United States General Accounting Office

GAO

Report to the Senate and House Committees on Armed Services

May 2004

CHEMICAL AND BIOLOGICAL DEFENSE

DOD Needs to Continue to Collect and Provide Information on Tests and Potentially Exposed Personnel

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GAO-04-410

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Highlights

Highlights of GAO-04-410, a report to Senate and House Committees on Armed Services

Why GAO Did This Study

In the 1962-74 time period, the Department of Defense (DOD) conducted a classified chemical and biological warfare test program—Project 112—that might have exposed service members and civilian personnel to chemical or biological agents. In 2000 the Department of Veterans Affairs (VA) began obtaining information from DOD about the program. Concerned that veterans and others might have health problems from exposure during Project 112 and similar DOD tests, Congress required DOD in the 2003 Defense Authorization Act to identify Project 112 tests and personnel potentially exposed—service members and the number of civilian personnel—and other chemical and biological tests that might have exposed service members. GAO was required by the act and subsequent guidance from the congressional requesters to evaluate (1) DOD's process to identify the Project 112 tests and the service members and the number of civilian personnel potentially exposed, (2) DOD's progress in identifying similar tests outside Project 112, and (3) VA's progress in notifying DOD-identified veterans.

What GAO Recommends

GAO is making three recommendations to enhance DOD's responsiveness to the legislative requirement. DOD concurred with all of our recommendations and agreed to implement them.

www.gao.gov/cgi-bin/getrpt?GAO-04-410.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Raymond J. Decker at deckerrj@gao.gov or (202) 512-6020.

What GAO Found

DOD appears to have accurately identified all major chemical and biological tests associated with Project 112. DOD identified 134 planned tests of which 50 were conducted. Of the 50 tests, 19 were ship-based and 31 were land-based. GAO found no evidence of any other Project 112 tests. DOD performed a reasonable investigation of service members potentially exposed to agents in the tests. However, GAO believes that there likely are service members and civilian personnel potentially exposed to agents who have not been identified for various reasons. First, DOD was unable to identify any service members for 21 land-based tests because it was unable to find the needed records. Second, although DOD addressed the basic mandate requirement regarding civilian personnel by estimating that 350 had been potentially exposed, it did not specifically search for individual civilian personnel exposures or foreign national exposures. DOD limited its investigation of specific exposures to identifying military veterans who might be eligible for medical services from VA. Third, DOD did not pursue all possible sources of information during its investigation, and additional identifications continue. DOD recently identified 51, and VA, 172 more military personnel. GAO identified 167 additional service members and civilian personnel who might have been exposed, plus additional sources of information. DOD has not determined the feasibility of continuing its efforts to identify additional potentially exposed service members or civilian personnel.

In February 2004, following GAO inquiries, another DOD office began preparing a plan to identify tests outside Project 112 that might have exposed service members. Since World War II, DOD has conducted hundreds of classified tests within the 48 contiguous states. Although not required by the act, DOD also plans to identify service members and civilian personnel who were potentially exposed by these tests. However, that office has not yet completed its plan for doing this.

As of March 2004, VA had notified 3,397, or 58 percent, of the 5,842 service members DOD reported in June 2003, including 751 VA determined to be deceased. VA is still processing over 2,400 cases but is having difficulty making these notifications due to the absence of key needed information such as military service numbers. VA is developing a plan to resolve these more difficult cases and expects to complete its notification process by September 1, 2005. To date, VA has granted 10 of 316 benefit claims related to Project 112. Recent changes to VA's eligibility requirements could increase the number of Project 112-related medical visits.

DOD has not designated an office to act as a single point of contact for collecting and providing information regarding the results of its investigations of DOD chemical and biological tests conducted inside or outside of Project 112.

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Abbreviations

DOD Department of Defense
GAO General Accounting Office
OSD Office of the Secretary of Defense

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United States General Accounting Office
Washington, DC 20548

May 14, 2004

The Honorable John W. Warner
Chairman
The Honorable Carl Levin
Ranking Minority Member
Committee on Armed Services
United States Senate

The Honorable Duncan Hunter
Chairman
The Honorable Ike Skelton
Ranking Minority Member
Committee on Armed Services
House of Representatives

During the 1962-74 time period, the Department of Defense (DOD) conducted a classified chemical and biological warfare test program, called Project 112, that might have exposed U.S. service members and others—including DOD civilian personnel, DOD contractors, and foreign nationals—to chemical or biological agents[1] employed in these tests. As a result of questions raised by Members of Congress and veterans, the Department of Veterans Affairs (VA) began working with DOD in September 2000 to obtain information about the test program and possible military participants. Subsequently, concerned that veterans and other individuals might have experienced health problems as a result of being exposed while participating in Project 112 and other classified chemical and biological tests, Congress required DOD, through the Defense Authorization Act for 2003,[2] to develop and implement a plan (1) to identify the Project 112 tests and the service members and the number of civilian personnel[3] who were potentially exposed by the tests and (2) to work with veterans and veterans' service organizations to identify other

[1] In this report, the term "agent" is used to mean chemical and biological agents, simulants (a substitute for a more-toxic agent), and tracers.

[2] Pub. L. No. 107-314, section 709 (Dec 2, 2002).

[3] For this report, we have interpreted the act's use of "civilian personnel" to mean DOD employees, DOD contractors, and foreign government participants who took part in Project 112 tests.

chemical and biological projects or tests that may have exposed service members to chemical or biological agents. The act also mandated that we evaluate DOD's efforts to identify the tests and potential service members and number of civilian personnel exposed, as well as VA's progress in notifying potentially exposed service members.[4] Thus, our objectives for this review were to (1) evaluate the effectiveness of DOD's process for identifying chemical and biological tests conducted under Project 112 and the service members and number of civilian personnel who might have been exposed to agents employed under these tests, (2) determine DOD's progress in identifying projects or tests conducted outside of Project 112 that might have exposed service members to chemical or biological agents, and (3) review VA's progress in notifying service members whom DOD determined might have been exposed.

We assessed the reliability of DOD and VA data by interviewing agency officials knowledgeable about the data and by reviewing existing information about the data and the systems that produced them. We determined that the data were sufficiently reliable to answer our objectives.

To evaluate the effectiveness of DOD's identification process for Project 112 tests and potentially exposed service members and civilian personnel, we visited repositories of DOD test records, analyzed test reports, and selected a representative sample of conducted tests for more detailed analyses. In addition, we reviewed other available documents and interviewed DOD officials and scientists, including those involved in developing and conducting Project 112 tests. We systematically corroborated the information we developed independently from various sources before assessing whether DOD's Project 112 identification methodology was effective. To determine DOD's progress in identifying chemical and biological tests or projects outside Project 112, we interviewed DOD officials concerning DOD's process for assigning responsibilities for such legislative mandates and its current oversight of such DOD testing. To review VA's progress in notifying potentially

[4] The Defense Authorization Act for 2003 mandated that we prepare two reports: one on DOD's plan for identifying tests and a second one on DOD's implementation of its plan. Because DOD conducted the planning and identification simultaneously, we agreed with your office to prepare one report. The mandate also specified Project 112 tests for the 1963-69 period. However, because some Project 112 tests did not conclude until 1974 and DOD reported on tests conducted from 1962 through 1974, we included the longer period in our review.

exposed service members, we gathered and analyzed statistics concerning VA notifications and its identifications of deceased service members and interviewed VA officials about the process and likely impact on future medical treatment. For a more complete discussion of our scope and methodology, see appendix I.

We performed our review from March 2003 through May 2004 in accordance with generally accepted government audit standards.

Results in Brief

We believe that DOD accurately identified all tests associated with Project 112.[5] We also believe that although DOD performed a reasonable investigation of service members potentially exposed to agents employed in these tests, in view of the fact that many records were unavailable owing to the passage of time, DOD likely has not identified all potentially exposed military or civilian personnel. From October 2000 through June 2003, DOD identified 134 planned chemical and biological tests associated with Project 112, of which 50 were conducted. Of the 50 tests that were conducted, 19 were Shipboard Hazard and Defense, or ship-based tests, [6] and 31 were land-based. These tests were conducted primarily on or near U.S. territory, although some tests were in Canada, Panama, and the United Kingdom. DOD's methodology for identifying planned and conducted tests under Project 112 appears sound, and we found no evidence of additional Project 112 tests, planned or conducted. With regard to the identification of personnel potentially exposed during testing, DOD reported in its final report to Congress on June 30, 2003, that it had determined that 5,842 service members had been potentially exposed to chemical or biological agents. Because of its extensive comparison of test and other documents in conjunction with other actions, we believe that DOD's methodology and efforts to identify potentially exposed military personnel as required by the mandate appear sound. Furthermore, DOD addressed another mandate requirement by estimating that 350 civilian personnel might have been exposed but did not focus on civilian personnel during its investigation. Nevertheless, we believe that it is likely that service members and civilian personnel who participated in these tests have not been identified for the following reasons:

[5] The DOD organization that investigated the Project 112 tests was a small element of the Under Secretary of Defense for Health Affairs, the Deployment Health Support Directorate.

[6] DOD public documents, such as fact sheets, refer to Shipboard Hazard and Defense tests as ship-based.

- DOD had limited success in identifying service members exposed to land-based tests because it was unable to locate the needed records. DOD identified no service members who were potentially exposed during 21 of the 31 land-based tests, and in the remaining 10 land-based tests, fewer than the total known to have participated were identified. Approximately 94 percent of the identified service members were from the 19 ship-based tests that comprised about one-third of all the tests conducted.

- DOD did not specifically search for civilian personnel—DOD civilian employees, DOD contractors, or foreign government participants—in its investigation. The department's rationale for not including such individuals was that it believed the scope of its investigation was limited to military veterans who might be eligible for medical benefits from VA. However, the act requires DOD to report the number of civilian personnel potentially exposed, and following our inquiries, DOD reported that an additional 350 civilian personnel (250 identified in records and 100 more estimated) might have been exposed.

- DOD did not exhaust all possible sources of information during its investigation, and additional potentially exposed personnel continue to be identified. On January 20, 2004, DOD reported 51 additional potentially exposed service members to VA. Furthermore, through our research we identified and reported to DOD a total of 167 additional potentially exposed personnel—39 service members, 125 civilian DOD employees, and 3 contractors—who participated in the tests. In addition, 172 other veterans, not identified by DOD, who reported a Project 112 connection, have contacted VA. We also identified and reported several possible new sources of additional Project 112 exposure information.

Since issuance of its final report in June 2003, DOD has curtailed its efforts to identify service members and civilian personnel who were potentially exposed. However, DOD has continued to respond to inquiries from VA and individual service members concerning issues such as test participation. At the time we concluded our review, DOD had not determined the feasibility of continuing its efforts to identify additional potentially exposed service members or civilian personnel.

Although the Defense Authorization Act for 2003 requires DOD to work with veterans and veterans' service organizations to identify projects or tests outside Project 112 that might have exposed members of the armed forces to chemical or biological agents, DOD has not yet begun this investigation. As a result of our review questions about DOD's progress in

responding to this requirement, in February 2004 an office under the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics[7] began preparing a plan to fulfill this mandated requirement, but has not yet determined such essential plan elements as the scope, reporting requirements, milestones, and responsibilities for those involved in completing the effort. This is an entirely different DOD office from the one that investigated the Project 112 tests, and coordination between these investigations has only recently begun. Although not required by the act, DOD plans to attempt to identify service member and civilian personnel who were potentially exposed by these tests. We determined that since World War II DOD conducted hundreds of other classified tests within the 48 contiguous states outside the scope of Project 112.

As of March 2004, VA had sent notification letters to 58 percent of the 5,842 veterans identified by DOD, of which 751 were determined to be deceased. VA is still processing over 2,400 cases, but it is having difficulty making further notifications owing to the absence of key information such as military service numbers. VA is planning to resolve these more difficult cases and expects to complete its notification process by September 1, 2005. To date, VA has granted 10 of 316 benefit claims related to Project 112. The passage of Public Law 108-170,[8] title 1, on December 6, 2003, changed the eligibility requirements for medical services, which in turn could increase the number of medical visits associated with Project 112 tests.

DOD has not designated what office will serve as the primary point of contact for providing information relating to tests in and outside Project 112. The DOD office that is involved in identifying tests outside Project 112 had not begun its work and DOD has designated no entity, including the Project 112 investigative office, to provide information about tests outside Project 112. This situation could result in DOD's having no single point of contact for providing information—including the additional identification of personnel potentially exposed—to VA, individuals, and other interested parties, such as foreign countries.

We are recommending that the Secretary of Defense direct the appropriate DOD office(s) to (1) determine the feasibility of addressing unresolved

[7] Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense.

[8] Veterans Health Care, Capital Asset, and Business Improvement Act of 2003.

issues associated with Project 112, such as identifying and contacting potentially exposed service members and civilian personnel; (2) finalize and implement a plan for identifying DOD projects and tests conducted outside Project 112 that might have exposed service members to chemical or biological agents; and (3) designate a single point of contact to provide information relating to tests and potential exposures in and outside of Project 112 to VA, individuals, and other interested parties such as foreign countries, as appropriate. The report contains no recommendations for VA.

In commenting on this report, both DOD and VA concurred with our findings. DOD concurred with our recommendations and established dates for their implementation. Both DOD and VA also provided suggested technical changes and updated information, which we incorporated in the final report where appropriate.

Background

Project 112 encompassed a series of classified operational chemical and biological warfare tests from 1962 through 1974 that DOD initiated under the auspices of the Army's Deseret Test Center, Fort Douglas, Utah. The project was so named because in 1962 it was the 112th project of 150 delineated by the then Secretary of Defense and involved the classified testing of chemical and biological agents. Annually, the armed services and the commanders in chief of the combatant commands submitted their testing requirements to Deseret Test Center where they were discussed at annual planning conferences and, when possible, incorporated in the test program for the following year.

Project 112 included both ship-based and land-based tests. Ship-based tests were conducted to evaluate the effectiveness of protective measures against chemical and biological agents, and risks to U.S. forces. Land-based tests were generally conducted to learn how chemical or biological warfare agents behaved in different environmental conditions, e.g., frigid or tropical climates. The ship-based tests involved service members from the Navy and Army and to a lesser extent personnel from the Marine Corps and Air Force. According to a Project 112 chief scientist we interviewed, test teams consisted largely of military and civilian personnel from DOD's Dugway Proving Ground, Utah, with an Army, Air Force, or Naval officer as test director. Ship-based tests were conducted in the open waters of the North Atlantic and Pacific Oceans and near the Marshall Islands, the Islands of Hawaii, Baker Island (a U.S. possession located 1,650 miles southwest of Hawaii in the Pacific Ocean), Puerto Rico, and the California coast. Land-based tests took place in the states of Alaska, Florida, Georgia,

Hawaii, Maryland, and Utah, as well as in Panama, Canada, and the United Kingdom. These land-based tests sometimes included foreign personnel observers—both military and civilian.

In August 2000, following occasional veteran and congressional contacts concerning veterans' involvement in Project 112 tests, VA's Acting Secretary wrote to the Secretary of Defense requesting information on ship-based testing conducted by DOD. In October 2000 DOD assigned responsibility for this action to its Deployment Health Support Directorate. DOD committed to obtaining information about three tests—Autumn Gold, Copper Head, and Shady Grove (see app. II)—such as dates, locations, chemical or biological agents used, and names of military personnel aboard the ships during the testing. DOD investigators, representing only a small element of the Directorate, discovered and provided information on these as well as on the remaining Project 112 tests, planned or conducted, despite having a number of difficulties to overcome with respect to the availability of test records. The available records were stored in multiple locations, not easily searchable, and still largely classified because of operational concerns.

When the 2003 National Defense Authorization Act was passed, it expanded the requirements beyond what DOD envisioned when it began its investigation. The act required DOD to provide VA with the information developed concerning Project 112 tests VA for its use in notifying service members who might have been exposed. The act also required DOD to submit to Congress reports, which were to include the test names, test objectives, chemical or biological agents involved, number of service members and civilian personnel potentially affected by each test, and other information. The act also required us to review and report to Congress on DOD's test and personnel identification efforts, its procedures for providing VA with information and VA's notification efforts. As mandated by the act, DOD concluded its investigation of Project 112 with a report to Congress on June 30, 2003. In addition, the act required DOD to work with veterans and veterans' service organizations to identify other DOD projects or tests that might have similarly exposed service members. While this second investigation had not started when we began our work, an office under the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics is now preparing a plan for doing so. This second investigation is being envisioned as completely separate from and is being conducted by a different office from the one that investigated Project 112.

DOD Accurately Identified Project 112 Tests, Performed a Reasonable Investigation for Service Members, and Estimated Civilian Personnel Potentially Exposed

The Defense Authorization Act for 2003 required DOD to identify Project 112 tests, as well as the service members and the number of civilians who might have been exposed to agents employed in these tests. A small office of the Deployment Health Support Directorate that reports to the Under Secretary for Health Affairs conducted this investigation. We believe that DOD accurately identified the tests associated with Project 112 and, given the unavailability of many records due to the passage of time, performed a reasonable investigation of service members who were potentially exposed to the agents employed in these tests. DOD identified 134 planned Project 112 tests of which 50 were conducted—either on land or on ships. Some tests were conducted on or near U.S. territory, although some were in foreign countries. We found no evidence of any additional Project 112 tests. Because of its extensive comparison of test documents and ship personnel rosters, in conjunction with other actions, we believe that DOD used a sound methodology to identify 5,842 service members who were potentially exposed to agents employed in these tests. DOD addressed another mandate requirement with respect to reporting the number of civilian personnel who might have been exposed to agents by these tests by including in its final report an estimate that 350 DOD civilian personnel were potentially exposed. For several reasons, we believe it is likely that both service members and civilian personnel remain unidentified. First, DOD had limited success in identifying service members exposed to land-based tests because it was unable to find much of the needed documentation. Second, DOD did not specifically search for civilian personnel—DOD employees, contractors, and foreign government participants—in its investigation because it considered civilian personnel beyond the scope of its investigation. Third, DOD did not identify all possible sources of information such as additional Project 112 repositories, and substantial numbers of potentially exposed personnel continue to be identified. We identified 167 additional potentially exposed personnel mostly associated with land-based tests.[9] DOD identified an additional 51 and VA, an additional 172. Nevertheless, DOD has not determined the feasibility of continuing its efforts to identify additional potentially exposed service members or civilian personnel.

[9] On the basis of our document search, which went beyond the records DOD reviewed, these personnel appear to be in addition to the 350 potentially exposed civilian personnel that DOD estimated in its June 2003 report to Congress.

Identification of Project 112 Tests

As required by the legislative mandate, DOD accurately identified the 134 planned tests associated with Project 112, of which 50 were conducted. DOD believes that the systematic approach it used to identify these tests provides a high degree of assurance that it has captured all of the Project 112 tests, and we agree. We did not find any evidence of additional Project 112 tests, planned or conducted, during our review.

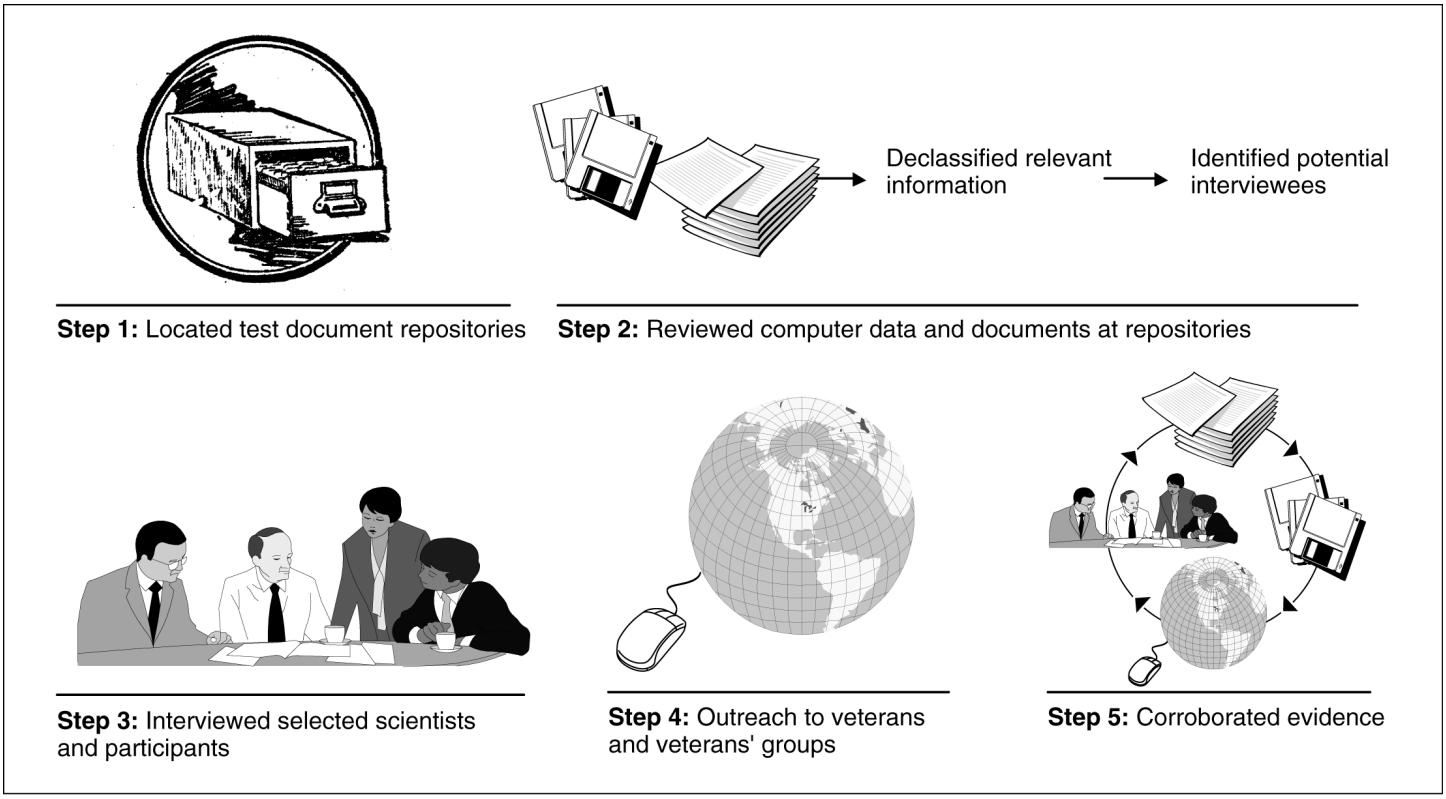
Of the 50 Project 112 tests that DOD conducted, 19 were ship-based and 31 were land-based. (See fig. 1 for an example of land-based testing.) According to information provided to VA, the ship-based tests occurred, among other places, in the Pacific Ocean off the Hawaiian Islands and off the coast of San Diego, California; in the Atlantic Ocean off Newfoundland; in the Pacific off the Marshall Islands; and off Vieques Island, Puerto Rico. The land-based tests were conducted in Alaska, Utah, Canada, the Panama Canal Zone, and the United Kingdom. The tests were conducted from December 1962 through May 1974. (See app. II for a summary of the 50 conducted tests.)

Figure 1: Dispensing Chemical Simulants during a Land-Based Test

Source: DOD.

In the absence of distinct overall program documents, DOD relied on a myriad of documents from various sources to identify Project 112 tests. As shown in figure 2, DOD (1) determined the repositories of potential test records, (2) performed electronic and physical searches of the documents contained at each repository to identify applicable documents, (3) reviewed each document to determine its relevance to Project 112, and (4) interviewed selected scientists and test participants. In addition, DOD conducted outreach programs to veterans and veterans'groups and corroborated the evidence obtained from the various sources.

Figure 2: DOD Methodology for Identifying Project 112 Tests



Source: DOD.

Repositories of Project 112 test records included but were not limited to Dugway Proving Ground, Utah; Aberdeen Proving Ground, Maryland; and the Navy's Surface Warfare Center located at Dahlgren, Virginia. Using this approach, according to DOD officials, DOD located documents that addressed tests planned and conducted for each of the years during which Project 112 tests were being performed. In particular, DOD officials noted

the corroboration of evidence from the annual and semiannual reports from the Deseret Test Center, Utah, the organization responsible for the tests; the planning documents for each of the tests; and the final test reports. This enabled them to close the "information gaps," thus providing a high level of assurance that virtually all of the tests were identified. The annual reports, for example, typically discussed not only the plans for the coming year but also included information on the tests that had been conducted during the previous year. DOD supplemented the evidence it gathered from documents and discussions with former managers of the Deseret Test Center.

We did not identify any additional Project 112 tests in our review of DOD documents and our discussions with DOD and former officials and managers of the Deseret Test Center. It appears that DOD used a reasonable approach for identifying the locations of records and source documents, particularly since some of the Project 112 tests were conducted more than 40 years ago and the record-keeping systems were much less sophisticated than today's.

DOD's determination of whether Project 112 tests were conducted was complicated by the fact that a number of tests were postponed, had name changes, or were combined with other tests. DOD essentially used an iterative approach to track each test from its first mention in a test document until its final resolution—conducted or canceled. Determinations were made on a case-by-case basis whenever possible, on the basis of the evidence that was gathered for each test. The existence of a final test report was considered to be sufficient evidence that a test had been conducted; DOD obtained final test reports for each of the 50 tests that it concluded were conducted. DOD located specific documentation for 62 of the 84 tests it determined were canceled. The determination that the remaining 22 tests had been canceled was based on a combination of factors. The moratorium on biological tests that was issued on November 25, 1969, for example, was the partial basis for the determination that eight tests were canceled. Other cancellation determinations were based on (1) the decommissioning of the fleet used for the ship-based tests, (2) test requirements canceled or met by other tests, and (3) the Deseret Test Center's closure. We agree with DOD's conclusions regarding tests that were conducted or canceled.

DOD developed unclassified fact sheets that described each conducted Project 112 test, which were provided to VA, and made available on the DOD Web site. These fact sheets provide available information concerning the test objectives, dates, and locations as well as the names of

participating units or ships. The fact sheets also provide information concerning the agents used and current information concerning the medical implications of exposure.

Potentially Exposed Service Members and Civilian Personnel Remain Unidentified

Although the methodology to identify potentially exposed service members appears to be sound, we believe that the service members that DOD identified and the number of civilian personnel it estimated do not represent all of the service members and civilian personnel who might have been exposed for the following reasons:

- DOD had limited success in identifying service members exposed to land-based tests because it was unable to find much of the needed documentation.
- DOD did not specifically search for individual civilian personnel—DOD employees, DOD contractors, or foreign government participants—in its investigation because it considered such personnel outside its scope.
- DOD did not exhaust all possible sources of pertinent information, and additional potentially exposed personnel continue to be identified.

Nevertheless, DOD has not evaluated the feasibility of addressing unresolved Project 112 issues, such as identifying additional potentially exposed service members, civilian employees, contractors, and foreign nationals who participated in the tests. DOD has also not determined what office has responsibility for reporting new information to VA, individuals, or other interested parties, such as foreign countries, as appropriate.

In its last report to Congress on June 30, 2003, DOD identified 5,842 service members who had been potentially exposed during Project 112 tests; some during more than one test. DOD reported an additional 51 potentially exposed service members to VA on January 20, 2004. Owing to the absence of important documentation, DOD had limited success in identifying service members exposed to land-based tests. DOD did not identify any potentially exposed service members in 21 of the 31 land-based tests and limited numbers in the remainder. Ship-based tests commonly had 1,000 or more participants. Land-based tests, according to a former Deseret Test Center scientist, generally involved fewer than 200 participants. Because of the aforementioned reasons, almost all those identified—94 percent—were from ship-based tests that comprised about one-third of the total number of tests conducted. Also, fewer service

members were identified for some land-based tests than the number known to have participated. For example, in Elk Hunt I, a land-based test that involved personnel from at least seven Army units of various sizes, DOD identified only six service members.

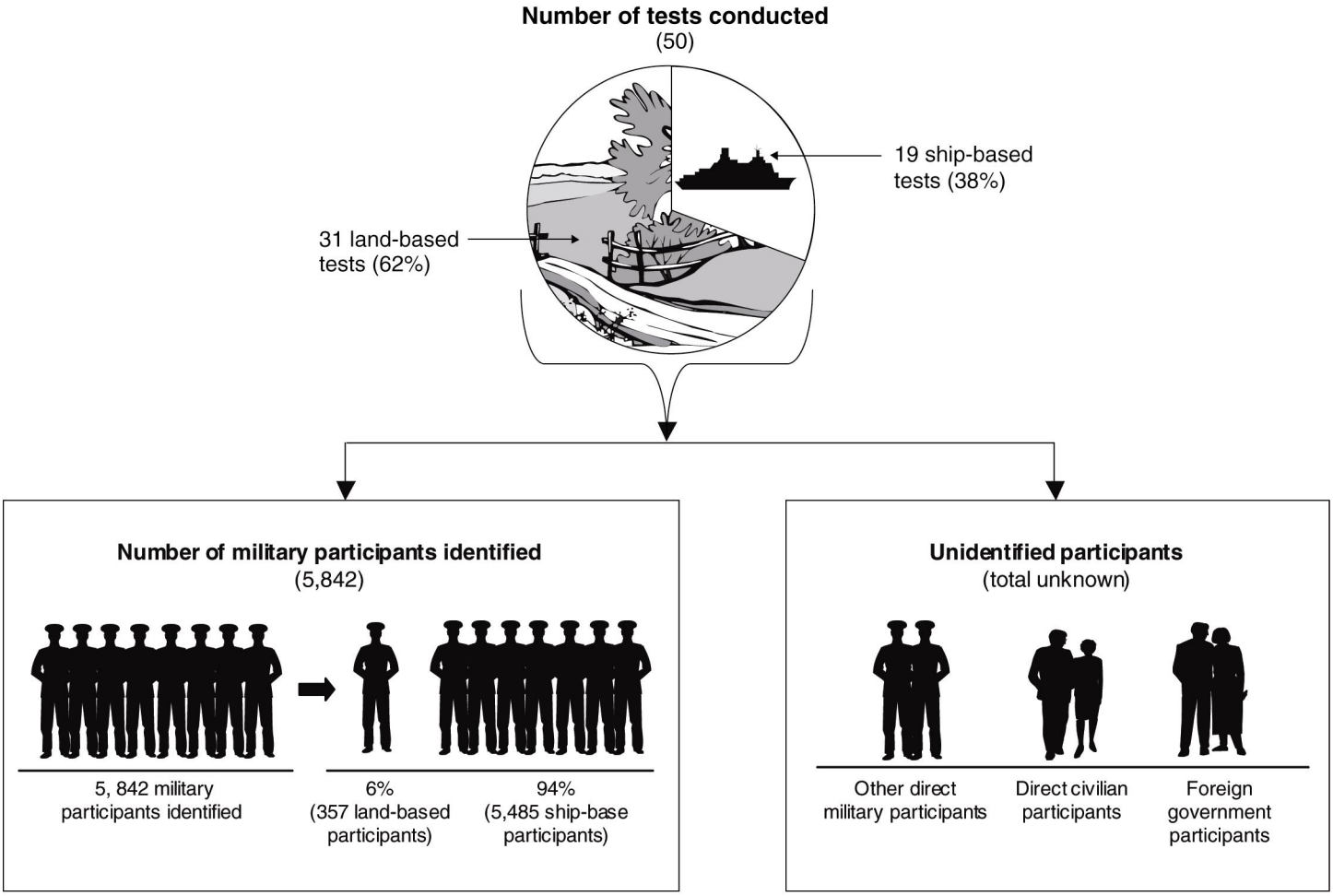
DOD did not specifically search for civilian personnel in its investigation—such as DOD civilian employees, DOD contractors, or foreign nationals—because it believed that the scope of its investigation was limited to military veterans who might be eligible for medical benefits from VA. DOD addressed the basic mandate requirement with respect to identifying the number of civilian personnel by including in its final report an estimate that 350 DOD civilian and contractor personnel were potentially exposed. However, during the course of its investigation, DOD did not focus on DOD civilian personnel. In April 2003, when we inquired about the progress DOD had made in determining the number of DOD civilians who might have been exposed, DOD had not performed any work to make this determination. Subsequently, DOD identified 250 DOD civilians using the records it had gathered in its investigation of service members. Since it had not reviewed any civilian records, it increased the aforementioned number by 100 to cover additional civilian participants who might not have been included in the records that had been gathered. Although not required by the legislative mandate, we noted during the course of our review that DOD had not disseminated information concerning civilian personnel or attempted to notify them about the investigation into the Project 112 tests. A records-holding area at Dugway Proving Ground contained 1,300 boxes with approximately 9 million historical records, but it is unclear how many of these relate to Project 112. Our examination of the records contained in 12 of the boxes that we believed might be useful resulted in the identification of the names of 128 civilians (DOD employees and contractors) who might have been exposed during Project 112 testing.

The problems DOD experienced in making the identifications of service members appear to have been largely due to the lack of available documentation, given that some of these tests were conducted more than 40 years ago and given the unsophisticated records systems that existed at that time. DOD officials indicated that there was no requirement for DOD during the Project 112 test period to document Project 112 test participants, service members, or any others who might have been exposed to agents employed in these tests, and it did not do so. The test plans and reports, for example, include quantitative data on personnel and equipment support requirements but do not identify the names of test conductors or participants. Absent this information, DOD had the rather complex task of collecting information from various sources, even

informal test notes, to make these identifications. DOD's methodology used the information contained in the fact sheets for each test, such as the names of the ships or units involved, and then searched available documentation for service members who might have been involved. For ship-based tests, for example, DOD obtained archived rosters of participating ships for the appropriate time frames, along with messages regarding ship personnel changes. DOD analyzed this information to determine the personnel who likely participated in the ship-based tests.

According to DOD officials, the identification of land-based test participants was more difficult and, for many tests, even impossible. DOD took several steps to identify these participants including (1) requesting personnel rosters of participating units, (2) conducting key word searches of computer databases, and (3) performing general searches of boxes containing test records. For example, DOD reviewed the contents of a number of classified and unclassified boxes of test data at Dugway Proving Ground, Utah seeking participant data. In addition, DOD contacted service members who had sought assistance from VA and former employees of the Deseret Test Center. (See fig. 3.)

Figure 3: Results of DOD's Investigation of Service Members and Others Potentially Exposed during Project 112 Tests



Sources: DOD (data); GAO (analysis).

Despite some success, DOD encountered a number of difficulties in locating information concerning participants in land-based tests. According to DOD, a number of commonly available military records were not useful in its investigation. For example, unit history records typically did not include useful information because units participating in these tests were platoon sized or smaller and unit history records are generally not recorded for units of this size.[10] Also, most test participants traveled to

[10] A platoon is typically fewer than 50 service members.

the test locations from their home unit. However, the documents needed to identify individuals who traveled to the test sites, such as travel orders and vouchers, were not retained. For some tests, DOD was able to locate participant names and, in other cases, it could not. Ultimately, DOD electronically provided to VA with the names of service members who were deemed likely participants in either ship-based or land-based tests. These included the 5,842 service members that DOD reported to Congress in June 2003 and 51 that were reported to VA in January 2004. Since issuance of its final report in June 2003, DOD has sharply curtailed its efforts to identify service members and civilian personnel who were potentially exposed. However, the DOD has continued to respond to inquiries from VA and individual service members concerning issues such as test participation. At the time we concluded our review, DOD had not determined the feasibility of continuing its efforts to identify additional potentially exposed service members or civilian personnel.

Additional Potentially Exposed Personnel and Source Material Identified

During our review, both we and VA discovered additional service members, previously unidentified by DOD, who had been potentially exposed during Project 112 tests. We identified and reported to DOD a total of 167 additional personnel potentially exposed—39 service members, 125 civilian DOD employees, and 3 contractors, as well as several possible new sources of additional Project 112 exposure information. VA identified an additional 172 service members. DOD is currently processing these additional service member identifications. We also learned of additional potential sources of information including films taken of all land-based tests and other repositories of possible Project 112 documentation.

- **Unidentified service members**: In a records-holding area at Dugway Proving Ground containing 1,300 boxes with approximately 9 million historical records, including Project 112-related test records, our examination of the records contained in 12 of the boxes uncovered approximately 39 additional potentially exposed service members' names not identified on DOD's list. Since we examined only a few dozen records, it is very likely that more service members potentially exposed to Project 112 testing could be identified from this records-holding area. According to Dugway officials, in July 2003 a contract was negotiated to scan and digitize the 9 million records being held there. Once this process is completed, access to the records will be greatly facilitated.

- **Unidentified civilian participants in Project 112 tests**: Our examination of the test records in 12 of the 1,300 boxes of historical records at the Dugway records-holding area also enabled us to identify civilian personnel not previously identified by DOD. We identified 125 civilian DOD employees and 3 contractors who had participated in land-based Project 112 tests, such as the 1967 Green Mist test on the Big Island of Hawaii and the 1965 West Side II test in Canada for which DOD identified no service members. According to a former scientist responsible for conducting the tests, Dugway Proving Ground furnished over half of the personnel, mostly civilians, who remain unidentified. This official also stated that the civilians employed at Deseret Test Center and Dugway Proving Ground were exposed to 100 times more agents than the military personnel who participated.

- **VA-reported unidentified service members**: Since VA began notifying DOD-identified service members potentially exposed during Project 112 tests, other veterans have contacted VA directly indicating connections to the tests. These veterans learned of the VA interest mainly by word-of-mouth according to VA officials. As of January 2, 2004, 172 veterans, in addition to those identified by DOD, have themselves reported a Project 112 connection directly to VA.

- **Project 112 films as test documentation**: According to Dugway officials, films were made of every land-based Project 112 test; and most tests involved multiple phases or trials. As these trials were conducted, an Army photography and film team recorded the test activities, and a total of 109 films were made. These films, which were done in what is now an obsolete format, are being converted to a format that can now be viewed. As of January 2004, about 25 percent of the films had been converted. These films might be useful in identifying participating units as well as service members and civilian personnel. The films might show, for example, ships or helicopters that participated in the tests and were not previously identified.

- **Other record-holding repositories identified**: During the course of our interview process, we were informed of additional locations containing possible Project 112-related documents that were not included in DOD's investigation. Two such locations are the Army Corps of Engineers, St. Louis, Missouri, and the National Personnel Records Center, also in St. Louis. However, investigating these repositories would likely be difficult and costly because these records might be voluminous, unorganized, and general in nature. In addition, these records might not be easily searchable by topics related to Project 112.

DOD Plans to Investigate Tests outside Project 112

The Defense Authorization Act for 2003 mandated DOD to work with veterans and veterans' service organizations to identify DOD projects or tests conducted outside Project 112 that might have exposed service members to chemical or biological agents. DOD has not yet begun its investigation to identify such projects or tests. However, the Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense (Chemical and Biological Defense Office)[11] began preparing a plan for doing so after our inquiry about the investigation's status. According to DOD officials, the office plans to identify the primary projects and tests conducted, attempt to identify service members and civilian personnel who might have been exposed to agents during the tests, and provide VA or other interested organizations with this information. Our current review and prior work from the mid-1990s have shown that extensive chemical and biological tests and projects were conducted during the Project 112 1962-74 time period and that much greater numbers of service members and civilian personnel than DOD has reported for Project 112 were potentially exposed.

DOD Has Not Begun Investigating Other Projects or Tests

While DOD has aggressively investigated the Project 112 tests, it has not yet begun its investigation of projects or tests outside Project 112 as also mandated by the 2003 act. On the basis of an internal DOD agreement in November 2002, the identification of tests and projects outside Project 112 became the responsibility of the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics because this organization has overall responsibility within DOD for chemical and biological defense. Subsequent to our inquiries, in February 2004, DOD's Chemical and Biological Defense Office began preparing a plan for accomplishing this mandated requirement.

Officials of the Chemical and Biological Defense Office stated that they plan to identify major chemical and biological tests and projects conducted outside the scope of Project 112 since World War II and will attempt to locate repositories of information concerning these tests and projects. Using these and other sources of information, they plan to identify service members and civilian personnel who might have been exposed to the agents employed in these tests. These officials indicated that they plan to coordinate with the Deployment Health Support

[11] This office ultimately reports to the Under Secretary of Defense for Acquisition and Technology.

Directorate, the DOD office that investigated Project 112, and use the experience gained during the Project 112 investigation to facilitate their own efforts. As information concerning these tests and projects is developed, DOD plans to provide VA and to other interested organizations with this information, as appropriate. DOD anticipates that it might take up to 5 years to complete the investigation of tests outside Project 112.

However, this approach does not provide a single DOD focal point for providing VA, individuals, and other interested parties with information related to chemical and biological testing. Responsibility for completing the investigation of Project 112 tests remains with the Deployment Health Directorate, which reports to the Under Secretary of Defense for Health Affairs. Responsibility for investigations of tests outside the scope of Project 112 now resides with the Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense, which ultimately reports to the Under Secretary of Defense for Acquisition, Technology, and Logistics. Under this arrangement, no one office has overall responsibility for providing oversight and coordination for these investigations. Also, neither office is currently designated to serve as the primary point of contact for administering the identification and reporting of additional potentially exposed service members and DOD civilian personnel. This situation could result in DOD's having no single official point of contact for providing VA, individuals, and other interested parties, such as foreign countries, as appropriate, with information, including the additional identification of personnel potentially exposed.

Hundreds of Classified Tests outside Project 112 Were Conducted with Thousands of Potentially Exposed Personnel

While there is no database that contains information concerning the biological and chemical tests that have been conducted, we determined that hundreds of such classified tests and research projects were conducted outside Project 112 while it was ongoing. In addition, information from various sources shows that personnel from all services were involved in chemical and biological testing.

We learned during this review that hundreds of chemical and biological tests similar to those conducted under Project 112 were conducted during the same time period. A former Deseret Test Center scientist estimated that the number of chemical and biological tests conducted at just one location—Dugway Proving Ground, Utah—was over 100, or more than double the number of tests conducted under Project 112 during the same

time period. According to an Army study, some of these tests reflected the same objectives as Project 112.[12] This study listed 31 biological field tests performed at various military installations including Dugway Proving Ground, Utah; Ft. Bragg, North Carolina; Fort Detrick, Maryland; and Edwards Air Force Base, California.[13] The study did not quantify the number of test participants nor did it identify them.

In addition, we reported in 1993 and 1994 that hundreds of radiological, chemical, and biological tests were conducted in which hundreds of thousands of people were used as test subjects. [14] We also reported that the Army Chemical Corps conducted a classified medical research program for developing incapacitating agents. This program involved testing nerve agents, nerve agent antidotes, psycho chemicals, and irritants. The chemicals were given to volunteer service members at Edgewood Arsenal, Maryland; Dugway Proving Ground, Utah; and Forts Benning, Bragg, and McClellan. In total, Army documents identified 7,120 Army and Air Force personnel who participated in these tests.[15] Further, GAO concluded that precise information on the scope and the magnitude of tests involving human subjects was not available, and the exact number of human subjects might never be known.

VA Notified the Majority of Service Members Identified by DOD

Of the 5,842 Project 112 service members identified by DOD in its final report on June 30, 2003, VA sent notification letters to the majority—3,397—from May, 2002 through March, 2004. However, 751 of these veterans were determined to be deceased, and notification efforts regarding the remaining potentially exposed veterans—over 2,400—are ongoing. These numbers do not include recent additional identifications of potentially exposed service members by DOD, VA, or us during our review. VA is having difficulty making the remaining more than 2,400 notifications largely because of incomplete data. VA officials said that the information provided by DOD concerning service members was in many cases missing key data, such as service numbers. To resolve these more

[12] *U.S. Army Activity in the U. S. Biological Warfare Programs* (Feb. 24, 1977).

[13] More than 80 of these tests were conducted prior to Project 112, dating as far back as 1949.

[14] GAO/NSIAD-93-89 and GAO/T-NSIAD-94-266. This work covered testing performed by the services between 1942 and 1975.

[15] The medical research program began in 1952 and continued until 1975.

difficult cases, VA is developing a plan involving the use of Social Security, the National Personnel Records Center, and other databases to obtain additional needed information. VA plans to complete its notification of the remaining service members by September 1, 2005. As of March 31, 2004, VA had granted 10 of 316 claims for benefits directly related to Project 112 tests. However, recent changes to the eligibility requirements for medical services could increase the number of medical visits.

As of March 2004, VA had identified the addresses of and mailed at least one outreach letter to 3,397—or 58 percent—of the 5,842 Project 112 veterans identified in DOD's June 2003 final report. To accomplish this, VA matched the list of potentially exposed service members from DOD against its own database to find a Social Security number. If no Social Security number was located, VA matched the available service member's information to the information contained in the National Personnel Records Center. Once VA received a Social Security number, it used the services of the Internal Revenue Service and credit bureaus to locate the veteran's current address, or if applicable, the date of death. According to VA, many additional veterans alerted by word of mouth have in turn contacted VA through the use of toll-free numbers, submission of benefit claims, and calls or visits to health-care facilities. In addition, VA has sponsored a number of outreach efforts to veterans and veterans' groups, including establishing a Web site containing Project 112 information and issuing press releases. According to VA officials, VA received 2,217 Project 112-related calls since the May 2002 activation of its toll-free helpline.

VA's notification efforts are ongoing but have slowed recently owing to difficulties in obtaining Social Security numbers and addresses for the potentially exposed service members who have not yet been notified. As of March 2004, more than 2,400 service members—or more than 40 percent—remain to be processed. VA officials said that the information provided by DOD concerning service members was in many cases missing key data, such as service numbers. While it is still possible to locate service members without this information, VA officials said that it is difficult to do so. To complete these more difficult cases, VA is developing a plan involving the use of Social Security, the National Personnel Records Center, and other databases to obtain additional needed information. VA plans to complete its notification of the remaining service members that DOD identified by September 1, 2005.

The VA notification letters, or "outreach letters," include the name of the specific test(s) in which DOD indicated that the service member was a participant and information on the type of agent employed in the test. In

addition, a copy of a DOD fact sheet concerning each test that the service member participated in was enclosed with each letter. These fact sheets provided available information concerning the objectives, dates, and locations of the tests, as well as the participating units or ships. In addition, the fact sheet provided information concerning the agents used, as well as current information concerning the medical implications of exposure to them.

As of March 2004, VA had received 316 claims for benefits related to Project 112 tests. Of the 316 claims, 88 are pending, 168 have been denied, 50 have been granted for a condition not connected to Project 112, and 10 were granted for a condition connected to Project 112.

VA does not anticipate significant increases in approved claims as a result of notifying service members who were potentially exposed during Project 112 testing. Notably, the requirement of eligibility has traditionally been that the illness or injury was service connected. Consequently, only 10 notified service members had met this service-connected requirement for Project 112-related exposures as of January 2004. However, the passage of Public Law 108-170 on December 6, 2003, allows service members who participated in Project 112 tests to be eligible for hospital care, medical services and nursing home care from the VA for any illness until December 31, 2005—without having to establish that their illness was connected to Project 112 testing. Nevertheless, VA officials still do not anticipate any significant increase in the number of medical visits.

Conclusions

DOD has made a reasonable effort to identify Project 112 tests and the service members who might have been exposed to chemical or biological agents during these tests. However, DOD has not exhausted the possibilities for identifying additional service members and, although not required by the mandate, individual DOD civilian employees, DOD contractors, and foreign government participants. Additional identifications will likely result if DOD continues this investigation. DOD is also only in the preliminary planning stages of a mandated second investigation identifying tests outside Project 112 that might have exposed service members. DOD officials have stated their intention to include the identification of both service members and civilian personnel in its second investigation. The completion of both DOD investigations would mean the review of all reasonably available documentary evidence in an attempt to identify those service members and civilian personnel who might have been exposed to chemical and biological agents. However, DOD has not designated a single official focal point for providing information from the

investigations to VA, individuals, and other interested parties. Furthermore, VA is having difficulty notifying more than 1,700 of the 5,842 identified service members and recently formulated a plan for dealing with this problem. A single DOD focal point could be helpful not only for DOD's coordination with VA but also for VA's efforts to continue service member notifications. Without a committed effort to identify and notify all potentially exposed personnel, some participants, especially civilian personnel, might not be aware of their potential exposure to chemical and biological agents or be able to use this information to seek medical assistance, if needed.

Recommendations for Executive Action

We recommend that the Secretary of Defense direct that the following three actions be taken by the appropriate office(s):

- determine the feasibility of addressing unresolved issues associated with Project 112 and the appropriateness of and responsibility for reporting new information, such as the identification of additional potentially exposed service members, civilian employees, contractors, and foreign nationals who participated in the tests;
- finalize and implement a plan for identifying DOD projects and tests conducted outside Project 112 that might have exposed service members to chemical or biological agents and ensure that the plan addresses the scope, reporting requirements, milestones, and responsibilities for those involved in completing this effort; and
- designate a single point of contact for providing VA, individuals, and other interested parties such as foreign governments, as appropriate, with information related to tests and potential exposures in and outside Project 112.

Agency Comments and Our Evaluation

DOD concurred with our report findings and recommendations and agreed to implement our recommendations. In commenting on our report, DOD acknowledged our recognition of its aggressive investigation of Project 112 tests and agreed to address the unresolved issues with these tests as well as investigate the chemical and biological testing programs conducted since World War II. While we did not make recommendations to VA, the department concurred with our report findings. Both DOD and VA also

provided suggested technical changes and updated information, which we incorporated in the final report where appropriate. DOD's comments are shown in appendix III, and VA's comments are provided in appendix IV.

We are sending copies of this report to the appropriate congressional committees; the Secretary of Defense; the Secretary of the Army; the Secretary of the Navy; the Secretary of the Air Force; the Commandant of the Marine Corps; and the Director, Office of Management and Budget. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at http://www.gao.gov. Should you or your staff have any questions regarding this report, please contact me at (202) 512-6020, or my Assistant Director, William W. Cawood, at (202) 512-3959. Harry E. Taylor, Jr., Harry A. Knobler, M. Jane Hunt, Rebecca Shea, and David A. Mayfield were major contributors to this report.

Raymond J. Decker, Director
Defense Capabilities and Management

Appendix I: Scope and Methodology

We assessed the reliability of the Department of Defense's (DOD) and the Department of Veterans' Affairs' (VA) data by interviewing agency officials knowledgeable about the data and by reviewing existing information about the data and the systems that produced them. We determined that the data were sufficiently reliable to answer our objectives.

We reviewed and analyzed available reports, briefings, documents, and records and interviewed officials at the Office of the Secretary of Defense (OSD), Washington, D.C., including the Under Secretary of Defense for Acquisition, Technology, and Logistics, and the Under Secretary of Defense for Personnel and Readiness; Department of Veterans Affairs, Washington, D.C.; and the U.S. Army Dugway Proving Ground, Utah.

To evaluate the effectiveness of DOD's process to identify chemical and biological tests conducted under Project 112 and the service members and number of civilians who might have been exposed to agents employed under Project 112 tests, we (1) interviewed officials at the Office of the Secretary of Defense, Washington, D.C., including the Under Secretary of Defense for Acquisition, Technology, and Logistics, and the Under Secretary of Defense for Personnel and Readiness; Department of Veterans Affairs, Washington, D.C.; the U.S. Army Dugway Proving Ground, Utah; and the Deployment Health Support Directorate, Under Secretary of Defense for Personnel and Readiness (hereafter referred to as DOD), who were responsible for conducting DOD's investigation of Project 112 tests. In addition, we (1) reviewed the methodology and process that DOD used to locate, declassify, and review appropriate sources of Project 112 data, (2) obtained and systematically analyzed Project 112 data; (3) interviewed former employees and test participants, and (4) corroborated the evidence from documents and interviews.

We evaluated DOD's methodology by reviewing the work it had performed, retracing its steps, and doing independent research and analysis to develop the universe of Project 112 tests and identify the service members and civilians who might have been exposed to the agents employed under these tests. We visited the primary repository for Project 112 records at Dugway Proving Ground, Utah. At Dugway, we interviewed officials, performed data searches,and reviewed available documentation. The documentation we reviewed included test plans and reports, the Deseret Test Center's annual and semiannual reports, and unorganized boxes of test materials in storage. In addition, we interviewed scientists who lived in Salt Lake City, Utah, who were former employees of the Deseret Test Center, the organization that conducted the Project 112 tests. We reviewed the files of the DOD investigative team, as well as the

periodic and final report of its investigation to Congress, to determine if there were "information gaps" for the time period during which the Project 112 tests were conducted. We developed a data collection instrument to systematically document the tests that DOD concluded were conducted. With the use of the data collection instrument, we collected specific, uniform information concerning test location, dates, agents employed, and the number of service members identified who might have been potentially exposed. We selected a sample of tests for more detailed analysis and included, in our data collection instrument, information on DOD's basis for determining that the test was conducted, whether specific participating units or ships were identified, the documents or sources used to determine service members who might have been exposed, and the likelihood that indirect exposures occurred. We also reviewed DOD's outreach efforts and the extent to which DOD coordinated with other agencies that might have useful information, including the Department of Veterans' Affairs. We reviewed and analyzed our prior reports as well as reports of other organizations to provide a historical and contextual framework for evaluating DOD's efforts. In formulating our conclusion as to whether DOD's methodology was effective, we systematically corroborated the information we developed independently and from various sources to make this determination.

To determine DOD's progress in identifying projects or tests conducted outside Project 112 that might have exposed service members, we held discussions with the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, which oversees current chemical and biological testing. We also contacted the OSD Office of Legislative Affairs, as well as the DOD Office of the Inspector General, to determine the process for assigning responsibilities for fulfilling mandates of this type within DOD.

To determine VA's progress in notifying service members whom DOD determined might have been exposed, we interviewed VA officials, gathered statistics concerning their success in making the notifications; and, in response to our data request, received information in writing concerning pertinent issues. In particular, we documented the number of service members whose names had been provided to VA by DOD, and the extent to which notification letters were sent and service members were deceased, or cases where sufficient documentation was not available to make the notifications. In addition, we discussed with VA officials the likely impact of service members seeking medical treatment as a result of being potentially exposed and the passage of Public Law 108-170, which allows service members who were potentially exposed to these tests to

receive medical treatment from VA until December 31, 2005, without proof of service connection.

We performed our review from March 2003 through May 2004 in accordance with generally accepted government audit standards.

Appendix II: Project 112 Tests Reported as Conducted

Table 1 below shows the 50 tests conducted, with the locations and dates of the tests, the agents employed, participating units or organizations, and the number of service members identified who were potentially exposed. There are gaps in the test numbers for several reasons, including that tests were combined with other tests, cancelled, or had name changes.

Table 1: Summary of DOD Project 112 Submissions to VA as of June 30, 2003

Test number and name	U.S. service members identified	Date of test	Units/Ships involved	Test location(s)	Agent	Date of submission to VA
63-3, Whistle Down		Dec. 1962-Feb. 1963	Unidentified U.S. Army, DTC personnel	Ft. Greely, AK	GB, VX	Oct. 3, 2002
63-1, Eager Belle I (ship-based)	119	Jan.-Mar. 1963	USS *George Eastman*	Pacific Ocean	BG	Jan. 31, 2002
Eager Belle II (ship-based)	1,076	Jan, Mar., June 1963	USS *Carpenter*, USS *George Eastman*	Pacific Ocean	BG	Dec. 2, 2003
			USS *Granville S. Hall*			
			USS *Navarro*			
			USS *Tioga County*			
63-4, Big Jack A		Feb-Mar. 1963	VMA 225, Marine Aircraft Group 14 (A-4)	Near Ft. Sherman, Panama Canal Zone	BG, FP	Oct. 31, 2002
Big Jack B		Feb.-Mar. 1963	VMA 225, Marine Aircraft Group 14 (A-4)	Near Ft. Sherman, Panama Canal Zone	TOF	Oct. 31, 2002
63-2, Autumn Gold (ship-based)	1, 536	May 1963	Marine Air Group 13, USS *Carpenter*, USS *Granville S. Hall*, USS Hoel, USS *Navarro*, USS *Tioga County*	Pacific Ocean (60 mi. from Oahu, Hawaii)	BG	Sept. 13, 2001
64-1, Errand Boy (ship-based)	95	Sept. 1963	USS *George Eastman* (YAG-39)	Near Pearl Harbor, Oahu, Hawaii	BG, betapropriolactone	June 30, 2003
64-5, Night Train		Nov. 1963-Jan. 1964	Not identified	Ft. Greely, AK	BG, FP	Oct. 9, 2002
64-5, Night Train (continued)			(F-105, F-100, and an Army personnel carrier)			
64-2, Flower Drum I (ship-based)	268	Feb.-Apr.1964	USS *George Eastman*	Pacific Ocean	GB, $S0_2$	May 23, 2002
			USS *Granville S. Hall*		MAA	

Test number and name	U.S. service members identified	Date of test	Units/Ships involved	Test location(s)	Agent	Date of submission to VA
Flower Drum II (ship-based)	5	Aug.-Sept. 1964	Navy tug ATF-105	Pacific Ocean (off coast of Hawaii)	VX, phosphorous 32	May 23, 2002
			Navy covered lighter (barge),YFN-811		BIS	
64-6, Yellow Leaf	184	Feb. 1964	DTC personnel, other units or ships not identified	Ft. Sherman, Panama	BG	Oct. 31, 2002
		Apr.-May 1966	DTC personnel, other units or ships not identified	Island of Hawaii	Tiara	
65-14, Elk Hunt I,	6	July-Aug. 1964	171ST Infantry Brigade	Ft. Greely, AK	VX	Oct. 9, 2002
Elk Hunt II	111	June-July 1965 & Oct.-Dec., 1965	15TH Artillery Battalion	Ft. Greely, AK, Edgewood Arsenal, Md.	VX	Oct. 9, 2002
			40TH Armor Battalion	Canada		
			4th Battalion			
			9th Infantry			
			1st Battalion			
			47th Infantry			
			538th Ordnance Company & Selected Personnel Assigned to HHC			
65-1, Copper Head (ship-based)	289	Jan.-Feb. 1965	USS *Power*	Atlantic Ocean (off coast of Newfoundland)	BG, FP, betapropiolactone	Sept. 13, 2002
65-3, West Side I	29	Jan.-Feb. 1965	F-105D (Air Force)	Ft. Greely, AK	BG, FP	Oct. 9, 2002
66-8, West Side II		Jan.-Mar. 1965	F-105D (Air Force)	Central Canada	BG, FP	Oct. 9, 2002
			JHC-47 (contractor aircraft), DTC personnel			
65-13, High Low (ship-based)	1,120	Jan.-Feb. 1965	USS *Berkeley*, USS *Granville S. Hall*	Pacific Ocean (off coast of San Diego)	MAA	Mar. 31, 2002
			USS *Fechteler*			
			USS *Okanogan*			
			USS *Wexford County*			

Test number and name	U.S. service members identified	Date of test	Units/Ships involved	Test location(s)	Agent	Date of submission to VA
64-4, Shady Grove (ship-based)	223	Jan.-Apr. 1965	Army light tugs 2080, 2081, 2085, 2086, and 2087	Pacific Ocean, Eglin Air Force Base, FL	BG, OU, UL	Sept. 13, 2001
			Marine Aviation Group 13			
			USS *Granville S. Hall*			
65-4, Magic Sword (ship-based)	129	May 1965	Dugway Proving Ground	Baker Island, Pacific Ocean	Unaffected Aedes Aegypti (mosquitoes)	Oct. 9, 2002
			USS *George Eastman*			
65-6, Big Tom (ship-based)	236	May-June 1965	USS *Carbonero*, USS *Granville S. Hall*	Oahu, Hawaii, and surrounding waters and airspace	BG, FP	Oct. 9, 2002
			A-4, F-105, and an Aero Commander			
65-12, Devil Hole I	151	Summer 1965	Not identified	Ft. Greely, AK	GB, FP	Oct. 9, 2002
65-17, Fearless Johnny (ship-based)	261	Aug.-Sept.1965	USS *George Eastman*	Pacific Ocean	VX, diethylphthlate	May 23, 2002
			USS *Granville S. Hall*	(SW of Oahu, Hawaii)		
66-5, Purple Sage (ship-based)	310	Jan.-Feb. 1966	USS *Thomas*	Pacific Ocean (off coast of San Diego)	MAA	May 23, 2002
66-6, Scarlet Sage (ship-based)	356	Feb-Mar. 1966	USS *Thomas*	Pacific Ocean (off coast of San Diego)	BG	Jan. 31, 2002
65-11, Sun Down		Feb.-Apr. 1966	Not identified	Ft. Greely, AK	GB, MAA, Tiara	Oct. 9, 2002
64-8, Tall Timber	135	Apr.-June 1966	Not identified	SW of Hilo, Hawaii	BZ	Oct. 9, 2002
65-16, Pine Ridge	90	May-June 1966	Not identified	SW of Hilo, Hawaii	GB, BZ	Oct. 9, 2002
66-1, Devil Hole II	16	July-Sept. 1966	Not identified	Ft. Greely, AK	VX	Oct. 9, 2002

Test number and name	U.S. service members identified	Date of test	Units/Ships involved	Test location(s)	Agent	Date of submission to VA
66-12, Half Note (ship-based)	367	Aug.-Sept. 1966	Light tug 2085 USS *Barbonero*	Pacific Ocean (80 nautical mi. SSW of Oahu)	BG, E. coli, SM, FP, calcofluor	Oct. 9, 2002
			Light tug 2080			
			Light tug 2081			
			Light tug 2086			
			Light tug 2087			
			USS *George Eastman*			
			USS *Granville S. Hall*			
67-7, Red Cloud		Nov. 1966-Feb. 1967	Not identified	Ft. Greely, AK	BG, E. coli, SM, TT, ZZ	Oct. 9, 2002
66-10, Pin Point		1966	U.S. Army	Unknown	CS	Oct. 31, 2002
			U.S. Air Force			
			U.S. Marine Corps			
			DTC personnel			
68-52, Cliff Rose		Sept. 1967-Jan. 1968	U.S. Army U.S. Air Force	Ft. Stewart, Ga., and Panama Canal Zone	CS2	Dec. 9, 2002
			DTC personnel			
66-4, Green Mist	46	Mar.-Apr. 1967	Not identified	Island of Hawaii	GB, MAA	Oct. 9, 2002
67-2, Dew Point		June-July 1967	Not identified	Ft. Greely, AK	GB	Oct. 9, 2002
			U.S. Army DTC personnel			
68-13, Rapid Tan		July-Aug. 1967	Not identified	Porton Down, England (Phases I & III),	GA, GB, GD, VX	Oct. 9, 2002
		May-June 1968 Aug-Sept. 1968	DTC personnel	Ralston, Canada (Phase II)		
67-8, Watch Dog		Summer 1967	U.S. Army, DTC personnel	Near Ft. Greely, AK	BG, E. coli, SM, TT, ZZ	Oct. 9, 2002
66-2, Red Oak I	24	Apr.-May 1967	U.S. Army, DTC personnel	Island of Hawaii and the Panama Canal Zone	GB	Oct. 31, 2002
67-6, Blue Tango	30	Jan.-Feb. 1967	Not identified	Island of Hawaii	BG, SM, E. coli, FP	June 30, 2003

Test number and name	U.S. service members identified	Date of test	Units/Ships involved	Test location(s)	Agent	Date of submission to VA
68-71 Folded Arrow (ship-based)	252	Apr.-May 1968	USS *Carbonero*, USS *Granville S. Hall*	Oahu, Hawaii, and surrounding waters	BG	June 30, 03
69-31 (ship-based)	313	Aug.-Sept. 1968	USS *Herbert J. Thomas*	Pacific Ocean (off San Diego)	BG, MAA	Oct. 9, 2002
69-75		Oct.-Dec. 1968	F-4 aircraft (U.S. Air Force) and DTC personnel	Near Yeehaw Junction, Fla.	TX	Oct. 9, 2002
68-50, (68-11) Speckled Start (ship-based)	127	Sept.-Oct. 1968	USS *Granville S. Hall*	Eniwetok Atoll, Marshall Islands	BG, PG2, uranine dye	May 23, 2002
69-32 (ship-based)	150	Apr.-June 1969	USS *Granville S. Hall*	Pacific Ocean (SW of Hawaii)	BG, E. coli, SM, calcofluor	May 23, 2002
69-10 (ship-based)	786	May 1969	Landing Force Carib1-69/BLT 1/8, 2nd Marine Div., VMA-325, MAG-32, 2nd Marine Aircraft Wing, USS *Fort Snelling* (LSD-30)	Vieques Islands (near Puerto Rico)	TOF	Oct. 9, 2002
69-12		Spring 1969	DTC personnel	Edgewood Arsenal, Md.	GA, GB, GD, VX	Oct. 9, 2002
68-53		Apr.-Dec. 1969	Not identified	Dugway Proving Ground, Utah	CS2	Oct. 9, 2002
70-73		July-Dec. 1970	DTC personnel	Dugway Proving Ground, Utah	BG, FP	Oct. 9, 2002
70-11, Phase I, Subtest 3		June 1972-Nov. 1973	Not identified	Dugway Proving Ground, Utah	BG, FP	June 30, 2002
70-74		Aug. 1972-Jan. 1973	Not identified	Dugway Proving Ground, Utah	BG, SM	June 30, 2003
74-10, Phase I		Sept.-Oct. 1973	Not identified	Dugway Proving Ground, Utah	DMMP, BIS, trichloropropane	June 30, 2003
70-C (ship-based)		Oct. 1972, Feb.-Mar. 1973	USNS *Samuel Phillips Lee* (T-AGS 31), USNS *Silas Bent* (T-AGS 26)	Pacific Ocean (off San Diego) and Pacific Ocean (between San Diego and Panama Canal Zone)	Passive collection of naturally occurring particles in a marine environment	June 30, 2003
73-30		Jan.-Feb. 1973	Not identified	Dugway Proving Ground, Utah	BG, SM, P	June 30, 2003
70-11, Phase I, Subtest 4		May 1974	TA-4F Aircraft (U.S. Navy)	Dugway Proving Ground, Utah	BIS	June 30, 2002

Sources: DOD (data): GAO (analysis).

Legend:

BG = *Bacillus* globigii

BIS = (2 ethyl-hexyl) hydrogen phosphite

BZ = Ester of benzilic acid

CS/CS2 = Riot-Control Agent

DEHP= Di (2 ethyl-hexyl) phthalate

DMMP = Dimethylmethylphosphonate

E. coli = *Escherichia* coli

FP = Zinc Cadmium sulfide

GA = Tabun Nerve Agent

GB = Sarin Nerve Agent

GD = Soman Nerve Agent

MAA = Methylacetoacetate

OU = *Coxiella* burnetii

P = T-3 *coliphage* viruses

PG2 = *Staphylococcal* Enterotoxin, Type B

SM = *Serratia* marcescens

SO_2 = Sulfur Dioxide

Tiara = luminescent gelatinous material

TOF = trioctyl phosphate (tri [2 ethyl-hexyl] phosphate)

TT = *Francisella* tularensis (wet)

TX = *Puccinia* graminis tritici

UL = *Pasteurella* tularensis

VX = VX Nerve Agent (phosphonothioic acid)

ZZ = *Francisella* tularensis (dry)

Appendix III: Comments from the Department of Defense

OFFICE OF THE SECRETARY OF DEFENSE

1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

APR 30 2004

Mr. Raymond J. Decker
Director, Defense Capabilities and Management
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Decker,

This is the Department of Defense (DoD) response to the General Accounting Office (GAO) draft report, GAO-04-410, "CHEMICAL AND BIOLOGICIAL DEFENSE: DoD Needs to Continue to Collect and Provide Information on Tests and Potentially Exposed Personnel" dated April 1, 2004 (GAO Code 350313). DoD concurs with all three recommendations of the draft report and will implement them as indicated in the enclosure.

Sincerely,

for Dale Klein, Ph.D.
Assistant to the Secretary of Defense
(Nuclear, Chemical, and Biological
Defense Programs)

William Winkenwerder, Jr., MD
Assistant Secretary of Defense
(Health Affairs)

Enclosure
As stated

FEDERAL RECYCLING PROGRAM PRINTED ON RECYCLED PAPER

Note: Page numbers in the draft report may differ from those in this report.

"CHEMICAL AND BIOLOGICAL DEFENSE: DOD NEEDS TO CONTINUE TO COLLECT AND PROVIDE INFORMATION ON TESTS AND ON POTENTIALLY EXPOSED PERSONNEL"
Dated April 1, 2004
GENERAL ACCOUNTING OFFICE CODE 350313/GAO-04-410

DEPARTMENT OF DEFENSE COMMENTS TO THE RECOMMENDATIONS

RECOMMENDATION 1: The General Accounting Office (GAO) recommended that the Secretary of Defense direct the appropriate office(s) to determine the feasibility of addressing unresolved issues with Project 112, and the appropriateness of and responsibility for reporting new information, such as the identification of additional potentially exposed Service members, civilian employees, contractors, and foreign nationals who participated in the tests. (Page 25/Draft Report)

DoD RESPONSE: The Department of Defense (DoD) concurs with the recommendation. DoD appreciates GAO's recognition that "DoD has aggressively investigated the Project 112 test." The Deployment Health Support Directorate (DHSD) will continue its ongoing responsive efforts to resolve remaining issues with Project 112. DHSD will continue to report the identification of additional Service member participants to the Department of Veterans Affairs (VA). DHSD will coordinate within DoD to determine the appropriate reporting channels for civilian employee, contractor and foreign national participants.

RECOMMENDATION 2: The GAO recommended that the Secretary of Defense direct the appropriate office(s) to finalize and implement a plan for identifying DoD projects and tests conducted outside Project 112 that may have exposed Service members to chemical or biological agents, and ensure that the plan addresses the scope, reporting requirements, milestones, and responsibilities for those involved in completing this effort. (Page 25/Draft Report)

DoD RESPONSE: DoD concurs with the recommendation. The Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense (DATSD (CBD)) will finalize a plan to implement section 709(c) of the National Defense Authorization Act for Fiscal Year 2003, which calls on DoD to work with veterans and veterans service organizations to identify projects and tests conducted by facilities other than the Deseret Test Center that may have exposed Service members to chemical or biological agents. DATSD (CBD) will also be responsible for identifying those Service members who may have been exposed. The plan will be finalized and implementation begun by 30 September 2004.

RECOMMENDATION 3: The GAO recommended that the Secretary of Defense direct the appropriate office(s) to designate a single point of contact for providing information related to tests and potential exposures in and outside Project 112 to VA, individuals, and other interested parties, such as foreign governments, as appropriate. (Page 25/Draft Report)

DoD RESPONSE: DoD concurs with the recommendation. Building on its success as the single point of contact for information relating to Project 112, the DHSD will be the DoD single point of contact for coordinating communications to and from involved DoD components concerning efforts to provide relevant information on chemical and biological testing programs conducted since World War II.

Appendix IV: Comments from the Department of Veterans Affairs

Note: The enclosure to this letter provided technical comments, which we considered and incorporated in our report as appropriate.

THE UNDER SECRETARY OF VETERANS AFFAIRS FOR BENEFITS
WASHINGTON, D.C. 20420

APR 30 2004

Mr. Raymond J. Decker
Director
Defense Capabilities and Management
U.S. General Accounting Office
441 G Street NW
Washington, DC 20548

Dear Mr. Decker:

The Department of Veteran Affairs Veteran Benefits Administration (VBA) has reviewed draft report, *Chemical and Biological Defense: DOD Needs to Continue to Collect and Provide Information on Tests and on Potentially Exposed Personnel (GAO-04-410).* VBA concurs with the draft report.

The enclosure provides updated information and clarification for several sections of the report. Thank you for the opportunity to comment on your draft report.

Sincerely yours,

Daniel L. Cooper

Enclosure

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