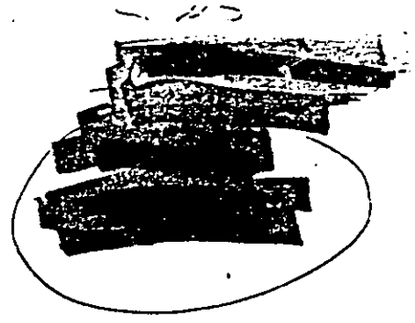

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CRITICAL INCIDENT NO. 12

SOME PROBLEMS OF WARNING AND COMMUNICATION REVEALED BY THE NORTHEAST U.S. POWER FAILURE OF 9-10 NOVEMBER 1965 (U)

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FOREWORD

(U) The Northeast power failure of 9-10 November 1965--the "Great Blackout"--dramatized, as never before, the utter dependence of the United States and other advanced nations on a reliable, constant flow of electrical energy. There is virtually no aspect of modern life that is not in some critical sense dependent on electricity. It is the "lifeblood" of industry, transportation, communications, commerce, and social life. No modern nation can long survive when it is deprived of this vital energy source. Pull the electrical plug from society, and most of the vital productive, distributive, and social processes will come to a sudden, screeching halt. Prolong that outage for a significantly long period of time, and the society will no longer be able to sustain itself in its present form. With each passing day of electrical power deprivation, the society will experience a progressive degradation in its integration, productivity, and capacity for growth and development. Continue that power deprivation for weeks and months, and people will be forced to a primitive level of survival and subsistence in which the complex processes of a modern, interdependent society can no longer be sustained.

(U) This crucial dependence of modern societies on a constant flow of electrical energy has always been implicitly recognized by thoughtful observers. But, in the United States, at least, neither the expert nor the layman ever seriously doubted the capability of the U.S. power industry to continue to supply this vital source of energy. Prior to the Northeast blackout, the U.S. power industry and government power officials had generally painted a reassuring picture of the industry's strength and relative invulnerability to either an internal breakdown or to an external attack.

Representative Walter Rogers (Democrat, Texas), Chairman of the House Commerce Committee's power subcommittee, on the day after the failure, expressed a widely held view: "I had no idea anything like this could happen. Power authorities had led Congress to believe over the years that a failure such as yesterday's could not occur because of built-in safeguards in the power system".[1]

(U) Even under conditions of massive nuclear attack, the industry's ability to supply electrical energy to the nation was expected to be relatively unimpaired. In October 1964, for example, the Defense Electric Power Administration (DEPA), Department of Interior, issued a report of a study on the "Vulnerability of Electric Power Systems to Nuclear Weapons."[2] That study, funded by the Office of Civil Defense and conducted by DEPA with the support of the electric power industry, assumed a hypothetical attack on 206 urban-military targets and the corresponding destruction of the 206 largest power plants in the United States. Despite this heavy damage, the report concluded that "the remaining generating capacity on a national basis would be more than adequate to meet the surviving load." More specifically, it concluded that "the electric power industry has the capability to furnish service to the surviving population during the shelter confinement period (D plus 1 to D plus 15) as well as during the succeeding decontamination and recovery periods (up to D plus 120)," and "that there is no need for supplemental emergency generator sources." In explaining the "relative invulnerability and flexibility" of the power system under conditions of such an attack, the report pointed to two principal reasons: (1) "the widely dispersed locations of the nation's generating plants mean that many plants with considerable generating capacity would not be damaged," and (2) "the interconnected nature of the transmission systems often

[1] UPI Dispatch, 10 November 1965, 1536 EST.

[2] Department of Interior, Defense Electric Power Administration, Vulnerability of Electric Power Systems to Nuclear Weapons, (Washington: U.S. Government Printing Office, 1964), Unclassified.

make it possible to channel available generating capacity to areas normally supplied by plants that were damaged." Thus "even though the core city power plants were destroyed, the multiplicity of alternative power sources, via interconnections from the north, south and east, made it possible to maintain service to the surviving load."[1]

(U) In view of these and other similar optimistic reports, reassurances, and predictions, it was not surprising that the Northeast power failure produced a sense of shock among responsible government officials. This shock, in turn, stimulated a new wave of investigations designed to uncover the vulnerabilities in the system and to indicate the corrective actions that should be taken to strengthen it. Within hours after the initial occurrence of the failure on 9 November 1965, President Johnson ordered the Chairman of the Federal Power Commission (FPC) to conduct a full-scale investigation of the event, in these words:

> Today's failure is a dramatic reminder of the importance of the uninterrupted flow of power to the health, safety, and well being of our citizens and the defense of our country.
>
> This failure should be immediately and carefully investigated in order to prevent a recurrence.
>
> You are therefore directed to launch a thorough study of the cause of this failure. I am putting at your disposal full resources of the federal government and directing the Federal Bureau of Investigation, the Department of Defense and other agencies to support you in any way possible. You are to call upon the top experts in our nation in conducting the investigation.
>
> A report is expected at the earliest possible moment as to the causes of the failure and the steps you recommend to be taken to prevent a recurrence.[2]

---

[1] Ibid., pp. 5-11.

[2] Memorandum for Honorable Joseph C. Swidler, Chairman, Federal Power Commission, from Lyndon B. Johnson, The White House, Washington, D.C., 9 November 1965.

(U) In response to this directive, the FPC issued an initial report to the President on 6 December 1965,[1] and an interim report in April 1966.[2] The final three-volume report of the FPC was published and sent to the President on 19 July 1967.[3]

(U) In addition to the FPC investigation, numerous other public and private agencies undertook their own studies of the event, either in conjunction with the FPC study or independently. Major studies have been conducted by the Federal Communications Commission (FCC), the National Communications System (NCS), the Defense Communications Agency (DCA), the Military Services, the House Subcommittee to Investigate Power Failures (the Rogers Subcommittee), the electrical industry itself, and by various other governmental, industrial, and private groups. The past and continuing reports of these agencies document in detail the effects of the power failure on various systems, activities, and operations; the physical deficiencies and vulnerabilities revealed by the event; and the remedial actions that should be or have been taken to correct the noted deficiencies. Taken as a whole, this mass of documentation provides the largest and most thorough body of information ever assembled on the U.S. electrical power system--its strengths, weaknesses, and the critical effects that occur when various communication, transportation, industrial, commercial, health, safety, and defense facilities and installations are subjected to power outages.

(U) In general, these studies have revealed various physical vulnerabilities in the power grid system, numerous vital facilities

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[1] Federal Power Commission, Northeast Power Failure November 9 and 10, 1965, A Report to the President by the Federal Power Commission, December 6, 1965 (Washington: U.S. Government Printing Office, December 1965).

[2] Federal Power Commission, Continuing Activities of the Federal Power Commission in Power Failure Analysis, An Interim Report by the Federal Power Commission, April 1966.

[3] Federal Power Commission, Prevention of Power Failures, a Report to the President by the FPC, July 1967 (Washington: U.S. Government Printing Office, July 1967), 3 Vols.

that were inadequately served or protected by standby or auxiliary power, and certain technical and procedural problems in the maintenance and operation of commercial power systems and auxiliary power generators. Many of the revealed technical and physical deficiencies have already been corrected by the responsible agencies or, at least, plans and provisions have been made to correct them in the future.

(U) Thus, the technical lessons of the Northeast power failure--the need to strengthen the power grids, to provide additional or alternative sources of standby power for critical facilities and functions, and to improve procedures for maintaining and operating electrical generators and associated equipment--have, for the most part, been well documented and, in some cases, are being applied to achieve physical improvements in the system.

(U) But there are other, different lessons still to be learned from the Northeast power failure. That event not only revealed physical and technical vulnerabilities and deficiencies in the power and communications system, it also provided a critical test of the U.S. capability to detect and act upon potential warning indicators.

(U) The real cause and source of the Northeast power failure was not finally determined until five days after the event. It was only in retrospect that the early interpretation of the event as one caused by an internal breakdown in the power system--rather than by sabotage or enemy-caused action--fortunately proved correct. In this sense, the blackout provided an analogue to a Pearl Harbor kind of attack that did not happen. It contained many of the same elements of ambiguity and uncertainty that characterize most real international crisis and disaster warning situations. It provided various kinds of warning cues or indicators which we know from past experience should have produced a state of increased alert among the responsible intelligence, warning, and military command and control agencies.

(U) This is the context in which the present study views the Northeast power failure. Except in passing, it is not concerned with the physical effects of the power failure, but rather with the present social organization and procedures for gathering, processing, analyzing, and communicating information about potential threats and dangers that arise in the domestic arena. The study addresses two basic, interrelated questions: (1) Is the U.S. government and military command and control system adequately organized and prepared to detect and respond to possible enemy caused or enemy inspired actions that originate within the geographic limits of the Nation and in contiguous areas? (2) If not, what steps or actions might be taken to improve this capability?

(U) The author believes that there are important lessons in this subject area which should be documented before the experience of the Northeast power failure recedes too far into history.

[redacted]

I. GENERAL

A. PURPOSE

(C) This study reviews the Northeast power failure of 9-10 November 1965 as a domestic crisis that provided a valuable and realistic test of U.S. intelligence gathering, warning, and communication capabilities. Its general purpose is to identify some problems of danger detection, warning, and communication revealed by that event. More specifically, this case study aims:

1. To examine the capability of U.S. command and control agencies (a) to detect, investigate, and assess the causes, scope and effects of the failure; and (b) to communicate this information in a timely and effective manner to appropriate civil and military authorities; and

2. To utilize the experience of the power failure as a means of identifying, describing, and analyzing actual and potential deficiencies in the organization and procedures for detecting, analyzing, and communicating information about domestic threats and dangers that may have relevance for national security and U.S. military capabilities.

B. SCOPE

(U) Previous studies and analyses conducted by the Federal Power Commission (FPC), the Federal Communications Commission (FCC), the National Communications System (NCS), the Defense Communications Agency (DCA), the Organization of the Joint Chiefs of Staff (OJCS), the Military Services, the Congressional Subcommittee to Investigate Power Failures (the Rogers Subcommittee), the electrical industry itself, and by numerous other official and private agencies have

[redacted]

[redacted]

tended to focus primary attention on the physical deficiencies in the power and communications system that were revealed by this crisis.

(C) The present study supplements these valuable and essential physical analyses by focusing major attention on the organizational, procedural, information collection and processing, and communication activities of the various national command and communications centers that played a central role in interpreting and handling the crisis.

(C) The various centers covered in this report include the following:

1. National Military Command Center (NMCC)
2. National Indications Center (NIC)
3. White House Situation Room (WHSR)
4. Office of Civil Defense Operations Room (OCD-OR)
5. Office of Emergency Planning-HIGH POINT (OEP-HP)[1]
6. Federal Aviation Agency Communications Control Center (FAA-CCC)
7. State Department Operations Center (SDOC).
8. North American Air Defense Command-Combat Operations Center (NORAD-COC)
9. National Warning Center (NWC)
10. Air Defense Command Post (ADCP)
11. Air Force Command Post (AFCP)
12. Army Operations Center (AOC)
13. Navy Flag Plot (NFP)

(C) In addition to these primary information collection and processing centers, various subsidiary communication and technical control centers that supplied information and data to the primary centers were also covered. These included:

1. NMCC Washington-Moscow Emergency Communications Link Room (NMCC-MOLINK)

[1]The term "HIGH POINT" is used here because it is the more familiar term for the OEP classified relocation site. The official OEP designation is "Special Facilities Division."

[redacted]

2. NMCC Emergency Actions Room (NMCC-EAR)

3. NMCC Communications Center (NMCC-CC)

4. NMCC Technical Control (NMCC-TC)

5. Department of the Army Communications Center (DACC)

6. U.S. Army Interagency Communications Agency (USAICA)

7. Department of the Army, Strategic Communications Directorate, Telecommunications Status Office (STRATCOM-TSO)

8. Defense Communications Agency, Operations Center (DCA-OC)

(C) The report begins with a recapitulation of the overall nature of the crisis and a summary of some of the salient effects of the blackout on the affected civil sector of society and on public behavior. This is followed by a section that summarizes the effects of the power failure on various military, civil defense, and other governmental facilities, equipment, and systems.

(C) This resume of salient effects on civil, military, civil defense and governmental facilities and systems establishes the background and context for reviewing how various command and communications centers named above responded to the crisis, both in terms of their own internal organizational needs and in terms of their contacts and the exchange of information with other centers, agencies, and personnel. This review focuses on how and when the centers first learned about the event, what actions they took in response to the information that they received, and how some of the responsible participants in these centers viewed the event in retrospect.

(C) Following this examination of the information collection communication activities of the various centers, the report moves t a more general level of analysis in which an attempt is made to iso late various problems and deficiencies revealed by the crisis.

C. SOURCES OF DATA

(C) The following basic sources of data were utilized:

1. Emergency Action Logs: Communication and emergency actior logs for the period 9-11 November 1965 were collected from each of

[redacted]

the 21 primary and subsidiary command and communication centers noted previously. In addition to those already noted, the NMCC data included taped telephone transcriptions of the Emergency Actions Room, the logs of the Command Center Operations Chief (CCOC), the North American (NA) Desk, and the State Department Desk. These logs and telephone tape transcriptions contain a record of the telephone communications and other actions taken by each center.

2. Interviews: Personal interviews were conducted with a total of 45 key people in the above named centers and with various other experts on the power failure. The interview data have been utilized to clarify and supplement the data contained in the emergency action logs of each major center, and to isolate various problems and deficiencies that were identified by the respondents.

3. Investigative Reports: The Northeast power failure resulted in the production of dozens of initial and continuing studies by numerous government and private agencies, and the findings of these previous studies have been utilized in the present report.

4. Messages, Correspondence, Internal Memoranda, and Other Documents: The author was given access to the files on the Northeast blackout contained in the OJCS Operations Directorate (J-3) and the NMCC; the Defense Director of Research and Engineering (Deputy Director for Electronics and Information Systems); and the Assistant Secretary of Defense for Administration (National Communications System). These files collectively include the government messages that were transmitted during and immediately following the crisis, a large volume of correspondence, internal memoranda, position papers, special reports, and other documents that proved useful both in reconstructing the effects of the power failure and in delineating the subsequent steps that have been taken to correct or remedy some of the deficiencies revealed by the event. Copies of critical messages, procedural guidelines, and other background papers were also collected from many of the other centers already noted.

[redacted]

II. EFFECTS OF THE NORTHEAST POWER FAILURE ON CIVIL SOCIETY

A. GENERAL DESCRIPTION

(U) The Northeast power failure of 9-10 November 1965 was the most dramatic power failure in the history of North America. It covered an area of 80,000 square miles--including eight northeastern states and the Province of Ontario, Canada--and it affected the lives of an estimated 30 million people.

(U) The outage started at 1716 EST[1] on Tuesday, 9 November 1965. Within a period of 12 minutes (from 1716 to 1728 EST), 28 separate electrical utilities, including some of the Nation's largest, went down like a row of dominoes and the entire affected area was plunged into darkness. The geographic boundaries of the failure area included virtually all of New York State, Connecticut, Massachusetts, Rhode Island, and small segments of northern Pennsylvania and northeastern New Jersey. Substantial areas of Ontario were also without power. New Hampshire and Vermont were subject to spotty failures that lasted from three minutes to several hours. Maine did not experience any failure. The map shown in Figure 1 outlines the affected area and lists the outage periods for various parts of the area. It will be noted that parts of the affected area had electrical service restored within 15 minutes, but most of the area was blacked out for periods ranging from 3 to 8 hours, and in New York City, complete service was not restored until 0700 on Wednesday, 10 November--an elapsed time of over 13 hours.

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[1] Throughout this report, all time references will be given in Eastern Standard Time (EST).

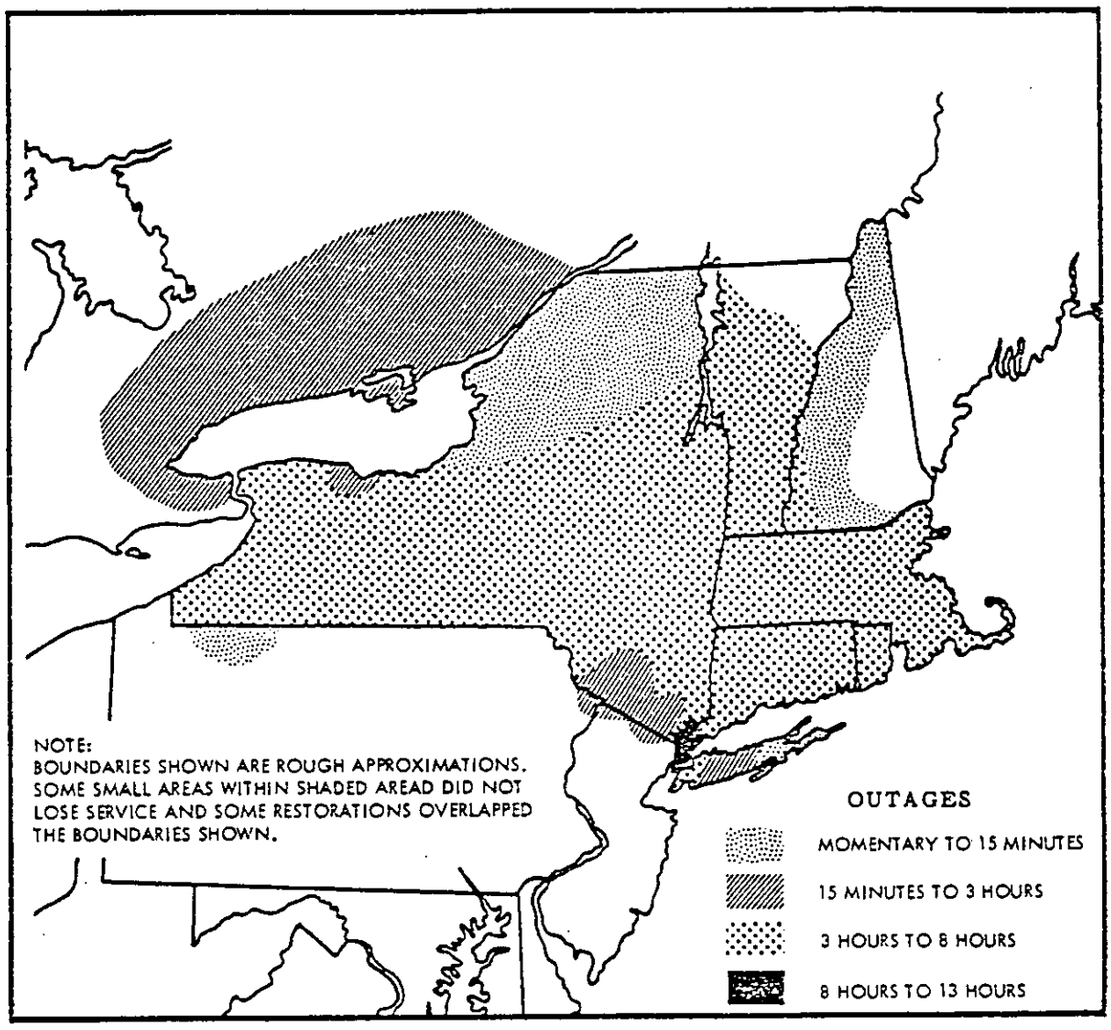

FIGURE 1 (U). Power Blackout in the Northeast, November 9, 1965, Generalized Areas of Outage (U)

B. EFFECTS ON CIVIL SOCIETY AND PROCESSES

(U) This massive blackout graphically demonstrated the utter dependence of the United States (and of other highly developed nations) upon a continuous supply of electrical energy. Throughout the affected area and in city after city the whole intricate mechanism of transportation, communications, manufacturing, commerce, and the normal routines of daily life was severely disrupted. Some of the highlights of this impact on the facilities, systems, and social processes in the affected area are detailed below.

Transportation

(U) Transportation throughout the area was severely hampered. Subways, streetcars, and electric trains froze in their tracks. In Toronto, 12,000 subway riders were stuck underground for up to an hour. But New York City's subway stoppage was worse. An estimated 600,000-800,000 people were stranded in the subways of New York, and at least 10,000 people were still on the immobile subway trains at midnight. Tens of thousands of commuters and other travelers were also stranded on trains or in railroad stations as rail travel in the New York City area came to a virtual standstill. All railroads except one were out of service until 0500, 10 November. Throughout the entire affected region, railroad operations were hampered by the outage, since most railroads depend on commercial power to operate signal systems.

(U) Massive traffic jams occurred in cities throughout the region due to the failure of traffic control signals and the absence of street lighting. Autos and trucks that ran out of gasoline had to be abandoned because the electrically operated pumps in service stations would not work. Toronto had a record traffic jam compounded when streetcars and trolley buses carrying some 48,000 passengers ran dead.

(U) Only a fortunate concatenation of events prevented a major tragedy for the hundreds of airliners and private aircraft scheduled to land at the blacked out civilian airports throughout the area. Exceptionally clear weather, a bright, moonlit night, the professionalism and ingenuity of pilots and ground personnel, and the fact that the en route facilities continued to operate, all combined to prevent what otherwise could have been a disaster. At Toronto International Airport, emergency lighting enabled operations to continue. But commercial airliners and other civil aircraft bound for Boston, New York, and other major cities in the blacked out area had to be diverted to airports in Philadelphia, Newark, Washington and elsewhere. In the New York City area alone, it was necessary to cancel or divert to other airports approximately 250 flights. Control towers at Kennedy International and LaGuardia airports were out of service for 11 hours and 35 minutes and field lighting, navigational aids, and radar were without power and inoperative until 0530, 10 November. At LaGuardia Field, limited operation was restored after a two-hour delay by using a makeshift communication system (composed of a radio transmitter/receiver set on a truck and radios in two parked aircraft) and by lining a runway with flare pots. A total of 240 aircraft were landed during the night using this makeshift system. A similar situation prevailed at Logan Field in Boston, where the tower and radar were inoperative for 4 hours and the instrument landing systems for 3 hours.

Communications

(U) Public communication facilities throughout the affected area experienced the impact of the power failure in different ways.

Broadcast

(U) Standard broadcast radio service continued despite the blackout and played a significant role in telling the general public what was happening and what to do in the early hours of the blackout. Within the affected area, out of 174 AM radio stations, a total of 34 stations experienced no power outage and they continued broadcasting without any interruption of service. Within an hour after the power shutdown, an additional 78 stations (including 13 daytimers) were able to resume broadcasting by operating on auxiliary power equipment. Signals from these stations covered the entire area affected by the blackout.

(U) A noteworthy feature of the event was the public reliance on the AM battery-powered transistor radio which, for many people in the blacked out area, was the only means of hearing news broadcasts. A special TRENDEX study, published 29 November 1965, reported that in an 18-county New York metropolitan area during the blackout, 72 percent of all adults listened to radio. In places not directly affected by the power failure, but in the general 18-county area, 93 percent of adults listened to the radio. Overall, it concluded that even with the blackout, which affected most of the New York metropolitan area, 81 percent of adults could still listen to ratio and that 9 out of 10 did.[1]

(U) The operations of FM radio and television broadcasting were more seriously impeded by the power outage. Out of a total 168 FM broadcast stations in the area, 96 stations were disabled for the duration of the power failure, 18 stations experienced no power failure, and 25 stations resumed operation within one hour with emergency power. Most television stations, the operations of which depend on commercial power, were out of service for the full period

[1] Reported in Office of Civil Defense, Effectiveness of Emergency Government Organizations and Systems during the Northeast Power Failure of November 9, 1965, December 1965, Unclassified, p. 11.

of the power failure. The inability of most FM and TV stations to continue broadcasting was of little moment, however, since the public had few battery-operated FM receivers and still fewer battery operated TV sets.

Newspapers and Press Services

(U) Newspapers and the news services in the affected area were similarly hard hit. Of the three morning papers in New York City, for example, only the "Times" managed to print a Wednesday edition--of only 10 pages, with no advertising. It used the facilities of the "Newark News" across the river in New Jersey.

(U) Associated Press lost all of its New York based teletype circuits because the drive mechanisms on the machines work off ordinary wall plugs. Facsimile machines all over New York City quit, forcing magazines that faced deadlines to telephone copy directly to printing plants.

Common Carrier Services

(U) The ability of the common carriers to maintain servi during the blackout depended upon the availability of emergency or alternate power sources, and the switching or transferring of certain loads to unaffected areas.

(U) The telephone companies for many years have equippe central offices and communications centers with emergency power systems (including both reserve battery power and diesel or gas turbine generators). For this reason, telephone communications were maintained in most areas throughout the blackout period. Som areas in upstate New York and New England were without service for short periods and numerous private branch exchange switchboards (PBX's) and call directors were inoperative because they depended on commercial electric power to operate signal lights, bells, and other controls.

(S) Local exchanges, long distance and overseas telephone service were unimpaired except for problems of providing service to equipment which depended upon local power sources for operation of teletypewriters and other types of communication and printing equipment. However, delays in placing calls were experienced because of overloading of long distance and local lines, especially in New York City, due to the inability of some companies to meet such an abnormal peak load. In the New York Telephone Company area, for example, dial traffic from 1730 to midnight was double the normal load.

(S) Public message and commercial private wire services were at a virtual standstill due to the power failure, which prevented the use of teleprinters and facsimile equipment regardless of the use of emergency power by the telegraph offices. Telegraph service interruption varied from relatively short delays in some areas to as much as 14 hours in others. In New York City, telegraph services were out until 0740 the next morning because the main Western Union Office in the city lost its two AC and one DC commercial power sources, a contingency that had never been contemplated.[1] As will be noted in a later section, this power failure at Western Union's main New York office also affected several military systems (including the Bomb Alarm System and the AUTODIN system).

(S) The central offices of the international record communications carriers (ITT World Communications, Inc.; RCA Communications, Inc.; and Western Union International, Inc.) are all located in midtown Manhattan and all were dependent on commercial power supplied

[1] A few months before the 9-10 November power failure, the main Western Union office at 60 Hudson Street, New York City, had removed its auxiliary power generator (equipped with "no break" power) and switched to three different sources of commercial power, including two separate AC circuits and one DC circuit. This was done because the history of commercial power supply to the Western Union building for more than two decades had never shown a similar situation where both AC and DC sources failed concurrently, nor had either supply failed for such a prolonged period of time. Source: Interview No. 33, 11 February 1966, p. 2.

by Consolidated Edison Company. Carriers having emergency power supplies made these operational for key government communications, but normal public service could not be offered because of the lack of power in the customer's offices. (A number of military circuits, were affected by the power failure in these central New York City offices and technical control centers.)

Safety and Special Radio Services[1]

(U) Police and fire departments were left without normal communications, but in most cases they had the necessary auxiliary power to maintain at least limited operations throughout the blackout period. However, not all public safety communication needs were met. In some cases fire station alarm systems did not work off the auxiliary power; home alerting systems for firemen were inoperative due to the commercial power requirement at the home end of the system; and overload of the telephone systems during the initial period of the blackout made telephone reporting of emergencies to police and fire departments unreliable.

(U) In the land transportation radio service category, the impact on automobile, bus, rail, and trucking services was minimal, except that there was some failure of railroad base stations which were dependent on commercial power. Ship operations were not adversely affected because all ships generate their own power. Common carrier coast telegraph stations continued to function through the use of emergency power generators.

(U) The problem of the aviation services was minimized by the reduced number of flight schedules during the night.

[1]This category includes a highly diverse grouping of radio station licensees, both individual and others, in aviation, public safety, maritime, industrial, land transportation, amateur, and citizens.

Scheduled air carrier operations continued and sufficient reliable communications between the aircraft and supporting ground facilities were available. International air operations in the North Atlantic area and to the south that were temporarily unable to communicate with New York used the facilities at Miami, San Juan, Bermuda, and Gander. Support land line facilities were seriously affected, but there was no adverse effect on air safety.

Some amateur and citizen radio licensees functioned as auxiliary units for police and fire departments, arranging for emergency transportation, and assisting in traffic control.

Summary of Other Effects

(U) The critical vulnerabilities of the U.S. to such a massive power outage were revealed in many other domestic areas of life.

Hospitals

(U) Approximately 855 hospitals were without commercial power as a result of the failure. With the exception of New York City, virtually all hospitals had some form of standby power available for the operating and emergency rooms, elevators, and other critical needs. In New York City, however, out of approximately 150 hospitals, less than half had adequate emergency power. At many hospitals without emergency power, civil defense, police, and fire officials were called upon to supply portable units to maintain essential facilities and to help in the movement of patients.

Public Services

(U) Operations of water and sewage systems dependent on pumping operations were impaired throughout the area. In western Massachusetts, four of ten water supply systems were unable to carry out pumping operations for periods varying from 15 minutes to three hours; and in the Jamaica area of Queens, New York, the water system was out of service until around midnight.

(U) Lack of transportation and failure of gasoline pumps left many people stranded in downtown areas of New York City, where hotels were unable to provide accommodations on upper floors because of lack of elevator and water service.

(U) In hundreds of stalled elevators in business offices and apartment buildings, people were trapped up to seven hours until firemen and maintenance workers broke through walls and shafts to rescue them. Thirteen elevators--and 96 passengers--were suspended in the lofty reaches of the Empire State Building alone.[1]

Industry and Commerce

(U) Initial estimates of the total economic loss attributable to the power failure were in the neighborhood of $100 million, much of which was not covered by insurance.

(U) Manufacturing processes in the affected area came to a standstill and the power interruption was felt severely by some industries. For example, Dunlop Tire's Buffalo plant lost 1,700 tires (worth $50,000) when power failed during the critical curing process. At the Tonawanda, New York, Chevrolet plant, 350 engine blocks had to be junked because high-speed drills froze while boring piston holes. Bakeries throughout the area were similarly affected. In New York State alone, 300,000 loaves of bread were spoiled.

(U) Brokerage houses, banks, and other financial institutions in New York, Boston, and other cities were severely handicapped by the blackout. Mountains of unsorted checks piled up in banks when computers that can process 200,000 checks hourly whirr to a halt. Fifty million pieces of mail--one fifth of the U.S. total daily volume--piled up in post offices, causing some West

[1] When firemen broke into one of these trapped elevators and asked the passengers: "Are there any pregnant women in this car?" A man's voice came back: "We've hardly even met."

Coast deliveries to lag as much as two days.

(U) The stock exchanges in New York City delayed the start of trading until about 1100 Wednesday, one hour after the normal 1000 opening. Most New York commodity exchanges opened late, and one did not trade at all. As an aftermath of the blackout many banks, brokerage offices, and other commercial and industrial firms throughout the affected area faced huge backlogs of work. This was due in part to the failure of an estimated 30 percent of the work force to return to work on 10 November.

Homes and Farms

(U) In tens of thousands of darkened homes, apartments, and on farms throughout the affected area, the public was made acutely aware of their personal dependence on electricity. Home heating plants shut down; electric cooking stoves, dishwashers, washing machines and dryers, and the whole panoply of electric household equipment and gadgets (electric blankets, stereo sets, hair dryers, can openers, razors, toothbrushes, carving knives, doorbells, intercom systems, electric-eye garage doors, etc.) suddenly proved useless. Food began spoiling in freezers and refrigerators; farmer's pumps and electric milking machines would not work; and people were forced to improvise solutions for their most immediate needs with the resources near at hand.

C. PUBLIC REACTIONS TO THE BLACKOUT

(U) Large-scale disasters and major crises tend to unify societies, to increase the normal amount of mutual aid and supportive behavior, and to decrease the amount of anti-social and pathological behavior normally present in the affected populace.

(U) Contrary to the popular stereotypes, scientific disaster and crisis studies have consistently shown that people confronted with severe externally induced crises do not usually become panicky and hysterical, do not engage in looting, crime, and other forms of

selfish or anti-social behavior, and generally exhibit an admirable amount of restraint and concern for their fellow human beings.

(U) The public responses to the Northeast power blackout provided no exceptions to these previously established findings. The newspaper and magazine reports of public behavior made frequent reference to the "crisis-born spirit of camaraderie and exhilaration," and to the "friendliness" and "helpfulness" of people who were stranded, trapped, or otherwise confronted with situations in which their normal actions and patterns of behavior were not feasible. These impressionistic reports were subsequently confirmed by a systematic study of the event by the National Opinion Research Center (NORC), which conducted a sample survey of the affected populace (1,313 interviews) during the period 15-30 November 1965.

(U) Among other findings, this survey found that throughout the affected area one-third of the total populace observed unusual friendliness and helpfulness between strangers, 12 percent reported that they observed people making a holiday occasion of the blackout, and only 3.6 percent observed what they interpreted as mercenary behavior or "people taking unfair advantage of others." (The latter category presumably referred primarily to such actions as taxi drivers charging higher than normal fares and venders and merchants boosting their prices on items that were in great demand--flashlights, candles, lanterns, battery-operated radios, etc.--during the blackout.)

(U) New York City has frequently been cited as the epitome of the mass, anonymous, competitive, unfriendly city where, under conditions of disaster or other severe crisis, chaos and anti-social behavior would reign supreme. Yet, despite the fact that residents of the City were exposed to the blackout conditions for longer periods than any other affected area, the NORC survey found that, on the whole, public response to the blackout was orderly

and calm; people were observed to be unusually friendly and helpful, and "festive moods" were observed more frequently than "opportunistic behavior." Specifically, it was found that 53 percent of the City's populace reported strangers being more helpful and friendly to each other than usual, 18 percent observed people making a holiday occasion of the blackout, and about 6 percent reported that they observed what they interpreted as mercenary behavior on the part of other people.[1]

(U) The fears of various federal, state, and municipal officials that the blackout would lead to a higher incidence of looting, rioting, robbery, and other forms of criminal or disorderly behavior in the affected area also proved unfounded. Past studies have consistently shown that the rate of theft, crimes against persons, and other forms of anti-social behavior actually tends to decrease under conditions of disaster and severe crises; and again, the Northeast power blackout experience supported these previous studies. Although initial newscasts reported "wholesale looting" in the Negro sections of Rochester, this report subsequently proved to be false. Subsequent investigation showed, in fact, that on the night of the blackout, Rochester, New York City, and other metropolitan areas had less crime and public disorder than usual.[2]

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[1]The survey data reported in this section are contained in National Opinion Research Center, Public Responses to the Northeastern Power Blackout, University of Chicago, October, 1966.

[2]The only major disorder reported during the blackout was the rioting of 320 prisoners in the Walpole, Massachusetts State Penitentiary, which produced an estimated $75,000 in damage. There is no clear evidence, however, to indicate whether or not this prison riot was actually triggered by the blackout or was simply utilized as an opportunity by the prisoners to express their grievances against the prison administration.

III. EFFECTS OF THE POWER FAILURE ON MILITARY, CIVIL DEFENSE, AND OTHER GOVERNMENTAL FACILITIES AND SYSTEMS

A. BACKGROUND

(U) In responding to various outside inquiries about the effect of the Northeast power failure on military facilities, the Department of Defense took the public and official position that no essential defense system had been degraded. Shortly after the start of the blackout, the Department of Defense Public Affairs Office released information to the press indicating that "A rapid check of major military installations, including the Strategic Air Command and the North American Air Defense Command, confirms that communications are intact." It was noted that there were reports of difficulty on some land lines "but there are adequate alternate routes to take care of such emergencies. All Defense communications stations have auxiliary power systems."[1]

(U) On 12 November 1965, the Chairman of the Federal Power Commission (Joseph C. Swidler) sent a message to the Secretary of Defense indicating that the President had requested the FPC to investigate the causes of the power outage and requesting that that agency be supplied "with any information or reports which you have on the incident and its effects on your operations and facilities."[2] The SecDef responded to this message on 15 November with a message to Swidler, signed by the Deputy Secretary of Defense. It noted that "no essential Defense System was significantly degraded by the power outage; nor was the capability of any unified or specified command, or of any Service, to accomplish its assigned mission impair

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[1] Associated Press dispatch, 9 November 1965, 1838 EST.

[2] Msg., Chmn. FPC to SecDef, 121859 November 1965, NMCC/MC In No. 48358, 121918Z November 1965. Unclassified.

[3] Msg., SecDef to Chmn. FPC, 152331Z November 1965, Subj: "Impact of NE United States Power Outage on Essential Defense Systems." Unclassified.

(S) Similarly, in his public testimony[1] before the House of Representatives Special Subcommittee to Investigate Power Failures, chaired by Walter Rogers of Texas, the Deputy Director (Electronics and Information Systems), DDR&E, stated that "there was no loss in vital military capability here in Washington, or of any unified or specified command, or of any service to accomplish its assigned mission during the period of the power failure."[2]

(S) In elaborating on the effects on command and control communications, however, the Deputy Director, DDR&E, carefully drew the distinction between "(1) vital, highly survivable secure communications of which--even under extreme duress--only a relatively few low capacity circuits are required; and (2) communications for the normal day-to-day business of supporting our forces in readiness for which a large number of relatively high capacity circuits is required."[3] He noted that "the former--the vital circuits--are designed throughout to operate in an emergency and any public power outage will have no impact on their performance," whereas "many of our normal communications circuits do depend, to some degree, upon public power."[4]

(C) Though technically correct when applied retrospectively to the events of the Northeast power failure, these public statements tended to obscure some serious vulnerabilities of military command

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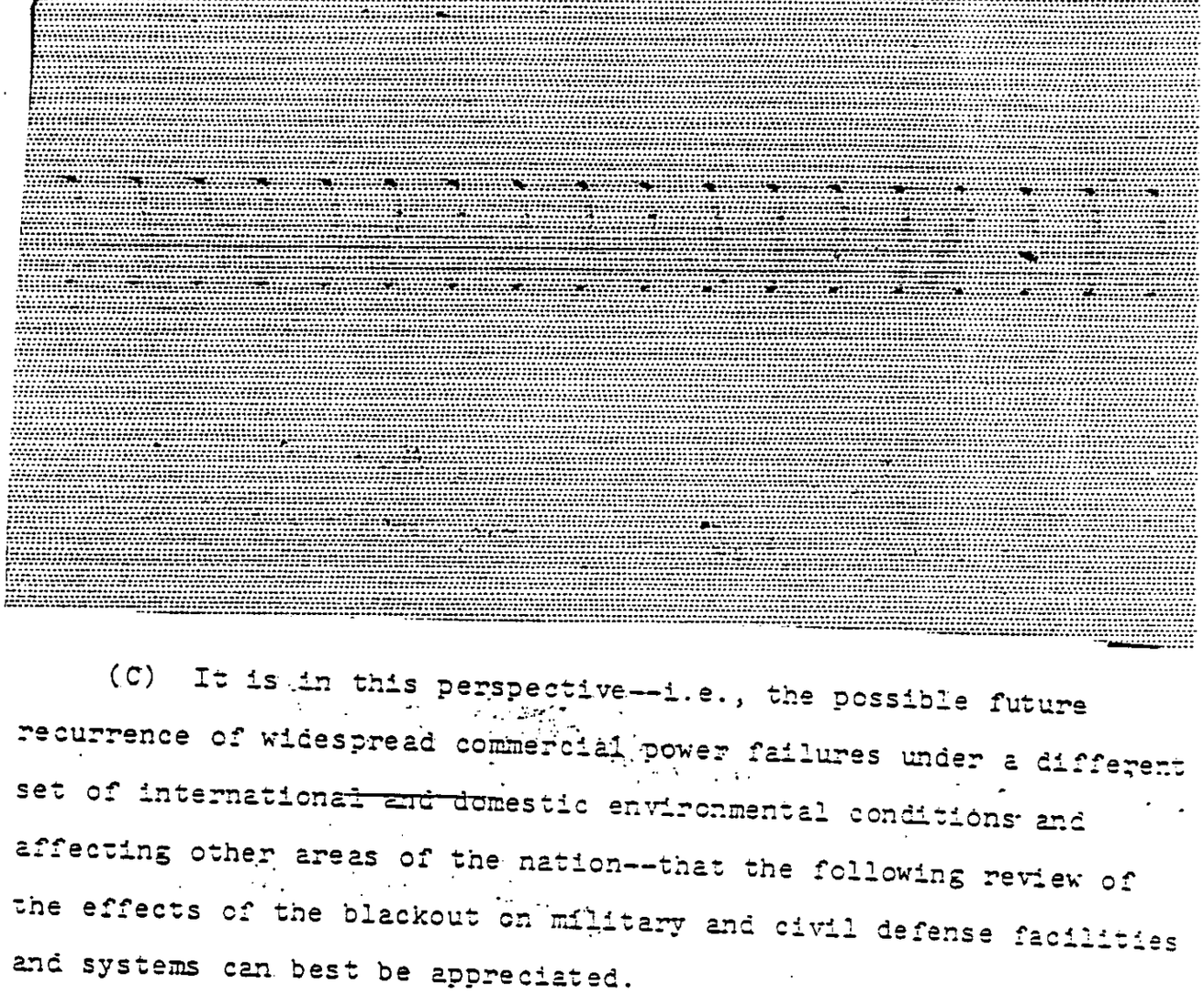
[1] The chairman of the Subcommittee was informed in advance of the meeting that there were several sensitive subject matters (e.g., [redacted] the failure of the Bomb Alarm System, etc.) that could not be discussed in open hearings and it was suggested that if the Subcommittee desired testimony on these, it should go into closed session. The Subcommittee chairman decided, however, to avoid these subjects, so that the entire testimony of the Deputy Director, DDR&E, could be given in open session. Source: Interview No. 34, 25 February 1966.

[2] House of Representatives, Hearings before the Special Subcommittee to Investigate Power Failures of the Committee on Interstate and Foreign Commerce, Eighty-ninth Congress, First & Second Sessions on Investigation of Northeast Power Failure, December 15, 1956; February 24, 25, 1966, Serial No. 89-40 (Washington: Government Printing Office, 1966), p. 60.

[3] Ibid., p. 62.

[4] Ibid.

and control communications and other facilities to commercial power failures.

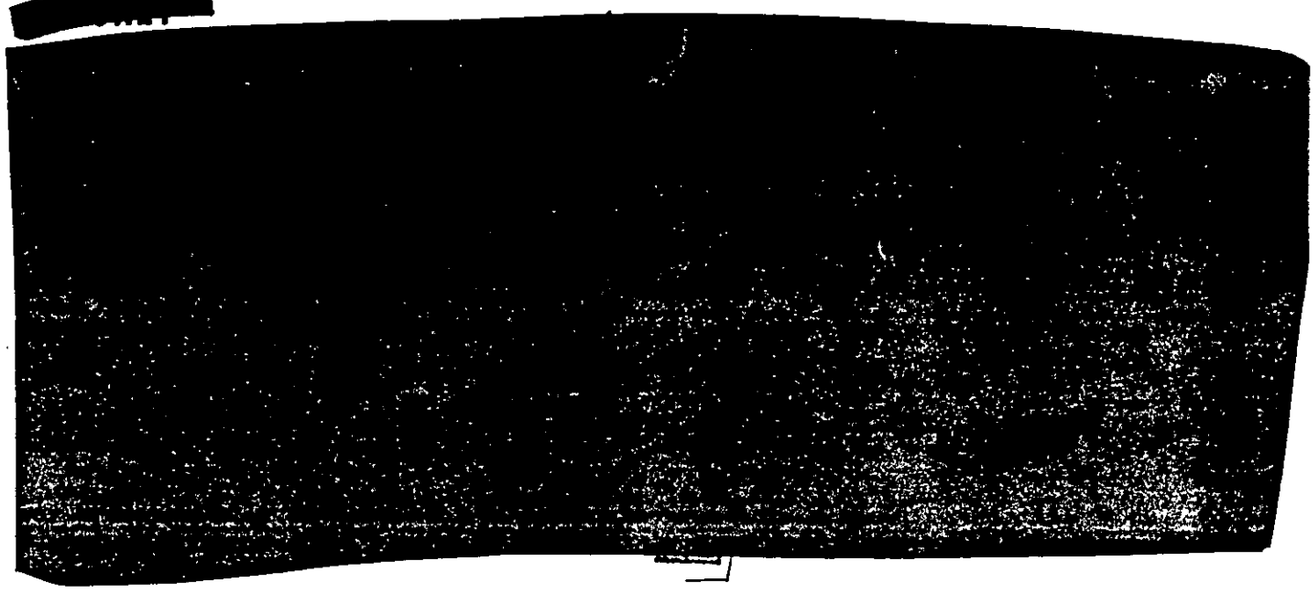


(C) It is in this perspective--i.e., the possible future recurrence of widespread commercial power failures under a different set of international and domestic environmental conditions and affecting other areas of the nation--that the following review of the effects of the blackout on military and civil defense facilities and systems can best be appreciated.

B. EFFECTS ON MILITARY FACILITIES AND SYSTEMS

(C) The following paragraphs briefly summarize the major effect of the power failure on various military systems and facilities, with particular emphasis on those of relevance to command and control and U.S. defense capabilities.

[redacted]

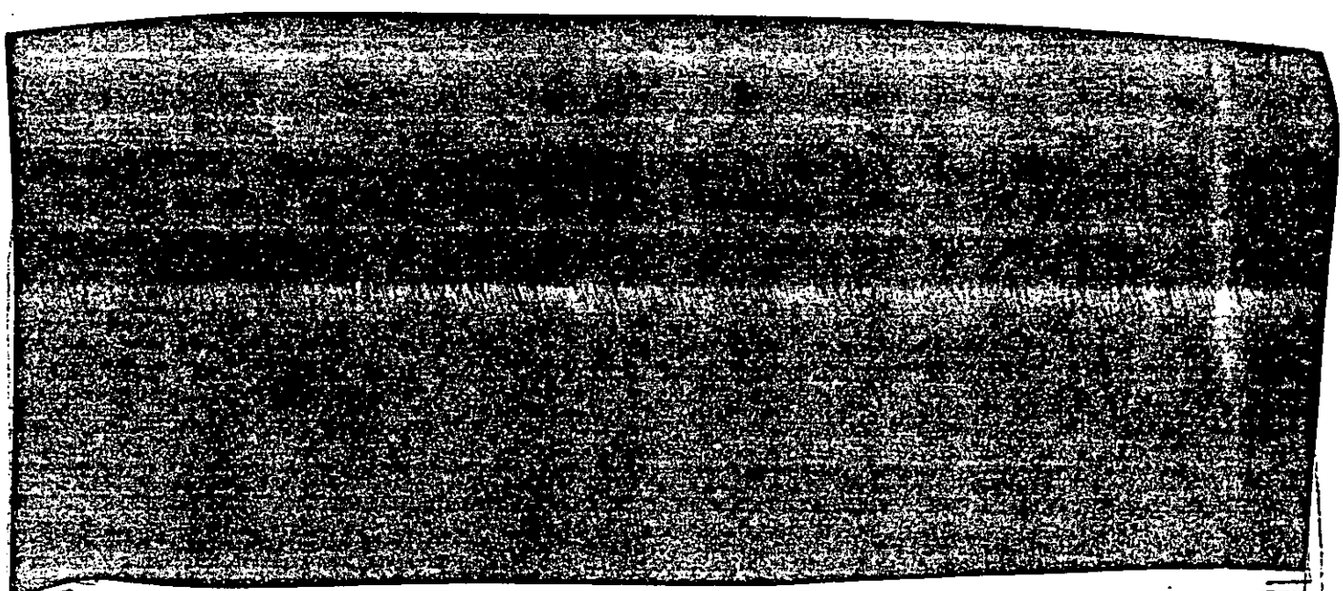


denied (b)(1) OSD

Bomb Alarm System

(S) The Bomb Alarm System (Display System 210-A), develcped under contract with the USAF by the Western Union Telegraph Company, is designed to detect nuclear detonations in selected target areas and to furnish information to appropriate display centers within a few seconds after the burst. At the time of the power failure, the system covered 97 target sites within the continental U.S. and the two BMEWS sites at Thule, Greenland, and Clear, Alaska.[2]

(C) Each of these target sites is ringed in a triangular pattern by three or a multiple of three sensing devices which observe in all directions. The status of the designated target areas is continually displayed at selected display centers, with respect to recognition of a nuclear event (red light, alarm condition);



denied NSC (b)(1)

[2] The 97 target areas covered in the continental U.S. included 84 military targets--mainly SAC bases-- and 13 major population centers.

[redacted]

readiness to report such an event if it were to occur (green light, normal condition); and equipment malfunction (yellow light, trouble condition).

(S) Eleven readout displays are installed in the following locations: NORAD, SAC, Hq USAF Command Post, NMCC, ANMCC, Richards-Gebaur AFB, Missouri, 2nd Air Force, 8th Air Force, Hq USAF (rear) Maxwell AFB, Alabama, and the Office of Emergency Planning (OEP) special facility, HIGH POINT. These displays consist of two types: a Map Display Panel, which displays alarm information only by lighting a red lamp at the appropriate target location,[1] and the Communicator's Display Panel, which displays detailed information as to the status of each detector in the system by lighting a red, yellow, or green lamp, as appropriate.[2] Some of the display locations noted above--e.g., the NMCC--contain only the Map Display Panel, while others--e.g., NORAD,[3] USAF Command Post, and OEP HIGH POINT--contain both the Communicator's Display Panel and the Map Display Panel.

(TS) At the time of the Northeast power blackout, the functioning of the Bomb Alarm System was totally dependent on commercial power. As a result, of the 50 bomb alarm locations in the Eastern United States, thirteen locations (39 detectors) were out of service. These included Boston, Mass.; Griffiss AFB, N.Y.; Hancock Field, N.Y.; New York, N.Y.; Niagara Falls Municipal Airport, N.Y.; Otis AFB, Mass.; Pittsburgh, Pa.; Plattsburgh AFB,

[1] A red lamp on the Map Display Panel is lighted only when two or more detectors in the same target area report the occurrence of a nuclear event, or when one detector reports a nuclear event and the remaining two detectors in the same area are reported as being in a yellow condition.

[2] The lamps for the three detectors ringing a particular target area are grouped together on the Communicator's Display Panel, so that, for a particular target area, there are a total of 9 lamps (three red, three yellow, and three green).

[3] The Bomb Alarm Console at NORAD is not physically contained in the Combat Operations Center (COC). At the Ent AFB facility, Colorado Springs, Colorado, it was contained in a separate building located about one block from the COC. In the Cheyenne Mountain Complex, it is located in the DCA facility--also physically removed from the COC. In both cases, the system is manned by Western Union contract employees.

[redacted]

N.Y.; Suffolk County, N.Y.; Westover AFB, Mass.; Pease AFB, N.H.; Loring AFB, N.Y.; and Dow AFB, Maine. In addition, because of the nature of the circuit routing in the Bomb Alarm System, nine additional locations had only one detector available. These were: Thule AB, Greenland; Washington, D.C.; Selfridge AFB, Mich.; Fort Ritchie, Md.; McGuire AFB, N.Y.; High Point, Va.; Cleveland, Ohio; Chicago, Ill.; and Bunker Hill AFB, Ind. This, in effect, meant that in a total of 22 of the 99 target areas covered by the Bomb Alarm System the occurrence of a nuclear detonation could not have been identified by the System during the period of the power outage.

(TS) The outage of the Bomb Alarm System was first noted at Westover AFB, Mass., at 1718 EST and, although a few detectors were restored to service within an hour, complete service to the system was not restored until 0842 EST on 10 November, an elapsed time of over 15 hours.[1]

Air Defense Facilities

[redacted]

Radar Sites

[redacted]

denied (5)(1) OSD

[1]One of the main causes of this lengthy outage was the failure of both the commercial AC & DC power in the main Western Union office located at 60 Hudson Street, New York City.

[redacted]

denied (b)(1) OSD

[redacted]

Air Defense Weapons

(TS) The BOMARC's at Otis AFB, Mass., were out of action for 1 hour and 14 minutes. The following air defense artillery batteries were also out of action for the periods noted: 3 in the Boston Sector for 1 hour and 27 minutes; 6 in the N.Y. Sector for 2 hours 49 minutes. During this period, an air defense interceptor capability was maintained with the 60th Fighter Interceptor Squadron at Otis AFB and with other interceptor squadrons in the surrounding areas.[2]

SAGE Facilities

denied (b)(1) OSD

[redacted]

Air Defense Communications

denied (b)(1) OSD

[redacted]

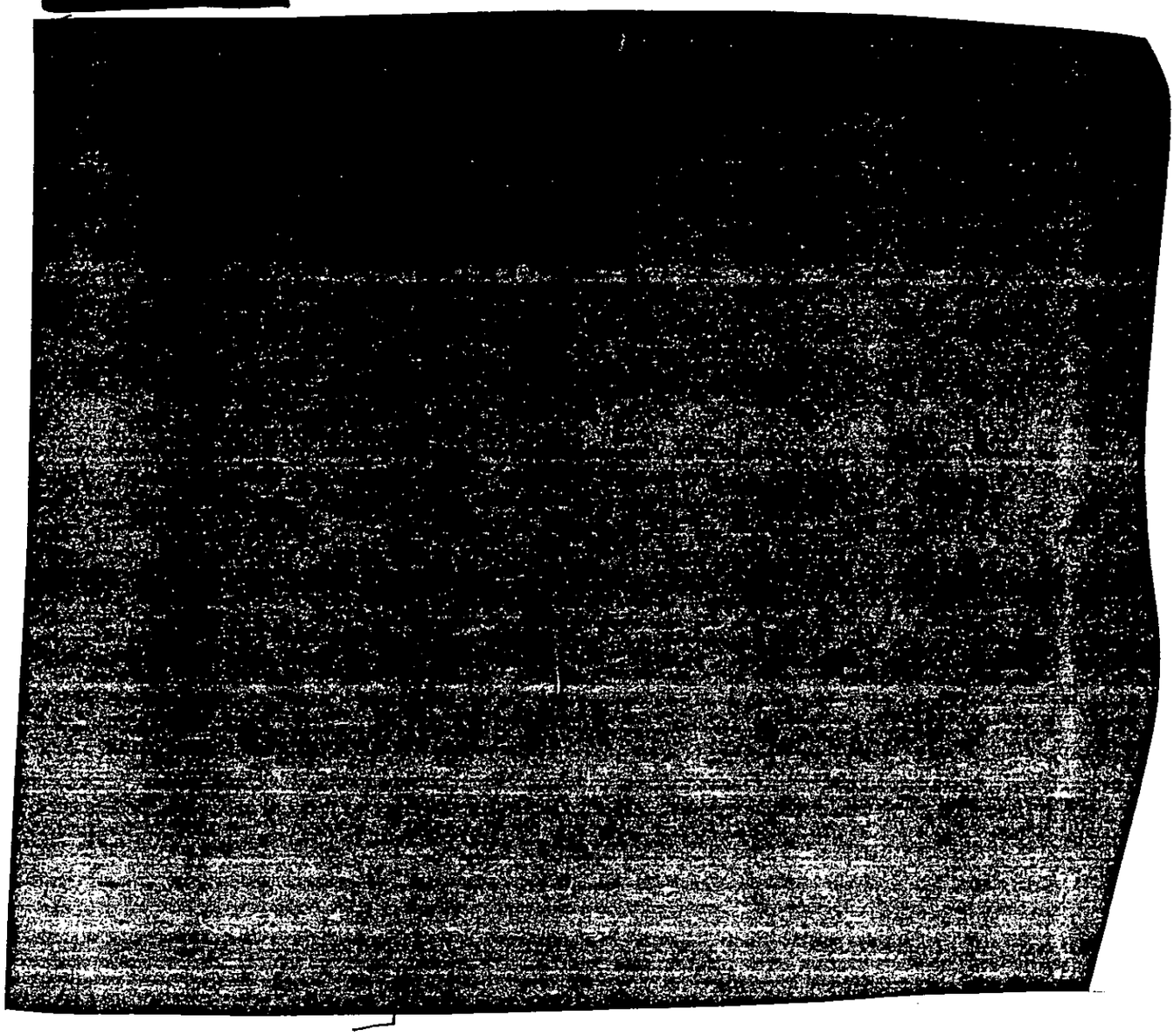
[1]Memorandum from USAF Assistant Vice Chief of Staff to Secretary of the Air Force, Subj: "Effects of Power Failure in the Northeastern United States on Air Force Readiness and Operations," 19 Nov 1965, TOP SECRET. WSEG Log No. 201544.

[2]Memorandum for the Deputy Secretary of Defense, from Chairman, JCS, CM-965-65, Subj: "Impact of NE United States Power Outage on Essential Defense Systems," 15 Nov. 65, TOP SECRET. Enclosure to JCS 222/902-1, 16 November 1965, TOP SECRET.

[3]Memorandum for USAF Assistant Vice Chief of Staff, op.cit., p.2.

pages 31–35 denied in total (b)(1) OSD

[redacted]



denied
(5)(6)
OSD

Department of the Army Installations and Communications

(C) Approximately 18 major posts, camps, and stations of the Department of the Army are located in the region affected by the power failure.[2] Of these, five installations were unaffected by the blackout, and 13 had various electrical outages ranging in length from 1 hour 45 minutes to 11 hours 33 minutes. Emergency standby power was adequate in most of these installations to insure operation of such critical equipment and facilities as heating plants, dispensaries, security lighting, and refrigerated warehouses; but

[1] Ibid., p. 19.

[2] The 18 installations include the following: Watervliet Arsenal, N.Y.; Springfield Armory, Mass.; Watertown Arsenal, Mass.; Schenectady Army Depot, N.Y.; U.S. Army Natick Laboratories, Mass.; U.S. Cold Regions Research & Engineering Laboratory, Hanover, N.H.; U.S. Army Pictorial Center, N.Y.; Fort Hamilton, N.Y.; Fort Wadsworth, N.Y.; Fort Slocum, N.Y.; Fort Totten, N.Y.; Fort Tilden, N.Y.; U.S. Army Support Center, N.Y.; Camp Drum, N.Y.; Fort Hancock, N.J.; Fort Jay, N.Y.; Fort Devens, Mass.; Boston Army Base, Mass.

the commercial power failure affected the operational continuity and/or communications of a number of them.

(C) At the Watervliet Arsenal, N.Y., 190 second shift employees were released and communications center teletype and cryptographic equipment were inoperative for 4 hours 25 minutes. The Arsenal also encountered extensive outages in its Western Union TELEX circuits. The Springfield Armory, Mass., released 156 second shift employees plus 115 over-time personnel; and its teletype and crypto operations were inoperative for over three hours. The Watertown Arsenal, Mass., released 72 second shift employees.

(C) The refrigeration plant supporting 24 cold rooms in the U.S. Army Cold Regions Research and Engineering Laboratory, Hanover, N.H., was inoperative, and the various cold rooms warmed up from one to 26 degrees. Usually the condition would have ruined many man-months of research effort; but at the time of the power outage a series of tests had recently been completed and only a few experiments in process were lost. It was noted, however, that "the most severe damage is caused when the rooms warm up to 32 degrees F., and had the power been off for approximately half an hour longer considerable damage would have resulted."[1] The Laboratory also lost the use of its teletype and crypto equipment for a period of 1 hour 45 minutes.

(C) At the U.S. Army Pictorial Center, New York City, the power outage rendered 2,000 feet of original motion picture film negatives unusable because of the stoppage of the developing machines. To reshoot the scenes in the San Francisco area, and for necessary schedule changes, the Center incurred an additional expenditure of $8,660. The Center had no emergency standby generators and, as a consequence, all equipment, including teletype and crypto equipment, was inoperative for 11 hours 32 minutes.

[1] Memorandum from Deputy Asst. Secy. of the Army (I&L) for Asst. Secy. of Defense (I&L), Subj: "Impact of Electrical Power Failure on Military Installations," 20 Dec. 65, FOR OFFICIAL USE ONLY, Enclosure #6.

(C) Fort Slocum, located at New Rochelle, New York, had no standby power generators and was without electric power of any kind (except for one dock area) for 10 hours 8 minutes.

(C) Fort Totten, Flushing, Long Island, N.Y., lost its commercial source of power for 11 hours 32 minutes. During this time emergency standby power was adequate to meet communication and emergency lighting requirements. However, it lost its leased commercial VHF Radio Relay circuits connecting Highlands, N.J., to Livingston, N.Y.; Franklin Lakes, N.J., and Orangeburg, N.Y., relay sites.

(C) Fort Jay, Governors Island, New York, which experienced an outage of 11 hours 33 minutes, immediately went on emergency power. All NIKE systems in the affected area were operated on backup power during this period and all emergency facilities continued to operate except for one leased facility at the New York ferry slip, which was out of operation for over 21 hours.

(C) The Boston Army Base, which had no standby power facilities, was one of the most seriously affected installations. It was without commercial power for four hours 13 minutes and, during that time, all tenant and U.S. Army Reserve activities ceased operational functions; all data processing equipment on the post was inoperative; AUTOVON was inoperative for about one and one-half hours and limited to incoming messages thereafter; AUTODIN was inoperative for the period of the failure; and it lost its two-way FM Radio Base Station which supported its Post Security, CIC Headquarters, and mobile operations.

(C) The continued operation of the commercial and AUTOVON telephone systems provided the main source of communication for these and other Army installations. A final report on the effects of the power failure on Army communications concluded that "the critical functions of the Department of the Army at all locations were not affected due to the availability of telephone service."[1]

[1]National Communications System, Evaluation of Federal Government Telecommunications Performance During the Northeast Power Failure Nov 9 and 19, 1965, op.cit., CONFIDENTIAL, p. 32.

(TS) In addition to those already cited, various other Strategic Communications Directorate (STRATCOM) military networks were affected. No STRATCOM operated facilities experienced total station failure, but numerous circuits leased from AT&T and Western Union were out of operation for periods ranging from 10 minutes to 9 hours 30 minutes. Fort Ritchie and Fort Detrick, Maryland were the primary installations involved. Among others, one circuit of the Emergency Message Automati Transmission System (EMATS) from Fort Ritchie to the Pentagon and one circuit of the Army Command and Control Network from Fort Ritchie to Heidelberg were out for a period of 10 minutes.[1] In both cases, however, voice circuits were available as backup; and the Alternate National Military Command Center (ANMCC) circuits at Fort Ritchie were unaffected.[2]

Department of the Navy Installations and Communications[3]

(TS) Naval facilities located primarily in the First and Third Naval Districts were affected by the power outage. Headquarters, Commander, Naval District Three and Commander, Eastern Sea Frontier--colocated in New York City--lost commercial power at 1728 for a period of about 90 minutes until auxiliary power was made available at 1902. During that time, radio amplifier equipment supplying powe to the Search and Rescue net, the Chief of Naval Operations hot line

[1] Msg., from DA to JCS, NMCC, NO DA 740063, DTG 1965 Nov 111852Z. TOP SECRET. Both of these outages occurred between midnight and 0010 on 10 Nov 65 EST and, according to a later message, they could not be verified to be the result of the power failure. Msg. from USAJSC, Ft. Ritchie to USASCC, DTG 20 Nov 65 0228Z, CONFIDENTIAL.

[2] Draft Memorandum for the Deputy Secretary of Defense, Subj: "Impact of NE United States Power Outage on Essential Defense Systems," 11 November 1965, TOP SECRET, Prepared by North American Desk, NMCC

[3] Information presented in this section is based on the following source materials: National Communications System, Evaluation of Federal Government Telecommunications Performance during the Northeast Power Failure, November 9 and 10, 1965, No Date, CONFIDENTIAL; Department of the Navy Memorandum for Assistant Secretary of Defense (I&L) from Captain N.M. Martinsen, USN, Director of Facilities Management, Bureau of Yards and Docks, Subj "Impact of the Electric Power Failure on Naval Installations," 14 Dec 1965, Unclassified; US Navy Flag Plot, Op-333C1/ss, Memorandum for the Record by Captain L. Morris, USN, Navy Department Duty Captain, Subj: "Electrical Power Failure in Parts of the Northeastern Part of the United States," 10 November 1965, Unclassified; Msg., Navy Department, DTG 111606Z Nov 65, from COMEASTSEAFRON to WWNA/CNO, TOP SECRET.

and the Atlantic Submarine Warfare hot line were inoperative. Full commercial power was not restored until 0530, 10 November.

(TS) At the Naval Air Station at Floyd Bennett Field, New York City, runway lighting was out for two hours, on-line communications were lost for periods ranging from 15 minutes to one hour, and there were extended outages on weather circuits.

(C) The Naval Ship Yard in New York City lost its internal security, industrial control, secondary ship-to-shore and tug communications for a period of about 20 minutes, but after that time its main plant generators were able to supply not only the Yard's own electrical needs but also to furnish the Consolidated Edison Company in New York with 5000-8000 KW of power.

(C) In the First Naval District, several Naval installations in Massachusetts and Rhode Island experienced commercial power outages ranging up to five hours or more. The Boston Naval Station lost its source of commercial power at 1723 and full power was not restored until 2345, over six hours later. Partial power was supplied for 28 minutes by a 96 KW auxiliary generator, but when the oil tank was empty the unit could not operate because the pumps providing the fuel supply were operated with commercial power. During the outage, ship-to-shore communications, reception of the Newport Fleet Broadcast, communications with the Commandant, 1st Naval District, a simplex teletype circuit to the Navy Air Station, South Weymouth, Mass., and a simplex teletype circuit to the USS WASP were affected. At the Boston Naval Shipyard, the prime source generators were adequate to supply their own power needs and also supply the Boston Edison Company with 1600 KW of power for two hours. However, the UNIVAC computers at the Shipyard were out of operation for 45 minutes because of the voltage dip that occurred when the commercial power failed.

(C) In Rhode Island, the Navy Communications Station at Newport lost commercial power for over one and one-half hours and, during that time, ship-to-shore communications, reception of the Newport Fleet Broadcast, Follow-the-Fleet Coordination Circuit with Norfolk and the Naval Command Operations Net to five tributaries and the Navy Communications Station in Washington, D.C., were affected. The Port Facilities Office in Newport also lost Harbor Control, Tug Control, Search and Rescue, and Harbor Common Communications for approximately 20 minutes. The Naval Hospital and the Public Works Center at Newport also experienced commercial power outages. At the latter Center, auxiliary power was partially effective, but the Communications Station at Coaster Harbor lost power for 11 minutes and the Coddington Cove destroyer pier and fuel depot were without power for 28 minutes. At the Construction Battalion Center, Davisville, Rhode Island, power was interrupted for 3 hours and the communication center and various electronic systems were out for a few minutes to one-half hour until several standby generators could be activated.

(C) Despite these and other effects of the blackout on Naval facilities, the Chief of Naval Operations concluded that "critical functions of the Department of the Navy were not adversely affected."

C. EFFECTS ON CIVIL DEFENSE FACILITIES AND SYSTEMS[1]

(C) National, state, and local civil defense (CD) facilities and organizations were variously affected by the power blackout. In

[1] Information presented in this section is based on the following source materials: Office of Civil Defense, Effectiveness of Civil Defense Organizations and Systems during the Northeast Power Failure of November 9, 1965, No Date (circa December 1965), FOR OFFICIAL USE ONLY; Office of Civil Defense, Effectiveness of Emergency Government Organizations and Systems during the Northeast Power Failure of November 9, 1965, No Date (circa January 1966), Unclassified; Testimony of Mr. John W. McConnell, Assistant Director of Civil Defense (Plans and Operations), Department of the Army, in Eighty-Ninth Congress, Hearings before the Special Subcommittee to Investigate Power Failure of the Committee on Interstate and Foreign Commerce, House of Representatives, Serial No. 89-40 (Washington: U.S. Government Printing Office, 1966), pp. 76-85; U.S. Senate, Committee on Commerce, Responses to Inquiries about the Northeast Power Failure, November 9 and 10, 1965, Report No. 1079 (Washington: U.S. Government Printing Office, 1966), pp. 20-38; and various background Office of Civil Defense manuals and guides.

[redacted]

general, the national emergency communications system for conveying warning messages to regional, state, and local points remained operational; but the total system for warning the public was seriously degraded. Moreover, if the event had required the utilization of the CD public fallout shelters in the Northeast area, serious problems of entry and habitability might have developed, because most of the shelters are located in existing buildings that are totally dependent on commercial electricity for lighting and for the operatio of heating and ventilating, sewer lift pumps, and other equipment.[1]

(U) Some of the specific effects of the blackout on CD systems and facilities are detailed below.

National Warning System (NAWAS)[2]

(FOUO) The National Warning System--which contained 97 warning points in the Northeastern states, as well as an extension into Canada--remained operational throughout the power failure and was used extensively by state and local governments for their direction and control activities. An initial roll call of these 97 warning

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[1]No accurate data on the percent of public shelters protected by auxiliary power is currently available. A small and unrepresentati sample study of National Fallout Shelter Survey Shelters in souther states showed that 28.5 percent were located in facilities containi auxiliary electric power. However, the percentage in Northeastern states is probably considerably lower. Source: Interview No. 35, 5 March 1968.

[2]NAWAS is the Federal portion of the Civil Defense Warning System. It consists of full-period, private-line voice circuits, leased from telephone companies, interconnecting OCD Warning Centers, OCD Regions, certain OCD offices, and more than 850 Warning Points that serve States and their principal subdivisions. The National Warning Center is located in the Combat Operations Center at NORAD Headquarters in Colorado Springs, Colorado. In addition, there are two alternate Warning Centers that can assume the functic of the National Warning Center if necessary: The National TWO Warning Center at Denton, Texas; and the National THREE Warning Center at the OCD Headquarters Relocation Site, located near Washington, D.C. The system is independent of commercial power, and can operate up to 14 days from emergency generators at the key centers of the telephone company.

[redacted]

points was made at 1815 hours and all but six of the Warning Points responded to this first roll call. Two Warning Points in New York City--the Atomic Energy Commission and the General Services Administration--were able to receive messages but were unable to acknowledge the messages during the entire power failure.[1] The NAWAS control circuit connection to the Federal Warning Center in Canada was out for 57 minutes. (The alternate communication channel with Canada--a "hot" line from the National Warning Center to the Canadian Federal Warning Center--was not affected.)

(FOUO) Although the NAWAS system was operational during the power failure, the ability to warn the public was seriously degraded. This is due to the fact that 97 percent of the sirens--the major public warning device--are dependent on commercial electric power for their operation. Thus, despite the fact that virtually all the communities in the blacked-out area served by the NAWAS system could have received a warning message at the local warning point, the dissemination of this warning to the public would have failed because the outdoor warning systems could not have been activated.

Emergency Action Notification System (EANS)

(FOUO) At the time of the Northeast power failure, there were no alternative plans to utilize the capabilities of commercial broadcasting stations to issue warning announcements.[2] However, even if there had been such plans, there would have been difficulties in activating the Emergency Broadcast System (EBS) because of the failure of the Emergency Action Notification System (EANS). EANS is a teletypewriter system for rapidly transmitting Emergency Action Notification messages to approximately 4500 standard and FM radio

[1]The warning points at AEC and GSA in New York City were able to receive but not transmit because of the nature of the circuitry--a four-wire system with one pair of wires, powered by the telephone company, on the receiving side, and one pair on the transmitting side using commercial power.

[2]Since that time, steps have been taken by OCD, in collaboration with the FCC, to develop procedures for immediately advising all commercial broadcast stations whenever an attack warning message is issued by so that stations may announce that "OCD has issued an attack warning over the National Warning System."

stations and television stations.[1] It utilizes the combined Associated Press and United Press International news facilities, and these facilities were inoperative at many locations in the northeastern area due to the lack of commercial power to operate the teletype machines. If the EBS system were to be activated under these conditions, it would have been necessary to rely upon alternate procedures involving the monitoring of designated key stations. An interruption in the carrier of a key station in a specified sequence, followed by a 1000 cycle tone, will activate special alerting receivers. FCC requires all radio stations to provide such monitoring as a backup to EANS.

Emergency Broadcast System (EBS)[2]

(U) As a part of the OCD Broadcast Protection Program,[3] standby emergency power units are being installed in selected broadcasting facilities throughout the nation. At the time of the power failure, fifty-five AM stations in the general area affected had been or were scheduled to be furnished emergency generating equipment under this program. Of these 55 stations, 43 experienced electric power outage. Thirty-one of the 43 stations that lost power returned to

[1] The formatted message to be sent to the approximately 4500 broadcast stations reads as follows: "A NATIONWIDE ALERT HAS BEEN DECLARED. ALL NORMAL BROADCASTING WILL CEASE IMMEDIATELY. ALL STATIONS WILL IMPLEMENT THE REQUIRED PROCEDURES OF THE EMERGENCY ACTION NOTIFICATIO SEQUENCE, TWO CARRIER BREAKS AND 1000 CYCLE TONE FOLLOWED BY ALERT MESSAGE, SECTION 3.921B OF COMMISSION RULES, AND ONLY THOSE STATIONS AUTHORIZED TO OPERATE UNDER NATIONAL DEFENSE EMERGENCY AUTHORIZATION MAY REMAIN ON THE AIR DURING THIS PERIOD."

[2] The EBS replaces the former CONELRAD system for emergency broadcastin This plan, prepared by the Federal Communications Commission, provide the President and Federal officials, as well as State and local officials, with a means of communicating with the general public through nongovernment broadcast stations in an emergency. It provides for utilizing in a controlled manner selected facilities and personnel of the nongovernment communications industry on a voluntary basis under FCC regulations during a national emergency.

[3] This program has three parts: (1) fallout protection at either the studio or at the transmitter location; (2) the provision of standby emergency power units on a loan basis; and (3) the provision of a radio communications link between approved Emergency Operating Centers and selected radio broadcast stations.

the air by using equipment previously furnished by OCD. The other 12 of the 43 stations were off the air for the duration of the power failure because their emergency generators had not yet been completely installed. As noted in an earlier section of this report, the AM stations that returned to the air on emergency power--together with those that continued broadcasting without any interruption of service--played a significant role in keeping the public informed during the power failure.

NACOM 1 and NACOM 2

(U) NACOM 1 is a telephone and teletype system that provides for OCD operational communications. It uses leased land-lines to interconnect OCD national headquarters, regional offices, state civil defense offices, and a relocation point. It is extended from OCD regional headquarters by interconnection with other government and military systems. It also connects regional headquarters and CONUS armies. NACOM 2 is the emergency radio backup to NACOM 1, and serves the same locations. It is a high frequency radio system capable of voice, manual code, and teletypewriter transmission.

(U) During the power failure, OCD Region 1--located at Harvard, Mass.--established voice contact over NACOM 1 to all states. However, the teletype portion of NACOM 1 was inoperative until commercial power was restored in that area after 2100 hours. Frequency problems of the emergency generator made the use of teletype equipment unstable

(U) NACOM 2 was not immediately available, due to trouble on a microwave channel which is used for remote control of the transmitter at Fort Devens. In order to switch over to use of a telephone circuit it was necessary to send someone from the Region 1 headquarters to Fort Devens. By the time this action was completed, the commercial power had been restored and there was no requirement for NACOM 2. A later check revealed that component parts of the microwave system had failed due to either an under or over voltage at the time the commercial power failure occurred. Maine and Rhode Island were the

only states in Region One with NACOM 2 equipment installed. However, since the Maine Emergency Operating Center was not activated, and the Rhode Island personnel were unable to get into their Emergency Operating Center, NACOM 2 could not have been used for message traffic to the states, even if the Region 1 equipment had been operational.

State and Local CD Facilities

(U) State and local CD facilities and communications were actively used throughout the blacked out area. The states most seriously affected by the power outage--Connecticut, Rhode Island, Massachusetts, New York, and Vermont--all activated their state CD Emergency Operating Centers (EOCs); alerted the State National Guard and placed them on standby status; established communications with lower and higher echelons of government; maintained contact with the Governor or the Governor's office; established contact with the news media, radio, television, and newspapers; and in some cases made public information releases. The States of New Jersey and Hampshire also activated their state EOCs and checked the emergency communications capability of the state portion of the National Warnin System. The State of Maine had no problem with the power outage and, therefore, did not alert their civil defense organization.

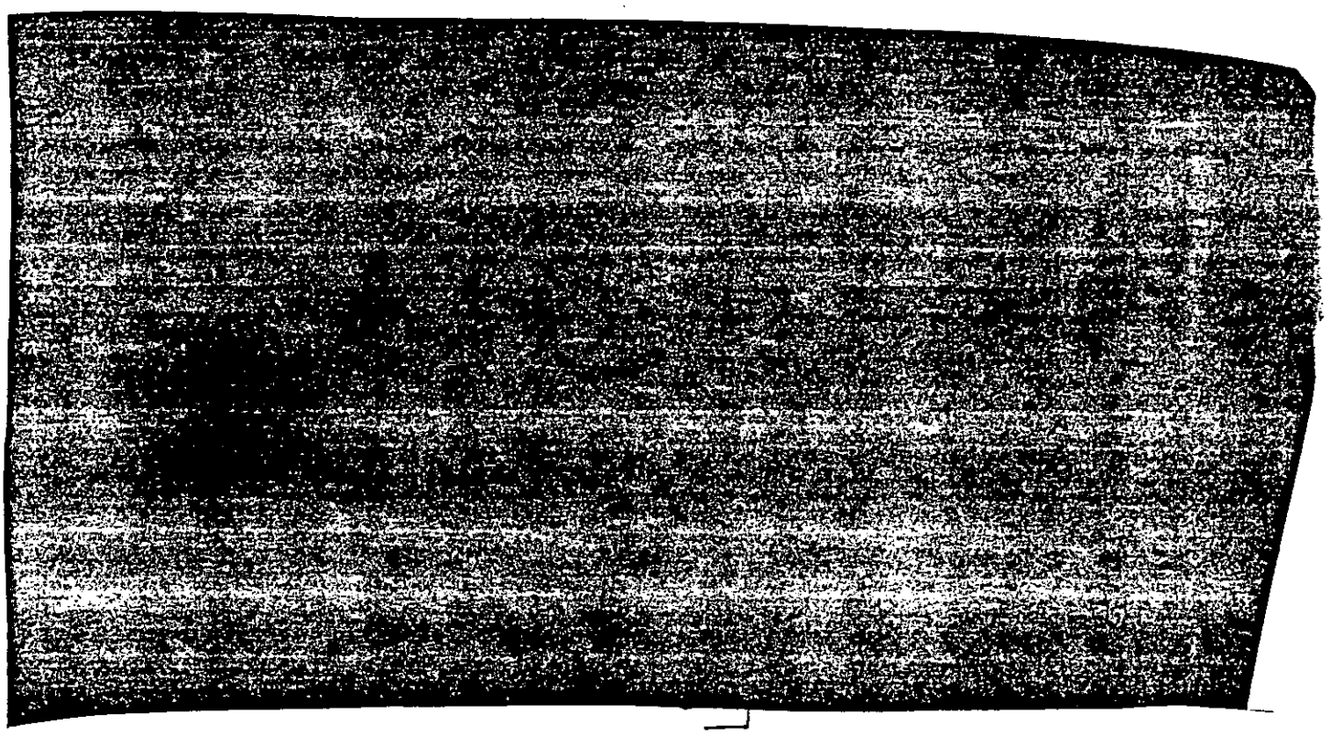
(U) Although state and local CD facilities were affected by the overloading of telephone systems and the inoperability of teletypewriters, auxiliary speakers, and other equipment utilizing local commercial power, emergency power generators enabled critical communications to be maintained. In Rhode Island, however, the emergency generator at the state EOC became overheated and inoperable and the City of Providence EOC assumed control as the alternate state EOC. Similarly, in Wellesley, Massachusetts, the auxiliary generator in the EOC failed, and this necessitated moving CD operations to an alternate site.

[redacted]

D. EFFECTS ON OTHER U.S. GOVERNMENT FACILITIES AND SYSTEMS[1]

(C) In addition to the Department of Defense and the Office of Civil Defense, virtually every other federal government agency experienced some impact of the power failure on its communications and activities. In most cases, this impact was less than might have occurred under other circumstances, primarily because climatic and other conditions were favorable and the outage occurred during off-duty hours, so that the normal functions performed during the working day were not adversely affected.

(U) It is beyond the scope of this paper to detail all of the effects of the power failure on non-defense agencies.[2] The following particular agencies have been selected because their activities closel relate to national security matters and to military operations.



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[1]Information presented in this section is based on the following source materials: U.S. Senate, Committee on Commerce, Responses to Inquiries about the Northeast Power Failure, November 9 and 10, 1965, Report No. 1079 (Washington: U.S. Government Printing Office, 1966); and National Communications System, Evaluation of Federal Government Telecommunications Performance during the Northeast Power Failure, Nov 9 and 10, 1965, A Report to the Executive Agent for the National Communications System, 1966, CONFIDENTIAL, NOFORN.

[2]For more detailed coverage of effects on other agencies of government, consult the references noted in the preceding footnote.

[redacted]

[redacted]

Department of Commerce

(C) The loss of public power resulted in an almost complete stoppage of services from the field service offices of the Environmental Science Services Administration (ESSA) within the area affected, including the interruption of weather forecast and advisory services for the protection of life and property, and in support of transportation, commerce, and other public activities. Only the fortunate existence of ideal weather conditions over the Northeast on the night of 9-10 November prevented a major catastrophe ESSA officials concluded: "Had there been weather hazards to transportation, either air or ground, or both, one cannot estimate what calamities might have resulted."

Federal Aviation Agency (FAA)

(C) The FAA multipoint weather distribution and collection teletypewriter networks--leased from AT&T and Western Union--were totally disrupted within the blackout area. Aeronautical Message Circuits were also interrupted for varying periods of time due to the loss of power for terminal teletype equipment--and this interruption affected approximately 40 FAA stations, all military airfields, and the airline dispatch offices within and adjacent to the blackout area. However, flight movement messages that are normally handled by this service were alternate routed via the FAA interphone voice system, which was essentially unaffected by the power failure.

(C) The FAA high frequency transmitter site at Sayville, New York, from which International Flight Service circuits are operated, was out of service for the duration of the power failure. This outage interrupted circuits to Santa Maria, Azores; Gander, Newfoundland; San Juan, Puerto Rico; and to Bermuda. In addition, the New York Synoptic Weather Broadcast, the New York Hurricane Net, and the New York Air/Ground Enroute Meteorological Broadcast were affected. Critical messages for San Juan were relayed over the FAA voice network through Miami, Florida.

[redacted]

[redacted]

(C) All radio communications from control towers and radar landing and approach radars at the JFK International and La Guardia Airport were out of service; and airport traffic controllers at these locations were forced to utilize radio equipment in aircraft on the ground to contact inbound aircraft and divert them to suitable alternate airports.

Department of State

(C) The Department of State's Diplomatic Telecommunications System (DTS)--a world-wide configuration containing approximately 151 long-haul circuits to important overseas locations--was affected by the power failure for extended periods of time. Twenty-three DTS circuits were inoperable, including the following which originate from Washington, D.C. and traverse the New York City area: 2 circuits to London, England; 1 circuit to Paris, France; 2 circuits to Nicosia Cyprus; 1 circuit to Ottawa, Canada; and 1 circuit to United Nations Headquarters (all out for about 14 hours); and 1 circuit to Clark Air Base, Philippines (out approximately 8 hours). In addition, the DTS lost communications over leased facilities from the Washington, D.C. area to various stations in South America and adjacent areas.

(C) Attempts of the common carriers to restore circuits in the New York City area were unsuccessful. The restoral of essential communication services to the affected areas was accomplished through the use of DoD/DCS alternate circuits that do not traverse the New York City area. For the most part, facilities of the DCS were employed to restore only the most essential communications services.

(C) The U.S. Arms Control and Disarmament Agency--which employs Washington, D.C. to New York United Nations circuits--reported that critical matters were being considered in Washington by a United National General Assembly Committee at the time of the power outage. Due to the availability of telephone service, the loss of the teletyp circuit to the United Nations did not have an adverse effect upon the Committee.

[redacted]

[redacted]

National Aeronautics and Space Administration (NASA)

(C) The NASA Communications Network (NASCOM) consists of approximately 334 teletype, data, and voice circuits strategically located throughout the world in support of space missions. Thirty-eight NASCOM circuits were affected by the power blackout for extended periods of time due to the lack of adequate emergency power at the common carrier locations in New York City. All circuits which were affected were from the Goddard Space Flight Center in Maryland and traverse the New York City area. At the time of the power failure no critical operations were in progress; therefore, the critical functions of NASA were not seriously impaired. Had NASA been involved actively in a space mission at the time, however, critical circuits would have had to be restored rapidly by the common carriers.

Civil Aeronautic Board (CAB)

(C) In New York City, during the first two hours after the blackout, the CAB's Office of the Bureau of Safety was unable to contact their investigators who were at home at the time. After this initial two hour period, communications conditions improved to the extent that priority calls could be completed within 30 to 45 minutes--an unacceptably long delay from the CAB's point of view.

Treasury Department

(C) The U.S. Coast Guard (USCG) owned and leased dedicated voice and teletype circuits encountered brief interruptions while emergency power generators were being activated. In two cases, however, circuit outages occurred for the duration of the commercial power failure. The first was in New York City, where the Coast Guard Automated Merchant Vessel (AMVER) Reporting Center was rendered inoperative. AMVER is a computerized center through which position reports of all ships-at-sea are maintained to facilitate the rescue of vessels. The second was in Boston, Massachusetts, where the Commander, First Coast Guard District circuit into the AMVER Center was also rendered inoperative.

[redacted]

(C) To compensate for the loss of communications by the Commander, First Coast Guard District in Boston, their Rescue Coordination Center functions were shifted to the Coast Guard Air Station in Salem, Massachusetts, where necessary access circuits to AMVER were available. The AMVER Center in New York employed the Communications Center facility of the Commander, Third Coast Guard District (located in the same building) to provide message handling service until power was restored.

(C) In addition, the USCG experienced minor interruptions to radio facilities which provide vital communications for control of Coast Guard search and rescue and for distress communications with nongovernment maritime mobile stations.

Office of Emergency Planning (OEP)

(C) OEP reported that individual offices and home lines both in the Washington, D.C. area and in OEP-OCD Region 1--which for the most part encompasses the area of the power failure--experienced very heavy demands on telephone facilities, resulting in a large backlog of calls.

E. SUMMARY ASSESSMENT

(U) The relatively detailed and precise summary descriptions of the physical effects of the Northeast power blackout presented in the preceding sections are based on the work of hundreds of investigators and analysts who attempted to reconstruct the event in the days, weeks, and months following its occurrence. Even after the dozens of special investigations, hearings, and published reports on the subject, however, it is difficult to assess the total net impact of the power failure on U.S. defense capabilities and operations, primarily because the studies of the event took an inventory approach rather than a systems approach to the subject. Thus, for example, we know that there were hundreds of separate communication outages--each properly inventoried in detail by the responsible or concerned agencies--but we do not know what the interrelationships of these

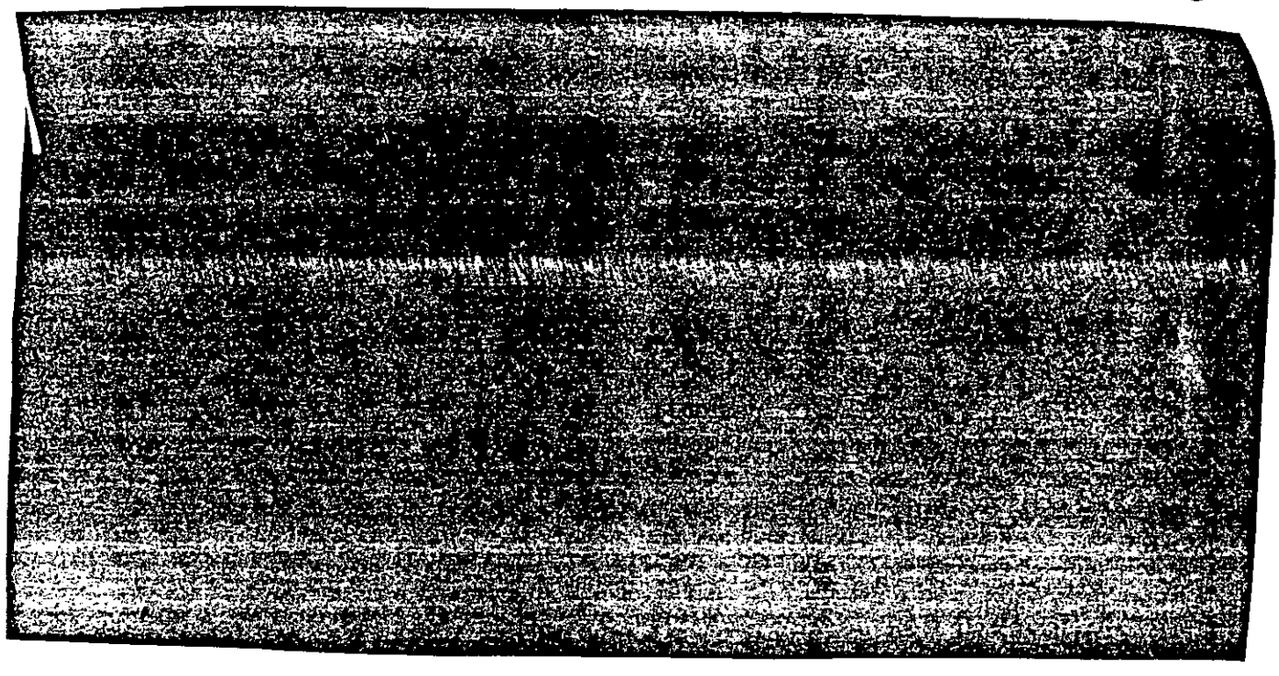
[redacted]

outages were in delaying or preventing vital communications among the various agencies which required coordination of action. Similarly it is difficult to assess how our defense capabilities might have fared if the international and domestic environmental conditions had been different than those pertaining on the night of the blackout.

(U) An assessment of such total system effects--either actual or hypothetical--would require much more detailed information on communication patterns and content than is currently available. It would require, for example, information on who wanted to communicate with whom, when, how, about what subjects, and for what purposes--and what the consequences of a delay or prevention in such communications would have been for critical operations.

(U) Lacking such detailed data on system interrelationships, any general assessment of the impact of the power failure on defense capabilities is necessarily somewhat speculative. In the light of the preceding review, however, the basic conclusion that there was no degradation in essential defense capabilities appears to be at least an oversimplification; and it can be justified only by hindsight knowledge that the potential dangers inherently present in the situation fortunately did not materialize.

(S) There is another retrospective view that appears equally valid and more useful for purposes of future planning. The outage



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IV. RESPONSES OF VARIOUS COMMAND AND CONTROL CENTERS TO THE POWER FAILURE

A. INTRODUCTION

(U) Successful detection and recognition of danger signals and preparation for crises or disasters--either domestic or international --are always difficult because the danger cues are usually ambiguous and subject to variable interpretation, because the available information is incomplete or conflicting, because there is a natural tendency for human beings to deny the existence of danger, and because the agencies responsible for danger detection and warning are reluctant to issue alerts or warnings until they are reasonably certain that the danger will actually materialize.

(U) These inherent difficulties are compounded when the crisis generating events transect the cognizance and clearly-defined responsibilities of a particular agency--as they did in the Northeast power failure. As the events on the night of 9-10 November 1965 unfolded, it became apparent that the effects of the power failure transcended the traditional distinctions between private and public, between business and government, between domestic and international, and between civil and military. It involved an underlying system network on which every sector of life depended. In this sense, the event had both unique and common features when compared with past crises. It was unique in that never before had the underlying interdependencies of modern life been so graphically demonstrated on so wide a scale. It was common in that it showed once again that the traditional, compartmentalized distinctions used in slicing the real world are becoming increasingly irrelevant in assessing potential dangers to the nation.

(U) Threats to the nation's security can originate in the foreign arena or in the domestic arena, or both. In the international arena, the signs of danger may present themselves in the form of foreign social and political happenings; in the activities of foreign intelligence agencies (e.g., movements in the Soviet trawler fleet); in the movement and activities of foreign military forces; or in the disruption of international communications and transportation. In the domestic sector, the indicators may also appear in many different forms or guises--in large-scale natural and man-made disasters that affect both civil and military facilities and organization; in civil disorders; in industrial sabotage; in attempted or actual Presidential assassinations; and in many other forms.

(U) Similarly, the actual detection of danger signs may derive from many different sources--from our foreign intelligence gathering organizations; from blips on a radar screen at NORAD; from civilian airline pilot reports; from the U.S. Weather Bureau; from the FBI; from the Secret Service; from one or more of the dozens of privately-owned system networks that constantly monitor their own operations (telephone companies; telegraph and radio companies; pipeline companies; railroads; airlines; ship and barge lines; etc.); or simply from a single private citizen who has observed an event that he interprets to be dangerous or suspicious.

(U) Domestic crises and dangers may have no relevance whatever to enemy intentions or activities, but they may also be a precursor to an enemy initiated action or attack. Moreover, the domestic event may either be directly or indirectly induced by the enemy or it may be a naturally occurring event that the enemy utilizes for his own advantage. These distinctions comprise the essence of the problem of intelligence gathering and assessment in crises that appear initially to be of purely domestic, natural, or internal origin.

(U) It is useful to keep these general perspectives in mind in the following review of the responses of various command and control centers to the power failure. This review focuses on how and when each of the centers first learned about the event, what actions they took in response to the information that they received, and how some of the responsible participants in these centers viewed the event in retrospect.

(U) This review will reveal a number of deficiencies and problems both in the internal organization and activities of these centers and in the coordination of activity between centers. It should be clear, however, that this description and analysis is not aimed at revealing individual or collective fault, but rather is intended to isolate critical problems that may deserve further systematic attention.

B. NATIONAL MILITARY COMMAND CENTER (NMCC)

(S) The first indication of the power failure in the NMCC occurred at 1725, 9 November, when the

pages 57-59 denied in total by NSC (b)(1)/(b)(5)

(S) At about 1745, the Military Assistant to the Deputy Assistant Secretary of Defense for Public Affairs called and asked if the NMCC had further information on the blackout. At 1748, the North American (NA) desk officer telephoned the Air Force Command Post, which reportedly confirmed the power failure. At 1758, a UPI teletype dispatch was received, indicating "a massive power failure in four of the five boroughs of New York City and at least three suburban communities."[1] It was not until 1809 that the UPI and AP news tickers located in the NMCC began reporting that the power failure was not confined to the New York City area, but covered a major portion of New England. At 1800, the NA desk officer telephoned the OCD National Three Warning Center (colocated at the OEP-HIGH POINT relocation site), and said: "We've just received a report, which has already hit the press, on a massive power outage in New York. Have you heard anything on this?" The response of the OCD Warning Officer, and the subsequent conversation was as follows:

> OCD: Yeah, we started getting information on that at 1745. And it's a massive area there that has lost power. New York is out; it goes on out to Long Island--that whole area is out. Massachusetts is out, Rhode Island, Connecticut, and--Maine is all right. I talked to them on a back-up line. But there is a huge power failure up in that area.
>
> NMCC: Okay. Do we have any indications on what caused it yet?
>
> OCD: Not yet. The only thing that we have is that it's just a big commercial failure. And, of course, we've asked them to advise us as soon as we had some data, but I suppose they will all be so busy that it might take a little while.
>
> NMCC: Well, DoD is--of course, this can extend on over to the White House very shortly--is very concerned about this, and I'm calling everyone I can think of.
>
> OCD: If we get some data on it, I'll send it right up to you. But the appearances at the moment are that it's purely a commercial failure. I will advise you if I get some data on it.
>
> NMCC: Do you know if anybody has tried to call the power company up there?
>
> OCD: Well, I'm sure that they're probably all trying to call them. I don't know anyone specifically, no.[2]

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[1] UPI Dispatch No. 152, 9 November 1965, 1558.

[2] Emergency Action Tape transcription, 9 November 1965, 1800.

(S) This conversation--and the hour of 1800--appears to mark the major turning point in NMCC activities connected with the broader scope and implications of the blackout. At 1800, the NMCC/CCOC received a call from the OCD Director of Plans and Operations, who briefed him on the information then available to OCD and said that the problem appeared to stem from a mechanical breakdown at the Niagara power plant. At the same time, the Army Operations Center (AOC) was notified by the NMCC that there was a major power failure "in the New York and Boston area," and was requested to secure further information. Similar notification and requests were communicated about the same time to the Air Force Command Post and to Navy Flag Plot. In rapid succession, the following communications occured:

1803 - [redacted] telephoned to ask for confirmation of the blackout in the Northeast. NMCC confirmed.

1805 - NMCC/NA Desk queried NORAD for information on the failure and was told that 4 fighter director radar sites and 1 BOMARC site were out of operation in the 26th NORAD region.

1807 - NMCC Communications Center notified J-6 of the power failure "in the New York area," per CCOC instructions.

1810 - NMCC/ADDO telephoned the White House Situation Room to indicate that the MOLINK cable was back in operation.

1819 - The Deputy Secretary of Defense telephoned the NMCC/DDO and asked him to check with New York to find out what communication lines were open. The DDO informed the Deputy SECDEF at this time that the [redacted] of operation, but was back in now.

1820 - A military assistant from the Office of the Secretary of Defense (SECDEF) telephoned the NMCC/CCOC and inquired about the New York power failure. He was informed that the "outage did exist, cause unknown."

1827 - NMCC/NA Desk telephoned NORAD to obtain further information on the status of the 26th NORAD region, and was told that the 3 of the fighter director radar sites were still out, that 2 were coming up on emergency power, and that other sites were all on back-up power. Both NORAD and the NMCC were apparently monitoring the same television news program during this conversation, as evidenced by the following interchange relating to the cause of the power failure:

NORAD: We've got the reading for this--have you got it?
NMCC: Off the television--breakdown in the Niagara Power Station.
NORAD: Affirmative.

NMCC: And that's all we have. They didn't say what kind of a breakdown, though, did they?
NORAD: No. I'm reading it now--I just got it.

NMCC: Mechanical failure is about all we can come up with--which is pretty obvious. I'd like to know the reason for the failure. It seems like they're putting a lot of eggs in one basket if one mechanical failure is going to knock out that much--that big an area.

NORAD: That's terrible.

NMCC: I just got a call from the commercial radio station in New York City wanting me to tell them what happened. WCBS Radio in New York. I told them, "By golly, if they couldn't tell me, we were both in bad shape."

(S) By 1830, all the news media were carrying stories of the blackout, and it is evident that the NMCC--and many of the other command and control centers referred to in later sections--were relying heavily on the TV coverage of the event and on AP, UPI, and other teletype news services. By this time also, reporters from the various news media began making contact with the NMCC. As noted earlier, WCBS radio in New York contacted the NMCC shortly before or during the conversation with NORAD at 1827. At 1831, radio station WPAT in New York telephoned the NMCC and recorded the following conversation:

WPAT: This is Radio Station WPAT, New York City. We have a massive power failure and difficulty in getting any information on it; but we are on the air. Can you advise us?

NMCC: I also got a call from WCBS a few minutes ago on the same problem. I can give you a little more than I gave them. The whole gist of this thing appears to be a breakdown--a mechanical power failure of some type--at the Niagara Power Station. The type of breakdown we are not able to determine. This is the reason given to us by the Office of Civil Defense, by the Commander in Chief, North American Air Defense Command, and that is all that we have. We don't know how the breakdown occurred, how extensive it is--but we understand the problem. We're running it down. I understand, of course, the problems involved up there--being out of power. However, from a defense posture, there is no degradation. This is just for your information. Now what caused your breakdown in your power company up there--we are still not able to pin that down; and it's impossible to get through the telephone to those people.

WPAT: I see. So it's the Niagara power station in Niagara, New York?

[redacted]

NMCC: Right.

WPAT: Okay. Now how much should be given out--do you have any opinion?

NMCC: Well, actually, about the only thing that we have is that this is widespread, over parts of Massachusetts, Rhode Island, Connecticut and New York. I understand that the lights are still burning in New Jersey, across the river; but it appears that they may have some problems over there too, from what...

WPAT: Only in scattered areas. Massachusetts, Rhode Island, New York, Connecticut?

NMCC: Right. I understand New London, Quonset Point--of course, you're familiar with--I understand in New York it extends on over to Staten Island.

WPAT: Well, there's still a little power in Brooklyn and Staten Island in isolated sections, we're told.

NMCC: I see. Well, we understand that there is quite a bit of outage in Boston, that Boston is suffering the same problem; and apparently from Philadelphia on across.

WPAT: Yes. Philadelphia is okay, by the way. I spoke to them earlier. They have no problems.

NMCC: Okay. We weren't too sure on that. We've been--of course, our sources are primarily from outside. As soon as we heard about it we went to all of our Service War Rooms--Army, Navy, and Air Force--and the Office of Civil Defense--and they started putting feelers out. And the information that we got back initially was confirmed--but pinning down the problem is something that no one--including the people in your area there that I've been able to talk to--can give us definitely, except that it appears to be a mechanical failure at th Niagara Power Station.

WPAT: I see. All right, now would you tell me once again who I am talking to? Is this the Pentagon, or what?

NMCC: Yes, this is _____. I'm the _____ in the National Military Command Center, Office of the Joint Chiefs of Staff.

(At this point the Emergency Action Room console opera intervenes in the conversation to say: "_____, you being monitored on tape. Did he notify you of that?")

WPAT: --in the Pentagon. Thank you very much.

(S) Shortly after--at 1845--a reporter who identified himsel as a member of the Washington Evening Star (WES) telephoned the NM and the following conversation took place:

WES: This is _____ of the Evening Star. What do you al hear about the power failure from the Northeast?

NMCC: I hear they've got a big one.

[redacted]

WES: They do. Are you people doing anything?

NMCC: Well, we're watching it, just like--we get most of our information off television.

WES: I see. You don't have any communications into the area, then?

NMCC: Well, we have communication to the various military commands in the area. We've talked to them. They confirm the power outage--they can't give us a cause. The only thing that we have that you can hang your hat on at all is from OCD that says it appears to be a mechanical failure at the Niagara Power Station. And that's all that we have in the way of what or why.

WES: Do you people have any responsibility in a case like this? Do you just sit tight and wait for--you don't do anything automatically unless you get the word to do it, I suppose?

NMCC: Well, not the way it looks right now. It appears to us to be a legitimate commercial power outage. Of course, this could have some effect on us, but we've taken steps from our standpoint to offset this, and we don't see any particular problems along the line. We are concerned about what really happened, and nobody knows when we'll find our for sure.

WES: Okay. Thank you very much, then.

(S) The initial acceptance of the interpretation that the blackout was caused by a mechanical failure--together with the absence of any dramatic information concerning the effects of the failure on military facilities and communications--apparently led the NMCC to conclude that there was no urgent need to exercise the prescribed procedures for notifying various J-3, Joint Staff, and CSA officials. Additionally, it may have been assumed that all the concerned official had already been informed by other official sources or via TV or radio. In several cases, the latter assumption proved correct. Thus for example, the telephone call from the Deputy Secretary of Defense to the NMCC at 1819 indicated that he had previous knowledge of the failure in New York City, and the occasion of this call was used by the NMCC/DDO also to inform him [redacted] Similarly, the call initiated by the SecDef's military assistant at 1820 indicated knowledge of the power failure in New York City, and it may have been reasonable to assume that the SecDef himself had already been informed of the event by that time. The radio and TV newscasts between 1830 and 1900 were already carrying the story that the President had been in touch with the SecDef. But it was not until 1920 that the NMCC received official notification from the SecDef's military assistant that [redacted]

(S) The data indicate that notification of many of the responsible officials was delayed for a considerable period of time and was somewhat unsystematic in nature. The J-3 Deputy Director for NMCS was not officially notified until 1850--one hour 20 minutes after the initial report of the power failure was given to the NMCC (at 1730). At that time, he was told that a few military circuits were out but that "we have commo with everyone, so there's no military problem as far as the outage is concerned." He was also informed [redacted] but that it was now back in operation.

(S) The Deputy Director, J-3, had apparently been given notice of the initial

(S) In addition to the call from the SecDef directing that the military commands render whatever assistance they could to the mayors and governors of the affected areas, he initiated two other calls to the NMCC/DO during the course of the evening. Both of these reflected his concern that the power failure might lead to civil disorders in New York City. In the first call, at 1952, he asked: "What's the latest on Manhattan? Any disorder? Are the lights back on? If not, when are they scheduled to go on?" He was informed that there was no information on when the lights would be on and that there did not appear to be any widespread increase in disorders--that the civilian populace in New York City seemed to be under control. Again, at 2010, the SecDef asked for further word on the power situation in New York City and asked to be informed when the power returned, adding: "I'm just concerned about possible disorders up there."

(S) The SecDef's directive regarding military assistance stimulated a considerable number of communications throughout the night of the blackout. Initially, there was some discussion among NMCC and J-3 officials on how best to implement this directive; but

by shortly after 2000, it was decided to ask each of the Service War Rooms to "instruct all subordinate commanders to give whatever assistance they can to governors and mayors in the areas affected by the present power outage." This was dispatched as a message[1] from the NMCC to the Army Operations Center, Navy Flag Plot, Air Force Command Post, and the Marine Corps Communications Center at 2015, and was followed shortly thereafter by telephoned notification to each of them.

(S) At 2018, the Deputy SecDef telephoned the NMCC/DDO and asked if there had been any requests for assistance from local communities. Told that the Services had not yet had time to react to the directive, the Deputy SecDef asked to be called at 2115 and have any such requests reported to him.

(S) Most of the actual requests for assistance were handled by the Service Operations Centers and the subordinate military commanders, but the NMCC was the initial point of contact for several such requests. At 2054, for example, the acting Governor of New York telephoned to say: "We have a pretty serious situation here. We've been without power in the entire city since about 5:30 (P.M.) New York time, and it is now more than three hours and I was wondering how we could get some help from the Army insofar as emergency equipment to give us some power--some lights in some areas?" He was told that the local commanders were ready to assist in any way possible and that contact should be made with the First Army Headquarters at Governor's Island or the Third Naval District in New York. Subsequently, First Army Headquarters was contacted and told to get in touch with the Acting Governor. Again, at 2141, the Deputy SecDef telephoned to request that the NMCC contact the relevant Army commander in the New York City area to determine whether or not they could furnish transportation to aid the thousands of people stranded in the

[1] NMCC Msg., DTG 100150Z

[redacted]

City in returning to their homes. The DDO subsequently reported back to the Deputy SecDef (at 2256) to say that the Commanding General of the First Army had been contacted and that the First Army Headquarters had been in touch with the Mayor's office to determine what military transportation could be furnished for this purpose.

(S) Several of the requests for assistance were of an unusual nature and did not fall strictly within the purview of the original directive. At 0026, 10 November, for example, the Deputy SecDef telephoned to say that the Chief of the AP news bureau in New York City had wired the President at the LBJ Ranch and requested assistance in getting their wire service equipment back in operation. The NMCC was requested to have the First Army Headquarters get in touch with the AP Chief to "see what they can do to get the AP people get their shop back in service again."

(U) On the morning of 10 November, the NMCC canvassed the Service Operations Centers to inventory the type and amount of assistance that had been rendered during the previous night. It showed that the Navy had been called on most frequently for a variety of services. These included sending the destroyer USS BRISTOL to the East River to start an auxiliary power turbine at the 14th Street power station in New York City; supplying generators to the Brooklyn General Hospital, to the Brooklyn Elmhurst Hospital, and to the Mercy Hospital in Springfield, Mass.; supplying two generators to the Ravenwood, L.I. power station; and furnishing 3000 KW of power to the Boston, Mass. power station, and 700 KW of power to the Newport, R.I. power station. Other incidental Navy assistance included the provision of an unknown quantity of ice to the Flatbush Hospital, an unknown quantity of fuel for emergency vehicles, and backup fire fighting equipment for Boston. The Air Force reported that they had made their airfields available for commercial aircraft landings, but apparently most commercial flights were diverted to fields outside the blackout area.

[redacted]

Only one flight (Northeast Airlines) was reported to have landed at Hanscom Field, Mass. Hanscom Field also dispatched a fire truck to Lexington, Mass., to assist at the scene of a civilian helicopter crash. Although the Army offered other assistance, the only reported acceptance was the provision of one generator to run a teletype machi in Rockefeller Center.[1]

(S) As noted earlier, the NMCC apparently accepted the initial report on the cause and source of the power failure--a mechanical breakdown in or near the Niagara Power Station--and took no direct actions to investigate the event, probably on the assumption that the SecDef, CEP, FPC and others were conducting such an investigation. During the course of the evening, however, several callers raised questions about the validity of the reported cause. At 2007, for example, the Director, J-5 (Plans and Policy), telephoned the DDO to inquire about the outage. He was told that the source of the outage "is somewhere between Niagara Falls and some of the switching stations," and that the explanation given was "a power blockage in the grid system." The Director, J-5, noted that he found this difficult to understand and said, "I'm just wondering if this is a real valid thing." Again, at 2010, the NMCC/CCOC notified the Deputy Director for NMCS that both [redacted] 30 minutes and that there was no prognosis on when they would be restored. The Deputy Director/NMCS asked whether this outage could definitely be pinned to the power failure "and not to something else." When told that this had not been established, he directed the CCOC to ask ITT to answer the specific question: "Is this system out because of the power failure?"

(S) Uncertainty over the cause and source of the power failure continued throughout most of the night. At 2100, an officer from the

[1] Memorandum for the Record from NMCC/NA Desk, Subj: "Military Assistance during Power Failure in NE United States," 10 November 1965, Unclassified.

Canadian Chief of Defence Staff (CDS) called the NMCC and said that the Minister of National Defence had asked him to inquire about the cause of the extensive power failure. The NMCC response was: "No, we have nothing of a positive nature. We are dependent upon the news media for most of our information, since this is not a military system. Our military communications system and all of our military facilities, of course, have our own sources of power for emergencies such as this. We only know that it is from the Niagara Falls system and it appears to be a major break between Niagara Falls and Rochester and that's about as much as I can tell you without getting into an area where I'm uncertain of what I'm saying."

(S) The NMCC apparently did not receive official notification that the Federal Power Commission (FPC) was undertaking an investigation of the cause of the event until 2216, when the Emergency Actions Room played back a tape recording of a recently monitored conversation between the SecDef and the Director of the Federal Power Commission, Joseph Swidler. The conversation between Mr. McNamara and Mr. Swidler was as follows:

S: Mr. McNamara, this is Joe Swidler, Federal Power Commission. [redacted] investigate this blackout that's occurred in New York and New England, and we're getting ourselves organized here tonight to conduct the investigation. I've wired to the presidents of the principal companies asking them to assemble information and bring in some experts, and we'll try to get this thing rolling as fast as possible.

M: Very good. Are the lights on in Manhattan yet?

S: I don't know that. My information on this is not as good as yours. You have better communications than we do. The last that we heard, it was not. Our regional engineer in New York said that it is not, and the time he predicted is just about now, but I haven't any word that it has come back.

M: Thank you very much indeed. You were nice to call.

(U) As it turned out, the FPC investigation of the cause of the failure proved to be a time-consuming operation. It was not until the morning of 15 November--over five days after the failure--that the cause was pinpointed at the Sir Adam Beck No. 2 Hydro-electric Plant on the Niagara River in Ontario, Canada. There it was found that a relay had disconnected the transmission lines then moving power north from that plant, reversing the power flow from north to south and causing a massive surge of power into the north-eastern U.S. The possibility that the failure had been caused by sabotage rather than by an internal breakdown in the power grid system could not be firmly ruled out until that time. The FPC finally concluded by 15 November that "there is no evidence whatever that sabotage was involved in any stage of the power failure."[1]

(S) Available data are not clear on when, during the night of 9-10 November, the NMCC was reasonably satisfied that the reported cause of the failure--an internal breakdown in the power grid system--was in fact true. It appears, however, that this report gained increasing credibility during the period from about 2230, 9 November until 0100, 10 November, by virtue of establishing

cable and radio had definitely been traced to a weak link in the system--i.e., that both circuits passed through technical control centers located in the vicinity of New York City, and that both were therefore affected by the commercial power failure. At 0100, 10 November, the Army Operations Center (AOC) telephoned the NMCC to say that, although there was no definite word on the cause of the outage, it was suspected that it originated in a power station or in a cable in the vicinity of Buffalo. AOC also reported at that time that

[1] Federal Power Commission, Northeast Power Failure, November 9 and 10, 1965, A Report to the President by the FPC, December 6, 1965 (Washington: U.S. Government Printing Office, December 1965), p. 1.

95 percent of the power had been restored in Rochester, 75 percent on Long Island, and 70 percent in Nassau County. ACC added that the National Guard units outside the New York metropolitan area had been released from duty at this time.

(S) During the remainder of the night--from 0100 to approximately 0700--the NMCC began taking a retrospective look at the events of the blackout. Efforts were made to consolidate, systematize, and update information by contacting NORAD, the Service War Rooms, and OEP in preparation for an 0730 briefing scheduled for the Chairman, Joint Chiefs of Staff. Thereafter, efforts centered on the preparation of various reports [redacted] military assistance, and the extent of degradation to military facilities and communications.

NMCC and J-3 Assessments of the Power Failure

(S) Beginning on the morning of 10 November and continuing for many weeks thereafter, personnel in the NMCC and in J-3 took both a retrospective view and a prospective view of the blackout experience in terms of the lessons that could be derived for the future. The retrospective view tended to focus on matters of organization and procedure, and on the technical facilities actually affected by the power outage; the prospective view was concerned primarily with what might physically happen if the Pentagon and the Washington area suffered a similar type of power failure. The following paragraphs provide a capsule summary of these assessments, based on formal and informal memoranda and reports prepared in the aftermath and on information conveyed in personal interviews with various participants.

Matters of Organization and Procedure

(S) One of the obvious lessons of the Northeast power failure was that the NMCC needed to add still another type of crisis event

[1] It should be noted that the critical assessments made by various individuals during the course of personal interviews do not necessarily represent the views of the majority of the participants in the NMCC and in J-3. On the contrary, many of the opinions expressed probably represent a minority view or even a purely individual one. For purposes of future reference, however, it is believed that the reporting of minority and individual views may have value in delineating or isolating various problems that may deserve further attention.

to its growing list of significant events that require its attention and cognizance. Following the blackout, a standard procedure for reporting all power outages affecting military facilities and communications was instituted and steps were taken to insure that an future significant outage would result in the use of the standard notification procedures already specified in NMCC OP 4-1, "Significa Event Notification Procedures," dated 6 March 1965. That Operationa Procedure was updated as of 22 December 1965 to specify that any significant communication outage affecting the World Wide National Military Command and Control System would immediately be reported to the Vice Director, J-3, the DepDir/NMCS, the NMCS Division Chief, th J-6 Duty Officer, and the DCA Operations Center.[1]

outages by Army Technical Control, by the Defense Communications Agency Operations Center, and by the NMCC. They also specified that if the commercial carriers were unable to restore service within ten minutes, alternate routes, using military facilities, would be activated. Whereas before the power failure only dual outages--of both the cable and radio circuits--were immediately reported, the new procedures provided that even single ou ages of over 10 minutes would be reported to the NMCC/CCOC and other relevant officials.[2]

(C) The ambiguity in the nature and cause of the power failure-- and in its effects on both military and civilian facilities--revealed

[1] Other significant events covered by NMCC OP 4-1, include the following: (1) Berlin; (2) Cuba; (3) Nuclear Accident/Incident; (4) Hijacking, Harassment, or Incursion or Overflights of A/C or Ships/Collisions involving US/Allied A/C or Vessels W/Non-Allied/ Major A/C or Missile Accidents; (5) COIN Operations, Coups or Changes in Government; Development of Insurgency Actions, Major Operations; (6) Civil Disobedience; (7) Disasters (National or International); (8) Disasters-Foreign; (9) Unusual Activity/ Possible Sabotage at US/Allied Overseas Bases; (10) Coup Attempts or Significant Deaths of Key Government/Military Figures; (11) Augmentation of the NMCC; (12) SA-2 Strikes.

correlative ambiguity in determining which agencies had prime responsibility for investigative and remedial actions. In the NMCC, for example, the question arose as to whether or not this event could be classified as a civilian disaster, and, if so, whether assistance activities to civil authorities fell under the purview of the U.S. Army (in providing military support to Civil Defense) or was primarily an Office of Emergency Planning responsibility. Th need to clarify responsibilities, roles, and capabilities of both military and non-military agencies in such events was indicated.

(S) The retrospective assessments of the blackout experience made by various NMCC participants tended to focus on several problem areas, including the lack of coordination among government agencies, the NMCC's lack of preparation to handle this type of event, and the more general deficiencies in organization and procedure revealed by the event. More specifically, the individual critiques, voiced by a number of different participants, included the following:

1. There is inadequate lateral communication among various warning and command centers and responsible government agenci the first official word of the power failure to the NMCC. There appeared to be a breakdown of lateral communication between the Federal Power Commission and other agencies--until the situation had developed. It confirmed that there was a problem of identification, notification, and lateral communication in CONUS."

2. The NMCC is inadequately prepared to investigate and tc report on domestic events. "The initial response of the NMCC was that 'this is a civilian matter'. It was only after the scope of the blackout became clear, and outside queries began coming in, that the NMCC grasped that they had a role to play in this event. The NMCC is geared for a military crisis and reporting a military operation. It is not geared for reporting domestic events. Reporting won't be accomplished unless it is important to the military."

3. The NMCC relied too heavily on TV, radio, and the wire

service news coverage of the event and failed to utilize its extensive communication capability to collect information directly from primary sources. "The NMCC has a tremendous capability for the collection of information, yet it depends on the news media--TV, radio, and the wire services--for most of its information on what is happening outside. NMCC personnel are not adequately informed about the nature of the overall U.S. command and control structure and the place of the NMCC in this structure. Not knowing about the facilities available and who should be notified is one of the basic problems. Decisions are not rapidly reached because of lack of familiarity with the command and control system. There are spots within each of the major population centers where people have information that will be useful. But individuals here in the NMCC are not trained to think to call these people."

4. NMCC personnel rely too heavily on automatic check lists, not enough on thoughtful analysis about who needs what types of information. "By making people so reliant on check lists and forms, we keep people from thinking. The DDO should function as a nerve synapse. They have to be extremely capable. I have often thought that this place would run better if we had a civilian hard-core group running it. The closest thing to top-notch nerve cells here are the two NSA (National Security Agency) representatives, who are retired military. They have a habit of automatically listing everything of interest; they automatically reach out and call to get information. They function as absorbers or sponges and when the moment comes to give out information, they have it all sorted out an analyzed. The running of a command and control center should be made a career for military personnel and civilians."

5. Too little recognition was given to the possibility th the blackout might have been produced by acts of sabotage. "This wa not an immediate response because we are not that suspicious and we generally feel secure in the United States. I first thought of sabotage when I first heard this discussed on the radio. Our previo experience would lead us to discount the possibility of sabotage."

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Potential Effects of a Power Failure in the Pentagon

(S) The Northeast power failure raised the obvious question for J-3 and the NMCC: What would happen here if we had a similar commercial power outage? In the several weeks following the power blackout, this question was investigated in detail. The answers

were hardly encouraging, as is shown in the following quotation from a report prepared by the J-3 NMCS Division on 1 December 1965:

> The Potomac Electric Power Company (PEPCO) furnishes electrical power for the Pentagon. Two primary sources--Buzzards Point and Alexandria, Va.--arrive at the Pentagon Heating Plant on two 66,000 volt High Tension (HT) circuits. From the transformer yard at the heating plant, four 13,000 volt HT circuits are fed underground to two switching cubicles below the Pentagon. Four 13 KV loops are distributed through the Pentagon to 17 transformer vaults. Each vault has four 500 KVA transformers and a pair of associated switchboards. Primary power for the NMCC complex comes from two transformer vaults, located on the first floor, D Ring, Corridors 8 and 9 respectively. Each has a four wire, 129/208V, three phase service which provide necessary 'Red' and 'Black' power sources for the NMCC.
>
> In the event of commercial power failure, the Services provide auxiliary power for their Communications and Operations Centers. The only auxiliary power provided the Pentagon buildin is for the EXIT lights. The NMCC obtains emergency power from the Department of the Army Communications Center. Two 250 KW Diesel Motor generators, located in Room BB944, provide about 100 KW of Emergency Power, through intricate switching systems in the NMCC. Remaining power supplies other Army needs. One of these generators is on automatic switch at all times. Should primary power fail, a sensing device automatically cranks the Diesel engine and switches the generator onto the emergency power bus. Some emergency power is available within 30 to 60 seconds after a primary power failure; however, the full design load capability may take 10 to 15 minutes.
>
> If a primary power failure occurs, the following will continue to operate in the NMCC:
>
> a. Emergency lights--all areas of the NMCC.
> b. Telephones and Indicator Button Lights--all areas of the NMCC.
> c. All communications equipment in the communications room
> d. Telephones, EMATS, and VLF Seize Key in the Emergency Actions Room.
> e. Public Address System.
> g. Secure Phones.
> h. Defense conditions and status display boards.
> i. Interim Data Terminal (spare in the Communications Room
> j. Associated telephones and TELECON equipment in the JCS Conference Room.
>
> Note: Due to the time required for emergency generator starting all on-line crypto equipment would need resynchronizing with the distant terminal.
>
> If a primary power failure occurs, the following will be inoperative in the NMCC:
>
> a. Air Conditioning.
> b. Automatic Data Processing (ADP).
> c. Long Distance Xerox (LDX).
> d. Graphic projection facilities.
> e. Pneumatic tubes.
> f. Miscellaneous items (stove, refrigerator, etc.)[1]

[1] Memorandum for the Director Administrative Services, from J-3, NMCS, 12 January 1965, Enclosure A, "Investigation and Findings Concerning Electrical Power for the Pentagon and the NMCC are as Follows:" CONFIDENTIAL.

(S) As it turned out, even this report proved to be somewhat optimistic concerning the equipment that would continue to function in the NMCC under auxiliary power. In a subsequent actual test, held on 16 January 1966, the NMCC was switched to emergency power from 0810 to 0955. A report noted the following discrepancies:

> There was a total power outage from 0810 to 0817 EST. This was caused by a faulty automatic relay switch in a transformer box in the corridor outside NMCC. It was necessary to shake the transformer in order to effect the transfer to emergency power.
>
> While operating on emergency power, the following items did not function:
>
> (1) All wall plugs.
> (2) All electric clocks.
> (3) All electric typewriters.
> (4) Curtain control switches in the conference room.
> (5) AP wire service was not wired to receive emergency power.
> (6) OXford telephone instruments in the SECDEF's office and conference anteroom.
> (7) All "receive" capability for pneumatic tubes. ("Send" capability to AFCC, NFP, AWR, and NCC operational).
> (8) Lights behind ADDO and DDO and lights above map presentation boards behind Desk Officers.
> (9) Lights in latrine.
> (10) Conference room flourescent overhead lights.
> (11) VLF in Emergency Action Room.
> (12) All auxiliary accessories to EA consoles, such as tape recorders, clocks, etc.
> (13) All air conditioning (except individual units in Communications Room).
>
> There was no provision for battery lights in either the DDO's office or the Graphics Room, which resulted in those rooms being totally without lights during the seven minutes when there was no power.

(S) The potential severity of the problems created by inadequate auxiliary power in the Pentagon is only partly revealed by the foregoing data. The auxiliary generators supplying electricity to the NMCC did not provide "no break" capability in the switchover from commercial to emergency power. Thus the power interruption would produce desynchronization of the cryptographic equipment, the spill

[1] Memorandum for Chief, NMCS Division, from NMCC/CCOC, Sub: "Power Test for the NMCC, 14 January 1966," 16 January 1966, CONFIDENTIAL.

out of data in the computer core memory, the temporary loss of secure voice circuits, and similar disruptions to equipment requiring a highly reliable flow of electrical energy. Moreover, without air conditioning, it was estimated that the NMCC could probably not function effectively for more than two to four hours because there would be overheating of temperature-sensitive components internal to the electronic equipment using emergency power and because heat and atmospheric conditions in the facility would create an uncomfortable or intolerable working environment.[1]

(S) Since only the NMCC and the Service Communications and Operations Centers are covered by auxiliary power, the situation throughout the rest of the Pentagon would be even more grim. All lights (except EXIT lights) and electrical equipment would fail. The SecDef, the Chairman, JCS, the Director, Joint Staff, the Director, J-3, and other officials would be left in the dark, as would such vital support activities as the DIA, and the other Joint Staff offices and facilities. Only the telephones would be operative, but their use would be limited essentially to outgoing calls because the indicator lights on call directors and multiple-line telephones are dependent on commercial power and therefore it would be difficult or impossible to detect which lines contained an incoming call.

Initial Remedial Actions

(S) In the light of this survey of potential effects of a commercial power failure in the Washington area, it became apparent that the command and control capabilities of the NMCC and of the Pentagon more generally could be seriously degraded by an outage comparable to that which occurred in the Northeast blackout. As a consequence, various short-term steps were quickly taken to improve the situation and activities directed toward longer-range solutions were started. The actions taken during December 1965 included the following:

[1] Memorandum for the Director of Operations (J-3), Joint Staff, from DCA Assistant Deputy Director for National Military Command/System, Subject: "NMCC Emergency Power," 10 December 1965, Ref: 923/3350 CONFIDENTIAL.

1. The U.S. Army--which supplies auxiliary power to the NMCC--already had plans to expand and enlarge their Emergency Power capability to 2-250KW Diesel generators and 2-750KW gas turbines. This would provide a "no break" power for on-line equipments as well as "stand-by" emergency power. Six months was programmed for the completion of this installation; however, action was initiated by the Army to expedite installation.

2. The NMCC and the Service Communications and Operations Centers took action to insure that the LDX equipment was connected to auxiliary power. Further action was taken by the NMCC to have graphics equipment connected to auxiliary power. This would give the NMCC a "no degradation" capability in all areas except ADP where air conditioning is a necessity and could not be tied into the existing auxiliary power supplied by the Army.

3. Arrangements were made between the NMCC and the Department of the Army to run weekly tests on auxiliary power in an effort to determine difficulties encountered during the switchover to auxiliary power and to train operators to react promptly. The first test--a simulation with the auxiliary engines already running and qualified personnel standing by--was held on 19 December 1965. The second test, held on 14 January 1966 (already referred to above), for the first time actually shut off the commercial power source to the NMCC.

4. J-3 developed a plan--dubbed "Operation Alternate Dynamo"--whereby various key OSD and OJCS personnel would be provided temporary office space in the NMCC facility in the event of a commercial power failure. Office space and equipment was to be made immediately available to the following personnel: Secretary of Defense; Deputy Secretary of Defense; Assistant Secretary (ISA); Assistant Secretary (PA); Chairman, JCS; Director, Joint Staff; Director, J-3; Vice Director, J-3; Deputy Directors for Command

Areas, J-3; Director, J-4; Director, J-6; and Defense Intelligence Agency personnel.[1]

(S) In addition to these "quick fix" solutions, efforts were begun to develop two longer-range solutions. By June 1966, arrangements were made with PEPCO to retain the Pentagon as a load on one primary generator (backed up by a second) which it will isolate from the power grid during a collapse. At that time the DoD had asked the General Services Administration to make a formal agreement on this matter with PEPCO. Other efforts were directed toward the problem of auxiliary power for critical facilities in the Pentagon. The JCS had asked DCA to expand its initial study on the Pentagon NMCS emergency power to include information on a number of cost options and certain NMCS activities not physically within the NMCC. These options were presented to OSD in December 1966, with the request that a detailed systems engineering plan for the improvement of the NMCC emergency electrical power and environmental support be developed.[2]

C. NATIONAL INDICATIONS CENTER (NIC)

(S) The NIC--located in the Pentagon--is the operational arm of the U.S. Intelligence Board (USIB) Watch Committee. The Watch Committee has the same organizational membership as USIB--i.e., CIA, State, NSA, DIA, FBI, and AEC--but the representatives are one echelon below the rank of the USIB members. The Committee regularly meets at the beginning of each week to assess foreign intelligence indicators and to analyze various developments that could lead to hostilities. Based on this analysis, it publishes a weekly Watch Report. Aside from its regularly scheduled meetings,

[1]Memorandum for the Director Administrative Services, from J-3 NMCS, 1 January 1965; and Memorandum for the Director, Joint Staff from Director, J-3, Subj: "Emergency Electrical Power for The National Military Command Center (NMCC)," 30 December 1965, UNCLASSIFIED.

[2]JCSM-478-66, 6 December 1966; and Memorandum for the Chairman, Joint Chiefs of Staff from Office of the Secretary of Defense (Administration), Subj: "Emergency Power for the National Military Command Center (NMCC)," 7 January 1967, CONFIDENTIAL.

[redacted]

any member has the right to call a special meeting of the committee whenever he deems it necessary.[1]

(S) The NIC is headed by a Chief, a Deputy Director, and a Senior Watch Officer. In addition, it has a staff of 30 personnel who cover the 24-hour period on 8-hour rotating work shifts. Each team is composed of 10 personnel--a Watch Officer, a Junior Watch Officer, seven analysts drawn from the civilian and military intelligence agencies (NSA, CIA, Army, Navy, and Air Force), and a clerk-typist. It is in frequent communication with each of the major intelligence agencies--CIA, NSA and DIA--and makes a routine situation check with these agencies once every eight-hour shift. Aside from the usual cryptographic teletype equipment and secure telephones, the Center contains AP and Reuters teletype press tickers.

(S) First notification to the NIC of the Northeast power failure occurred at 1805, when an NSA maintenance man came into the Center and said that he had heard a radio report that there was a power failure in New York City, beginning at 1728, and in Boston, beginning at 1721. Shortly after the maintenance man's departure from the Center at 1811, the NIC Watch Officer queried the DIA representative in the NMCC and was informed that the available information was that the power failure was due to a mechanical breakdown in the power system. However, no mention was made of the

[redacted]

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The NIC was also not informed of other significant events during the course of the night--e.g., that OEP-HIGH POINT had gone on an increased alert (to be discussed in a later section of this report).

(S) Detailed log data on the subsequent communications of the NIC during the night of 9-10 November were not available,[2] but,

[1] At the time of the Northeast power failure, the last special meeting of the Watch Committee had been held during the Cuban missile crisis of 1962.

[2] Detailed log data on COMINT and other intelligence communications were maintained, but records on communications pertaining to the power blackout were not.

based on interviews with three of their key personnel,[1] the first query received by the Center came from NSA sometime during the period between 1811 and 1830. The NIC responded by providing NSA with the latest information provided by the AP teletype press reports. Throughout the course of the evening, the Center relied heavily on information provided by the AP and Reuters press tickers. Sometime later, during the course of a routine check with CIA, the Center was informed that the cause of the power outage had been traced "to a power substation in New York City."

(S) In general, the NIC was not particularly concerned with the events of the power blackout. It operates on the basic premise that "if we have done our job, the U.S. government will be on the alert," and that if an attack on the U.S. occurs without prior warning to the President and other national command authorities "we have failed in our mission." Thus, whether the power failure was caused by mechanical failure or was of enemy origin was considered of no particular significance because "either we have succeeded in our mission or failed in it." Based on the available indicators on the night of 9-10 November, it was determined that there was "no indication of overt enemy activity," that "everything was real quiet," and that the explanation of the power failure being caused by a mechanical breakdown, "seemed pretty legitimate." As expressed by one of the key NIC personnel: "We were not 100% sure in our own mind that there was not anything insidious, but we were 95% sure. There were no positive indicators. Things were in a low key. Everything seemed normal up to that time."[2]

NIC Assessments of the Power Failure

(S) NIC personnel commented as follows on their experience with the power failure:

[1] Interview No. 20, 9 February 1966.
[2] Ibid.

[redacted]

1. The NIC had no special operating procedures (SOPs) for handling events such as a power failure, primarily because its main focus of attention is on longer-range foreign intelligence indicators. In the event of a repetition, it was believed that "perhaps the intelligence community should be solicited and we should also check with the CINCs."

2. There were no SOPs for alerting the NIC to outages of the [redacted] had not been informed of such outages prior to the power failure. The NIC personnel raised the question: "Shouldn't the DIA representative in the NMCC pass this information to us as a matter of significance?" There were also no SOPs for transmitting information that OEP-HIGH POINT had gone on increased alert.

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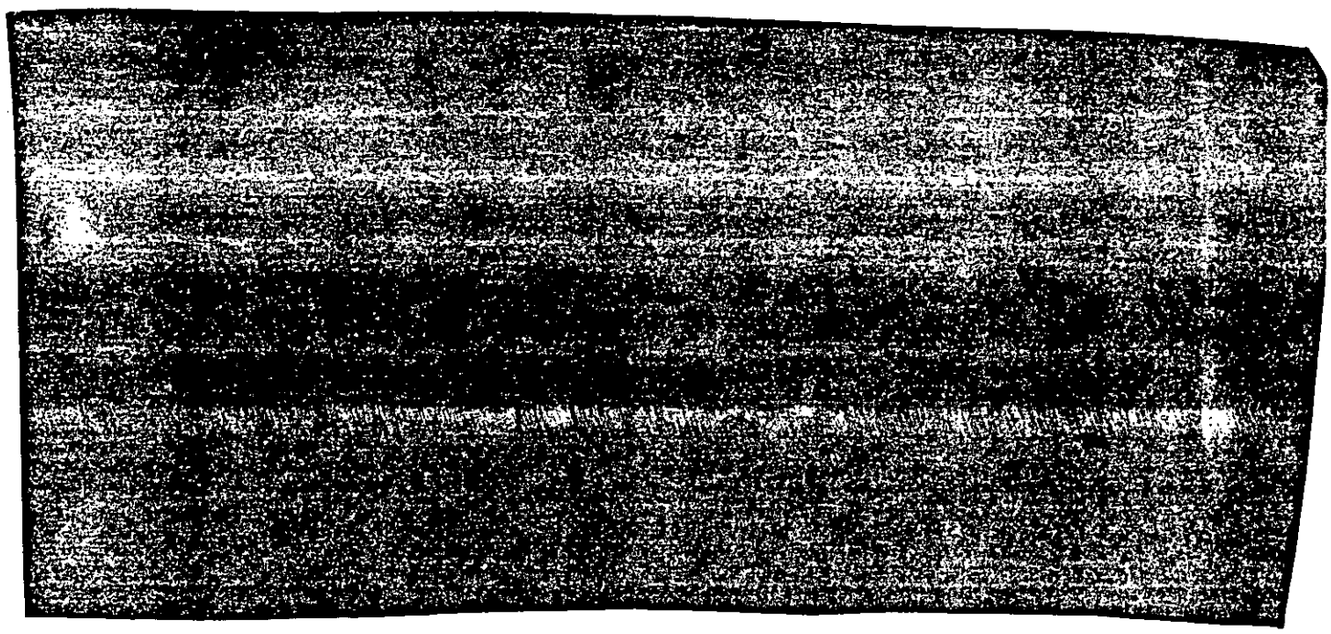
3. The NIC would be highly vulnerable to a power outage in the Pentagon. The entire area would be dark. "We have only dry cell flashlights." The secure telephones, cryptographic equipment, teletype tickers, and other electrical equipment in the Center would not operate. Because the Air Force is the Executive Agent for the NIC facility, the provision of auxiliary power to the facility would require AF authority and action.



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[1] Information in this section is based on communication logs of the WHSR, the NMCC, and FAA, and on an interview with several key WHSR personnel (Interview No. 17, 8 February 1966).

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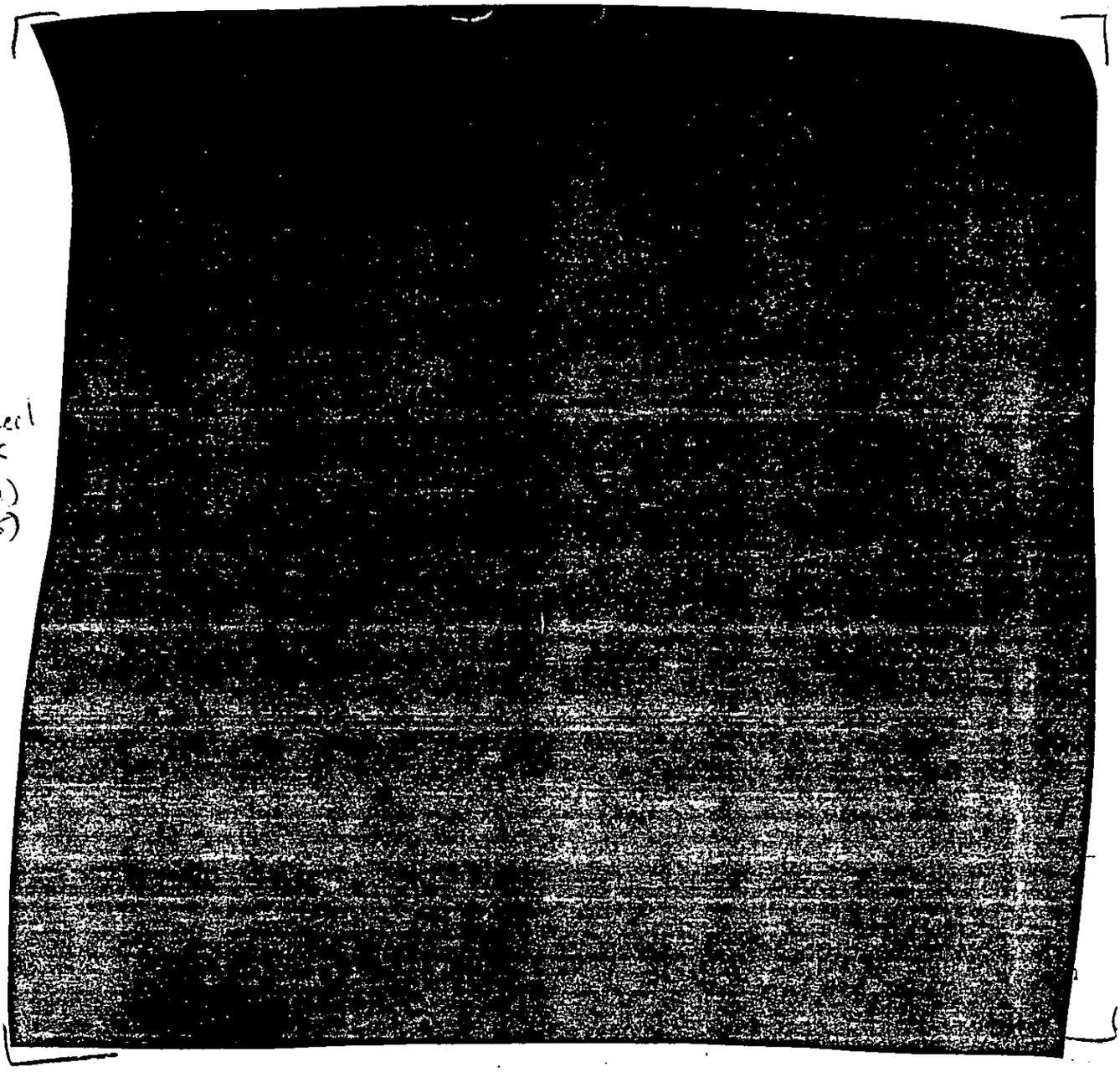
[redacted]

[redacted]



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E. OFFICE OF CIVIL DEFENSE (OCD)[1]

(U) At the federal level, three major elements of OCD were involved in the events of the power blackout--the National Warning System (including the National THREE Warning Center and the National Warning Center, co-located with NORAD Combat Operations Center); the National OCD Headquarters Operations Room (Pentagon); and the Region One Headquarters (Harvard, Massachusetts).

[1]Information in this section is based on communication logs of the National Warning Center, the National THREE Warning Center, NORAD-COC, the NMCC, and on various OCD reports. The OCD Headquarters Operations Room (Pentagon) did not maintain detailed communication logs, and the account of that activity relies essentially on post facto data presented in the OCD document, Effectiveness of Civil Defense Organizations and Systems during the Northeast Power Failure of November 9, 1965, No date (circa December 1965), FOR OFFICIAL USE ONLY. Time references in the latter document have been corrected, where necessary, by reference to the aforementioned logs.

[redacted]

National Warning System (NAWAS)

(U) First indication of the failure for OCD came at 1745, when the New York State warning point called the National THREE Warning Center (co-located with OEP-HIGH POINT in the protected relocation center near Washington, D.C.) to report a power failure "in New York City and vicinity," and to ask if there were any indications of an attack. The response by the Attack Warning Officer on duty was, "The warning system is normal." This is the standard response required by OCD Warning Center Procedures.[1] It relates to readiness and simply means that there has been no declaration of "air raid warning," or that CINCNORAD has not declared an "Air Defense Emergency Warning Red or Yellow." The most likely interpretation of this message by the warning point is that "it is not a military incident" or "this is not enemy action."

(U) At 1746, after receiving this call from the New York State warning point, the Attack Warning Officer called the National Warning Center, located in the NORAD COC. He was told that the NORAD Controller had the same information about the blackout and that NORAD was checking on it. This information, and the absence of a declared air defense emergency by NORAD, apparently led him to conclude that "all is normal there." At 1748, he checked with each of the state warning points in OCD Region One and requested information on the extent of the power failure. On the basis of this check, he concluded that "it appears that New York, Massachusetts, Rhode Island, Connecticut, and parts of New Hampshire are blacked out due to power failure." Shortly thereafter, the following special announcement was made on NAWAS to the warning points in OCD Regions One and Two:

> The warning system is normal. Power failures are reported throughout the northeast. Appropriate announcements will be transmitted over this system should the situation warrant.

[1] OCD Manual 4305.1, "OCD Warning Center Procedures for Operation of the National Warning System."

(U) On the basis of this announcement, a number of state and local civil defense personnel apparently concluded that it had officially been determined that the power failure was not caused by sabotage or enemy attack. In Massachusetts, for example, the Massachusetts State Civil Defense Director announced at 1830 over the Boston and various other radio stations that:

> The Massachusetts Civil Defense Agency was informed by NAWAS within a minute after the blackout happened (sic) that it was due to a massive power failure, and not from sabotage or enemy attack. The rapidity by which NAWAS clarified the situation is direct proof of the efficiency of the warning system to respond in any type of disaster.

(U) While such announcements were being made public, however, neither Warning Center THREE nor the other communications and command and control centers could in fact verify the actual source and cause of the failure. At 1755, the Center checked with the New York warning point to ask if they knew the cause: "They did not know." At 1815, after numerous intervening calls to and from the NMCC, the OCD Operations Room, OCD Region One, and the FBI, a systematic check of the NAWAS circuits was begun. Each state was requested to call all warning points and report the status of the State circuits. That check, completed about 1830, revealed that in New York there was no response from Rochester or from the Atomic Energy Commission (AEC) and the General Services Administration (GSA) warning points in New York City; Massachusetts reported two stations that did not acknowledge, but did not name them; and New Hampshire reported that Claremont did not respond. At 1827, the Center attempted to contact the Federal Warning Center in Canada, but did not get any response. AT&T was notified of this failure and service was finally restored at 1920. At 1847, the Region One warning circuit became very noisy. Service was impaired, but transmissions were readable over the noise. This was reported to the Toll Test Room in Richmond and the circuit was restored to normal at 1915. By 1910, all warning points were completely operational except AEC and GSA in New York City and Claremont, New Hampshire.

(C) The previous announcement that "the warning system is normal" caused a number of officials to call Warning Center THREE on the assumption that that Center had information on the cause and source of the failure. At 1920, for example, an FBI agent called to request further data, and was told that all was normal only in the sense that "the Warning System is operating normal." That qualification was added in all subsequent responses to inquiries, and, by 2000, callers were being told that an "official reason is not available in this office. We have a request in at the New York State warning point to advise when the official reason is determined."

(C) Even the qualified statement that "the Warning System is operating normal," was somewhat misleading. In fact, although it was possible to reach 97 per cent of the warning points in the blacked out area via the NAWAS system, it was impossible to warn most of the public in the affected area because over 95 per cent of the sirens and other public warning devices were dependent on commercial power. Moreover, at that time there were no alternative plans to utilize commercial radio facilities for warning announcements.

OCD National Headquarters Operations Room (OCD-OR)

(C) The OCD National Headquarters has no full-time operational center. Emergency information is handled during duty hours by a daytime Duty Officer (0830-1700) and during non-duty hours, Sundays, and holidays by a weekly Duty Officer. The OCD-OR comprises the suite of offices occupied by the OCD Assistant Director for Plans and Operations and his Deputy. These offices include connections to the NAWAS circuits, AUTOVON voice circuits, and a connection to the NACOM 1 teletype equipment located in the OCD Mail Room. (There is no NACOM 2 (radio) circuit in the Pentagon.)[1]

(C) On the night of the blackout, the OCD Assistant Director for Plans, his Deputy, and two other members of the Directorate for Plans and Operations were still in their offices when, at about

[1]Interview No. 44, 28 March 1968.

1745, the OCD Emergency Information Office notified them of the power failure.[1] At that time, they activated the Operations Room. The first action was to contact the National THREE Warning Center (at about 1755). The Center indicated that the warning system was normal and that each State warning point was operational, but on emergency power, except for Maine and New Jersey, which had commercial power. Shortly thereafter, National THREE was directed to contact the State warning points and request them to make a special roll call of the 97 warning points in the affected areas to determine whether NAWAS was operational to these warning points and whether the warning points were operating on commercial or emergency power. At about 1800, the Director of Plans and Operations called the NMCC and briefed the CCOC there on the information then available.

(U) Concurrent with the call to National THREE, a call was placed to OCD Region One headquarters, but there was no answer. A long distance call was initiated to the Regional Director's home at Leominster, Massachusetts. The long distance telephone circuits into the northeast were swamped and it was necessary to assign priority to the call. Operators along the line seized circuits and the connection was completed in about three minutes. The Regional Director was instructed to activate the Regional Operating Center with a small cadre of personnel. Activation of the Region One Center was begun at 1836.

(U) The OCD-OR did not maintain detailed communication logs during the course of the evening of 9 November, but, according to a subsequent report, the following activities occurred:

> Communications were maintained with the National Three Warning Center and OCD Region One which, in turn, were in contact with the eight State warning points, the 97 warning points within States, and the State Civil Defense Emergency Operating Centers. The National Warning Center at Colorado Springs was requested to connect the Canadian Federal Warning Center to the NAWAS control circuit; and this provided another point of contact and information for the headquarters operation room. Another source of information was the OCD Emergency Information office. From these sources, the OCD operations

[1] Interview No. 45, 28 March 1968.

room was able to determine the degree of State and local emergency government organizational readiness and (1) that the Nation was on normal readiness, (2) that the OCD National Warning Center was operational, (3) that 91 of the 97 warning points had answered roll call, (4) that the warning points in the affected area were on emergency power, (5) that NACOM 1 voice communications from Region One to its States was operational, (6) that NACOM 2 teletype from Region One to its States was not in operation until the Region One emergency power generators were activated at 6:50 p.m., (7) that all State EOC's in the affected area had been activated, including the State-area and State-sector EOC's in New York, Connecticut, and Massachusetts, (8) that civil defense officials used commercial broadcast stations to advise and reassure the general public, and (9) that civil defense officials and auxiliaries assisted in many communities in traffic control and evacuation of people from shelters. Additionally, the operations room was able to determine rapidly the general extent of the power failure in the northeastern States and southeastern Canada as well as the subsequent progress of power restoration. Subsequently, it was determined that 51 commercial radio stations that had experienced power outage were able to return to the air by using emergency generating equipment furnished under OCD's Broadcast Station Protection Program.

The OCD operations room immediately reported all significant available information to (1) the Office of the Secretary of the Army, (2) the Army Chief of Information, (3) the National Military Command Center, (4) the Office of Emergency Planning, and (5) the Department of Interior, including the Defense Electric Power Agency. Information was also available to the wire, press, radio, and TV services at their request through the OCD Emergency Information office.[1]

(U) The OCD-OR phased out its operations at about 2100, 9 November, after learning from the National THREE Warning Center and other sources that "normal service will soon be available--more localities are getting power," and after determining that the Region One Operating Center was functioning. Thereafter, the OCD National Headquarters emergency information activities were handled by the regular OCD Duty Officer, who continued to maintain contact with the National THREE Warning Center and with the Region One Operating Center.[2]

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[1] Office of Civil Defense, Effectiveness of Emergency Government Organizations and Systems during the Northeast Power Failure of November 9, 1965, No date (circa January 1966), Unclassified.

[2] Interview No. 45, 28 March 1968, and National THREE Warning Center communication logs.

Region One Headquarters

(U) Activation of Region One Headquarters at Harvard, Massachusetts, was begun at 1836, but the Operating Center initially had difficulties in starting its emergency generators. Communications systems were checked using commercial telephone and NAWAS, which did not require commercial power. After the emergency generators were started, at 1850, the other communication circuits were checked and found to be operational. A second roll call was taken of the warning points shortly thereafter. All points acknowledged except one in New Hampshire and two in New York City. Thereafter, according to a subsequent report:

> Status of State EOC activation was determined. All states reported that: (1) there was a well controlled situation with emergency broadcast information providing reassurance to the public, (2) civil defense personnel were assisting police in many cities, (3) the State of Rhode Island declared a state of emergency, and (4) civil defense units at State and local levels were organized and ready. The information was reported to the OCD operations room in the Pentagon.[1]

OCD Assessments of the Power Failure

(FOUO) Following the blackout, the Director of Civil Defense appointed a special committee to review OCD performance during the event, and the following information is excerpted from the report[2] of that group:

> Problem: A basic question exists as to what the Office of Civil Defense should be doing during non-civil defense emergencies. The answer to this question, in turn, determines the data, if any, the OCD should collect and possibly relay to higher and lower government authorities. The answer also would determine what information should be disseminated to the public by OCD.
>
> Discussion: Whenever a situation occurs which is outside the realm of OCD's daily existence, the OCD receives information

[1] Office of Civil Defense, Effectiveness of Emergency Government Organizations . . ", op. cit.

[2] Memorandum from Directorate for Policy and Programs, Directorate for Plans and Operations, and Directorate for Emergency Operations to Director of Civil Defense, Subj: "Information Flow for Non-Civil Defense Emergencies," 19 November 1965. FOR OFFICIAL USE ONLY.

from the Regions and Warning Points and requests for information from other sources. As for the quality of the data collected and/or disseminated, it appears there is much to be desired. Not because the data doesn't exist, but due to the fact there is no procedural base on which we can collate, analyze, and evaluate data coming in. In addition there is no coordination process within the DoD structure of which OCD is an active participant.

Perhaps the most serious shortcoming of the current situation concerning the various non-civil defense emergency situations that arise is the lack of defined and agreed OCD responsibility. We become involved not because someone has said, "This is your job, do it," but because there is no clear delineation of operational responsibility at the Federal level, and OCD has an inherent operational capability. State and local officials tend to look to OCD when these situations arise because, historically, the Federal Civil Defense organization once also had natural disaster responsibilities and, civil defense communications capabilities are available to them. Also, civil defense has seized every opportunity to utilize non-CD emergency situations to create a favorable public image or public information picture.

The tendency to use these non-civil defense emergency situations for creating a favorable image is sometimes misleading. . . One case in point. During the power failure, we reported that NAWAS was intact and operational. Anyone not intimately familiar with the warning system would assume from this that the status of civil defense warning was good. The information we omitted could be misleading. We did not report that nearly all sirens operate on commercial power and they could not be sounded. We also failed to report that the AP and UPI circuits, printers, etc., in the blacked out area were inoperable for varying periods of time. Washington UPI reports that almost all of its wire service printers in the affected area were out for a while. The ability to activate EBS was degraded; however, the EBS Plan provides alternate means to activate the system. Hence, the accuracy of the data reported by OCD to various sources could be misinterpreted by omission of some of the facts.

In order for the OCD to meet its responsibilities as assigned by Federal law and Executive Order, it is obvious that the primary CD systems, e.g.,

1. Warning (NAWAS control circuit),
2. Shelters,
3. NACOM I and II,
4. Stockpiles (Engineering, Medical, Shelter supplies),
5. RADEF,
6. EOC's (Region and State),

have to be capable of operations at all times. They, therefore, must be tested in the event of a non-civil defense emergency and the results, as they affect the general public, provided to SecArmy, SecDef, and the President, particularly if this capability has been seriously degraded. This is particularly true in emergencies other than natural disaster. Sabotage of power, communications, transportation and other systems can be easily accomplished, and might be a precursor of a nuclear attack on this country.

The power failure also poses another series of questions e.g., whether State and local governments and/or the general public should be informed that the emergency is not related to a military attack, who or what agency should make this determination, and how and when the information should be disseminated...

CONCLUSION: The capability for OCD to apply such an information system now exists. NAWAS, NACOM I and NACOM II provide the necessary links. What is now lacking are the coordinated procedures between OCD and other elements of the Army and DoD and the assignment of responsibility. Responsibility for including CD data must be assigned to both the NMCC and the AWR. Inclusion of pertinent civil defense statu must be presented to users (SecDef, President) by the NMCC. As it now stands, the NMCC is primarily concerned with status of military forces. In fact, verbatim log records of OCD inputs to the NMCC were not even kept in the most recent incident. It is doubtful under these conditions that OCD information passed to the NMCC went any place. The NMCC, in effect, became a dead end.

With respect to other OCD responsibilities during non-civil defense emergencies, it would appear that OCD could and should function as an information gathering mechanism for obtaining situation reports from State and local levels of government, utilizing NAWAS and NACOM facilities. This inform tion should be provided to the OEP or other Federal agencies as appropriate to their responsibilities in non-civil defense emergencies but also should be used to answer Congressional inquiries that are received.

NAWAS and NACOM communications facilities also could be used, if desired, to provide information to State and local governments about the nature of the emergency, e.g., that it is not related to a nuclear attack. However, the other decisions concerning this problem are beyond the purview of OCD although the Committee feels that they must be taken into consideration in setting up future procedures.

OCD PUBLIC INFORMATION ASPECTS: In the event of any kind of emergency, OCD can expect to receive questions from news media representatives concerning its operational capabilities and whether these have been affected. These questions should be answered factually as authorized by the Director of Civil Defense or his representative, or by higher authority. These are the only questions to which OCD Public Information personnel should address themselves. All other questions, except those dealing with matters for which OCD has a direct operational responsibility, should be referred either to the Department of Defense news room or to the Office of Emergency Planning, depending upon the nature of the inquiry.[1]

[1] Ibid. To the author's knowledge, this candid assessment by OCD represents the only case in which a responsible agency involved in the power failure sponsored an official, systematic, critical review of its own operations and their implications for future organization and procedures. As such, it represents a commendable effort to derive valuable lessons and guidelines from the experience.

(U) On the basis of the preceding assessment and similar retrospective critiques, OCD developed a number of general conclusions and also undertook various corrective actions. As of February 1966, these conclusions and actions were as follows:

OCD Operations Room

1. Conclusions: The capability of OCD to collect emergency information is apparently neither known nor recognized by other elements of the National Federal establishment, even though this capability exceeds that of any other Federal agency. During the emergency period OCD did not receive any requests for information from any element of the Federal Government. The Emergency Measures Organization of Canada reported a similar situation. Further, all requests to State and local governments for information were self generated by OCD.

2. Actions Taken: OCD is studying proper channels and procedures to advise appropriate Federal agencies: (a) of OCD's communications systems and organizational readiness to obtain and report emergency information under peacetime disaster situations, (b) that OCD activates its Operations Room upon the occurrence of disasters of significance, and (c) that Federal agencies should indicate their point of emergency contact during regular and non-regular hours to receive reports from the OCD Operations Room.

National Warning System

Conclusions

1. The NAWAS communications system is reliable during periods of power failure, but the ability to transmit warning to the public is almost entirely dependent on commercial power. Siren systems require commercial power almost without exception. Although some commercial broadcast capability was retained, there were no alternative plans to use these facilities for warning announcements.

2. OCD should continue to support and encourage the development of outdoor warning systems, even though these are dependent upon commercial power, because likelihood of power availability on a National basis in the event of a surprise attack is reasonably high.

3. That OCD give priority emphasis to current work with FCC for (a) developing home radio alerting devices and the necessary supporting systems and (b) developing procedures for transmitting attack warning over commercial radio broadcast stations.

4. That all commercially-powered equipment associated with NAWAS be replaced by telephone circuit powered equipment or supported by auxiliary generators.

5. OCD has the following options for instructions to the warning centers in responding to questions concerning possible enemy action:

a. Continue the present procedure to respond only that the system is normal. This will be interpreted to mean "No enemy action." This might be misleading as an incident could be the result of covert enemy actions, but unknown or not releaseable to the public.

b. Give a positive response that there has, or has not, been enemy action. This would depend upon receipt of positive information from some source outside of OCD and, therefore, is currently impossible.

c. Report that OCD has no information. Because of OCD's warning responsibility and the public assumption that we must have full information to meet that responsibility, this response would be interpreted as unwillingness to share information or inability to carry out our warning mission. Either interpretation could result in adverse criticism of OCD and the entire Federal Government.

d. Refer the inquiry to NORAD Combat Operations Center or to NMCC. While this would reduce or transfer criticism, it probably would not produce a better answer.

6. The basic problem is that there is apparently no procedure or plan in the Federal establishment to issue public information concerning actual or potential enemy action short of actual air attack on the Nation. Increased readiness at DEFCON 2 (and DEFCON 3 when so directed by higher headquarters) is to be reported to the Governors but no public dissemination is prescribed.

Actions Taken

1. By letter dated 15 November 1965, OCD advised the Federal Power Commission that "While the Federal Government has the capability to communicate essential emergency information to the public through Government channels, it has not organized itself to provide such communications to the public during natural or man-made disasters, short of nuclear attack. A question could be raised as to whether the Federal Government should study the desirability of performing this function. Procedures in OCD Manual 4305.1, "OCD Warning Center Procedures for Operation of the National Warning System," dated January 1963, provide a reply to inquiries which is subject to the interpretation that the occurrence has not been caused by enemy actions. There is no procedure for warning center officers to be given information from other sources to answer such inquiries, other than on the basis of Defense Readiness Conditions declared by NORAD, which they can check. Also, there is no known place in the Federal Government except the OCD Warning Centers where State and local governments can obtain such information. Since the OCD Warning Centers are responsible for disseminating "ATTACK WARNING," conversely they have been put in a position to indicate when a situation is not an "ATTACK WARNING". The OCD becomes involved in non-civil defense type disasters regardless of whether or not it has a natural disaster responsibility. The nature of the National Warning System, the Emergency Broadcast System, and the fact that State and local civil defense directors have both enemy and natural disaster responsibilities automatically involves OCD. The OCD is, therefore, judged on its actions and effectiveness of its programs no matter what the cause of a disaster may be.

(U) OCD also developed similar conclusions and recommendations pertaining to Emergency Information, to Region One Headquarters, and to State and local Civil Defense elements.[1]

[1]For further information on these, see OCD, Effectiveness of Emergency Government Organizations and Systems during the Northeast Power Failure of November 9, 1965, No Date (Circa January 1965), UNCLASSIFIED

pg(2) 102-103 denied in total by FEMA (b)(1)

(6) OEP [HP's] first knowledge of the power failure came at 1755, 39 minutes after the first indication of failure occurred at 1716. At 1755, the Director of OEP Region 1 (Harvard, Mass.) telephoned the [HP Chief] to advise that "there was a power blackout in the Northeast. In response, the [Chief] telephoned the NMCC at 1803, and they "confirmed the power blackout." In quick succession, the following

[1] Interview No. 15, 20 January 1966.

[redacted]

communications took place:

1807 - OEP Deputy Director called seeking information. He suggested calling Consolidated Edison in New York.

1808 - Contacted Consolidated Edison. Blackout confirmed. Cause unknown.

1809 - Called Deputy Director. Suggested advisability of declaring an ABLE alert.

1810 - OEP Director of Information called and expressed a desire to announce that there was no military alert. Disagreed, as no information on military status was available.

1814 - Guard called Duty Officer and informed him that the Bomb Alarm alert signal had been activated.

1825 - Chief called conference of key site personnel.

1826 - Washington Switch queried Duty Officer asking whereabouts of Department of Interior Duty Officer. Suggested calling his home.

1830 - Walter Cronkite TV news program reported that the key to the blackout was believed to be in the Buffalo-Niagara area.

1832 - Attempted to call OEP Deputy Director - line busy.

1833 - Attempted to call OEP Emergency Operations Director -- line busy.

1834 - Called Duty Officer to fill him in with events up to that time.

1838 - OEP Security Office called seeking information.

1840 - OEP Director of Information called seeking information.

1841 - Another OEP staff member called seeking information.

1848 - Called Director of OEP, advising him there was no firm information up to this time. Suggested to him that a Condition ABLE should be declared. He directed that this be done at once.

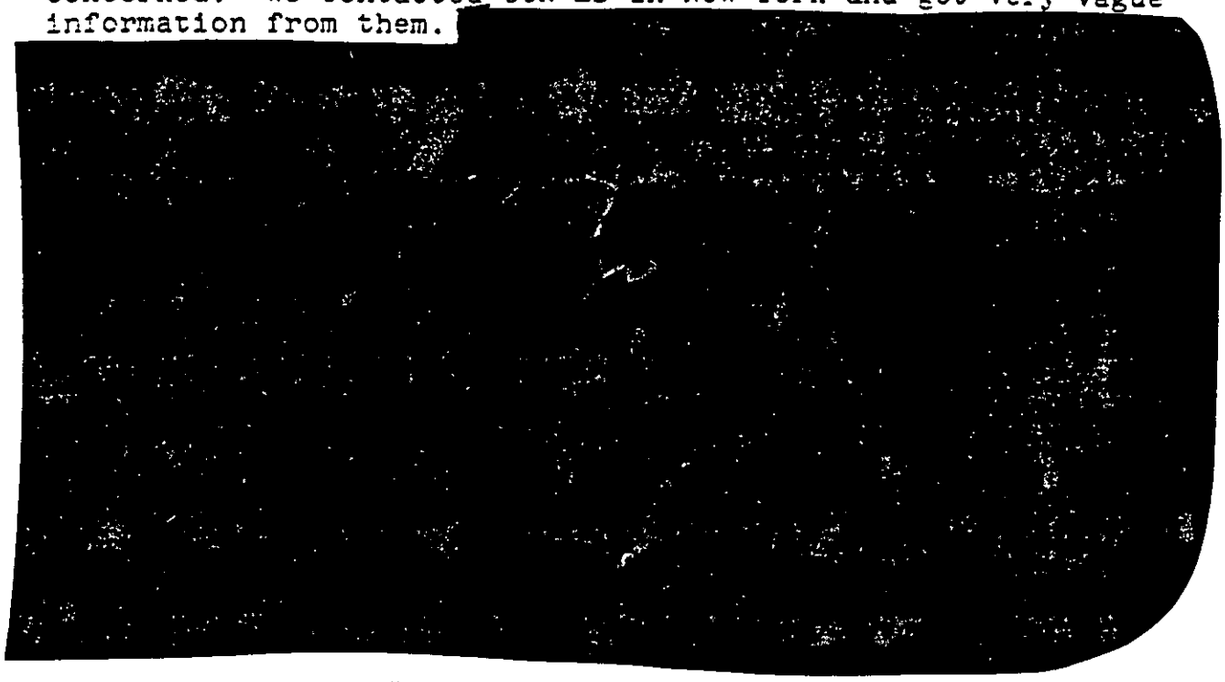
1849 - Condition ABLE announced.

(S) Aside from OCD--which activated its Operations Room and Region One Emergency Operating Center--OEP-HP was the only other national-level command and control center that went on full alert during the course of the power failure. Asked to explain the basis for this decision, the Chief of the Special Facilities Division, responded:

[redacted]

[redacted]

> We always suspect the worst. We had probed around for a good half-hour and could not pinpoint the trouble. We couldn't find out if it was sabotage or what. So we got quite concerned. We contacted CON ED in New York and got very vague information from them.



(S) One of OEP-HP's own systems--the Bomb Alarm console--might have been used as the first source of information about the power failure, but it apparently was not. Although the outage in that system initially occurred at 1718, it was not until 1814, nearly an hour later, that the outage was called to the attention of the OEP-HP Duty Officer. The information conveyed by the Bomb Alarm console at that time was hardly encouraging. In addition to yellow lights at 22 of the 99 target locations, it showed red for Salt Lake City, Utah, and Charlotte, North Carolina. According to HP spokesmen:

> We tried to make something out of the Bomb Alarm System; but it didn't give us any information. One loop out of each of the three was out. The one loop centered on Albany explained the Northeast indications; but it was unnatural to have one from Salt Lake City and Charlotte.[2]

The uncertainty over these two reds, together with the inability to pin down a cause of the power failure, apparently contributed to the decision to recommend that OEP-HP go on the alert. It was not learned until several days after the power failure that the two reds were false indications caused by a peculiarity in the circuitry of the particular Bomb Alarm console located at HP.

[1] Ibid.
[2] Ibid.

[redacted]

[redacted]

(S) Another paradox in notification derived from the co-location of the OCD National THREE Warning Center in the HP facility. Despite the fact that the Warning Center had information about the power failure at 1745, OEP-HP did not learn of the event until 10 minutes later -- and then only through its own communications channels to Region One Headquarters in Harvard, Mass.

(S) Following the declaration of the ABLE alert, OEP-HP activated its Command Post (at 1855), and from that point on until 2330, when the ABLE alert was terminated, continuous efforts were made to determine the cause and source of the failure. Pursuing the initial lead that the failure appeared to stem from the Niagara-Buffalo area, the OEP Director of Information, at 1856, tried to contact the Army Supply Center at Niagara Falls Municipal Airport, but was unable to get through at that time. At 2028, the Alternate Defense Coordinator for the FBI called and "wanted any information we may have." The Chief of OEP-HP at that time requested the FBI Coordinator to "talk to some of the FBI agents in the Buffalo area and see if they can be of help in giving us information." The Coordinator "said that he would and would call back."

(S) At 2030, the Chief Electrical Engineer, Consolidated Edison Company in New York City was contacted:

> He advised that they are trying to get the power back to all sections of the cities as soon as possible. The power is back on at their main station. All of Staten Island has power and a small piece of Brooklyn. The fault was on the Niagara grid system where something was pulled down. Hope to have it all back by morning, but can make no definite answer. He stated that he is at their main office downtown and has no idea of the status in other parts of the State. Also does not know the condition in other States in the Northeast. Suggested that this information be obtained from the individual power companies.[1]

At 2040, this information and the previous request made to the FBI Coordinator were relayed to the OEP Deputy Director, who, in turn, said he thought that "they (the FBI) should try to have their agents check on any information available."

[1] Office of Emergency Planning, "Log of Emergency Activities, November 9, 1965," SECRET, Tab A.

[redacted]

(S) According to OEP-HP spokesmen, the response of the FBI to requests for information was inordinately slow and inadequate. At 2220--nearly two hours after the original request to the FBI Coordinator to check with agents in the Buffalo area--OEP-HP still had not received any response. At that time, the Chief again called the Coordinator and relayed a second request made by the Deputy Director of OEP "to have his agents check the Syracuse-Rochester area," on the basis of a report that the failure may have occurred on the Niagara/Mohawk line located there. At 2235, the FBI Coordinator called the OEP-HP Chief to report that "their office has just gotten in touch with the Supervisor in Buffalo but they have not learned what the official has found out." In the meanwhile, the Coordinator said that he had asked the FBI Duty Officer to "call you as soon as he hears anything," and "if you learn anything that you think the FBI should be made aware of, call us." One hour later--at 2335--the FBI Duty Officer still had not called OEP-HP. Again, the HP Chief called the FBI and was told by the Duty Officer that "we have talked to our official in Buffalo and anything that we have to report will be reported directly to the Attorney General." That conversation apparently ended OEP-HP's attempts to secure additional information from the FBI.

(S) OEP-HP had similar difficulties in obtaining information from the private power companies. Sometime during the period between 1830 and 1845, the OEP Region One Director talked to the Vice President of the Boston Edison Company in charge of transmission lines and was told that the trouble was located in an electrical facility te and one-half miles below Niagara Falls. Unfortunately, when OEP tried again at 2140 to contact the Boston Edison Vice President in ord to obtain more detailed information, "he was bound, gagged, and thrown into a manhole; he simply disappeared--i.e., the company lawyer had got to him and wouldn't let him give out any information."[1] Instead,

[1]Interview No. 9, 21 December 1965.

[redacted]

the Director of Public Relations for Boston Edison conveyed to OEP the following information:

> Large areas of the city are back on (estimates 30%). The rest are coming back on circuit by circuit. Estimates that all will be on within two hours. Heard on the radio that Western Massachusetts has power on. Boston has three major generating stations. Boston is tied together with New York by a grid system, and a power failure there would affect the Boston area. Feels sure that the power failure was not in the Boston system, but occurred elsewhere. [2]

(S) In the absence of any positive information as to the cause of the failure, OEP--like OCD--was confronted with the problem of what information to release to the mass media of communication. At about 1810, the Bureau Chief of the Hearst newspapers in Washington called the OEP Office of Information and asked if there was an alert. According to the spokesman who was contacted:

> I asked myself if we dared to put out information that there was no alert. I made a two-second, high-level decision to say nothing about a military alert. If I had said there was no alert, it would take 10-15 minutes for that information to go through the communication network--and by that time there might have been an alert; and you would have a hard time refuting the previous information. Instead, I tried to demonstrate that the situation was one of normalcy. I implied that things were under control.
>
> This was a real problem, because there was no way of really knowing what the cause of the power outage was. We still don't know for sure that the circuit breaker was not put out of action by some hostile act. It could have been done with one rifle shot at the power facility.[1]

(S) Despite the absence of positive information on source and cause of the failure, the OEP-HP officials gradually developed a consensual judgment that the probable cause was an internal breakdown in the system, rather than sabotage. This judgment was based on the lack of evidence of physical destruction to power equipment, on the fact that electricity was being restored in many areas, and on the fact that there was no follow-up enemy action:

> We did not have any definitive information on the cause that night, but a number of things seemed to confirm that it was an internal breakdown in the system, rather than sabotage. Our information indicated that there was no lines down and no equipment destroyed. The electricity in Boston came back on at

[1] "Log of Emergency Activities, November 9, 1965," op. cit., Tab B.
[2] Interview No. 9, 21 December 1965.

> 9:00 p.m. If there was going to be sabotage, some follow-up action would take place; but nothing happened. So by 11:00 p.m. or so, it seemed safe to assume that it was a power failure due to an internal breakdown.[1]

(S) At 2328, the OEP Deputy Director of OEP gave permission to terminate the ABLE alert, and the extra-duty employees were released beginning at 2330. At 0032, 10 November, the Director of Region One called to advise that his staff was leaving for home. He also advised that he had been informed that the cause of the power failure was "a series of breaks; the power company says the cause is not easy to pinpoint." Thereafter, throughout the remainder of the night, OEP-HP continued to collect information on the power restoration, and to report this information to OEP officials and the NMCC. As late as 0600, 10 November, however, OEP-HP was continuing to rely heavily on press reports and the mass media coverage of the event. At that time, the NMCC called to obtain information on the percentage of power restored in the affected areas--information to be used in the Chairman, JCS, briefing scheduled for 0730. HP responded by quoting data contained in two recent UPI press dispatches, data that presumably was already available in the NMCC. Again, at 0735, the NMCC called for late information on percentage of restoration to be included in a report for the SecDef. OEP-HP suggested that the NMCC watch the "Today" show on TV for "on the scene" reports.

OEP Assessments of the Power Failure

(S) OEP-HP spokesmen were disturbed by their inability to collect reliable data on the cause of the power failure:

> I think that the thing that impressed us most was the inability to get information on this particular incident. All we got was negative information. We were unable to isolate the cause. In general, this does not augur well for a real emergency--even with a good communications system.[2]

(S) OEP-HP is limited in its ability to interpret the national security significance of such events as power failures and other domestic crises because it is not routinely informed on foreign

[1] Interview No. 15, 20 January 1966.
[2] Ibid

intelligence matters, on FBI data bearing on internal security, or on critical national decisions:

> One of our problems is that HIGH POINT is not linked up with the intelligence community. Communications go from CIA to the Rock (ANMCC), to the FBI which we are not aware of. We are prepared for intelligence interchange, but we don't get this information as a matter of routine. We are not informed on a routine basis of critical national decisions. The Director of OEP attends the National Security Council meetings and passes on the information that he receives there, but even he is excluded from some of the critical decisions.[1]

(S) It was believed that the declaration of an ABLE alert had been appropriate under the circumstances and that its use under these conditions provided a useful test of how OEP-HP personnel would respond under non-exercise conditions:

> I don't think we would do anything differently. We felt we did everything we could do under the circumstances. We were particularly pleased with the response of our employees to the alert. We had had an exercise a couple of weeks beforehand; so the employees knew it was not an exercise. We know that they will come under exercise conditions, but we have often speculated if our people would come under emergency conditions. This event provided a useful test. It was an excellent performance and we made a point of letting our people know that we felt that way.[2]

(S) The event indicated a number of deficiencies in OEP-HP reporting procedures, and especially a delay in informing the Director OEP and other high-level officials. As a consequence, OEP-HP was given an additional mission--to report directly to the OEP Director on any "sigificant incident that the President might be interested in." (In the case of the 9-10 November power failure, the President telephoned the Director of OEP before the latter had knowledge of the event.) This "significant incident reporting system" had been formlized in the form of written procedures.

(S) The power failure indicated the need for improved intercommunication between the NMCC and OEP-HP:

> People in the NMCC often do not seem to realize that HIGH POINT offers a useful source of information on various subjects. For example, we do get involved in natural disasters. We become the transmittal station, covering for the OEP Disaster Assistance Division.

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[1] Ibid.

> There is a weakness in our present relationships. In the past, we had fairly close personal relationships with several people there; but these have declined. The basis of our relationship has been mainly personal. We have had few formal arrangements, although the personal contacts may have grown into something formal. From our point of view, relationships could be better; we would prefer to have something more formal. Whether we are contacted or not seems to depend primarily on the particular duty officer who is there at the time. I will say, however, that about a month after the blackout, we got a routine call from one of the NMCC Duty Generals. That is the first time that has happened in a long time.
>
> In the past, when the NMCC had a new turnover of personnel, they had an arrangement for the shift team to come to HIGH POINT for a briefing. That hasn't happened here in a long time. Until three years ago, the NMCC shifts came out as a team and we established personal relationships with a number of them. [1]

Subsequently, in February 1966, the OEP-HP Chief and the NMCS Division Chief worked out a new set of understandings and procedures regulating the interactions between the NMCC and HIGH POINT. Among other changes, the new arrangement specified that the HP Duty Officer on each shift was to conduct a routine check with the NMCC. The NMCS Division Chief had also been informed of the critical incident reporting procedures instituted by OEP-HP.

(U) On a more general level, the Acting Director of OEP reported the following actions that had been taken by his agency as a result of the power failure:

> 1. Our national office is working with the Federal Power Commission and the Defense Electric Power Administration in developing an information gathering system in cooperation with the electric utility industry for reports to the President through OEP and to various levels of government in the early stages of disasters on such occurrences as the Northeast power failure. The reports will cover the cause of the trouble, the extent of the disaster, restoration schedules and problems, and possible Government actions. These reports should provide essential facts and conclusions of valuable assistance to us in refining and improving our emergency planning with the electric power industry. When the plan has been perfected with respect to power, it is planned to extend the techniques to cover transportation, communications, and other essential resource areas.
>
> 2. OEP has requested the Departments of Commerce, Interior, and Agriculture to conduct a survey among leading industrial concerns in their particular resource jurisdictions to determine the effect of blackout on operations. This survey will include such industries as electrical equipment, petroleum, chemicals, and food processors.

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[1] Ibid.

[redacted]

3. OEP, as a result of this experience, has improved its ability to respond to this type of significant incident by installing strategically placed telephones; an automatic staff reporting system; and establishing closer working relationships with other agencies, including DoD, in connection with reporting such instances, and in lessening their impact by producing quick, accurate information to local authorities and to the public. The power failure also emphasizes the need for emergency generators in all essential facilities, including hospitals. In addition, it seeks to highlight the need, in power pools such as CANUSE[1] for a central organization to serve as a source of information and contact whenever difficulties develop.[2]

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[1] "CANUSE" refers to the "Canada-U.S. Eastern" interconnection--the power grid system primarily affected by the 9-10 Nov 65 power failure.

[2] Eighty-Ninth Congress, Hearings before the Special Subcommittee to Investigate Power Failures..., op. cit., p. 87.

[redacted]

[redacted]

V. SUMMARY OBSERVATIONS

(S) The Northeast power failure of 9-10 November 1965 demonstrated that there are physical vulnerabilities in the commercial power system that have serious implications for U.S. command and control operations and defensive capabilities. That event also revealed various organizational and procedural problems that are of potential significance for future efforts to improve U.S. capabilities to detect, interpret, and communicate information about domestic threats and dangers that may have relevance for national security and U.S. military capabilities.

A. PHYSICAL VULNERABILITIES

(S) The Northeast power failure and other similar large-scale power outages have demonstrated that the U.S. commercial power grid system is physically vulnerable to massive internal breakdowns. Although corrective actions were taken after the Northeast power failure to strengthen the power grid system and thereby reduce the probability that similar cascading effects will occur, over 20 major failures--affecting nearly every section of the United States--have occurred since the time of the Northeast failure. Several of these subsequent failures have affected large areas of the country and caused electrical outages of several hours. On 5 June 1967, for example, a failure covering eastern Pennsylvania, New Jersey, and the Delaware-Maryland peninsula affected 13 million people and lasted for periods ranging from a few minutes up to 10 hours.[1]

(S) The analyses conducted as a result of the Northeast power failure also suggest that to an unknown degree the system is vulnerable to sabotage. The potential for effective sabotage has not, to

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[1] For additional details on this event and other major outages, see Federal Power Commission, Prevention of Power Failures, A Report to the President by the FPC (Washington: U.S. Government Printing Office, July 1967), Vol. I, pp. 21-27

the best of our knowledge, been thoroughly examined, but the consensu of expert opinion is that such hostile efforts could seriously disrup the existing system. As expressed by one DoD expert on power systems

> Because of the long transmission lines which traverse generally open country, it would be quite easy to blow up transmission towers, for example. It would be equally easy to blow up substations; and any electrical power expert--with forced entry into a power station or load dispatching center--could cause the type of power failure experienced on November 9, 1965.[1]

(S) The experiences of several critical military installations indicate that commercial power sources have a comparatively poor record of reliability even under routine conditions. For example, a study conducted by Headquarters, Air Defense Command, showed that during a 90 day period the average downtimes resulting from unscheduled commercial power outages were as follows: [redacted] If such outages were to occur during periods of critical operations, they might seriously degrade U.S. defensive capabilities.

(S) The power failure itself, and subsequent analyses, includin an analysis of the potential effects of a similar outage in the Washington, D.C. area, demonstrated the inadequacy of emergency backu power for various critical military command and control centers and other vital defense installations. For example, [redacted] were seriously degraded because of inadequate backup power. Subsequent investigations also showed that the base alert and warning systems on SAC bases were solely dependent on commercial power; that continuous operation of 12 CONUS ACW radar stations was not assured because of insufficient backup power; that the lack of

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[1] Memorandum for Deputy Director (Electronic & Information Systems), DDR&E from OASD (I&L), Subj: "Supporting Data for Department of Defense Position on the Effect of the November 9, 1965 Power Failure on Defense Installations," 23 February 1966, Unclassified.

[2] Department of the Air Force, "Extract: Part II, Supplementary Data, Report of the Inspection of the Effects of Commercial Power Failures on Air Force Readiness and Operations - Project Number 1-66-70," SECRET-FOR USE ONLY WITHIN THE DEPARTMENT OF DEFENSE, WSEG Log No. 113111.

[redacted]

backup power for some [redacted]

denied (b)(1) OSD

[redacted] Subsequent steps have been taken to provide additional power sources, but the degree to which these and similar inadequacies have been remedied has not been evaluated in the present study.

(S) There is currently little systematic knowledge of the effect of an extended or prolonged power outage on command and control and defensive capabilities. Present plans and protective measures are predicated on the dual assumptions (a) that commercial power failures will be of comparatively short duration (e.g., less than 72 hours), and (b) that only highly critical systems and facilities (command and control centers, radar installations, communications, hospitals, etc.) need to be covered by backup power. Much of the backup power for critical installations is not designed for reliable, sustained operations over relatively long periods of time. Thus, for example, the battery pack backup provided by AT&T on several SAC Primary Alert System lines began to fail within a few hours after the power failure. Similarly, many of the auxiliary generators presently utilized at various military installations are not designed for sustained, reliable operation for more than a few days. Moreover--aside from a few highly protected installations, such as the NORAD Combat Operation Center, the ANMCC, and OEP-HIGH POINT, which could be totally self-sufficient for periods of approximately 30 days or more--many of the supportive functions at military installations and bases are not covered by backup power. The absence of light and power in such facilities as storerooms, repair shops, hangars, barracks, mess halls, fuel storage facilities, etc., might quickly lead to a progressive degradation in the overall system, so that even the vital functions could no longer be performed effectively.

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[1] Ibid.

[redacted]

E. ORGANIZATIONAL AND PROCEDURAL DEFICIENCIES

Specific Observations

(S) The detection of the power failure and the transmittal of information about its occurrence to the various command and control centers tended to be both slow and unsystematic in nature. As shown in Table 1, based on the time of the initial electrical outage at 1716, 9 November, the first knowledge of the failure in the different centers ranged from five minutes for the Air Force Command Post to 49 minutes for the National Indications Center. Except for the AFCP, the NMCC, and the NORAD-COC, the elapsed time between initial occurrence and first knowledge of the failure was over 25 minutes for all centers.

Table 1. (S) TIME OF FIRST KNOWLEDGE OF POWER FAILURE AND ELAPSED TIME BETWEEN INITIAL OCCURRENCE OF OUTAGE AND FIRST KNOWLEDGE FOR VARIOUS COMMAND AND CONTROL CENTERS (U)

Center	Time of First Knowledge(EST)	Elapsed Time between Initial Outage (1716) and First Knowledge(Min.)
NMCC	1729	13
NIC	1805	49
[redacted]		
OCD-OR	1745	29
OEP-HP	1755	39
FAA-CCC	1750	34
SDOC	1750	34
NORAD-COC	1735	19
NWC	1750	34
NWC-Three	1745	29
ADCP	1743	27
AFCP	1721	5
AOC	1800	44
NFP	1800	44

deleted NSC (b)(6)

(S) The notification of appropriate civil and military command authorities was similarly slow and unsystematic in nature. The

[redacted]

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[redacted]

[redacted]

denied (b)(1) NSC

The SecDef apparently learned about the failure through his own DoD sources shortly before 1800, but the Director, J-3, was not officially notified until 2000 hours--nearly two hours and 45 minutes after the initial outage and two and one-half hours after the NMCC first learned of the failure. Similarly, the J-3 Deputy Director for NMCS was not officially notified until 1850--over one hour and 20 minutes after the NMCC first learned of the failure.

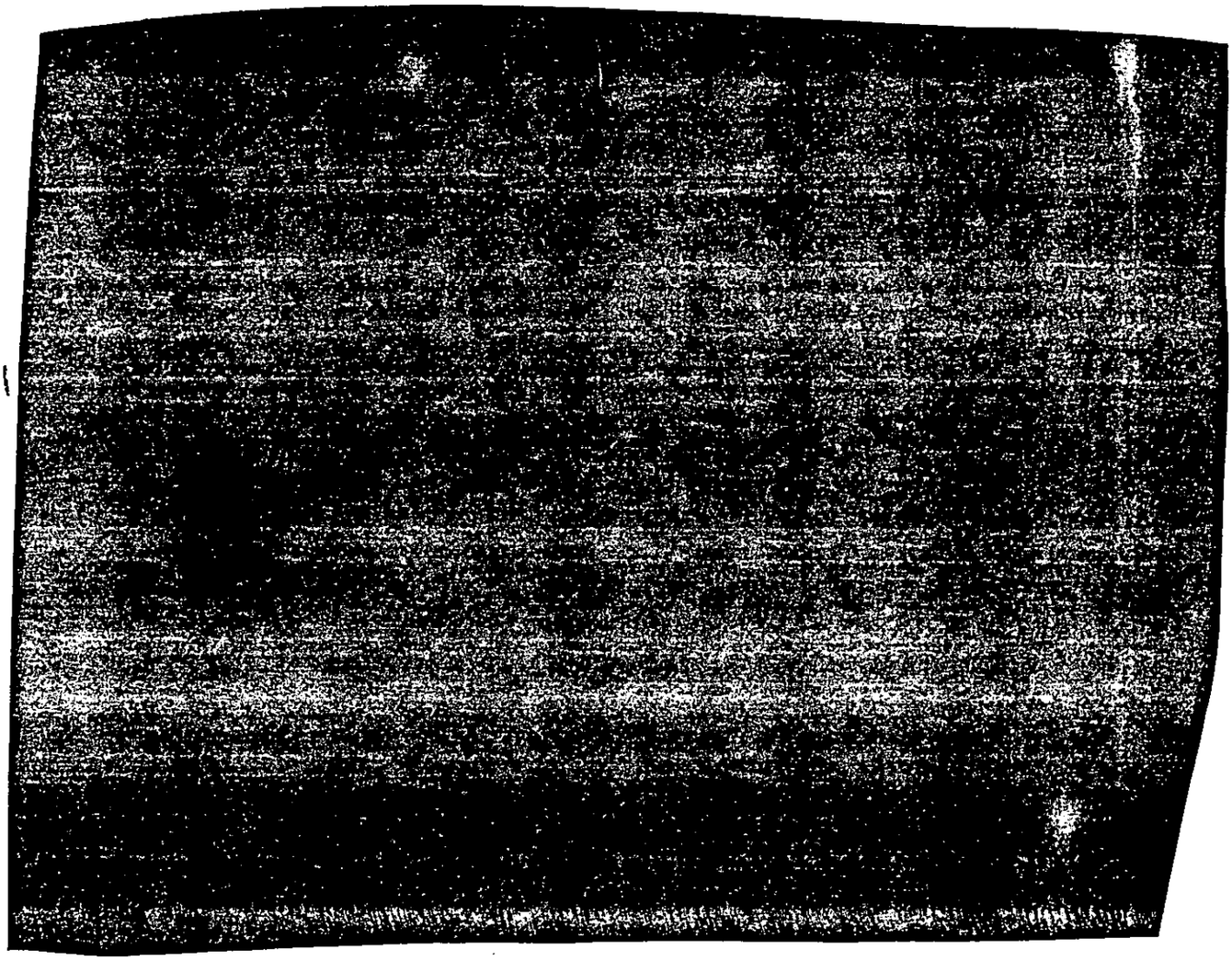
(S) The implications of the power failure for national security were not grasped quickly by many of the centers and, as a consequence, investigation of the cause, source, scope, and effects of the event was delayed. Approximately 30 minutes elapsed before the NMCC began an investigation of the overall effects of the power failure on military capabilities. Most of the centers, in fact, had inadequate knowledge of the scope and effects of the power outage until the teletype press stories and mass media of communication began reporting fully on the event in the period after 1800.

(S) Many of the centers relied too heavily on the press service, TV, and radio coverage of the event and, correspondingly, failed to utilize their own primary information sources to full advantage. Despite the fact that most of the centers have elaborate and sophisticated communication facilities, these facilities, in many instances, were not quickly and adequately used to canvass sources of information that were readily available through the normal, established channels. Several of the centers, including OEP-HP and the FAA-CCC, have elaborate teleconferencing capabilities, but these systems were not used even within the organizational confines of a particular agency, much less as a technique for quickly sharing information among different agencies.

(S) Similarly, the power failure demonstrated that existing monitoring and detection systems were not adequately utilized as diagnostic tools for assessing the scope and causes of the failure.

[redacted]

The Bomb Alarm Communicator's Display console, for example, could have quickly provided a rough delineation of the area affected by the power failure, but in at least three different centers, the fact that the system showed yellow indications throughout the Northeast was not communicated to the appropriate officials until nearly an hour or more after the outage occurred. Additional useful diagnostic data could have been obtained from the DCA Communications Centers, located both in the Washington area and at the NORAD Cheyenne Mountain facility, but there is no evidence to indicate that data from these sources were adequately utilized in the overall substantive (as oppcsed to technical) assessment of the power failure.



declcd (S)(1) NSC

(S) The event demonstrated that there were no well-established or understood procedures for alerting the various command and control centers to undertake increased precautionary and readiness measures in a nonmilitary context. Increased readiness could have been accomplished in most of the centers by the declaration of a DEFCON 3, but

the precedent for the use of this device in domestic crises had not been established and there was no established alternative alerting system available.

(S) Most of the centers dismissed the possibility of sabotage on the basis of inadequate and unconfirmed evidence. With the exception of OEP-HP and OCD, most centers readily accepted the initial information that the cause of the failure derived from an internal breakdown in the power system and failed to take adequate precautions to insure that this information was correct or to hedge against the possibility that it was incorrect. All the familiar mechanisms of danger denial and disbelief--repeatedly demonstrated in past studies of disaster and crisis[1]--were manifested, both individually and collectively during the night of the power failure. First, they were exhibited by the several human operators at the various commercial power control centers who refused to believe the meters and gauges which showed a gross deviation in the balance of electricity and who therefore failed to press the buttons that activate the circuit breakers. Subsequently, after the power failure had occurred, the same types of denial and disbelief were revealed in the too-ready acceptance of the initial reports that the power failure was of mechanical origin; in the delayed response in checking existing monitoring systems and primary information sources, and in the misinterpretation by state and local Civil Defense directors that the standard formatted message sent over the National Warning System--"The warning system is normal"--officially meant that it had been established that the blackout was not due to sabotage or to enemy attack.

(S) The event also demonstrated serious deficiencies in the ability to investigate and rapidly isolate the source and cause of power outages. This was manifested in the unsatisfactory information

[1]See Charles E. Fritz, "Disaster," in Robert K. Merton and Robert A. Nisbet, Contemporary Social Problems (New York: Harcourt, Brace & World, Inc., 1961), pp. 651-694.

that OEP-HP received from the FBI and from the private power companies, and in the fact that over five days elapsed before the source and cause were pinpointed by the FPC.

(S) The power failure demonstrated various deficiencies in the existing guidelines and procedures for the release of information to the mass media of communication and to the public. The NMCC released information to the press and the broadcast media that could have been damaging to the national interest in the event that this event had been inspired or instigated by an enemy. OEP faced similar problems in determining whether or not to deny or confirm that there was a military alert. And OCD found that there was no established mechanism or procedure for informing the public when an "Attack Warning" had not been issued.

(S) Various steps were taken by the responsible command and control centers to correct some of the organizational and procedural deficiencies revealed by the power failure, but these steps appear to be essentially piecemeal and unsystematic in nature. Many of the remedial actions were oriented too closely to the problem of dealing with future power failures and have not taken into account the fact that this is simply one type of domestic crisis, among many, that poses a potential threat to National security or that could be associated with an enemy attack. Many of the actions were also too closely tied to internal organizational changes, and not sufficiently oriented to interagency communication and coordination.

General Observations

(C) The following general observations are drawn not only from the present case study but also from numerous previous investigations of the Northeast power failure and from previous studies of disasters and critical incidents conducted by the author and other investigators. They are designed to provide a broader context for viewing the specific findings and conclusions of this study and for re-examining

the corrective and remedial measures that were taken by various command and control centers in response to the deficiencies revealed by the Northeast blackout.

(S) To date, the problem of danger detection and warning has been too narrowly limited to the possibility of an externally induced attack on CONUS. Thus, for example, the USIB Watch Committee and the intelligence agencies are constantly monitoring foreign indicators that might reveal hostile intent and provide strategic warning. Similarly, NORAD, through the use of its SAGE and BMEWS systems, is constantly monitoring the external aerospace environment for indicators that would provide tactical warning of an attack on CONUS.

(S) There is no comparable mechanism for constant monitoring and detection of potential dangers in the domestic arena. Instead, there are a series of separate centers--both military and civil--each viewing the happenings within the nation through its own peculiar organizational foci of attention, and each, to a large degree, acting independently on the information that is available within its own organizational boundaries.

(S) The basic technical substructure to support a more adequate monitoring capability already exists in the form of many different detection and communication systems currently being used by governmental agencies and by private industries. By combining and integrating data from such systems as the Bomb Alarm System, the AT&T damage assessment system,[1] the DCA Communications Center, the FAA Communications Control Center, together with the information that can be

[1]The Bell Telephone System has already developed a highly effective system for assessing damage to its own facilities and equipment resulting from natural or nuclear disasters. This system has proved to be highly effective in measuring damage to the telephone system in past floods and hurricanes. The system is so set up that information about the entire country can flow to AT&T headquarters in New York City or to one of three presently available alternate command posts. The alternate command post at Armonk, New York is hardened to at least 50 psi. AT&T also has a so-called "Quick-Check" System, located at the DCA facility in the NORAD Cheyenne Mountain Complex, which monitors voice circuits across the country.

quickly obtained through OEP, OCD, and similar communication systems, it should be possible to maintain a kind of constant monitoring capability over domestic incidents that have potential significance for national security. These, when combined with current foreign intelligence data and data from SAGE, BMEWS and other warning systems would provide a basis for quickly isolating the location, scope, and possible cause and source of the danger, thereby enabling a determination as to whether or not the event has national security implications and therefore does or does not require immediate precautionary and protective action.

(S) Such an integration of data from existent military and non-military detection and communication systems did not exist at the time of the Northeast power failure, nor does it exist today. Instead the tendency is for each agency to view its own monitoring and communication systems as isolated, independent entities. As one expert on the U.S. command and control system has said:

> It is useless to design and operate elaborate and expensive information systems unless the output can be converged, integrated and diagnosed in a rational fashion. It is virtually useless to acquire new systems, expand old ones or to change the utility of current systems until this integration process has been established. ...It should be recognized that under certain circumstances, military information systems have information of great potential value to the non-military parts of the government. The obverse of this, i.e., taking advantage of information in the non-military parts of the government by the military, should also be emphasized.[1]

(S) As the foregoing statement suggests, the basic problem in the detection of danger and in the process of investigating, analyzing and assessing potentially dangerous domestic events does not lie in the lack of adequate technical equipments and facilities. Rather it lies in the lack of social organization and training to utilize more effectively the information that can be obtained through existent facilities. As is true in many areas of modern life, there has been

[1] T.G. Belden, Institute for Defense Analyses, Memorandum for the Record, Subj: "Summary of Activity on the Bomb Alarm System (BAS) Investigation," 2 May 1966, SECRET.

a "social lag" in which the process of developing social organizations for official information gathering and analysis has not kept pace with the capabilities of the technological facilities that are currently available.

(S) This "social lag" has to a large degree been overcome by the commercial mass media of communication which--with their large national and international staff of reporters and photographers, and speedy techniques of communication--can rapidly report on a great variety of events throughout the nation and the world. It is probably this capability for extensive and rapid reporting that has caused many of the official operations and command and control centers to rely so heavily on these sources of information for developing their own analysis and assessments of happenings in the domestic and international arenas. But there are great potential hazards in this heavy reliance on information obtained from the mass media and from the commercial press services. Early news reports on disasters, crises, accidents, civil disorders, and other dramatic or unusual incidents are often inaccurate, distorted, and incomplete; and acceptance of such reports may obscure the need to conduct an independent check through official channels of information gathering and interpretation. The mass media and teletype press reports should never be accepted at face value, nor as a replacement for rapid, aggressive, and independent information search procedures. From an operational standpoint, they should be used only as secondary and supplementary sources, not as primary sources.

(S) All of this indicates that the development of an effective national emergency monitoring, warning, and protection system--a system attuned to the needs of our modern, highly interdependent, and rapidly changing society--poses some unusual requirements. In outline form, these requirements appear to be as follows:

1. Constant, minute-by-minute monitoring of all relevant and available signal detection systems--both those concerned with internal happenings, and those directed toward external threats and hazards.

2. Continuous comparison, integration, and analysis of information that can be derived from all of these systems.

3. A highly trained group of specialists who are oriented constantly to the total spectrum of threats and hazards to national security--internal and external, foreign and domestic--and who have familiarity with the total structure of the U.S. government and with the critical sources and channels of information and communication.

4. An organizational capability to utilize all existing federal resources for monitoring and investigative activities, and also to secure relevant data from appropriate centers of information, investigation, and expertise at state and local levels and in the private sector.

5. An organizational capability to alert, notify, and inform appropriate civil and military authorities and insure that responsible governmental agencies are taking appropriate actions.

(S) This outline of system requirements is used here as an instrument for focusing attention on the need for developing a more coherent, coordinated approach to the basic problems of detecting and acting on threats to national security. Today there are some major anomalies and inherent obstacles to the achievement of the type of synthesis suggested above. Although they vary in the breadth and scope of their coverage of national security matters, each of the operations and command and control centers studied in this report covers only a portion of the total spectrum of external and internal threats and dangers to the U.S. Moreover, although there is considerable sharing of information between and among many of the Centers, each Center, understandably, tends to focus primary attention on its own specialized areas of operational responsibility and to retain a monopoly on some types of information available within its own system. Thus, for example, OEP-HIGH POINT--which has responsibilities for handling major domestic peacetime disasters--is not routinely informed of foreign intelligence indicators or of data on current military

operations and therefore is unable to evaluate such domestic disasters or crises in the light of knowledge that might be available to the National Indications Center or to the NMCC. There are also continuing anomalies in the division of labor between OEP and OCD. Despite OEP's continuing responsibilities in peacetime crises and disasters, OCD--which has responsibility for handling a potential nuclear attack emergency--has a major share of the communications and operational capability relevant to routine crisis or emergency situations, but is constrained by statutory and budgetary limitations in using its resources in such events. These and similar constraints deriving from law, statute, tradition, organization, and training impose serious impediments for current efforts to remedy the type of deficiencies revealed in this report.

[redacted]

VI. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

Physical Vulnerabilities

(S) The Northeast power failure of 9-10 November 1965, and over 20 major failures that have occurred since that time, indicate that the U.S. power system is vulnerable to large-scale internal breakdowns. Subsequent investigations of the Northeast power failure have also suggested that the power grid system is potentially vulnerable to sabotage. Regardless of cause, any occurrence of massive electrical outages has serious implications for U.S. command and control and defensive capabilities.

(S) The Northeast power failure also demonstrated that some command and control facilities--including the NMCC and other parts of the Pentagon--were not adequately protected against the eventuality of a possible future massive outage of this type, and that additional efforts were required to provide adequate backup or emergency power sources for these critical facilities.

Organizational and Procedural Deficiencies

(S) The Northeast power failure revealed various deficiencies in the capability of U.S. command and control agencies (1) to detect, investigate, and assess the causes, scope, and effects of the failure, and (2) to communicate this information in a timely and effective manner to appropriate civil and military authorities.

(S) Specific organizational and procedural deficiencies identified in this study, include the following:

1. Delayed detection of the failure and unsystematic transmittal of information about its occurrence to the various command and control centers.

[redacted]

2. Delayed and unsystematic notification of the appropriate civil and military command authorities.

3. Failure by various centers to grasp the national security implications of the power outage and a consequent undue delay in the investigation of its cause, source, scope and effects.

4. Too heavy a reliance on information derived from the press services and the mass media of communication; and corresponding failure to utilize available communication facilities adequately in order to canvass primary sources of information.

5. Inadequate utilization and integration of diagnostic data that could have been derived from such existing monitoring and detection systems as the Bomb Alarm Communicator's Display console and DCA communication network monitoring equipment.

6. Inadequate lateral communication of information between and among the various command and control centers, resulting in unnecessary duplication of effort and failure to integrate information in a form most useful for responsible command authorities and other officials.

7. Lack of well-established or understood procedures for undertaking increased precautionary and readiness measures in a domestic crisis of this type.

8. Too ready an acceptance of initial information that the power failure was caused by an internal breakdown; too little attention given to the possibility that it might have resulted from sabotage

9. Lack of capability to conduct rapid investigation of the cause and source of power failures.

10. Inadequate guidelines and procedures for the release of information to the mass media of communication and to the public.

(S) Although various steps were taken by the responsible command and control centers to correct some of the organizational and procedural deficiencies revealed by the power failure, these steps appear

to be piecemeal and unsystematic in nature; too closely oriented to power failures per se; and not sufficiently related to the problems of interagency communication and coordination.

(S) On a more general level of analysis, this study suggests that the power failure revealed more basic problems in organizational capability to monitor, detect, and investigate potential threats and dangers in the domestic arena. Current communication facilities and systems are not being adequately used for constant monitoring of the full spectrum of threats to national security. Moreover, the present division of labor between and among the various command and control centers--military and civilian--does not appear to be adequate to insure that threat and danger detection, investigation, notification, and warning functions will be handled in a timely, efficient, and coordinated manner.

(S) Because many of the deficiencies noted in this report transect the responsibility and cognizance of many different federal agencies of government, future corrective and remedial actions cannot be limited to those that fall solely within the purview of a single agency.

B. RECOMMENDATIONS

(S) It is recommended that the corrective and remedial measures taken in response to the Northeast power failure be re-examined in the light of the findings and conclusions of this report.

(S) In any re-examination of the problems revealed by this analysis, it is recommended that critical attention be given to the following suggestions:

1. The development of a capability for more rapid consolidation, integration, and communication of information that can be derived from existing danger detection, monitoring, and diagnostic systems.

2. Further efforts to develop highly expert command and control center staffs, having a comprehensive knowledge of the entire

civil and military command and control structure and the channels of communication between and among the various elements of the structure.

3. The establishment of better integration and coordination of activity between OCD and OEP in monitoring and handling routine hazards, dangers, crises, and disasters, as well as possible nuclear attack situations.

4. The further study of existing network monitoring systems--both governmental and commercial--to determine how they could be used most effectively, both individually and collectively, as diagnostic tools in threat and danger detection.

5. The further study of the vulnerability of critical national networks (electric power grids; telephone and telegraph; radio and TV broadcasting; natural gas and petroleum pipelines; air, rail, and water transportation systems, etc.) both to external attack and to sabotage. Particular attention should be given to systematic studies of the vulnerability of the power and communications systems to sabotage and of the measures that might be taken to counter or minimize this type of threat to these systems.

6. The further study of the progressive degradation that may occur at critical facilities as a result of a prolonged power outage and the lack of backup power for support activities and functions.

7. The further consideration of the desirability and feasibility of providing protected prime source power (with commercial power backup) for all offices and activities in such critical facilities as the White House, the Pentagon, Military Headquarters installations, SAC bases, etc.

8. Additional, systematic study of interagency communication and coordination in the Northeast power failure of 9-10 November 1965. The data collected for the present study would permit further analyses of the interactions and communication activities of the various responsible centers. Additional, detailed comparisons of the communication logs and other available data would permit further

specificati and refinement of the findings and conclusions contained in this report.

9. The further study of interagency coordination in both international and domestic crisis events that may occur in the future.