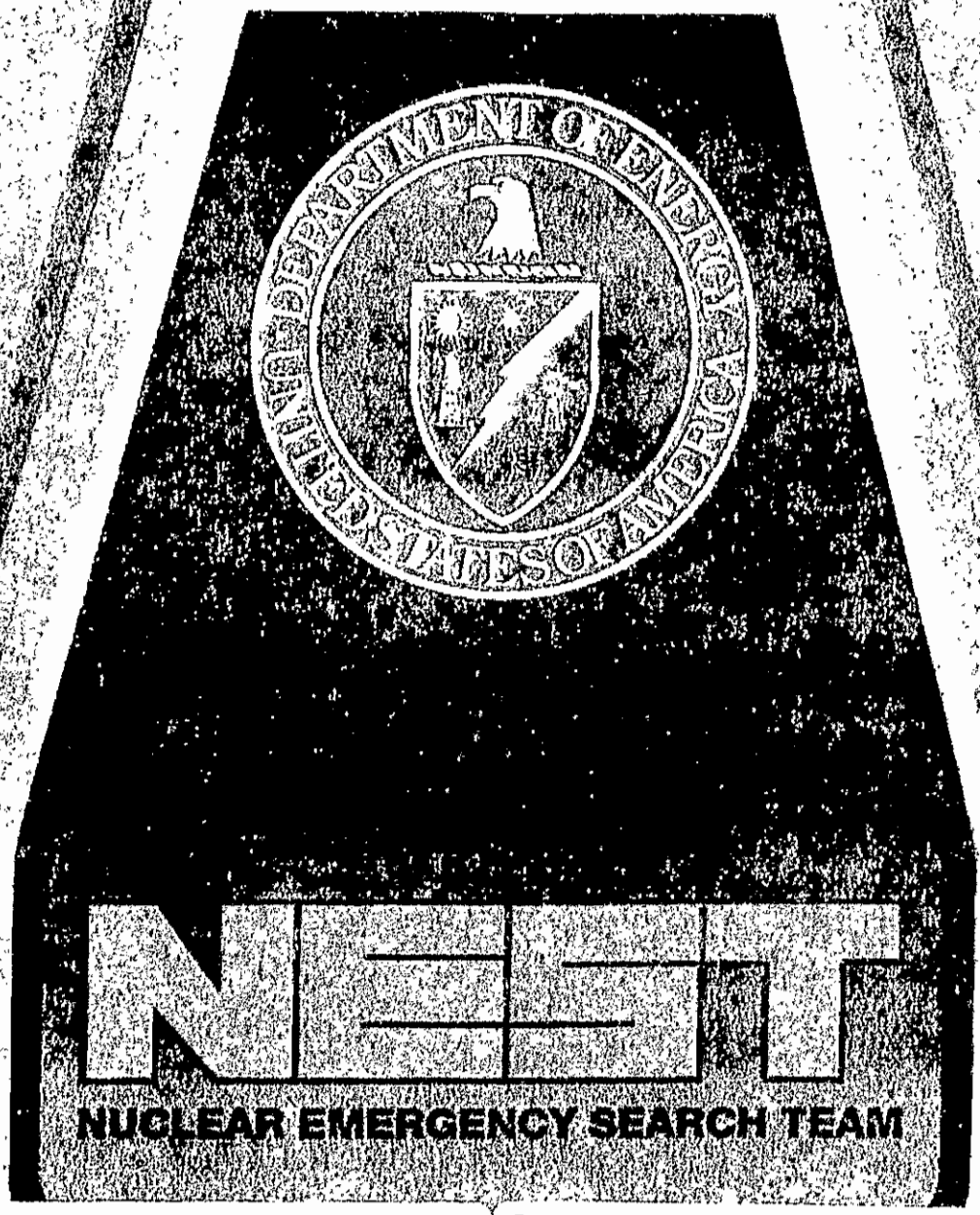




Reviewing Official: Patricia Nolan Bodin
Safeguards and Security Division
National Nuclear
Security Administration
Nevada Operations Office

Date: April 8, 2002

# ASSESSMENT TEAM REPORT
# JULY 12, 1995

[redacted]

Department of Energy
National Nuclear Security Administration
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APR 1 8 2002

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5 USC 552(b)(6) [redacted]
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**UPGRADE NOTICE**

Reference: Nuclear Emergency Search Team--Assessment Team Report, July 12, 1995

Your organization may or may not still have copies of the referenced document. The NEST Assessment Team Report was originally issued as **OFFICIAL USE ONLY** in 1995. A recent review of the document, however, revealed that it is Unclassified Controlled Nuclear Information (UCNI) as identified in the Classification and UCNI Guide for Emergency Radiological Response, CG-RER-1, dated June 25, 2001. This document should be handled and marked as UCNI in accordance with DOE Manual 471.1-1, Change 1, October 23, 2001.

The document contains five preliminary pages and 67 regularly numbered pages. It was prepared by a team headed by Duane C. Sewell. This is a formal notification that any copies of the referenced document which are held by your organization should be appropriately upgraded to UCNI and remarked appropriately. A copy of the cover is enclosed for aid in locating copies within your organization.

[redacted]
NOT FOR PUBLIC DISSEMINATION

[redacted]
(42 U.S.C. 2168).

**Reviewing Official:** Patricia Nolan Bodin, NNSA/NV
**Date:** 4/8/2002
**Guidance:** CG-RER-1, 6/25/02

[redacted]

Should you have any questions about this action, please contact email Allan Miller at millera@nv.doe.gov .

5 USC 552(b)(6)

Patricia Nolan Bodin
Classification Officer
Safeguards and Security Division

SSD:AM-2247
RIP 03-01

Enclosure:
As stated

(.) [redacted]
NUCLEAR INFORMATION

# NEST ASSESSMENT TEAM

## REPORT

## JULY 12, 1995

5 USC 552(b)(6) [redacted]

5 USC 552(b)(6) [redacted]

5 USC 552(b)(6) [redacted]

5 USC 552(b)(6) [redacted]

5 USC 552(b)(6) [redacted]

# NEST ASSESSMENT TEAM

**REPORT**

**JULY 12, 1995**

## CONTENTS

SECTION PAGE

## ACRONYMS/ABBREVIATIONS

| | |
|---|---|
| ARAC | Atmospheric Release Advisory Capability |
| ARG | Accident Response Group |
| CIRG | Critical Incident Response Group |
| CONUS | Continental or Contiguous United States |
| DAP | Deployment Authorization Program |
| DNA | Defense Nuclear Agency |
| DoD | Department of Defense |
| DOE | Department of Energy |
| DOS | Department of State |
| DP-20 | Deputy Assistant Secretary for Military Application and Stockpile Support |
| DP-23 | Office of Emergency Response |
| EG&G/EM | EG&G Energy Measurement, Inc. |
| EOD | Explosive Ordnance Disposal |
| EPA | U.S. Environmental Protection Agency |
| ESO | Energy Senior Official |
| FBI | Federal Bureau of Investigation |
| FEMA | Federal Emergency Management Agency |
| FORSCOM | Forces Command |
| FRMAC | Federal Radiological Monitoring and Assessment Center |
| HQ | Headquarters |
| IINNFO | Interagency Information Network for NEST Field Operations |
| IND | Improvised Nuclear Device |
| JNACC | Joint Nuclear Accident Coordinating Center |
| LANL | Los Alamos National Laboratory |
| LLNL | Lawrence Livermore National Laboratory |
| MOU | Memorandum of Understanding |
| NAB | NEST Advisory Board |
| NESS | Nuclear Explosive Safety Studies |
| NEST | Nuclear Emergency Search Team |
| NV | DOE Nevada Operations Office |
| OCONUS | Outside Continental U.S. or Outside Contiguous U.S. |
| RAP | Remedial Action Master Plan |
| RDD | Radioactive Dispersal Device |
| REECo | Reynolds Electrical and Engineering Co., Inc. |
| RSL | Remote Sensing Laboratory |
| SAC | Special Agent-in-Charge (FBI) |
| SIED | Sophisticated Improvised Explosive Device |
| SNL | Sandia National Laboratories |
| SNM | Special Nuclear Material |

## INTRODUCTION

The Nevada Operations Office of the U. S. Department of Energy initiated and chartered this evaluation of the Nuclear Emergency Search Team (NEST) program to assess the strong and weak points of the program; to determine the current capability of NEST to respond to nuclear incidents; assess the problems and strengths of the technical functions of the NEST program; evaluate the management structure; and assess the problems and strengths of the interagency agreements and postures of the NEST program. At the specific request of the Deputy Assistant Secretary for Military Application and Stockpile Support (DP-20), DOE/HQ, the scope of the study was expanded to include an evaluation of the NEST mission today and in the future based upon trends in national and international events and to determine whether the NEST program is properly structured and prepared to respond effectively to those changing conditions.

The study was conducted during the period from February through June 1995. The Assessment Team was composed of Delbert N. Dilbeck, Ray D. Duncan, William F. Hartman, Duane C. Sewell (Chairman), and Ronald T. Stearns. Although some of the team members have been involved in the NEST program in the past none of them are currently serving as active participants. Logistical and administrative support was provided by Ronald P. Coyle and Lita R. Raduziner of Raytheon Services Nevada. A brief biographical summary of each of the team participants is included in Appendix A.

Existing policies, procedures and relevant background documentation and information was examined in some depth. Interviews were conducted with 65 individuals from a representative cross section of all management, technical and logistical support functions associated with the NEST program as well as other participating organizations and agencies. The individuals interviewed were from the following organizations:

U. S. Department of Energy, Headquarters (DOE/HQ):
- Office of the Deputy Assistant Secretary for Military Application and Stockpile Support (DP-20)
- Office Of Emergency Response (DP-23)
- Emergency Management Operations (NN-60)
- Intelligence and Threat Assessment (NN-62)

U. S. Department of Energy, Nevada Operations Office (DOE/NV):
- Office of the Manager
- Office of the Assistant Manager for Operations
- Emergency Management and Nonproliferation Division
- Safeguards and Security Division

Lawrence Livermore National Laboratory (LLNL)

Los Alamos National Laboratory (LANL)

Sandia National Laboratories (SNL)

EG&G, Energy Measurements, Inc. (EG&G/EM)

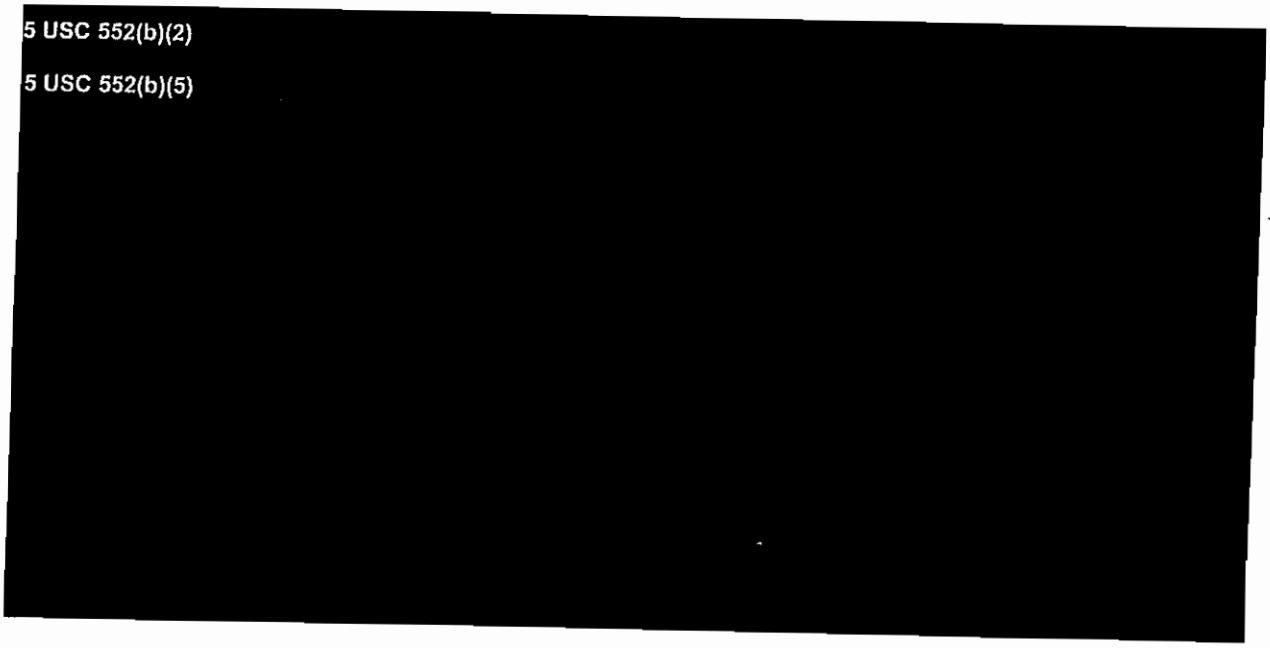
Federal Bureau of Investigation:
- Counterterrorism Section
- Domestic Counterintelligence Unit
- Critical Incident Response Group (CIRG)

U. S. Department of State, Office Of Counterterrorism

U. S. Department of Defense:
- Defense Nuclear Agency (DNA)
- Office of Assistant Secretary for Special Operations
- Special Operations, J-33
- U. S. Navy Special Operations
- Naval Explosive Ordnance Disposal Technology Division
- U. S. Army, FORSCOM, 52nd Ordnance Group

5 USC 552(b)(2)

5 USC 552(b)(5)



In order to avoid limitations on the distribution and use of this report, classified information related to technical capabilities such as detection ranges and techniques associated with diagnostics and disablement have not been included. As a result, some of the technical challenges of the future as well as existing limitations have only been addressed in general terms.

## EXECUTIVE SUMMARY

The basic mission of the NEST program has not changed appreciably during the twenty years the program has been in existence. The primary mission as set forth in Executive Order 12656, is to assist the Federal Bureau of Investigation (FBI) in the conduct, direction, and coordination of search and recovery operations for nuclear materials, weapons or devices; to assist in the identification and deactivation of an Improvised Nuclear Device (IND), or a Radiological Dispersal Device (RDD), and to render advice on radiation and damage probabilities in the event of a detonation of such a device. This mission statement was later expanded to include support to the FBI and the DoD to deal with Sophisticated Improvised Explosive Devices (SIED) and to provide the same level of technical support to the Department of State (DOS), as requested, for incidents occurring outside of the boundaries of the United States (OCONUS). Although the fundamental mission has not changed appreciably, the terrorist threat has expanded significantly with the increasing availability of nuclear materials on an international scale and a demonstrated willingness on the part of terrorists to wantonly use devices of mass destruction with little regard for human life or property. There are a wide variety of explosive devices which can be emplaced and detonated with little, if any, advance warning. Within the limits of current technology, NEST has the technical capability to respond effectively to a nuclear terrorist threat today, as well as credible postulated threats within the foreseeable future. Knowledgeable people interviewed during the course of this assessment believe it is no longer a question of "if" such an event will occur using some form of nuclear materials, but "when". Consequently, the need for a NEST technical response capability is greater today than at any other time in the history of the program. Similarly, the need for reliable advance intelligence information at the national and international levels has never been greater.

5 USC 552(b)(2)

5 USC 552(b)(5)

[redacted]

The continued absence of current interagency agreements with the FBI, DoD, DOS and others has been a deterrent in the development of more effective working relationships at the field level. Recently approved policies at the national command level should alleviate some, but not all of these problems. It will still be necessary to develop detailed operating agreements to ensure that an effective command structure has been established which will work consistently in every field deployment.

There are a number of actions which would be taken in a field deployment which could have far reaching consequences. To the extent possible, within allowable time constraints, these decisions should be reviewed and approved at the national command levels. It is not apparent that the

proper mechanisms have been established to seek such approvals on an expedited basis nor is it obvious that those in authority fully understand the total magnitude of the decisions they will be asked to make.

5 USC 552(b)(2)

5 USC 552(b)(5)

In view of the national and international importance of the NEST program and the consequences of the detonation of a device containing some form of nuclear materials, the field organizations should accelerate research and development programs aimed at correcting some of the existing technical limitations. Similarly, the design and conduct of a wide range of training programs should be afforded a high priority in order to ensure that NEST will function as a well integrated, highly focused, response force. However, the current levels of funding are barely adequate to support the continued maintenance of existing capabilities. Field participation in unfunded and unplanned activities such as those associated with LINCOLN GOLD have depleted those scarce resources even further within the laboratories with no apparent promise of relief. A considerable increase in resources will be required if the program is to meet the high expectations which have been established at the Washington command levels. If Administration or Congressional initiatives to further reduce federal spending levels should result in any significant reductions in resources, NEST would no longer be a viable program.

5 USC 552(b)(2)

5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

In summary, the technical capabilities of the NEST program are impressive, but require additional applied research to resolve or mitigate known limitations. The capabilities to mobilize tailored teams to respond immediately to a "no prior notice" threat are improving. The capability to assemble, analyze, and provide prompt intelligence information to the field organizations needs to be strengthened. The overall management and administration of the program is good but could stand improvement and would profit from additional involvement by top management in all participating organizations. Up to date interagency agreements need to be formulated, approved and finalized. All elements of NEST could be improved by providing additional training opportunities and particularly training associated with command and control during field deployments. National and field command authorities which would be involved during a field deployment need to be clearly established, institutionalized and rehearsed. The program, and particularly those elements in the laboratories, require a major increase in resources.

It is difficult to project, with any degree of confidence, what the future may hold for the NEST program or if the current mission is likely to change dramatically as a result of national or international events. It seems inevitable that individual terrorists as well as organized groups will continue to seek new and even more dramatic methods of achieving their purposes. The development of an IND would be a costly venture for any terrorist and would not be totally free of risk for the individuals involved. Some form of an RDD would be easier and less costly to develop and would be highly effective from a psychological point of view. The management challenge will be to keep the teams focused, interested, and in a high state of readiness to respond to any eventuality that might require the application of their special expertise. Intelligence efforts should aggressively continue to monitor domestic and foreign activities to pick up any early warning signals that would suggest that a nuclear related event might be under development. Finally, DOE and the laboratories must continue to support a sensible research program to not only correct known limitations in existing capabilities and retain qualified scientists but to keep abreast or ahead of emerging technologies which might expand the horizons of any potential terrorist.

## KEY FINDINGS

- The greatest single strength of the NEST program is the technical knowledge, expertise and experience of the individual team members in all of the management, technical and scientific disciplines which will be required to defeat or mitigate the effects of an IND or RDD. The participants continue to be enthusiastic, dedicated, and fully committed to the mission and objectives of the NEST program. They have volunteered for these assignments, which are over and above their normal job related requirements, because they believe they have a unique capability to offer which could make a difference if the United States is ever threatened by a nuclear terrorist incident.

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

- There are a number of significant technological constraints which limit the ability of NEST to respond effectively to the full range of nuclear devices which might be developed by a terrorist organization. Although these constraints have been well known for many years, DOE management has not made a decision as to whether they are willing to continue to accept those limitations or seek the necessary resources to sponsor an appropriate level of research programs to address these limitations.

5 USC 552(b)(3)

5 USC 552(b)(3)

[redacted]

- There are misunderstandings about the type and size of a response force which would be deployed to a nuclear incident. Since most of the NEST assets and personnel have typically been deployed during the infrequent field exercises, as a test of capability, it has been assumed by some that the teams could not deploy in smaller task force sizes, bringing only the logistical support capabilities deemed necessary for that particular response. The NEST field organization has always planned to mobilize and deploy only those elements needed to support an appropriate response.

- NEST has not always functioned effectively as a fully integrated team when it has been deployed during field exercises. Individually, members of the response teams know what to do and how to do it, within their respective areas of expertise. The missing ingredient is the opportunity to practice or rehearse the application of those skills in a consolidated team environment. The conduct of additional training and combined exercises which could remedy that problem has been seriously constrained by an absence of adequate resources over a period of many years. The frequency and scope of existing training opportunities is not adequate to ensure that all of the complex systems and personnel will function effectively as a well organized and highly focused team when they are deployed.

- Working relationships between the DOE, FBI, DoD and DOS are good, but the continued absence of current formal interagency agreements which define roles, responsibilities and authorities has limited the ability of the field organizations to develop and formalize appropriate working level procedures and command and control systems which can be consistently applied and tested in field exercises.

- It is not apparent that a definitive and expedient process has been developed at the Washington level to seek review and approval of a number of key decisions which must be made within a limited time at the national command levels if NEST is deployed to an actual incident. There are no indications that officials in the approval chain are fully aware of the types of decisions they will be asked to make or the potential far reaching consequences of such decisions. The recently approved national policy directives may be useful in resolving some of these concerns but an interim approval process needs to be developed until such time as those directives can be fully implemented.

- The number of highly qualified weapons design scientists available to perform diagnostics, device assessment and to design an effective disablement plan for an IND or RDD are decreasing as a result of significant reductions in the Weapons Programs. It seems likely that the numbers of qualified scientists will continue to diminish unless specific and positive actions are initiated to maintain an effective long term response capability.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

- The field organizations have alert and emergency activation systems in place which should ensure that the response forces and related equipment can be mobilized and deployed within the required response times. There are no policies or procedures which require periodic testing of these systems to ensure that they are fully effective. Although a limited number of tests are conducted on an intermittent basis, they are not designed to test all elements of the response systems.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

## NEST MISSION

Under the provisions of the Atomic Energy Act of 1954, the FBI is charged with the responsibility to investigate and deal with any illegal activities involving the use of nuclear materials within the United States. The NEST program was initiated in 1974 to provide technical assistance to the FBI in dealing with such activities including terrorist threats involving the use of special nuclear materials.

During the formative years, the efforts of the DOE were primarily focused on developing a capability to search for an IND or special nuclear materials that may have been lost or stolen. It soon became apparent that a means of neutralizing a nuclear device would be required once it was found. With the strong technical support of the laboratories, the capabilities of the NEST program were expanded to include diagnostics, device assessment, disablement, and containment.

The fundamental mission of NEST, which was subsequently established under the authority of a series of Executive Orders, including Order Number 16526, is to assist the FBI in the conduct, direction, and coordination of search and recovery operations for nuclear materials, weapons, or devices; to assist in the identification and deactivation of an IND or RDD; and to render advice on radiation and damage probabilities in the event of the detonation of an IND or RDD. An interagency agreement with the FBI and DoD was later expanded to include technical assistance and advice in dealing with a non-nuclear SIED. The mission was further expanded to provide assistance, when requested, to the DOS and other agencies, as appropriate, for incidents outside of the United States (OCONUS).

The formal charter and mission of NEST, as it has evolved, is appropriate to deal with current and foreseeable future incidents. However, the potential threat to which NEST was originally designed to respond has expanded significantly as a result of national and international events which have transpired in recent years. Based upon trends which were developing during the early years of the program, it was expected that the most likely event would be an extortion attempt utilizing some type of an IND or RDD. Although the potential for such an incident still exists today it has become increasingly apparent that terrorists at the national and international levels have both the will, and intent, to employ devices of mass destruction with little regard for human lives or property. They are apparently motivated by a variety of reasons including possible retaliation against the government or other institutions for perceived violations of their individual or collective rights. It also seems even more probable today that such an act might occur with little, if any, advance notice. Under such circumstances NEST could only respond after the fact to assist in the identification and characterization of any radioactive contamination or to explore the possibility of additional devices which may have been emplaced in other locations. In recognition of the increasing potential for such an incident with little or no advance warning, plans are currently being formulated to structure limited technical teams, with only minimal logistical support, with the ability to rapidly deploy as required.

History has demonstrated the difficulty of predicting the motives for, or timing of, terrorist acts. While most of the recent events have been aimed at mass destruction and inflicting injuries or

death on large numbers of people, it is quite possible that the next event could be designed to hold an entire country hostage. Based upon the full range of options available to terrorists, coupled with the ever increasing availability of nuclear materials on an international scale it seems inevitable that an incident involving either an IND or RDD will occur at some point in the near future.

As a result of recent terrorist activities involving the detonation of high explosives and the dispersal of chemical agents, with no prior notice, the current mission and capabilities of NEST were examined to determine if the DOE should be prepared to respond after the fact to assist the FBI and others in dealing with the aftermath of such an event. It was concluded that there are other organizations prepared to respond to such an event and there is no apparent need to expand the NEST mission or response capabilities to provide technical support if it is clear that nuclear materials have not been involved. It was also determined that NEST does not have the equipment or the requisite technical capabilities necessary to respond effectively to a chemical or biological incident. Some elements of the NEST assets such as the logistical support capabilities, including communications, could be made available to a lead federal agency if authorized by DOE/HQ The laboratories also have some scientific expertise in each of these areas which might be made available for advisory support or the conduct of research programs related to detection and mitigation. Additionally, the Chemical Spill Test Facility at the Nevada Test Site might be a good resource for conducting field experiments or exercises.

## MANAGEMENT AND ORGANIZATION

A. Program Management:

Historically the DOE/HQ organization responsible for the NEST program did not take an active role in the overall management direction of the program. The limited staff was highly supportive but did not have adequate manpower resources to participate directly in the formulation of policies, procedures and program planning. Contacts with other agencies, which is generally a DOE/HQ function, such as the FBI and DoD were largely handled by the field, including the development of formal agreements setting forth roles, responsibilities, and authorities of the respective agencies.

The current DOE/HQ Director has taken a more pro-active role in the overall management and direction of the program. At the present time, the Office of Emergency Response (DP-23) has a staff of approximately 23 people as opposed to the three individuals previously assigned to this function. Seven staff members and advisors are directly involved in the NEST program on a full-time basis as contrasted with the field where the majority of the NEST personnel are responsible for managing or directing other programs and only allot a limited amount of time to the NEST program. This factor has probably contributed to perceptions at the DOE/HQ level that the field is often slow to respond to directions or requests.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

Under the provisions of DOE Order 5530.2, dated September 20, 1991, DOE/NV has been assigned primary management responsibility for all of the field elements of the NEST program. DOE/NV has never exercised the full range of that responsibility with respect to those elements of the program resident in the laboratories. DOE/NV has responsibility for the total program yet they have no contractual authority over the laboratories nor do they hold the "power of the purse". Program direction, integration, and the establishment of program priorities are largely achieved through consensual agreement of the NEST Advisory Board (NAB). Consequently,

the field components of the NEST program have been managed as the equivalent of four separate and autonomous operations consisting of DOE/NV, its contractors, and the three laboratories, LLNL, LANL and SNL. The Laboratory Program Managers enjoy a relatively high degree of autonomy and independence with respect to focusing efforts and funding on those elements of their internal programs which they have deemed to be the most important. During the formative years of the program, when ample resources were available, this management style was an effective means of directing the program efforts which largely centered around research and development activities. Although research will continue to be an essential element of the NEST program, the primary emphasis is shifting to operational considerations.

5 USC 552(b)(2)

5 USC 552(b)(5)

5 USC 552(b)(2)

5 USC 552(b)(5)

5 USC 552(b)(2)

5 USC 552(b)(5)

[redacted]

The staffing levels under the current method of operation are not adequate to perform many of the tasks associated with the overall field management and direction of a complex multi-faceted operation. Consequently, DOE/NV has had to rely upon other organizations or committees to provide support in important areas such as the development of field policies and procedures, planning, directing and controlling remedial actions, and broad scope training, etc. As a result, the role of the DOE/NV staff has been primarily limited to that of administrators or facilitators as opposed to program managers.

It is not intended to imply by any of the above observations or recommendations that DOE/NV and the laboratories as well as the NAB have been ineffective in managing their respective elements of the NEST program. They have successfully identified and completed a great many initiatives over the past few years that have strengthened the program considerably. However, there has been a notable absence of sustained and consistent leadership, authoritative decision making and central direction and focus on the part of DOE as it relates to the total program. Relationships between DOE/NV and the laboratories are excellent and have been very constructive for many years. It is particularly noteworthy that the laboratories have generally adapted a non-partisan approach in resolving common problems and concerns. They continue to be somewhat competitive with respect to applied research programs. However, with only a few exceptions, that competitive atmosphere has produced positive benefits for the total program.

B. Organizational Structures:

The NEST program is now a component of the overall Emergency Management or Response Programs at DOE/HQ as well as at the field level and include such functions as the Federal Radiological Monitoring and Assessment Center (FRMAC), the Radiological Assistance Program (RAP), and the Accident Response Group (ARG). The Deputy Assistant Secretary for Military Applications and Stockpile Support, (DP-20), is responsible for the overall management and direction of the majority of these programs including NEST. These responsibilities have been further delegated to the Office of Emergency Response, (DP-23), for policy direction, administration and management. It is not evident that higher levels of management within DOE/HQ have been directly involved in the formulation and direction of the program.

The Manager, DOE/NV, has placed all emergency response functions under the management and direction of the Assistant Manager for Operations. Day to day management and

administration has been assigned to the Emergency Management and Nonproliferation Division where it has been further delegated to a NEST Program Manager. The Deputy Director of the Division as well as the Team Leader at the next level, are involved in the NEST program on an intermittent basis as time will allow. The NEST Program Manager and a recently acquired Project Officer are the only individuals within DOE/NV committed to the program on a full time basis. The upper management levels of DOE/NV reflect a good appreciation of the complexities of the program as well as its national importance. However, only a limited amount of their time is focused on the management and direction of the program.

Each of the laboratories and DOE/NV contractors have also consolidated most of the emergency response functions into one organization for management and administration. Technical expertise is drawn from various organizational elements on an as needed or as affordable basis. There are a limited number of people dedicated to the NEST program on a full-time basis. The majority of those involved at the field level spend less than 10 percent of their time on NEST related functions, including training, and a high percentage of that time has been focused on support for LINCOLN GOLD. The total level of participation is not driven by need or availability of personnel but by resource constraints which essentially dictates how much time they can devote to the NEST program.

The NAB and the working groups have provided a mechanism for the coordination of operational initiatives as well as research and development projects among the various program participants, but they have not always been totally effective in assuring that such initiatives have been implemented on a timely basis. The NEST program is comprised of a number of closely interwoven, interdependent, components. A seemingly inconsequential decision or change involving one component has the potential to produce a totally unexpected consequence in some other element of the system. The NAB and the working groups have been effective in assuring that well intentioned changes do not produce a negative impact on the program. Each of the laboratories and the principal contractors are represented on the Board which is chaired by DOE/NV. The NAB is further subdivided into an Operations Directorate and a Technology Directorate. These Directorates and their subordinate working groups are under the overall direction of the NAB. The purpose of the working groups is to develop new techniques to strengthen the overall program and to work out proposed solutions to problems identified in field exercises or drills. For a variety of reasons, several of the working groups have been relatively inactive and in some cases have not met or functioned as a working group for an extended period. Since there are many important issues which should be addressed by these groups it is suggested that the NAB conduct a review of current working group activities and assignments with the objective of revitalizing their participation in the program.

Some of the working groups have been assigned continuing operational responsibilities such as training management or implementation of the Deployment Authorization Program (DAP). Although such groups have proven to be effective in this role it is generally not a good management practice to assign longer term operational responsibilities to the equivalent of a committee. Operational responsibilities should be assigned to specific organizations in order to ensure the acceptance of institutional responsibility and accountability as well as management involvement at upper levels of the organization.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

With only a few exceptions, the organizational and command and control structure for a field deployment of NEST as set forth in the NEST Energy Senior Official's Reference Manual appears to be appropriate. Although this structure was developed for a mass deployment which might be expected to continue for an extended period, the actual composition of the organization will be tailored to the circumstances of each deployment.

In order to provide the ESO more time to deal with technical issues as well as coordination with the FBI and other participating organizations it is recommended that the Support Commander be reassigned to the Chief of Staff. It does not seem appropriate to burden the ESO with management oversight and direction of support functions which include staging area support, communications, logistics, aviation, health physics, and photo/video, etc.

The feasibility of placing the Commander for Search Operations under the Commander for Science as a means of enhancing the continuity of field operations was also considered. It was concluded that expanding the responsibilities of the Commander for Science at a time when that individual is making preparations for the establishment of working point operations would not be prudent.

In the interests of encouraging more direct involvement of the FBI in NEST operations it is suggested that consideration be given to the appointment of an FBI representative to serve as a Co-Director of search operations. Such an appointment could also expedite the flow of intelligence information which is of particular importance to the search operations.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

In summary DOE/NV and the laboratories should consider escalating NEST to full program status and allocating the manpower resources and management attention needed to ensure that the system is credible, fully ready to deploy and capable of responding effectively to the full range of terrorist incidents which might be encountered. Concurrent with this action DOE/NV should exercise assertive leadership and establish a prompt and authoritative policy and decision making process in order to ensure that level of response capability is achieved and sustained.

## TECHNICAL RESPONSE CAPABILITIES

5 USC 552(b)(3)

[redacted]

5 USC 552(b)(3)

[redacted]

5 USC 552(b)(2)

5 USC 552(b)(5)

[redacted]

5 USC 552(b)(3)

[redacted]

5 USC 552(b)(3)

[redacted]

NEST is clearly a national asset which could not be duplicated by other organizations because of the unique scientific capabilities and field operational experience of the National laboratories. The greatest single strength of the program is the technical knowledge, expertise and experience of the team in all of the scientific disciplines which are required to defeat or mitigate the effects of an IND or RDD. The team is comprised of federal employees, laboratory scientists, engineers and contractor support personnel from a wide variety of disciplines. The majority of these individuals have been directly involved in weapons development and field testing programs during most of their professional careers. Scientists and engineers have been responsible for the management and direction of laboratory programs as well as field testing programs in remote locations under less than ideal circumstances. The federal participants are experienced and well trained in the actual conduct and control of nuclear weapons tests as well as other potentially hazardous experiments. The point to be made here is that the team does not consist of just bench scientists and office administrators. As a result of their collective experience, operating in remote, often isolated areas, the team members have learned to be self sufficient and "make do" since supply channels were often limited. Several team members were participants in the atmospheric testing programs as well as the underground nuclear testing activities and are well aware of the devastating effects that even a low yield improvised nuclear device could have on a heavily populated area. They are equally aware of the potential hazards of working in close proximity to any nuclear device and particularly an improvised device which would not be equipped with all of the safety features of a conventional weapon and would have an undetermined detonation time.

5 USC 552(b)(3)

[redacted]

A. Search:

5 USC 552(b)(3)

[redacted]

5 USC 552(b)(3)

[redacted]

The current suite of detection hardware and software are on the leading edge of the technology and, unless a breakthrough should occur which would increase sensitivity and detection ranges, any additional developments will largely be limited to miniaturization, improvements in existing techniques and methods or the design and production of so called "smart instruments" which can be utilized by untrained personnel in a search mode.

5 USC 552(b)(3)

[redacted]

5 USC 552(b)(3)

[redacted]

EG&G EM has a cadre of "Reserve Search Teams" that can be readily deployed in the event they are required These individuals have been trained on a variety of the instruments that would be used in a search environment and the majority of them have participated in field training as well as exercises. The costs to the NEST program of maintaining this core group of searchers is less than was previously assumed since much of their salary and travel costs have been funded by their parent organizations. Several years ago an attempt was made to train local

searchers comprised of off-duty firemen, police officers, and others, on site during the conduct of an exercise, as opposed to deploying the reserve searchers. Although the results were disappointing several people believe it would be worth while to re-examine that option. However, for a variety of reasons the utilization of untrained searchers may not be a practical alternative. Since the current level of costs required to maintain a cadre of reserve searchers is modest, the financial incentives to eliminate the capability is not compelling. It would be very difficult to conduct a disciplined and orderly search grid with individuals who have only been exposed to the process for a few short hours. Experience has proven that it is virtually impossible to conduct a covert search with individuals who have not been trained and conditioned as to the appropriate response if they detect radioactive materials of any type. Anomalies are fairly commonplace because of radioisotopes occurring naturally in materials used in construction and those used as engineering and medical sources. To use minimally trained searchers in a covert operation it would be necessary to proceed with the development and production of a large number of "smart instruments" capable of transmitting data to the search control center. This effort alone would probably more than offset any cost savings achieved over the next several years by a reduction in the reserve searchers.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(3)

[redacted]

Several federal agencies have acquired the portable detectors developed by EG&G/EM on a reimbursable basis for non-NEST related emergency response types of activities. These agencies have indicated an interest in the "smart instruments" which can be used by non-technical personnel. If DOE/NV chooses to support any future requests for such instruments it is

recommended that the requesting agencies be required to provide funding for any further developmental effort.

The Aerial Measurements Program administered by DOE/NV and operated by EG&G/EM has a number of fixed wing and rotary type aircraft which could be made available to NEST during a deployment. The majority of these aircraft can be equipped with airborne radiation detection units as well as aerial cameras. These units could be of value to a search or surveillance operation but it is more likely that they would have even greater value in a consequence phase to measure and characterize any radiation which might be released from a terrorist device. A few of the aircraft can be converted to a passenger configuration to transport an advance party to a deployment site if other means of transportation are not readily available. Based upon current limitations in the effective ranges of existing sensors, dedicated aircraft would not be of any appreciable benefit to the NEST program.

[redacted]
5 USC 552(b)(2)
5 USC 552(b)(5)
(.)
5 USC 552(b)(3)
5 USC 552(b)(3) (.) (.)

B. Access:

The U. S. Army, FORSCOM, Explosives Ordnance Disposal Unit (EOD) has the exclusive responsibility of providing access to a nuclear device during a field deployment of NEST. They are responsible for identifying and neutralizing any protective devices which might endanger working point personnel or cause a premature activation of the device. The NEST scientists and technical personnel serve in an advisory capacity as required. Research to develop countermeasures necessary to defeat any such protective devices are a shared responsibility between DoD and DOE. The majority of the research efforts on behalf of DOE are conducted by EG&G/EM.

[redacted]
5 USC 552(b)(3)

5 USC 552(b)(3)

5 USC 552(b)(3)

The EOD teams charged with the field access responsibilities are exceptionally well trained and have a great deal of hands-on experience in disposing of live ordnance as well as other explosive devices. NEST could not function effectively in the field without the full participation and support of these teams. Relationships between these operational groups, the DOE and the laboratories have been excellent.

5 USC 552(b)(2)
5 USC 552(b)(5)

C. Diagnostics:

5 USC 552(b)(3)

5 USC 552(b)(3)

5 USC 552(b)(3)

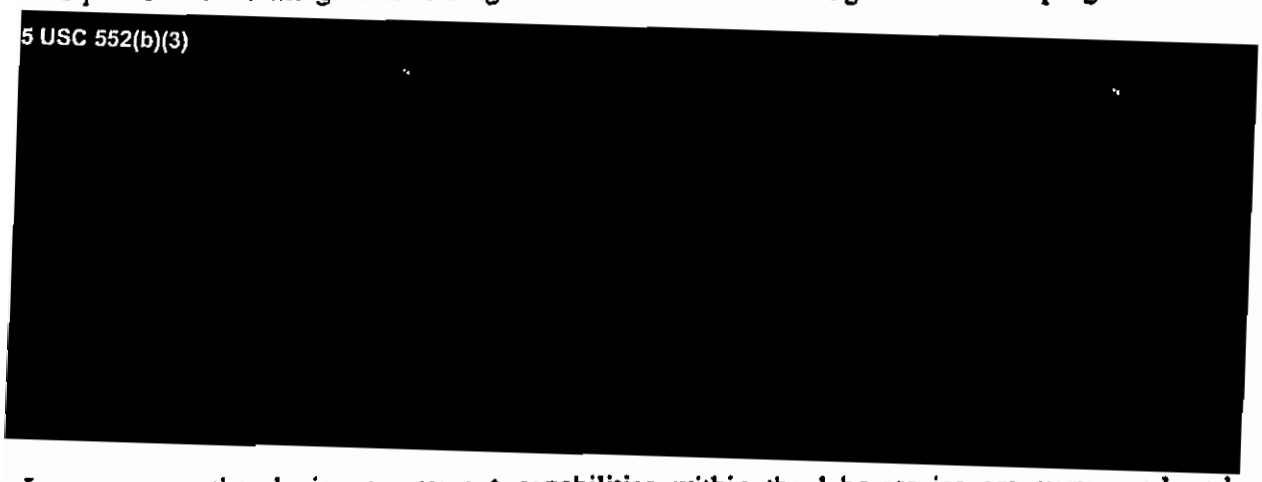
5 USC 552(b)(3)

In summary, the current capability to provide consistently reliable diagnostics is about as effective as it can be within the current exposure level limitations. Relaxation of those restrictions would result in an improvement of image quality. Diagnostics is such an important issue that some continued research would be appropriate. Additional team training in a field environment would also be beneficial in sharpening the skills of the individual team members.

D. Device Assessment:

The primary mission of the Device Assessment Team is to determine if the device, as it is constructed, is capable of producing a nuclear yield and, if so, how large a yield and how will the various disablement options affect the performance of the device. This expertise is the most unique as well as the greatest strength that the laboratories bring to the NEST program.

5 USC 552(b)(3)



In summary, the device assessment capabilities within the laboratories are very good and continue to improve with research and practice. This program should be supported by a continuing research program to aid in a maintenance of capability and to develop further refinements to existing capabilities.

E. Disablement:

5 USC 552(b)(3)

In summary, the success of the disablement effort is highly dependent upon the sophistication of the terrorist device. Devices can be constructed which would be very difficult to defeat with present techniques without accepting the possibility of some nuclear yield. Further research in this important area should be encouraged since even small incremental gains would be a welcome addition to the capability which already exists.

F. Containment:

The primary purpose of the Containment Team is to either contain or mitigate the effects of a high explosive detonation if it should occur during disablement of an improvised device. Based upon research and experiments conducted over the past several years, aqueous foam has proven to be a very practical and effective material for containment or mitigation purposes. Aqueous foam possesses the capabilities required to rapidly attenuate blast pressures, and more importantly, it is highly effective in capturing much of the radioactive material that might be associated with a high explosives detonation. Both the shock attenuation and the particle capture capabilities have been fairly well characterized. The process of foam generation and the factors required to consistently produce the desired densities still requires additional research and testing. Systems have been developed to contain the foam in place which can be erected quickly and have proven to be effective in field trials. Additional engineering efforts are required to develop more effective methods of adapting these containment structures to unconventional locations or sites where an IND or RDD might be emplaced.

Effective techniques for the rapid dissipation of residual foam have yet to be developed. Such a capability could be useful in providing for immediate reentry to evaluate the effectiveness of the disablement efforts and to recover forensic evidence.

5 USC 552(b)(2)
5 USC 552(b)(5)
[redacted]

Several members of the Containment Team are employed by Reynolds Electrical & Engineering Company, Inc. (REECo). These individuals have received extensive, advanced level, training over the years and are an important resource to the NEST program. Installation times and structural integrity are critical factors in the erection or installation of a foam containment structure. These individuals have consistently demonstrated that they are capable of fulfilling both of these requirements and more. DOE/NV should take positive measures to ensure that capability and the investment in training is not lost in either the current work force reductions within REECo or in the transition to a new operating contractor.

In summary, containment technology is a reasonably mature science in terms of developmental activities. Additional engineering effort remains to be completed in the areas of reentry, containment system design and in source term characterization for dispersal devices.

G. Effects Predictions:

The data generated by the Diagnostic and Device Assessment Teams is used to develop continuously updated calculations of the effects and consequences of either a high explosive or a nuclear yield. These calculations are important to the Containment Team in considering containment options which might be applied, and to federal, state or local officials to determine the extent of evacuation plans which should be developed or other appropriate actions to limit potential damages from a detonation.

The Containment and Effects Team includes a field deployable component which is capable of processing and analyzing calculational models based upon the data which has been developed in the field. The teams utilize a code developed specifically for predicting the dispersal from either mitigated or unmitigated events. These calculations take into account the effect of containment systems as well as climatological conditions in the immediate area. They are well equipped with portable computational capabilities and a variety of other computer assisted techniques designed to provide decision makers a complete description of all of the consequences which might be expected from such an event.

Should a detonation occur, responsibility for dispersal calculations and support to the consequence phase passes to the Atmospheric Release Advisory Capability (ARAC) which is operated by LLNL in Livermore, California.

H. Consequence Management:

The consequences of detonating a high explosive device could be enormous depending upon the size and location of the charge. If the device was also used to disperse radioactive materials the consequences would be even more far reaching. It is expected that the psychological impact on the general public would be far greater than any actual damage or subsequent contamination of the immediate area. The consequences of an IND which produced a nuclear yield would be greater by several orders of magnitude regardless of location.

Due to the absence of formal agreements with FEMA, FBI and the DoD roles, responsibilities, and authorities, including the transition of command and control for this phase of a NEST response have not been well defined.

If an explosive device containing radioactive materials is detonated it could be argued that the affected area is no longer a NEST related responsibility. However, the expertise and technical resources embodied in the NEST system would likely be important to those responsible for assessing the actual damage and initiating remedial actions. The leadership of the NEST program has always recognized this responsibility and a planning element of the FRMAC is usually deployed with the NEST response teams. As soon as data becomes available, the FRMAC group and the ARAC component begin planning to deal with the consequence phase in support of FEMA and EPA.

Several attempts have been made to include the consequence management phase in some of the prior field exercises. In most cases time and resource limitations have precluded expansion of

the exercise to include the full range of the consequence phase. FEMA has not chosen to take an active role in most of the exercises. It is not known if EPA has ever been invited to participate.

# LOGISTICAL AND TECHNICAL SUPPORT CAPABILITIES

A. Communications:

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)

5 USC 552(b)(5)

The EG&G/EM communications group fully understands the NEST system and how it will operate during a field deployment. They are well prepared to deploy and have had considerable experience in field operations as a result of support which has been provided to other emergency response groups. The members of NEST have used this system extensively and are familiar with the operating procedures and capabilities. A system which has not been specifically designed and engineered to support such a unique requirement would likely be incapable of providing the quality and level of service which is required.

5 USC 552(b)(2)

5 USC 552(b)(5)

The importance of an effective communications system cannot be over emphasized and it is recommended that the existing capabilities be retained. However, actions should be initiated to minimize the costs of maintaining the system in a standby mode. Future upgrades to newer and faster equipment as well as additions to the existing system should be carefully reviewed by DOE/NV on an individual basis to ensure that they are really required as opposed to being in the "nice to have" category. The technical teams are continually seeking a newer, faster, and better means of transferring data and information including video in order to minimize the number of technical personnel at the working point and ultimately the number of scientists required to deploy to the field. Although these objectives are commendable, there are practical limits as to how much more can be achieved through further equipment acquisitions or upgrading of existing systems.

B. Logistical and Technical Support:

The logistical and technical support systems consist of an extensive capability in terms of equipment, supplies, and highly trained and experienced personnel to support the requirements of a fully deployed NEST response team as well as other agencies. Much of the equipment has been specifically designed or adapted to meet the special requirements of the field teams in a worst case scenario where they could be isolated from local sources of supply or services. It provides a capability for the teams to operate in a self sustaining mode in remote locations or populated areas if vital services such as electrical power are disrupted. A conscientious effort has been made to reduce the volume and weight of support equipment for ease of handling in the field as well as transport to field locations. EG&G/EM has developed air transportable pods

with photo and video equipment, mechanical, and electrical equipment as well as a variety of other types of support systems. In addition, they have a staff of experienced personnel with the authority and resources to obtain lodging, meals, cars, trucks, forklifts, and any type of equipment or construction materials that might be required at the event location. This system is well designed and has proven to be effective in a field environment.

5 USC 552(b)(2)

5 USC 552(b)(5)

Although this capability should be retained, DOE/NV should exercise stronger oversight to ensure that additions or modifications to existing equipment are well justified and realistic in terms of the contribution it could make to the overall program.

## DEPLOYMENT READINESS POSTURE

The majority of the field organizations have formal procedures and detailed notification lists to mobilize NEST related personnel and equipment in the event the system is placed on an alert status. Although these plans and procedures were not tested during the course of this review, the Assessment Team believes they are adequate to ensure that teams and equipment can be assembled and ready to deploy in accordance with the requirements set forth in the NEST Alert and Activation Procedures. Each organization has designated points of contact. However, due to resource limitations, only the Key Leaders in many locations have been provided with pagers or an alternate means of contact during non-working hours. In all probability response times could be reduced even further by the development of comprehensive duty rosters or watch lists which essentially places a full team in a standby status 24 hours per day. Since any such system would place some strict limitations on their off-duty activities, DOE would likely be expected to provide additional compensation for each tour of duty an individual was expected to serve. The majority of the NEST team members take their responsibilities seriously and are committed to supporting the NEST mission. However, there are practical limits as to how much can be asked of a civilian, volunteer, work force with respect to making significant alterations in their life styles to ensure that they will always be immediately available when called.

EG&G/EM has developed an effective system for maintenance and deployment of all of the NEST assets in their custody. Their equipment is bar coded and stored in separate warehouses or staging areas. Depending upon the nature of the deployment, equipment could be selected, assembled and palletized for shipment within a relatively short period. The Remote Sensing Laboratory in Las Vegas has a formal alert and notification list which has proven to be successful in reaching their personnel in a timely manner. The Andrews Air Force Base contingent of EG&G/EM also has a well established system for the deployment of manpower and equipment. They have developed a call out system which assures that four members of the technical staff are on call at any time and ready to deploy on short notice.

LANL has an informal alert and recall system which, as yet, has not been incorporated into a formal plan or procedure. They are confident that manpower and equipment can be mobilized and ready to deploy within prescribed time limits. Their internal program for staging and maintenance of NEST related equipment has not yet been fully developed to the satisfaction of the Program Manager. Since his own internal resources are limited, he is currently exploring arrangements with EG&G/EM to obtain their assistance in establishing a more comprehensive and formalized system.

LLNL and SNL have formal systems for the maintenance and assembly of equipment as well as the recall of personnel which should be capable of meeting required deployment schedules. Although DOE/NV has little, if any, equipment to deploy, they have a well developed formal system for alerting NEST personnel as well as top management within DOE/NV.

5 USC 552(b)(2)

5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

Within the past year DOE/NV has been conducting informal tests of the internal DOE/NV alert procedures every two or three weeks by calling selected individuals on the alert and notification lists to determine their immediate availability to respond to an emergency call out. Although these tests have been limited to DOE/NV personnel, plans are underway to expand it to the laboratories and contractors in the near future. However, this system will only confirm the availability of an individual at that moment and will not test response times.

The readiness posture of a large, non-dedicated, geographically dispersed response force is a very transitory factor which can be influenced by an almost unlimited number of external variables. Therefore, it is important to establish and formalize appropriate procedures and mechanisms to ensure that each individual can be contacted promptly and they fully understand what to do after they have been notified. Although actual response times can be expected to vary from test to test, depending upon the influence of the external variables, the system should be exercised periodically to ensure that the alert mechanisms will be fully effective in an emergency call-out.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

It is further recommended that DOE/HQ establish a policy which prescribes the frequency for the conduct of Emergency Deployment Readiness Evaluations and that the results of those evaluations be issued promptly along with any recommendations for improvements.

The standards and criteria which have recently been established by DOE/HQ for OCONUS deployments have led to the development of a more highly structured and disciplined alert and mobilization system capable of responding on very short notice which should prove to be beneficial for CONUS deployments as well.

In the past, the field has typically deployed the majority of its technical and logistical support personnel and equipment during major field exercises. As a result, these events often required the mass movement of several tons of equipment and a substantial number of team members including searchers. Since field exercises are of a limited duration, all of the resources are usually transported at the same time instead of being phased in as required. In reality, a response will be specifically tailored to the circumstances of the actual threat and the personnel

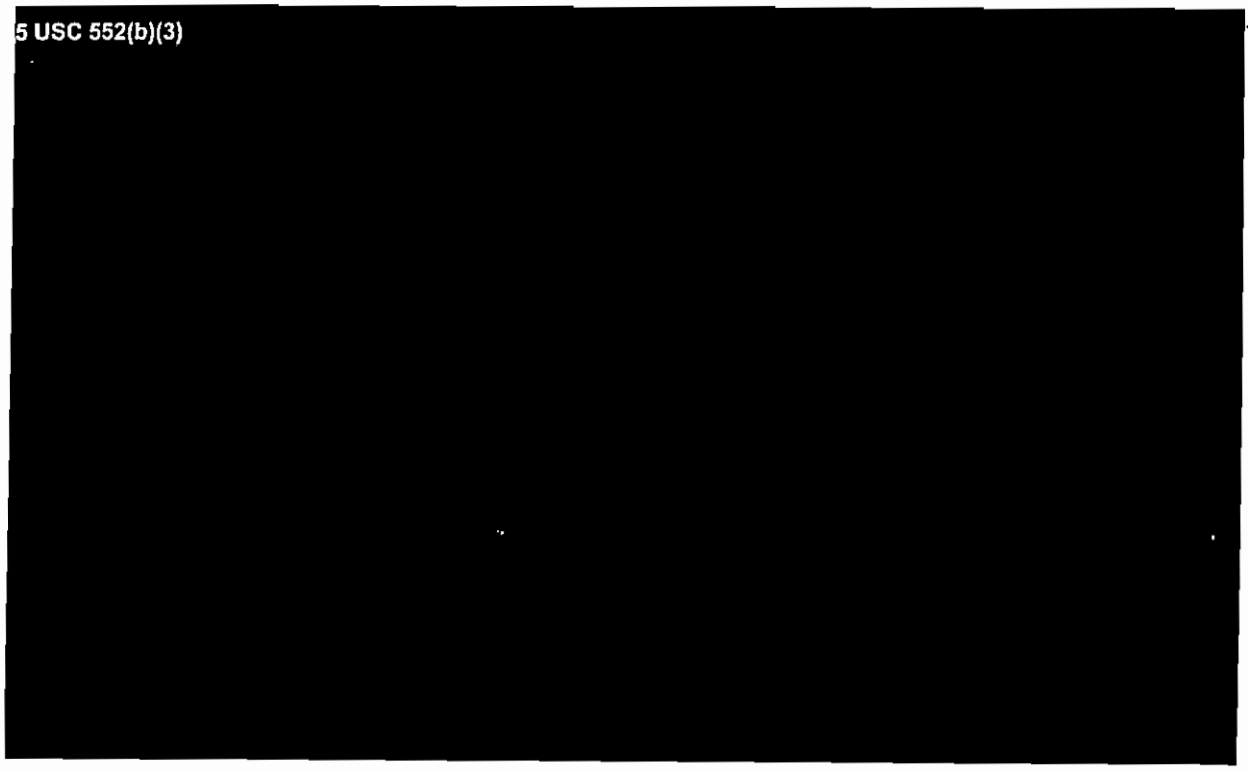
and equipment will be phased to arrive as they are required. The balance will be held in reserve at their home stations. However, the sequence of events associated with a deployment to an actual threat are not likely to occur in a predictable manner. There are a significant number of variables beyond the control of the response team which may influence a phased delivery of equipment and manpower. Consequently the field has developed an immediate response capability to deploy diagnostics, disablement and containment teams and equipment within four to six hours. DOE/NV is currently formalizing a modular response plan which expands upon the immediate response plan and describes the time and assets which could be deployed within specified time periods and the capabilities of each modular response team.

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(3)



The NEST Training Management Working Group has developed a Deployment Authorization Program (DAP) which is designed to provide assurance that all personnel selected for deployment meet prescribed standards, are physically capable of strenuous duty, and that they are emotionally suited for participation in high stress situations. These personnel must also meet prescribed security requirements and a determination must be made that they will not present a safety risk to themselves or other team members. This system is not intended to be a certification of technical competence in the scientific and technical disciplines. Such determinations will be made by the individuals parent organization subject to final approval by the Manager, DOE/NV. In order to be fully eligible for deployment, all members of the team are required to complete prescribed training courses and, for most positions, must have participated in prior field exercises.

The DAP also requires that the eligibility and availability of each individual be reaffirmed annually by the individuals work supervisor, the Medical Director as well as the NEST Program Manager for each respective organization and must receive final approval of the DOE/NV. A psychological evaluation will be required every three years in order to remain in the program. Ostensibly only those individuals included in the DAP will be eligible to participate in a field deployment.

Although the DAP system design has been completed and approved, it has only been partially implemented. Psychological evaluations and testing are still awaiting final approval from the DOE/NV including a determination as to how the evaluations will be funded for each organization. Initially many of the senior NEST officials with considerable experience in field exercises and deployments were "Grandfathered" into the program until such time as they could

complete all of the formal requirements. Although the Grandfather clause expired April 1, 1995, several key individuals have yet to complete the specified requirements.

The DAP is conceptually sound and will provide a good means of determining that all participants are qualified and capable of participating in a field deployment. It is recommended that DOE/NV move quickly to resolve any outstanding issues or problems so the system can be fully implemented. If the system is to be credible, the requirements should be universally applied to all participants regardless of their prior experience and participation in the NEST program.

It is recommended that a similar process be developed for the certification of new or major modifications to existing equipment or systems, to the extent feasible, in order to assure that all such items meet the highest standards of performance, quality, and safety and have a demonstrated capability to function reliably in the field under adverse conditions. Equipment or systems which will be utilized by more than one element of the team should be supported with operating manuals or suitable instructions and prospective users should be fully trained before the systems are certified for deployment. Field exercises or actual deployments are not the time or place to introduce new equipment or systems for field trials and proof testing. The deployment of the DOE Interagency Information Network for Nest Field Operations (IINNFO) system and the use of Lotus Notes is a good example of the confusion and frustrations which can arise when hardware or systems are introduced prematurely. It is further recommended that a member of each of the working groups be represented on a review or certification board with final approval by a designated representative of DOE/NV. Major items of technical as well as support equipment and systems should be subject to the review and certification process.

Although it was not specifically examined during the course of this review, it has been assumed that individual items of scientific and support equipment to be utilized at the working point have been studied and examined, in the pre-deployment mode, to assure that they will not create any adverse effects when they are operated in close proximity to a fully armed nuclear device of unknown design. It is equally important to consider the cumulative effect of all instruments and systems when they are brought together at the working point in a live environment. However, there are no established DOE procedures or policies which require any such reviews or certifications. The Nuclear Explosives Safety Studies (NESS) which were applied to all weapons assembly and testing operations might serve as a good model for the development of appropriate procedures and criteria. NESS procedures required an extensive initial base line study for all new hardware or operating systems, and any subsequent reviews were limited to specific changes or modifications.

There seems to be some confusion or misunderstandings related to the transport, storage, and safe handling of explosives and other hazardous materials that may be required for a NEST deployment. It is recommended that DOE/NV or a designated laboratory develop a detailed plan and formal procedures applicable to all organizations for the handling and transport of all hazardous materials. It is further recommended that DOE/HQ utilize those plans and procedures to seek a blanket exemption from the Department of Transportation for emergency deployment.

## DEPLOYMENT COMMAND AND DECISION AUTHORITIES

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

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5 USC 552(b)(2)
5 USC 552(b)(5)

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5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

## RESEARCH AND DEVELOPMENT

For many years the NEST program has been a direct beneficiary of the research and development efforts which have been funded by the Weapons Program. NEST has contributed limited amounts of funding to those efforts to support features unique to the NEST requirements. The majority of the systems currently in use have been a by-product of the weapons program and only limited research has been conducted to design equipment specifically for the NEST program. The Weapons Program has now been curtailed to such an extent that the remaining research programs have very little potential to contribute anything of substance to the continuing needs of the NEST program.

The technical limitations of NEST discussed elsewhere in this report can only be resolved by the establishment and the continued support of a steady state research and experimental program over an extended period. As a result of the synergism which existed between the Weapons and NEST programs, DOE officials have never before been faced with a decision as to whether or not the DOE should sponsor a research and experimentation program specifically directed at the NEST program requirements. As a result of changing circumstances, DOE has now arrived at the crossroads where management must decide if they are willing to accept the risks associated with those known limitations and continue with the "status-quo" or seek the resources required to improve this situation. As is the case with all research efforts, there are no guarantees that even a fully funded research program would resolve all of the current limitations.

5 USC 552(b)(3)

5 USC 552(b)(3)

5 USC 552(b)(3)

[redacted]

A steady state research and development program, including necessary experimentation, to resolve some of the existing limitations in the technical capabilities of NEST could offer a solution to the longer term problem of retaining qualified and experienced scientists in the program. It would also serve to keep the teams focused, interested, and in a high state of readiness to respond to any eventuality that might require the application of their special expertise.

5 USC 552(b)(3)

[redacted]

In summary, an active research and experimental program is needed to maintain the essential expertise of the NEST program, to resolve or mitigate existing limitations, and to keep abreast or ahead of emerging technologies.

## TRAINING

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

Individually, members of the team know what to do and how to do it within their respective areas of expertise. The missing ingredient is the opportunity to practice or rehearse the application of those skills in a team environment. The process which has been developed to deal with an IND or a RDD is complex and each element of the process is highly interdependent upon the actions of the other technical components of the system. If one element fails to perform effectively, on a timely basis, the balance of the system could also fail. The team does not have the luxury of time to place the system on hold while they make adjustments to get the system back into synchronization. Team training and rehearsals to enhance the probability that the system will work perfectly the first time around are critical to the success of the mission.

NEST has developed a number of training courses for new members coming into the program at the entry level as well as some designed to sharpen the skills of those already in the system. The Senior Management Training Course should be expanded to include a more comprehensive instructional module on command and control. It is particularly important that the leadership from the scientific and technical disciplines participate in, and rehearse, command and control as well as the decision making process in a heterogeneous environment consisting of the FBI, DoD, DOS and others. Many of the laboratory personnel are accustomed to working in a more collegial environment and are not fully trained or prepared to function in a more authoritative manner. Training courses for those not expected to occupy positions of leadership should also contain a module on command and control. It is not enough to train only the leaders - individual team members must be trained as well.

A greater emphasis should be placed on the design and conduct of drills, working point, command post and command and control exercises which will strengthen team building and allow problems to be worked in greater detail than time will allow in a full field exercise.

A course related to the INFO system should be developed which focuses on the management and control of information by all levels of the organization. It has proven to be difficult to effectively capture and manage the enormous amounts of information that is generated during a deployment. It is essential that all elements of the team concurrently receive the most recent data and information available. It has not been uncommon for one group such as Containment

and Effects to be operating on the basis of information which is different from that which is being used by the Disablement Group. The plan to place an IINNFO terminal at each Laboratory and agency should help in the familiarization process.

The training plan which was developed by the Containment and Effects Working Group for an exercise recently conducted at Cape Canaveral was outstanding and could well serve as a model for the design of future training events. The program, which was similar to a Jigsaw model, consisted of tutorials followed by actual hands-on application of the principles involved. The application phase was immediately followed by a detailed critique to review the actions taken as well as any mistakes that were made and how they should be corrected.

As discussed in other sections of this report, training is heavily constrained by a shortage of available funding and indications are that there will be even less in the next fiscal year. Training is expensive in terms of the costs of development and the fact that the NEST program is required to fund the fully loaded salary costs of the participants as well as any related travel costs. The only exceptions are some of the cadre of reserve searchers who are funded by their parent organizations. Training opportunities are further limited by the availability of many of the participants. The majority of these individuals occupy key positions in other programs and can only dedicate a limited percentage of their time to NEST. Therefore, training must be scheduled in a manner that will not adversely affect other commitments and responsibilities.

## FIELD EXERCISES

The problems and concerns which resulted from the recent MIRAGE GOLD Exercise seem to have been adequately identified and described in the draft After Action Report as well as a number of other independent evaluations. MIRAGE GOLD and other field exercises were not examined in detail except to determine if there were any systemic problems which should be addressed in this review. Many of the concerns were related to the design and conduct of that specific exercise including many of the artificialities and simulations which will always be reflected to some degree in any field exercise. Most of the artificialities and simulations were driven by efforts on the part of the design staff to minimize costs.

Most organizations are in agreement that the next major field exercise should be strictly "No Notice" in order to test the true response capabilities of NEST. Selected elements of the NEST assets such as communications should not be pre-deployed to the exercise site. All future full field exercises should include direct participation by appropriate members at the Washington level serving in their designated roles. The use of surrogates or a simulated DOE/HQ response group has not proven to be effective.

In the interests of providing as much realism as possible and to foster a structured approach to the problem solving process, field exercises are usually heavily scripted with few allowances for free play. If the players deviate substantially from the script, the play is usually stopped and adjustments made to ensure that pre-established individual agency objectives can be achieved. It is also noted that many of the scripts are often heavily front loaded with mystery and intrigue which lends a greater degree of realism to the exercise. However, the successful resolution of these elements often requires several hours or days which compresses the time available to deal with technical and scientific issues and the opportunity for the individual participants to learn how to work together as a team. The transition to a consequence phase is often sacrificed in favor of dealing with earlier elements of the exercise.

Most of the field personnel agree that one of the next exercises should be conducted in a closed environment such as the Nevada Test Site which would allow more realism in the design and conduct of the technical elements of the deployment.

All training events and drills should be conducted on a no fault, no recrimination basis. If the system fails to perform as expected or if errors in judgement occur, they should be used as the basis for appropriate remedial actions.

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

In summary, full-field exercises should be scheduled on a more frequent basis than in the past. Exercises to establish a test of capability are important but exercises should also serve as a training opportunity for the consolidated team to ensure that all of the complex systems and personnel can be brought together into a well organized and highly focused team. A limited number of future exercises should be conducted on a "no notice" basis and selected resources such as communications should not be predeployed.

## INTERAGENCY PARTICIPATION

The Memorandum of Understanding (MOU) between the FBI, DoD and DOE for response to a domestic, malevolent nuclear emergency dated June 11, 1976, as amended June 17, 1982 is still in effect. That agreement is outdated and does not reflect several changes which have been agreed to in principle by the participating agencies. A new agreement was initiated more than a year ago but has not yet been signed by all of the parties. An MOU between DOS, DoD and DOE for OCONUS deployments expired December 31, 1983 and has not been replaced with a current agreement. However, the parties have verbally agreed that the provisions of the 1983 agreement will continue to be honored. Although FEMA and EPA could have important missions in the consequence management phase of any actual deployment which resulted in the destruction or detonation of a nuclear device, they have not been signatory to any of the agreements which have been developed.

The continued absence of current agreements with other participating agencies over an extended period has created a hardship on the field organizations, in particular, since they have not been able to finalize many of their deployment operating procedures, command and control systems or develop training programs which incorporate the provisions of the most recent agreements. The consequences of the prolonged absence of formal agreements which clearly delineate roles, responsibilities and authorities were reflected in the recent MIRAGE GOLD field exercise.

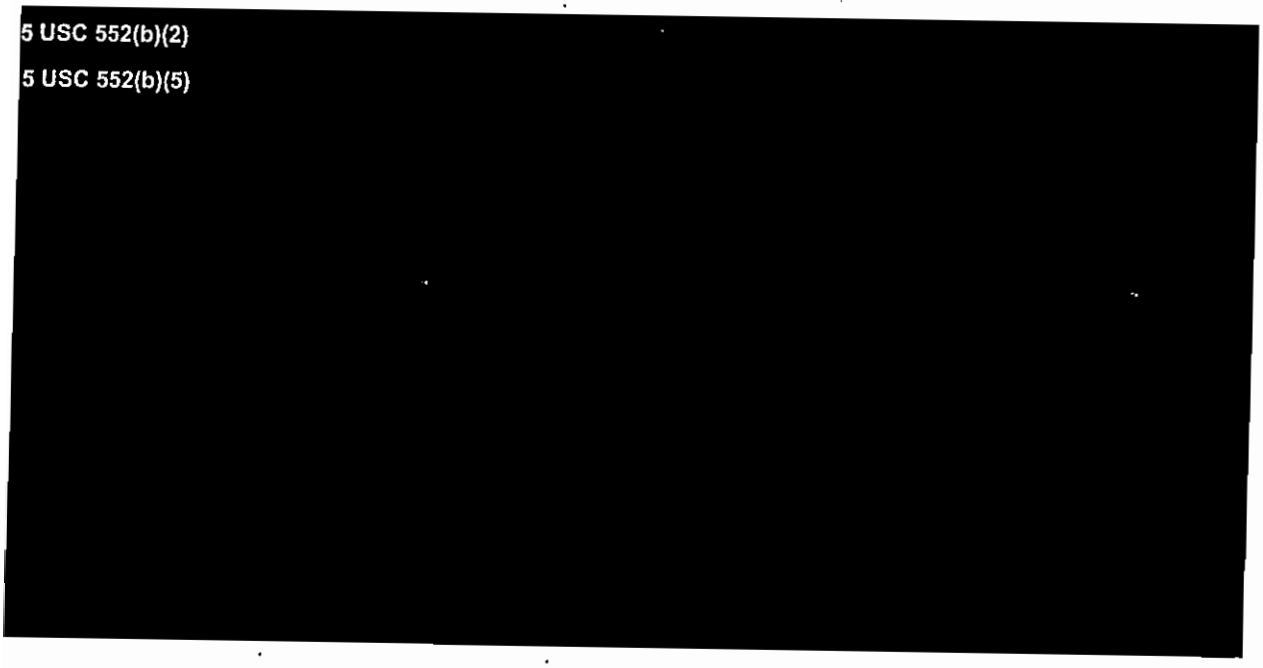
The Office of Emergency Response,( DP-23), has developed excellent working relationships with individuals in DoD and DOS for OCONUS operations and deployments. It is not apparent that similar close day to day working relationships have been established with the FBI for CONUS operations and deployments. The DOS and DoD representatives emphasized the importance of continuing these relationships which are based upon trust and confidence in the individual participants which they have deemed to be more important than formal agreements. Although these relationships are important and have proven to be highly effective, they should not become a long-term substitute for formal agreements since they seem to be almost totally dependent upon the continued involvement of specific individuals from each of the various agencies. As a result of the relatively high turnover among the military participants, verbal agreements are usually only effective for a limited time. Moreover, the field organizations of all of the agencies are generally not aware of the verbal commitments and agreements they will be expected to honor in a field deployment.

Policies and directives have recently been completed and approved at the national level which set forth roles, responsibilities, and authorities for the governments counterterrorism program in both CONUS and OCONUS incidents. These policy directives establish agency missions, including DOE, and delineates their responsibilities and authorities at the national levels. Although they provide the framework for emergency response functions throughout the federal sector, it will still be necessary for individual agencies to develop specific policies and procedures as well as interagency agreements in order to carry out the full intent of the directive. Although the high level interest at the national level will, no doubt, foster a sense of urgency among the organizations involved, it is likely that it will take considerable time to develop all of the agreements and procedures which will be required for full implementation.

The DOE/HQ, Office of Emergency Response has indicated that they intend to move forward quickly with the development of DOE policies and procedures which should prove to be helpful to the field organizations. In the interim, the outdated agreements will continue to serve as the only available guidelines for establishing roles, responsibilities, and authorities including command and control between the respective agencies at the field level for some extended period.

5 USC 552(b)(2)

5 USC 552(b)(5)



The FBI recently formed a Critical Incident Response Group (CIRG) which will be involved in any terrorist incident in the United States and will provide a substantial portion of the response force. This CIRG appears to be an FBI equivalent of a NEST response team but with a much broader scope of responsibilities. Conceptually the CIRG should prove to be effective in providing a greater degree of continuity and consistency in the organizational structure and command and control systems at the field response level. Although the Director will designate a senior official to be in charge of each field response, it is possible that CIRG will be placed in charge of a nuclear response regardless of the geographic location of the incident. If CIRG is not in charge, they will serve an important role as advisors to the FBI senior official in command of the incident.

Notwithstanding some of the long standing problems and concerns, the working relationships between DOE NEST elements and the FBI are generally positive. The root causes of some of the problems which do exist stem from the fact that roles, missions, methodologies, objectives and even the organizational cultures of the two agencies are different. Both agencies share a common goal of protecting the public and preventing the loss of life and property but their respective methods of achieving that common purpose are widely divergent. In order to recognize and minimize these differences to the extent possible, DOE has actively participated in a program to include a NEST element in several of the FBI training courses for agents and support personnel. Although these courses only reach a limited number of people they have

proven to be effective and should be continued including the special briefings that are presented to Special Agents in Charge and staff members at their assigned territories.

National Security Directive No. 30 provides that the DOS will serve as the lead federal agency for any OCONUS nuclear terrorism responses. The DOE NEST elements, consisting of no more than 25 to 30 people, will primarily provide technical support or serve in an advisory capacity depending upon the circumstances of the threat. The DOS representative indicated that DOS would primarily serve as a conduit between foreign governments and U. S. agencies to arrange for any support which may be requested. The new national policy directives will further clarify roles, responsibilities, and authorities for potential OCONUS events. However, it will require some time to work out the details at the Headquarters levels of the respective agencies and to develop a good definition of the DOE commitment which can be provided to the field to formulate the necessary response structure.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

5 USC 552(b)(2)
5 USC 552(b)(5)

Interagency agreements which clearly establish roles, responsibilities, and authorities are important to ensure that all of the organizational components involved in an emergency response will function effectively as an integrated team under adverse conditions. From a field perspective, the value of such agreements is not necessarily to establish territorial boundaries but to ensure that all of the organizations fully understand their respective roles and what they can expect from other participants. Interagency agreements are also important to establish a command and control system which will function effectively on a consistent basis each time the teams are deployed. The parameters of an integrated command and control system including methods of communicating and exchanging information need to be established well in advance so they can be tested and rehearsed in training programs and exercises. Each of the agencies that might respond to an incident involving a terrorist device probably has an internal command and control system which has served them well for many years. It is only natural that each agency would expect to superimpose that system over the interagency teams involved in a field deployment. Historically, this method has not proven to be effective in the field exercises which have been conducted in the past. It would be difficult to identify any two of the previous major joint field exercises which have employed the same interagency command and control system. Although there are similarities, it has generally been necessary to reinvent the system for each deployment. As a result, a lot of valuable time is wasted and useful information often never reaches the right people at the right time.

It has been rare that the individuals appointed to serve as the FBI SAC or the DOE ESO for a field exercise have been appointed to serve in that position on subsequent exercises. Since the obsolete formal agreements contain only limited guidelines with respect to command and control, the new leadership has a great deal of latitude to establish their own individual methods and preferences of doing business with the interagency teams. The national policy directives serve an important purpose in broadly defining roles, responsibilities and authorities at the national level. However, they may not be totally effective in further defining integrated command and control responsibilities at the field operational levels.

In summary, formal interagency agreements between the DOE, FBI, DoD and DOS, which are consistent with national policy directives, should be developed and finalized as soon as possible. The DOE/HQ, FBI, and FEMA should develop an interim formal plan for the transition of command authorities and field responsibilities during the consequence phase of a NEST response to a nuclear incident.

## INTELLIGENCE

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(3)

[redacted]

Historically there has been limited meaningful information available to the intelligence community which might serve as a signal or warning of an impending terrorist activity involving a nuclear device. Although the intelligence groups should continue to be alert for such information the NEST community should not have high expectations that a real world threat will be preceded by much, if any, advance information. The probable absence of such information further reinforces the need for a quick response capability and the need to be prepared for almost any eventuality.

It could not be definitively established if the NEST community has developed a comprehensive list of Essential Elements of Information and submitted them to DOE/HQ for transmission to the intelligence agencies. Some individuals assert that such a list has been submitted while others contend that it is still under development. It is recommended that DOE/NV examine this issue in greater depth to determine the current status and any additional actions which need to be taken. This issue is far too important to allow it to continue unresolved.

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

Apparently the DOE/HQ Intelligence and Threat Assessment organization, (NN-62), has never been invited to be an active participant in a field deployment. Since they have the analysis expertise as well as linkages to the government wide intelligence network, it would seem that they have the resources to provide an effective support capability to the field teams.

It is essential that the NEST Intelligence Team establish a presence in the Intelligence Information Cell during a field deployment to ensure that all available information is analyzed and provided to the search teams as well as other components of the organization. This may be nothing more than postulations by local law enforcement personnel as to possible locations of an improvised device. However, that local knowledge could prove to be useful in guiding the initial search efforts until more definitive information can be developed.

In summary, DOE/NV should ensure that the list of Essential Elements of Information has been completed and forwarded to DOE/HQ The field intelligence groups should be prepared to more aggressively seek information from a variety of sources which might be useful to the technical teams. With respect to intelligence gathering efforts at the national level, NEST will have to rely upon the judgements of the intelligence community to determine whether an accelerated effort could produce any additional information of value to the NEST program.

POLICIES AND PROCEDURES

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

5 USC 552(b)(2)
5 USC 552(b)(5)

[redacted]

DOE Order 5530.2, dated September 20, 1991, entitled Nuclear Emergency Search Team, is outdated as a result of organizational changes and should be reissued. This Order largely defines policies and procedures related to the deployment of NEST, but does not address, in any detail, policies, procedures, roles, responsibilities, or authorities for management and direction of the program in a non-deployed mode. Once the current joint effort to define these elements has been completed, it is suggested that they be incorporated into DOE Order 5530.2.

The NEST Energy Senior Official's Reference Manual, which was developed by the field, is an excellent document and with some modification could serve as a formal procedure for NEST in the deployment mode. The four formal procedures which have been issued by the field all relate to policies and procedures applicable to field deployments. Although these documents were prepared and issued by LANL and EG&G/EM, they were approved and signed by a representative of DOE/NV. The issuance of policies and procedures applicable to all participating organizations is clearly a federal responsibility. Although the laboratories and contractors should have an opportunity to review field procedures before they are finalized and even participate in their formulation, the formal procedures should be issued by DOE/NV.

Some of the laboratories and contractors have developed internal policies and procedures which are applicable to their respective organizations. However, DOE/NV has not issued any formal field level policies or guidelines related to the overall administration and management of the NEST program in a non-deployed mode.

In summary, DOE/HQ and the field organizations should jointly develop a maximum credible, postulated threat that NEST should be prepared to respond to which can serve as a basis for future program assumptions and directions. Roles, responsibilities, and authorities for the management of NEST in a non-deployed mode should be finalized and incorporated into DOE Order 5530.2. All field level policies and procedures should be issued by DOE/NV.

## FUNDING, BUDGETING AND PLANNING

A. Funding:

Current year funding for those elements of the NEST program under the direct control of DOE/NV, including support contractors, appears to be adequate at the present levels with the exception of resources for field exercises and training. However, current and projected funding levels to support all essential elements of the NEST program at the laboratories are considered to be marginal. Many of the laboratories are funded on a level of effort basis which is barely adequate to support a maintenance of capability. Important programs such as research and training have had to be reduced significantly in order to maintain a base level capability to respond to an emergency deployment. These problems are further compounded by the continued assignment of unfunded projects or tasks to the field by DOE/HQ with the expectation that they can be absorbed within existing funding levels. It is virtually impossible to manage operational programs or projects effectively and efficiently if funding is consistently siphoned off to support unscheduled or unplanned activities. The laboratories have tried hard to be responsive to commitments made at the DOE/HQ level in support of OCONUS programs. However, in several cases promised funding support from other agencies has failed to materialize on a timely basis or implied funding commitments have not been honored. As a consequence, the laboratories may find it necessary to sharply curtail the program for the balance of the fiscal year.

The current technical limitations discussed elsewhere in this report can only be resolved by the establishment and continued support of a steady state research and experimentation program over an extended period. Such a program would also preserve some of the capabilities in weapons design and development which are precisely the critical skills needed to support a NEST response to a nuclear incident.

If additional research funding is obtained, it is recommended that a portion be allocated to the laboratories for fairly broad discretionary research programs. The balance should be reserved for more narrowly focused efforts designed to resolve some of the existing limitations in the technical capabilities of NEST. It is suggested that a policy be developed which requires all new initiatives be supported by a prospectus and subjected to a Peer Review prior to, during and upon completion of the research project. Although a system has been developed to prioritize and select those projects which appear to have the greatest potential for results, it has not yet been implemented.

Almost without exception all of the individuals interviewed from every organization identified additional training as one of the highest priority requirements in the program in order to ensure that all of the complex systems and personnel can be brought together into a well organized and highly focused team at such time as they are deployed. However, training is a discretionary function and is one of the first to be reduced in order to maintain a base level capability within the total program. Moreover, unfunded OCONUS training and practice deployments have very nearly depleted any current year reserves. During the course of this review, the field was

informally advised by DOE/HQ that the anticipated increase for training in fiscal year 1996 probably would not materialize.

There is a very low expectation that operational funding levels can or will be increased during the current or even the next fiscal year. The most common solution offered by several DOE/HQ staff members as well as some of the field participants was to eliminate or reduce communications or the cadre of reserve searchers plus a wide variety of other lesser options related to the logistical support functions. However, the potential savings which might accrue from the elimination or curtailment of these functions is not nearly as great as many people seem to believe. The funding which might be realized would not come even close to resolving the funding shortfall in the total program and would eliminate an important capability which could prove to be vital in some future deployment. Fine tuning the current allocation levels may provide some temporary relief but it is a short sighted remedy which has the potential to produce an even larger problem in the long term. From an economic and management perspective it is not advisable to sacrifice a well established and effective component of the system in order to provide a temporary solution for some other part of the program.

Time and available cost information did not permit an in-depth evaluation to determine what the proper level of funding should be to support realistic training and research programs over the next several years or the amount required to resolve some of the existing financial problems in supporting an operational capability. It is clear that if NEST is going to live up to its full potential and meet the high expectations which have been established by DOE/HQ and others, additional resources must be provided to achieve that level. DOE/HQ, DOE/NV and the laboratories should mutually establish the parameters for the full scope of the NEST program over the next several years and DOE/HQ should vigorously seek the resources necessary to support such a program.

B. Budgeting:

DOE/NV prepares the budgets for its own internal NEST related functions and reviews and approves the budgets prepared by the DOE/NV contractor organizations. Each of the laboratories prepare separate budget estimates which are submitted directly to DOE/HQ along with the total Laboratory budget. These independent budget documents are also submitted to DOE/NV for presentation at the annual Emergency Response Program review conducted by DOE/HQ. At the present time DOE/NV has no authority nor have they accepted any responsibility for reviewing or prioritizing the total NEST field operating budgets. As a result, integration of the total NEST budget occurs at the DOE/HQ level as well as any final decisions related to program priorities and the subsequent allocation of operating funds to the respective participants. Some elements of the program receive funding from organizations other than the Office of Emergency Response (DP-23) which suggests that no single DOE organization examines the totality of the budgets to ensure they are consistent with the projected goals of the total program. Concurrent with the other recommended changes in the Management Section of this report, it is recommended that responsibility for preparing a consolidated NEST budget each year, including the subsequent allocation of operational funds, be formally assigned to DOE/NV.

C. Planning:

DOE/NV has developed a NEST Five-Year Plan which is updated annually based upon information provided by each of the laboratories and participating contractor organizations. The Five-Year Plan does not serve as an effective planning document which addresses the long term objectives of the program nor does it identify the means and resources required to accomplish those objectives. Moreover, it has limited value as a budget document since it does not identify basic operating costs. The document primarily deals with proposed new initiatives or expansion of modification of existing capabilities and assets. DOE/HQ stated that the Five-Year Plan does not serve any useful purpose at that level.

The NEST program is composed of a series of complex, interrelated and interdependent systems which spread across a broad cross section of different organizations. Each of these organizations have a different management style and philosophy and they all have a great deal of latitude to apply their manpower and financial resources to those elements of the program which they believe to be the most important. The Program Managers and sub-level managers have a fairly good idea as to the types of changes, modifications, or additions that need to be made in order to strengthen their own internal program. However, those individuals or organizational entities are only addressing their individual segment of the program. No attempt has been made to consolidate all of these individual plans into a master plan which can be used for determining program priorities and funding allocations. The majority of the planning which has been completed lacks specificity in terms of exactly what needs to be done, when, by whom, and what it will cost.

The NEST program can no longer afford to be casual or informal about comprehensive strategic and well documented planning in order to accomplish both the short and long term goals of the collective organizations involved. For the past several years, NEST has dealt with many of the easy issues which could be handled on a more informal basis. However, the tough issues lie ahead and will require a more disciplined approach to resolve them successfully. DOE/NV recently developed the nucleus of a strategic plan for their elements of the NEST program as well as other related emergency response functions. This is an excellent beginning and with some expansion to include the laboratories and other related organizations could provide the framework for a comprehensive master planning document. Among other things this plan should reflect the short and long-term objectives and goals of DOE/NV, the laboratories, and contractors and set forth the strategies and means of accomplishing those objectives along with major milestones and the assignment of responsibilities. As a result of the closely woven interrelationships between the various components of NEST, the planning will need to be developed at a fairly detailed level in order to assure that all elements have been included and action items have been properly assigned. A quarterly program review with the Manager, DOE/NV, would provide a good check and balance during the formulation and execution of the plan.

It is recommended that this planning effort be afforded a high priority by DOE/NV, the laboratories and contractors. Once such a document has been prepared and approved it will provide an excellent basis for future budget preparations and the subsequent allocation of funds.

It should be a working document which produces visible results or all of the participating organizations will quickly lose interest.

## SUMMARY OF RECOMMENDATIONS

Following is a brief summary of the majority of the suggestions and recommendations, stated or implied, which are contained in the report. Although they have been identified as recommendations or suggestions, they are primarily intended to focus attention on specific areas or functions which could be improved or further strengthened by the commitment of additional resources or management attention. It is recognized that there may be other alternatives, not immediately apparent to the Assessment Team, which could offer a better long term solution. The recommendations or suggestions are not all inclusive nor have they been listed in order of importance.

1. DOE/NV should exercise its responsibility for management direction of the total operational field program as opposed to just those elements under the immediate control of DOE/NV. DOE/NV should be directly responsible and accountable for formulating and providing field policies, strategic planning, program management, budget formulation, and resource allocation including the establishment of overall program priorities. DOE/HQ and DOE/NV should make necessary adjustments to ensure that NEST is managed as one program as opposed to a series of individual components. Policies, program direction, commitments, and operational funding should flow from DOE/HQ through DOE/NV to the laboratories and participating contractors.

2. DOE/NV should escalate NEST to full program status and allocate the manpower resources and management attention needed to ensure that the system is credible, fully ready to deploy, and capable of responding effectively.

3. DOE/HQ, DOE/NV and the laboratories should make a concerted joint effort to resolve their differences and develop a more positive working relationship. The current draft document which defines the respective roles, responsibilities, and authorities of the organizations should be finalized and approved.

4. DOE/HQ should discontinue, or at least be more circumspect about, the practice of assigning major unfunded projects or tasks to the field organizations with the expectation that they can be absorbed within existing funding levels. DOE/HQ commitments to expand technical support or team participation in programs such as LINCOLN GOLD should be coordinated with the field, in advance, to ensure they can be honored without creating an unacceptable impact on other elements of the NEST program.

5. DOE/HQ, the FBI and appropriate elements of the national command authority should jointly develop and seek approval of an interim method or system to expedite the review and approval of potentially high risk decisions at the national command level in the event NEST is deployed to an actual incident involving nuclear materials.

6. DOE/HQ, the FBI and FEMA should develop an interim formal plan for the transition of command authorities and field responsibilities during the consequence phase of a NEST response to a nuclear incident.

7. Formal interagency agreements between the DOE, FBI, DoD and DOS, which are consistent with national policy directives, should be developed and finalized as soon as possible.

8. Management officials within DOE/HQ and the field should make a decision as to whether the current technical limitations of NEST represent an acceptable level of risk. If not, they should seek additional resources to support a research program aimed at correcting or minimizing such limitations. Additionally, DOE should sponsor a continuing steady state research and experimentation program to retain qualified and experienced weapons design scientists in the program and to keep abreast or ahead of emerging technologies which could be utilized by a nuclear terrorist.

9. DOE/HQ should seek appropriate opportunities to ensure that the technological limitations as well as the strengths of the NEST program are understood at the national command levels. It is also suggested that a representative from DOE/NV or the laboratories be invited to participate in future table top or other related exercises at the Washington level as observers.

10. DOE/HQ and the field organizations should jointly develop a maximum credible, postulated threat that NEST should be prepared to respond to which can serve as a basis for future program assumptions and directions. A joint determination should be made as to whether the potential for more than one concurrent event is credible. If so, the manpower and equipment resources should be expanded to an appropriate level. It is further recommended that a full complement of NEST manpower and equipment be available within CONUS at all times.

11. DOE/HQ, DOE/NV and the laboratories should jointly establish the total scope and programmatic parameters including assumptions for all elements of the NEST program over the next two or three fiscal years which can serve as the basis for future budget estimates and funding allocations.

12. The personal and institutional risks and liabilities associated with OCONUS deployments should be reviewed with the parent organizations of the NEST members selected to participate in order to ensure that they will be fully supported and indemnified by their organizations at such time as they are deployed.

13. DOE/HQ should enter into discussions with DoD to ensure that suitable military aircraft can be made immediately available to support an emergency deployment of NEST response forces and equipment.

14. DOE/NV should ensure that detailed plans and formal procedures have been developed for the handling and transport of all hazardous materials that might be required for a NEST deployment. DOE/HQ should utilize those plans and procedures to seek a blanket exemption for the transport of such materials from the Department of Transportation.

15. Adequate resources should be provided to expand technical and team training over an extended period. A greater emphasis should be placed on the design and conduct of drills, working point, command post and command and control training which would strengthen team building and allow problems to be worked in greater detail than time will allow in full-field

exercises. Field training courses should be expanded to include a more comprehensive module on command and control for the leadership of the program as well as individual members.

16. A training course related to the Interagency Information Network for NEST Field Operations (IINNFO) should be developed which focuses on the management and control of information during a field deployment.

17. Full-field exercises should be scheduled on a more frequent basis than in the past. Exercises to establish a test of capability are important but exercises should also serve as a training opportunity for the consolidated teams to ensure that all of the complex systems and personnel can be brought together into a well organized and highly focused team. A limited number of future exercises should be conducted on a "no notice" basis and selected resources such as communications should not be predeployed.

18. DOE/NV should restructure the charter of the Nest Advisory Board to more closely parallel the former NEST Executive Planning Board to provide a forum for high level planning, the review of technical and policy issues and a means of coordinating operational and research programs with all of the participating organizations.

19. Continuing operational responsibilities such as training and the initiation and tracking of remedial actions should be assigned to a specific organization as opposed to working groups in order to establish institutional accountability.

20. DOE/NV or the NEST Advisory Board should revitalize those working groups that have been relatively inactive for an extended period. It is suggested that particular attention be focused on the Access Working Group to ensure that it provides a suitable technical forum for the discussion and exchange of relevant information.

21. DOE/NV and an appropriate element of DoD should establish a joint policy to ensure that new research and development initiatives in support of the Access Group are well coordinated in advance to avoid duplication of effort and to obtain agreement that prospective developments are considered necessary and usable by all of the parties.

22. DOE/NV should place a high priority on the development of a formal system to consolidate all of the "Lessons Learned" from MIRAGE GOLD as well as other appropriate remedial actions which have been identified and ensure that the system provides a capability to assign specific responsibilities, target dates and a means of tracking progress from inception through final closure

23. [redacted] 5 USC 552(b)(3)

24. [redacted] 5 USC 552(b)(3)

5 USC 552(b)(3)

25. If the cadre of reserve searchers is maintained, further efforts to develop "smart instruments" should be curtailed. If a decision is made to train searchers on site, it will likely be necessary to proceed with the development and production of these instruments.

26. The informal LANL system for the emergency notification and activation of personnel should be formalized and issued as an internal procedure.

27. DOE/NV should establish policies and procedures for the periodic testing of the readiness response posture of all field elements of NEST. DOE/HQ should establish formal policies for the scheduling and conduct of Emergency Deployment Readiness Evaluations. The results of those evaluations including recommendations for improvements should be issued promptly.

28. 5 USC 552(b)(3)
(.)

29. The existing communications and logistical support capabilities should be retained. DOE/NV should review all proposed future upgrades, modifications or additions to the system to ensure that they are well justified in terms of need.

30. DOE/NV should resolve any outstanding issues associated with the Deployment Authorization Program so the system can be fully implemented. The requirements should be universally applied to all individuals regardless of their prior experience or participation in the NEST program.

31. A review and certification process should be developed for all new or major modifications to NEST equipment to ensure that all such items meet the highest standards of performance, quality, and safety with a demonstrated capability to function reliably under adverse field conditions and that appropriate personnel have been fully trained in the use of such equipment or systems.

32. DOE/NV should expand the recently developed strategic plan for the NEST program to include all participating laboratories and contractors. The plan should include specific short and long term objectives and set forth the strategies and means of accomplishing those objectives along with major milestones and the assignment of responsibilities for their achievement. The current NEST Five-Year Plan should be discontinued.

## CONCLUSIONS

5 USC 552(b)(2)

5 USC 552(b)(5)

The majority of the observations, findings, and recommendations contained in this report are focused on the management and administration of the program in a non-deployed mode. However, these factors are important since they can have a tremendous influence on the ability of the team to function effectively at such time as it is deployed.

Although DOE/NV provided general guidelines for the conduct of this assessment, they established no boundaries and encouraged the team to explore any and all elements of the program that might be improved. The management and staff have been highly supportive and prompt to respond to requests for additional information or support. The substantial numbers of individuals interviewed were equally cooperative, open and candid in their comments, and eager to participate in any action which might further improve the capabilities of the program. All of the organizations and individuals were generous with their time and were highly cooperative in rearranging busy schedules to facilitate the Assessment Team's schedule.

# APPENDIX A

# BIOGRAPHICAL SUMMARIES

5 USC 552(b)(6)

5 USC 552(b)(6)

5 USC 552(b)(6)

5 USC 552(b)(6)

5 USC 552(b)(6)

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