant resuspension was observed. Air sampling was not performed after "fixing" of contamination on D+4. It is not clear what criteria was used to determine that fixing was required. The procedures for collection and use of air sampling data varied by organization. Based on umpire reports it appears the COV used air sampling data as a basis for evacuation of the Jefferson County building. Based on observed actions it is concluded that there has been little thought given to

the placement, frequency of readings, and role of air samplers in response actions. Air samplers were not rotated to face into the wind. If monitoring is being performed to insure contamination is contained within an area, the samplers should face the area and rotation is not necessary. However, a wind activated switch may be desirable so run time only reflects downwind operation. It is possible exercise artificialties reduced interest in this area, but it is believed there is insufficient published guidance on the use of air sampler and the data and information collected. CCS's are established in clean areas. The only airborne hazard to be expected is that which is picked up on equipment, clothing, and anti-contamination clothing worn or carried by the people being processed. Considering the probable levels of contamination such people and equipment will be in, the percentage of contamination which will be transferred to articles being taken from the area, and the percentage of contamination carried out which may become airborne, the value of air sampling in the CCS becomes questionable, as does the practice of wearing masks in the CCS. Frequent ground monitoring and swipes in and around the CCS will provide an indication that contamination is being tracked or carried into the area. At that time, masking can be performed as a precautionary response until the source of the contamination can be identified.

(2) CONCLUSION: Guidance and procedures for emplacing and utilizing air samplers is inadequate and differs widely among response agencies. The guidance which is available did not appear to be followed during much of the exercise. The Navy EOD Initial Response Force probably would be more

effective accomplishing their primary mission on the weapons and not having to implace air samplers which can be done by some other response element.

(3) RECOMMENDATION: That the Services and DOE review, and incorporate, detailed guidance on the emplacement, utilization, and data analysis of air samplers in applicable directives and SOP's. In addition, the Navy Yorktown OPSORD which requires the EOD Team to emplace an air sampler should either be changed to indicate another response element which can accomplish that task, or the EOD Teams should receive additional training in the rapid emplacement of air samplers.

e. TOPIC. Radiological Detection Equipment at the Local Level (Town, City, County, etc.).

(1) COMMENT/DISCUSSION: It was noted that Jefferson County response authorities possessed civil defense instruments that were incapable of detecting alpha contamination.

(2) CONCLUSION: This situation undoubtedly exists at the local level in most states. It is unreasonable to expect every local authority to be able to purchase alpha detection equipment.

(3) RECOMMENDATION: That the Services, DOE and FEMA note this situation and provide for coordination and sharing of data, and perhaps even monitor personnel from the response force elements that do possess alpha detection equipment in order to help the local authorities accomplish monitoring responsibilities. Information on this civil sector shortfall, and recommended solutions to it should be included in applicable directives and SOP's.

f. TOPIC. ATRAP Calibration Support Capability.

(1) COMMENT/DISCUSSION: AN/PDR-56 ALPHA Survey Meters used by the SRF and EOD forces were pre-calibrated for the exercise at Navy repair facilities with approved procedures. The ATRAP, which provided a pool of thirty AN/PDR-56 to replace Navy instruments while in repair on-scene, deployed with new AN/PDR-56 meters prior to any AF acceptance, testing, or calibration. The factory calibration was presumed to be acceptable. A Navy AN/UDM-7 calibration device, provided to ATRAP just for the exercise, showed one randomly picked pool instrument to be out of calibration.

(2) CONCLUSION: ATRAP has no AN/UDM-7 calibration capability of its own, therefore instruments could not have normally been checked or calibrated with approved procedures during the response effort.

(3) RECOMMENDATION: That the Air Force take action to outfit ATRAP with an AN/UDM-7, Alpha Survey Meter Calibration Device, and that ATRAP insure all instruments they maintain are routinely pre-calibrated.

g. TOPIC. AN/PDR-56 Technical Deficiency

(1) COMMENT/DISCUSSION: Navy radiological monitoring personnel observed false readings on the AN/PDR-56 alpha survey instrument. Investigation revealed that the unshielded coiled cable between the detector and the instrument package was subject to electromagnetic interference (EMI) from radio transmissions (including hand held radios).

(2) CONCLUSION: There is a material deficiency in the AN/PDR-56 which can result in EMI induced false readings.

(3) RECOMMENDATION: That DNA initiate action to have laboratory tests conducted to evaluate the NUWAX-83 evidence and, if valid, that all unshielded cables be replaced with shielded cables.

h. TOPIC. Security Clearances for Specialized Teams.

(1) COMMENT/DISCUSSION: Specialized Teams, ATRAP, AFRAT, and several DOE groups were delayed several hours or more from entry and integration into Navy response capabilities apparently because of overloading of the security clearance system administrative capabilities. Provisions do exist for accepting handcarried clearance data and for the on-scene commander to certify under emergency conditions, clearances for essential personnel with appropriate hard copy following at a later date.

(2) CONCLUSION: Access to the response effort by specialized teams was delayed because of administrative delays in security processing. This effectively denied immediate availability of these teams upon their arrival.

(3) RECOMMENDATION: That the Services and DOE recognize the potential for this administrative bottleneck and review existing procedures accordingly. It may well be necessary that additional guidance be included in applicable directives and SOP's.

i. TOPIC. Requesting DOD/DOE Special Team Support.

(1) COMMENT/DISCUSSION: The Navy's demonstrated procedure for the provision of special teams to the response effort was for CINCLANTFLT and the CNO to be responsible for initiating the necessary requests. This procedure was in agreement with OPNAV INST. 3440.15. This, in real life, would have delayed arrival of specialized teams which could have been utilized at the accident site.

(2) CONCLUSION: There are existing Service procedures with which to alert special teams upon notification of a nuclear weapon accident. The Navy followed this published guidance in its actions to deploy the specialized teams.

(3) RECOMMENDATION: That the Services and DOE automatically deploy all principal specialized teams at the time of confirmation of a nuclear weapon accident. The Services and DOE should verify, or develop, guidance to accomplish this in applicable directives and SOP's. The need for these teams early on the scene in cases of extensive contamination far outweighs the cost of redeploying them if it turns out only limited contamination is involved and they are not ultimately required.

j. TOPIC.. Radiological Surveys

(1) COMMENT/DISCUSSION: Initial surveys by the COV were with beta/gamma instruments which would have been of limited value with actual plutonium contamination. Ground surveys in and around the NDA were prohibited by EOD forces for personnel safety reasons, to include the perimeter where the Marine Security Force was positioned. A preoccupation with EOD concerns prevented utilization of specialized radiological teams in areas in which they could have been safely and productively put to use. Over 75% of the contaminated area was outside the NDA. Ultimately, and virtually on their own initiative, in late afternoon of D+1, the Army RADCON Team performed a perimeter survey of the NDA, which provided the initial ground deposition data received by the Navy Operations Center. Most specialized radiological teams were idle through close of business on D+1 and minimal definition and

characterization of the contaminated area had occurred. On D+2, the DOE RAP and COV commenced monitoring the area. By late afternoon on D+2, EOD operations permitted the entry of radiation survey teams into the NDA and the Army RADCON Team defined three times background contour. Almost all plots used by the players consisted of grease pencil overlays on the AMS plot. A requirement for laser rangefinders to accurately survey the area was identified by evening on D+4. Due to exercise limitations on time and money, approximately 50 meter spacing was laid out by the Navy in the absence of the laser survey equipment. The conventional survey equipment brought by Army RADCON was not used in laying out the grid. The rationale for the spacing used in the grid is not understood.

(2) CONCLUSION: Before specialized teams arrive, instrumentation available to response forces is adequate to identify the existence of a radiological problem. The radiological instrumentation and analytical resources available from the combined assets of response forces present at NUWAX-83 were adequate to survey and characterize the contaminated area. Engineering survey equipment possessed by forces responding to NUWAX-83 was marginally adequate to support the radiological surveys required, however, and available equipment was not fully utilized. Initiation of radiological surveys was not given sufficient priority early in the accident response. Once it had been determined that contamination had been released, radiological and EOD operations should have been conducted concurrently with sufficient physical separation to provide safety for personnel conducting radiological surveys. There is inadequate current guidance on radiological survey procedures to be used in response to a nuclear weapon accident.

(3) RECOMMENDATION: That the Services and DOE identify additional equipment necessary for accurate radiological and engineering surveys and, as it becomes available, develop plans to effectively utilize that equipment. Response guidance should also include plans for immediate initiation of initial surveys by specialized teams upon their arrival.

k. Topic. SRF Radiological Health Officer (RHO)/Health Physics Support

(1) COMMENT/DISCUSSION: During the course of the exercise it was apparent that one RHO on the SRF staff could not physically perform both his required functions and participate in all the varied staff events where his presence and expertise would be required, e.g., directing the collection, analysis, and interpretation of data from the field; advising the SRF medical representative; advising the SRF site restoration representative; coordination of bioassay resources, data collection, and data interpretation; advising the OSC on radiological discussions; briefing the OSC in preparation for public releases; press conferences; and participating in JRCC operations.

(2) CONCLUSION: The SRF RHO could not effectively perform all the functions that are required of his position on the SRF staff.

(3) RECOMMENDATION: That Service and DOE response organizations either insure an adequate number of health physics/radiation safety personnel be dispatched as members of the SRF staff to support the RHO, or that standing procedures be established for drawing personnel, upon arrival of the specialized teams, to assist on the staff. In essence, the creation of an ad hoc JRCC until such time as one is formally established. The requirement for the Services and DOE to have pre-accident plans describing specifically how

the specialized teams will be utilized upon arrival is, likewise, essential for an effective response (See pages 28 and 29, para 2e).

16. LOGISTICS AND SERVICE SUPPORT (WASHINGTON PLAY)

a. TOPIC. Transportation of Radioactive Source Equipment (Army).

(1) COMMENT/DISCUSSION: The Radiological Advisory Team (RAMT) from Walter Reed Army Medical Center (WRAMC) was scheduled to depart Dulles International Airport via American Airlines on 6 May 1983. Upon arriving at the airport, American Airlines personnel informed the RAMT that the airline could not ship the team's low level radioactive source equipment on board the flight. FAA regulations permit commercial airlines to transport low-level radiological equipment of the type used by the RAMT on scheduled flights; however, the FAA regulations also stipulate that acceptance of the cargo rests with the airlines. Because of American's action, the RAMT personnel departed without their equipment on the scheduled flight. Prior to departure, they queried other airlines at Dulles and determined that Western Airlines was both aware of FAA regulations and would accept the equipment for shipment on a later flight.

(2) CONCLUSION: RAMT personnel were effectively separated from their equipment and hindered in providing timely support at the accident site because their chosen commercial airline was not prepared to accommodate shipment of a low-level radiological source.

(3) RECOMMENDATION: That the RAMT, and other nuclear accident response teams that may depend on commercial air transport for rapid deployment to an accident site along with low-level radiological source equipment:

(a) Acquire and retain a copy of appropriate FAA regulations concerning shipment of the equipment.

(b) Alert local airline officials to the possibility of short notice travel requirements and request a letter of authorization which contains appropriate instructions concerning the source equipment and which can be provided to airline personnel at the departure airport, if required.

(c) Determine that an air carrier will accept the source equipment on the flight before booking reservations for team members.

17. LOGISTICS AND SERVICE SUPPORT (FIELD PLAY).

a. TOPIC. Nuclear Weapon Accident Response Unique Equipment.

(1) COMMENT/DISCUSSION: Logistical requirements generated by an accident need to be identified in detail. For example, approximately 1700 sets of anti-C's were issued in NUWAX-83. While many of them were not contaminated prior to turn-in and could have been re-used, there would have been many more people involved in an actual accident. The availability and capacity of a contaminated laundry will determine the number of anti-C's required to support an accident response. EOD and specialized teams possessed a limited number of anti-C's but not enough to support sustained operations. Disposable anti-C's were used in a few cases and had limited durability for large people. Their durability for use in rough terrain, or for strenuous tasks, is questionable.

(2) CONCLUSION: Logistical requirements such as anti-C's, masks, and replacement clothing need to be estimated and guidance published for use by response forces.

(3) **RECOMMENDATION:** That the Services and DOE review current guidance and, as required, include estimates of accident peculiar logistics requirements, in support of sustained operations, in applicable directives and SOP's.

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