



U.S. Department of Energy
Office of Inspector General
Office of Inspections and Special Inquiries

Inspection Report

Concerns Regarding a Non-Viable (Dead)
“Anthrax Spore” Research Project at the
Oak Ridge National Laboratory




Department of Energy
Washington, DC 20585

March 24, 2005

MEMORANDUM FOR THE SECRETARY

FROM:


Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Inspection Report on "Concerns Regarding a Non-Viable (Dead) 'Anthrax Spore' Research Project at the Oak Ridge National Laboratory"

BACKGROUND

The Office of Inspector General (OIG) completed a review of an allegation concerning a research project at the Department of Energy's (DOE) Oak Ridge National Laboratory involving non-viable (dead) *Bacillus anthracis* (anthrax) spores. It was alleged that a Guest Researcher used a specific laboratory and its equipment at Oak Ridge without authorization to conduct research on the anthrax spores. While not an immediate health hazard, dead anthrax spores can cause false positive results in biological detectors. A false positive finding, especially in the current environment, could cause public distress and unnecessary deployment of emergency response resources. Therefore, the objectives of our inspection were to determine if: (1) the Guest Researcher was authorized to use the specific laboratory; and, (2) the anthrax spores were appropriately controlled and secured.

RESULTS OF INSPECTION

We found that the Guest Researcher was not authorized to work on the specific anthrax spore project, and was not authorized to conduct the project in the specific laboratory in question. We also found that security reviews required to fully implement DOE's Integrated Safeguards and Security Management (ISSM) initiative at the Oak Ridge National Laboratory were not conducted for the anthrax spore project and certain other biological projects. Further, we found that the anthrax spores were not adequately controlled and secured.

We also made the following observations:

- Key Laboratory personnel typically involved with biological agent projects were not aware of the anthrax spore project. They opined that the anthrax spores should have been inventoried, controlled, and secured in locked storage when not in use; and,
- The Laboratory had a Fiscal Year 2003 performance measure to demonstrate that the ISSM initiative was effectively implemented within the workplace; however, an ISSM security review was not effectively integrated into the anthrax spore project and certain other biological projects.



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We recommended actions for management to improve the security of research projects involving biological materials.

MANAGEMENT REACTION

In responding to a draft of this report, management concurred with our recommendations and provided an implementation plan with target dates for completion of corrective actions. However, in their general comments, management opined that the materials discussed in the draft report were not representative of a violation of any established security requirement. In addition, although not a concern identified in our report, management also provided information to support that the Guest Researcher was authorized to perform work at the Oak Ridge National Laboratory. Further, management commented on certain aspects of the administrative process followed by the OIG while conducting this review.

In general, management's comments were responsive to our findings and recommendations. We disagree with management's comment that the anthrax spore project was not representative of a violation of any established security requirement. As discussed in our report, we found that the Laboratory's security process under the ISSM initiative was deficient, and there was no documentation to establish that any security reviews of the dead anthrax spore project had been conducted by the Laboratory. We note that management concurred with our recommendation that the Laboratory, in accordance with its ISSM implementation plan, conduct ISSM security reviews on all biological projects, including those not regulated by the Centers for Disease Control and Prevention, and stated that the Laboratory will strengthen its security review of all projects.

Also, we do not find management's comment regarding the authority of the Guest Researcher to work at Oak Ridge National Laboratory to be relevant. The focus of our review was to determine whether the Guest Researcher was authorized to work in a specific laboratory and on the anthrax spore project in question, recognizing that his presence at the Oak Ridge National Laboratory was appropriate. Further, with respect to management's comments concerning the inspection process, this was, as noted previously, an allegation-based review and we followed appropriate policy directives in pursuing this matter.

Management's comments are provided in Appendix B of the report.

Attachment

cc: Deputy Secretary
Administrator, National Nuclear Security Administration
Under Secretary for Energy, Science and Environment
Assistant Secretary for Environment, Safety and Health
Director, Office of Science
Director, Office of Security and Performance Assurance
Manager, Oak Ridge Operations Office
Director, Office of Program Liaison and Financial Analysis (ME-100)
Liaison, Office of Science (SC-67)
Liaison, Oak Ridge Operations Office

CONCERNS REGARDING A NON-VIABLE (DEAD) “ANTHRAX SPORE” RESEARCH PROJECT AT THE OAK RIDGE NATIONAL LABORATORY

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Overview

INTRODUCTION AND OBJECTIVE

The Office of Inspector General (OIG) received an anonymous complaint involving an “anthrax” (*Bacillus anthracis*, Ames strain) spore research project at the Department of Energy’s (DOE) Oak Ridge National Laboratory (ORNL). Specifically, it was alleged that:

- A former ORNL employee who returned to ORNL as a Guest Researcher used a specific laboratory and its equipment without authorization to conduct research on anthrax spores; and,
- The research with anthrax spores created a safety concern because the Guest Researcher used the same equipment as other laboratory workers.

Viable (live) anthrax spores are biological pathogens that could be used as a weapon of mass destruction. In 2001, anthrax spores were disseminated through the United States postal system and caused illness, death, and the costly shutdown and clean-up of Federal and public buildings. Given the potential worker safety and health concerns, we notified DOE’s Office of Science (OS), which is the responsible program office, of the allegations. OS subsequently advised us that the anthrax spores were non-viable or “dead” spores and did not pose a safety hazard.

OS did not address, however, whether the Guest Researcher was authorized to use the specific laboratory and its equipment. Additionally, the OIG had concerns that while not a safety hazard, dead anthrax spores can cause false positive results in biological detectors. A false positive result could cause public panic and unnecessary deployment of emergency response resources.

The objectives of our inspection were to determine if:

- The Guest Researcher was authorized to use the specific laboratory at ORNL to conduct the anthrax spore research; and,
- The anthrax spores were appropriately controlled and secured.

Additionally, pursuant to the Government Performance and Results Act of 1993 (GPRA), we reviewed relevant performance measurement processes applicable to the UT-Battelle contract for managing and operating ORNL.

**OBSERVATIONS
AND CONCLUSIONS**

We found that the Guest Researcher was not authorized to work on the anthrax spore project and was not authorized to work in the specific laboratory at ORNL. We also found that, for the anthrax spore project and certain other biological projects, ORNL did not follow its Integrated Safeguards and Security Management (ISSM) initiative requirement to review all projects to identify and analyze safeguards and security risks/threats (security reviews). Further, we found that the anthrax spores were not adequately controlled and secured.

We also made the following observations:

- Key ORNL personnel typically involved with biological agent projects were not aware of the anthrax spore project, and opined that the anthrax spores should have been inventoried, controlled, and secured in locked storage when not in use. Reviews of this and similar biological projects by key ORNL officials could help ensure that safety and security are adequately considered; and,
- Although ORNL had a Fiscal Year (FY) 2003 performance measure to demonstrate that the DOE ISSM initiative was effectively implemented within the ORNL workplace, an ISSM security review was not effectively integrated into the anthrax spore project and certain other biological projects.

Details of Findings

BACKGROUND

According to shipping records, 20 vials of dead anthrax spores were shipped to ORNL on May 6, 2003. An ORNL Principal Investigator initially received the vials and provided them to the Guest Researcher. There was no requirement to log-in the vials or track them for purposes of accountability and control and this was not done. Also, the Guest Researcher did not securely store the vials. For example, after normal working hours, some vials were routinely left on a countertop in the research laboratory. In addition, the Guest Researcher left other vials in an unlocked refrigerator in another laboratory where research on the spores was not being performed.

Following notification by the OIG of the allegations, ORNL moved four of the 20 vials of dead anthrax spores to their Chem-Bio Facility, a Biosafety Level-2 (BSL-2) facility, where the four vials were logged-in and securely stored. However, during interviews with the Principal Investigator for the anthrax project and the manager assigned to secure the vials and conduct an internal investigation, it was apparent to us that neither individual was aware of the additional 16 vials of dead anthrax spores. The Guest Researcher, who was on vacation when the four vials were moved, subsequently retrieved the four vials and took them back to his laboratory. The Guest Researcher's retrieval of the four vials and the location of the remaining 16 vials were not documented. Except for the receipt of the four vials in the BSL-2 laboratory, there were no physical or electronic records that identified and tracked the anthrax spore vials, and no records that indicated how much of the spores had been consumed during experimentation. However, based upon the Guest Researcher's memory, all the vials were eventually located during our site visit.

AUTHORIZATION

We found that the Guest Researcher was not authorized to work on the anthrax spore project, and was not authorized to work in the specific laboratory at ORNL.

As part of its project authorization process, ORNL requires the preparation of a "Research Safety Summary," which identifies the researchers authorized to participate on a project and the specific laboratory where the research must be conducted. The document also identifies any hazards associated with the project and the specified laboratory.

The initial Research Safety Summary for the anthrax spore project was reviewed by an ORNL safety group, and authorized by a

division supervisor. The document named the researchers who were authorized to work on the project and the specific laboratory where the research was authorized to be conducted. We determined that the document did not name the Guest Researcher or the specific laboratory in question that he used to conduct some of his research.

Following our initial notification of the allegations, ORNL modified the initial Research Safety Summary to add the Guest Researcher as an authorized participant in the anthrax spore project. However, the document was not modified to include the specific laboratory in question where the Guest Researcher had conducted some of his research.

Also, following our initial notification of the allegations, ORNL took action in accordance with its Laboratory Space Management Program to determine if there were other Guest Researchers who were not authorized under an appropriate Research Safety Summary. ORNL later advised us that they had identified 56 other researchers, including Guest Researchers, who were not authorized under a Research Safety Summary to work on specific projects. ORNL initiated action and added these individuals to Research Safety Summaries. In our view, the failure to not accurately identify individuals authorized to work on laboratory research projects is a significant security concern. Therefore, we believe that ORNL should continue its current efforts to strengthen its Laboratory Management Program to assure that researchers at ORNL are authorized to conduct assigned projects.

SECURITY ISSUES

We found that security reviews required to fully implement ISSM at ORNL were not conducted for the anthrax spore project, or for certain other biological projects. We believe that the lack of security reviews, along with the lack of appropriate accountability and control of dead forms of biological materials, such as dead anthrax spores, could allow unauthorized access to and possible theft of these sensitive materials.

DOE Policy 470.1, “Integrated Safeguards and Security Management (ISSM) Policy,” requires the use of an ISSM framework to systematically integrate safeguards and security into management and work practices at all levels so that missions are accomplished securely. OS, which oversees the Oak Ridge Operations Office, including ORNL, has adopted DOE’s ISSM policy. The OS policy document implementing ISSM states that the purpose is “to ensure appropriate levels of protection against:

unauthorized access, theft, diversion, loss of custody or destruction of...[DOE]...assets and hostile acts that may cause adverse impacts on fundamental science, national security or the health and safety of DOE and contractor employees.”

The ORNL document implementing ISSM lists five “Core Functions” that are fundamental actions required to effectively implement ISSM. One ISSM Core Function requires ORNL to identify and analyze the safeguards and security risks/threats associated with the work. The term “work” refers to any and all ORNL activities undertaken by members of the ORNL workforce, whether an employee, contractor, or guest assignee. Line managers must ensure that security is integrated into all on-going and future work activities, while first level managers are required to identify potential security issues or concerns and establish controls to eliminate shortfalls and remove any security vulnerabilities. Therefore, ORNL’s implementation of ISSM required a review of the anthrax spore project for security issues or concerns.

An ORNL official said that the Principal Investigator indicated on the Research Safety Summary computerized checklist that there were no “safeguards and security considerations (e.g., controlled nuclear materials, nuclear non-proliferation, and precious metals)” involved with the research project. The ORNL official advised that, based upon this answer, the security portion of the Research Safety Summary checklist was completed. The ORNL official also said that there is no record of the Principal Investigator’s determination because the security question data entry field “disappears” when a negative answer to this question is provided.

If the Principal Investigator answered “Yes” to the security question, he would have been directed to an ISSM checklist that does not require controls for biological projects unregulated by CDC, such as the anthrax spore project. Accordingly, we do not believe that the Research Safety Summary process effectively integrates ORNL’s ISSM Core Function requirement for security reviews into biological projects not regulated by CDC.

We were also told that during an FY 2003 revision of the anthrax spore project Research Safety Summary, the project manager responsible for the anthrax spore project determined that since the project revision would not be introducing any new security interests or threats to the laboratory, an ISSM security review was not required. However, there is no documentation that such a determination regarding the revision was ever made.

Following our on-site inspection, ORNL officials advised us that they plan to develop and implement procedures to log-in and track “dead” forms of select agents by September 30, 2004, even though these agents are not regulated by CDC and no specific regulatory guidelines exist. We believe these actions would improve the accountability and control of the anthrax spore project. We contacted ORNL on March 8, 2005, to determine if the procedures had been implemented. We were advised that ORNL had not yet implemented the procedures.

OBSERVATIONS

We observed that, at the time of our field work, key ORNL personnel typically involved with biological projects were not aware of the anthrax spore project. We also observed that, although ORNL had an FY 2003 performance measure to demonstrate that the DOE ISSM initiative was effectively implemented within the ORNL workplace, ISSM security reviews were not conducted for the anthrax spore project or for other biological projects that were not regulated by the CDC.

Key Personnel

Key personnel such as the Institutional Biosafety Committee Chairman, who was responsible for reviewing all select agent projects, the primary Subject Matter Expert for biological select agents, and the Biosafety Officer, who was responsible for oversight of all biological projects, were not aware of the anthrax spore project. We noted that ORNL lacked procedures concerning the participation of these individuals in project reviews of biological agent materials that are not regulated by CDC, such as the dead anthrax spores.

Each of the three key ORNL personnel advised us that even though projects such as the anthrax spore project, which was not regulated by CDC, did not require their involvement, it was their expectation that they would have been notified of the project for their advice and input. They also agreed that as a best practice, the anthrax spores should be inventoried, controlled, and secured in locked storage when not in use. The individuals acknowledged that if dead anthrax spores were placed in public facilities, biological detectors could potentially trigger a false positive, resulting in a costly emergency response, evacuation, and panic. We believe there would be a benefit to notify these key personnel of projects such as the dead anthrax spore project to allow them an opportunity to provide their input to ensure that safety and security issues are adequately considered. Providing notification to these individuals could further enhance an ORNL ISSM Core Function requirement to “provide feedback on adequacy of controls and continually improve safeguards and security management.”

Performance Measures

Although ORNL had an FY 2003 performance measure to demonstrate that the DOE ISSM initiative was effectively implemented within the ORNL workplace, an ISSM security review was not effectively integrated into the anthrax spore project and certain other biological projects. ORNL, in accordance with the ORNL ISSM Core Function regarding the requirement to identify and analyze the safeguards and security risks/threats associated with the work, is required to conduct an ISSM security review regarding the anthrax spore project. We further identified a category of biological projects (those biological projects that do not fall under current regulatory control of CDC) that would also not be subject to a security review if ORNL followed its Research Safety Summary project initiation process, which was intended to integrate ISSM security reviews.

We note that for FY 2004 and FY 2005, UT-Battelle did not have an ISSM performance measure. Based on our observations, we believe that a performance measure for ISSM could enhance the ORNL ISSM process.

RECOMMENDATIONS

We recommend that the Manager, Oak Ridge Operations Office:

1. Ensure that ORNL continues efforts to strengthen its Laboratory Space Management Program to assure that only authorized researchers are conducting work at ORNL, and that the researchers comply with applicable laboratory policies and procedures;
2. Ensure that ORNL, in accordance with the ORNL ISSM Core Function regarding the requirement to identify and analyze the safeguards and security risks/threats, conducts ISSM security reviews on all biological projects, including biological projects not regulated by CDC;
3. Ensure that ORNL, in accordance with the ORNL ISSM Core Function regarding feedback and continued safeguards and security improvement, consider notifying key ORNL personnel typically involved with biological projects of new and modified biological projects, including projects that are not regulated by CDC, to allow them an opportunity to provide input; and,
4. Determine whether a contract modification, such as an ISSM performance measure, should be included in the next revision of the UT-Battelle contract.

**MANAGEMENT
COMMENTS**

In comments to our draft report, management concurred with our recommendations and indicated corrective actions are being taken to address our concerns. Management commented that the recommendations will aid ORNL's efforts for continuous improvement in the cited areas of work control, security analysis, and feedback.

Management also provided several general comments. Management opined that in no way were the materials discussed in the draft report representative of a violation of any established security requirement. Also, while management agreed that the Guest Researcher was not authorized to work in the laboratory room that was the focus of the allegation, management provided information to counter a comment that the Guest Researcher was not authorized to perform work at ORNL. Further, management did not believe the OIG review adhered to the process in DOE Order 221.3, "Establishment of Management Decisions on Office of Inspector General Reports."

Management also included, as an attachment, comments and documentation by ORNL. In summary, ORNL commented that the report does not recognize the security review embedded in the ORNL work control process, which requires the Principal Investigator to review all projects for the security impact, and that a security review was performed for this dead anthrax project and other projects. However, ORNL acknowledged that security reviews should be more rigorous and better documented. Although ORNL acknowledged that the Guest Researcher was not authorized to work in the laboratory in question, ORNL provided extensive documentation that it believed showed that the Guest Researcher was authorized at the time of the allegation to perform this same research in another laboratory room.

Management's comments, without the attachment provided by ORNL, are provided in their entirety in Appendix B.

**INSPECTOR
COMMENTS**

We found the corrective actions cited by management were generally responsive to our recommendations. As appropriate, we made changes to our report to address management's comments.

We acknowledge that neither CDC nor ORNL had requirements regarding the controls that should be implemented for the dead anthrax spores. However, we disagree with management's comment that the anthrax spore project was not representative of a violation of any established security requirement. As discussed

in our report, we found that ORNL's security process under the ISSM initiative did not address the anthrax spore project or certain other biological projects. We also found that there was no documentation to establish that any security reviews of the dead anthrax spore project had been conducted by ORNL. We note that management concurred with our recommendation that ORNL, in accordance with its ISSM implementation plan, conduct ISSM security reviews on all biological projects, including those not regulated by CDC, and stated that ORNL will strengthen its security review of all projects.

Also, we do not find management's comment regarding the authority of the Guest Researcher to work at ORNL to be relevant. The focus of our review was to determine whether the Guest Researcher was authorized to work in a specific laboratory and on the anthrax spore project in question, recognizing that his presence at ORNL was appropriate. Although the documentation provided by ORNL showed that the Guest Researcher was authorized to work on an anthrax spore project, it did not show the researcher was authorized to work on the specific project in question.

Further, we disagree with management's comments concerning adherence by the OIG inspection to the DOE Order 221.3 process. As noted previously, this was an allegation-based review and we followed appropriate policy directives in pursuing this matter.

Appendix A

SCOPE AND METHODOLOGY

The majority of the field work for this review was completed in September 2004. Our review included interviews with officials in the DOE ORNL Site Office and at ORNL UT-Battelle. We reviewed ORNL policies and procedures, as well as applicable DOE regulations. This inspection was conducted in accordance with the “Quality Standards for Inspections” issued by the President’s Council on Integrity and Efficiency.

Appendix B

DOE F 1325 8
(3/02)

United States Government

Department of Energy
Oak Ridge Operations Office

memorandum

DATE: February 14, 2005

REPLY TO
ATTN OF: LM-10:Moore

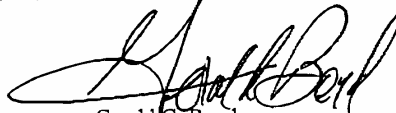
SUBJECT: **MANAGEMENT RESPONSE TO INSPECTOR GENERAL DRAFT REPORT "CONCERNS REGARDING A NON-VIABLE (DEAD) 'ANTHRAX SPORE' RESEARCH PROJECT AT OAK RIDGE NATIONAL LABORATORY"**

TO: Alfred K. Walter, Assistant Inspector General for Inspections and Special Inquiries,
IG-40, HQ/FORS

Attached are the Oak Ridge Operations Office comments on the Office Inspector General (OIG) subject draft inspection report.

In response to the factual accuracy verification, the Department of Energy Oak Ridge Operations (DOE-ORO) appreciates the changes made to the original draft report. The following is DOE-ORO's management response to the February 3, 2005, draft report.

If there are any questions or additional information is required, please contact Judy Penry, ORO Chief Financial Officer, at (865) 576-4446, or Jeanette Miller, ORO Audit Liaison, at (865) 576-2654.



Gerald G. Boyd
Manager

Attachments

cc w/attachments:
R.L. Orbach, SC-1, FORS
J. D. Newell, ME-100, HQ/FORS
G. S. Podonsky, SP-1, HQ/GTN
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R. J. Brown, M-3, ORO
G. J. Malosh, M-2, ORO

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OAK RIDGE COMMENTS
IG DRAFT INSPECTION REPORT
“CONCERNS REGARDING A NON-VIABLE (DEAD) ‘ANTHRAX SPORE’
RESEARCH PROJECT AT OAK RIDGE NATIONAL LABORATORY”

General Comments:

As stated in the draft report, non-viable anthrax spores are not regulated by the Centers for Disease Control and Prevention and are specifically excluded from the regulatory requirements, 42 CFR 73.5(f), including material and facility registration and inventory controls, Institutional Biosafety Committee reviews and approvals, and material/facility access logs. It is our opinion that in no way were the materials discussed in this draft report a safety concern or representative of a violation of any established security requirement. The recommendations noted in the draft will aid our efforts for continuous improvement in the cited areas of work control, security analysis, and feedback.

Although we offer no significant comments on the draft report, the attached UT-Battelle letter (Attachment II) provides further clarification/amplification and corrective actions. Additional information is also provided which counters the comment that the guest researcher was not authorized to perform work at the Oak Ridge National Laboratory. We agree, however, he was not authorized to perform work in the laboratory room where the Inspector General (IG) hotline complaint originated.

We would like to reflect on the process under which this review was conducted. During July 2003, an IG hotline call regarding use of this dead/non-viable anthrax protein material was investigated by DOE-ORO and UT-Battelle personnel and communicated to IG-Headquarters. All safety concerns related to the use of non-viable anthrax were dismissed. During December 2003, a follow-up to the IG-0492 inspection of DOE activities involving biological agents was initiated and Oak Ridge was one of three sites visited. The IG hotline call information was reviewed again as part of this follow-on review. It should be noted that no further feedback was received on that specific follow-on review until we received the subject draft report in late December 2004, almost one and one-half years after the original evaluation. The scope of the December 2004 report appears to be distinctly different from the scope of the follow-on inspection or the hotline investigation. A new scope should be required to follow the process as denoted under Section 5.b. of DOE Order O 221.3.

In addition, we also find there were several instances in which the communication chain for this review did not follow proper protocol as noted in DOE O 221.3. For example, the IG requested information directly from the UT-Battelle contractor staff without communicating with DOE. The contractor staff communicated to the IG without either formal request from the IG or DOE's involvement. When the December 2004 draft report was received, it was provided directly to UT-Battelle without being properly

addressed to my office. These communication gaps amplified both confusion and control of information very pertinent to proper inspection conduct. In the future, we would respectfully request the IG follow well-established protocols that have stood the test of time in ensuring accurate, complete, and thorough information is gathered and reported. Overall, DOE-ORO and UT-Battelle concur with the IG recommendations and the following actions we believe are commensurate with the concerns expressed by the IG:

Recommendations: That the Manager, Oak Ridge Operations Office:

1. **Ensure that ORNL continues efforts to strengthen its Laboratory Space Management Program to assure that only authorized researchers are conducting work at ORNL on assigned projects, and that the researchers comply with applicable laboratory policies and procedures.** Response: Concur. UT-Battelle will continue to work to strengthen the Laboratory Space Manager program to assure that only authorized researchers are conducting work and the researchers are complying with applicable Laboratory policies and procedures. This activity will include using lessons learned from this event in its Laboratory Space Managers annual training. Expected completion date: March 31, 2005.
2. **Ensure that ORNL, in accordance with the ORNL ISSM Core Function regarding the requirement to identify and analyze the safeguards and security risks/threats, conducts ISSM security reviews on all biological projects, including biological projects not regulated by CDC.** Response: Concur. UT-Battelle will strengthen its security review of all projects through a modification of its work control process. An example result of this modification would be an automatic notification to the UT-Battelle Laboratory Protection Division and the UT-Battelle Institutional Biosafety Committee when select agents (dead or alive) are to be used in research work. Expected completion date: August 31, 2005
3. **Ensure that ORNL, in accordance with the ORNL ISSM Core Function regarding feedback and continued safeguards and security improvement, consider notifying key ORNL personnel typically involved with biological projects of new and modified biological projects, including ones that are not regulated by CDC, to allow them an opportunity to provide input.** Response: Concur. The results of the action of number 2 above will notify the appropriate personnel and allow them an opportunity to provide input as recommended by the IG. Expected completion date: August 31, 2005.
4. **Determine whether a contract modification, such as an ISSM performance measure, should be included in the next revision of the UT-Battelle contract.** Response: Concur. The UT-Battelle contract is currently under revision as a result of the contract extension. The DOE will determine the appropriate mechanism to incorporate the requirements of the ISSM policy as part of this process. Expected completion date: May 31, 2005.

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